

B. 1902. A

JOURNAL

OF THE

CEYLON BRANCH

OF THE

ROYAL ASIATIC SOCIETY.

1874.

PART I.



EDITED BY

THE HONORARY SECRETARY.

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AGENTS IN LONDON:

MESSRS. TRÜBNER & Co., 57 & 59, LUDGATE HILL.

AGENTS IN CALCUTTA:

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COLOMBO:

W. HENRY HERBERT, GOVERNMENT PRINTER, CEYLON.

MDCCCLXXIV.

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JOURNAL
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DESCRIPTION OF A SUPPOSED NEW GENUS OF
CEYLON BATRACHIANS.

BY W. FERGUSON, F.L.S.

.....

TRACHUCEPHALUS.

Fingers and toes tapering, very slightly webbed. Lower jaw with marked, but not prominent apophyses, with a small fang-like process in the centre; the internal openings of the nostrils and eustachian tubes small; tympanum small, but conspicuous. Small parotoids present? The transverse processes of the sacral region dilated. (Maxillary and Vomerine teeth present.) Vomer with two separate toothed prominences. A toothed prominence on each side between the choanæ and the jaw. The upper eyelid well developed, but not prominent. A cutaneous fold between the fore and hind limbs.

TRACHUCEPHALUS CEYLANICUS.

Head very broad, much depressed, and very short in proportion to its breadth, the upper lip having a marked rim all along it, forming nearly a section of a circle, somewhat convex in front; the whole of the upper part of the

head including the eyelids and the tympanic region, covered with small, irregular, granular tubercles. Snout considerably pointed, with its extremity prominent and perpendicularly truncated, and very slightly overreaching the cleft of the mouth. Canthus rostralis obtuse, loreal region concave, with a smooth groove running through it from the lower part of the orbit to the nostril. Occiput deeply concave. Nostril slightly below the extreme end of the canthus rostralis and the snout. Eye of moderate size, prominent, but concealed from above by the eyelid. Tympanum distinct, one half as large as the eye. A linear fold runs from the hinder edge of the orbit over the tympanum towards the armpit. Cleft of the mouth twice as broad as long; tongue not large, broadly but not deeply notched behind, attached to the gullet nearly its whole length. There is a toothed prominence on each side of the vomer, a little lower than the openings of the nostrils, and running in a straight line across the jaw. Vomerine teeth on long ridges gradually rising from the inner angle of the choanæ, running back and convergent behind, terminating in toothed prominences. Skin of the back, belly, throat, legs and inside of fore limbs smooth. The whole of the upper part of the head including the eyelids, the front of the fore limbs, and a remarkable cutaneous expansion on the side of the trunk between the fore and hind limbs covered with granular-like tubercles, with a few smaller ones on the tympanum. The smooth portion of the skin of the back is separated from the rough head by a somewhat elevated ridge, caused by a depression of the head, and running in a line across just behind the orbits, and continued into the linear fold behind the tympanum, a good deal like that in the adult *Rana Kuhlîi*, figured by Dr. Günther, Indian Reptiles t. xxvi. fig. A. Limbs of moderate length, the length of the body two-tenths of an inch longer than the distance of

vent from heel. The third finger is about one-tenth of an inch longer than the fourth, which is slightly longer than the second. These three fingers form a palmated group in advance of the first, and are very slightly webbed. First finger about half the length of the third. Metatarsus with a small tubercle below the first toe. The fourth toe (including the metatarsus) is exactly one half the length of the body. The third toe is slightly longer than the fifth. A very short web between the first, second, third, and fourth toes only. The fifth appears to be quite free.

Upper parts (in spirits) dark brown with lighter coloured spots; outer parts of hind and fore limbs clouded with brown; inner sides, and the cutaneous expansion coloured dark grey, with small brown spots; belly dark livid colour; throat suffused with brown.

The following are the dimensions of the only specimen in my possession:—length of body 1·8; vent to heel 1·6; hind limbs 2·8; fourth toe (including the metatarsus) 0·9 inches.

I do not know any frog with which to compare this one in its general appearance and character; it is one of a few set aside from my collection by Major Beddome, when on a visit to Colombo lately, and pronounced by that gentleman to be new to science, and which, from a feeling of delicacy he declined to accept from me. In searching for its place in the synoptical list of the characters of the genera of Batrachians given in page 400 of Günther's work on Indian Reptiles, I felt that it could scarcely be removed from the first division, *b*, of the group of Ground Frogs, and it seemed most closely allied to the genus *Xenophrys*, of which one species *X. monticola*, is described and figured by Günther in the work referred to, p. 414, and plate xxvi, figure H.

In the generic and specific descriptions which I have given for this supposed new Ceylon frog, I have followed the exact order of Dr. Günther's description of the Indian frog above referred to, to facilitate comparisons between the two.

The generic descriptions of *Xenophrys* and *Trachucephalus* (rough head,) are in many respects so similar that it is not unlikely the former may be so amended as to include the Ceylon Frog, but the very distinct aspects of the two, and some remarkable differences more fully given in the specific description, have induced me to include our Ceylon frog in a new genus with a name indicating its singular *rough head*.

In page 85 of the Proceedings of the Asiatic Society of Bengal, for March 1870, the late Dr. Jerdon in the following extract from his "Notes on Indian Herpetology," has shewn that vomerine teeth are present in the genus *Xenophrys*:—"I obtained numerous specimens of *Xenophrys monticola*, Günther, both at Darjeeling and the Khasi hills. It has distinct vomerine teeth which Günther was unable to detect in the specimens of the British Museum. I also obtained five specimens of a larger species of *Xenophrys* both in Sikim and the Khasi hills, which I propose describing as *Xenophrys gigas*."

It is very likely that if these specimens of the undescribed species referred to, exist, it may be found that they have peculiarities of structure connecting them with *Xenophrys monticola*, Günther and our Ceylon frog.

I regret to say that I have only one specimen of this supposed new frog, and that I am not certain as to where it was found, though I believe I caught it on the sides of a stream near Hewisse in the southern portion of the Western Province, and famous as one of Mr. Thwaites's best botanical districts. I regret also to state that like many of the earlier frogs caught by me, this one was put into strong

spirits, which have shrivelled it up to a certain extent. It is very thin and flat in proportion to its size, and I doubt not that, like species of *Hylorana*, it is a powerful leaper. In the specific description given, I have tried not to omit a single character which might assist in the identification of this frog.

The interdigital membrane connecting the first, second, third, and fourth toes, is just perceptible, but I have no doubt that in newly caught specimens it will be found quite distinct.

I have marked the presence of *Parotoids* with a query thus (?)—because I am not certain whether the slight enlargements behind the orbits are parotoids or not.

Writing about *Rana Kuhlii*, Schl. of Ceylon, W. Theobald, junr., Esq., in his catalogue of Reptiles in the Museum of the Asiatic Society of Bengal, makes the following very appropriate remarks, which are equally applicable to all the Indian and Ceylon Batrachians, and the Geckotidæ.

“There are no reptiles in India in such a confused state as the *Ranidæ*, and I can add but little towards disentangling the shadowy species, real enough perhaps, but not as yet characterised. The series in the Museum is a very poor one, and the *Ranidæ* from all parts of India must be assiduously collected, before sound results can be obtained. Let us hope that an urgent appeal for frogs from all parts of India [and Ceylon, W. F.] will be liberally responded to by local naturalists and collectors, without which aid the subject must long remain in its present unsatisfactory state. Each contributor should not send merely the most conspicuous frogs from his neighbourhood, but all the species and varieties he can procure.”

As an illustration of the liability to add to, and perpetuate the confusion connected with some of the frogs and other reptiles, I may refer to a rare Ceylon frog found first on Adam's Peak, several years ago by Dr. Schmarda,

Professor of Zoology in the University of Prague. On a fly sheet after page 21 of the second part of Dr. Kelaart's Prodrömus of the Faunæ of Ceylon, published in 1853, this frog is very briefly described by the late Dr. Kelaart under the following name, "*Polypedates* (?) *Schmarda. n. s. nobis.*" The "*Schmarda*" being no doubt a slip of the pen for "*Schmardana*," under which latter name, and under the genus *Ixalus*, Günther refers to this, then doubtful frog, in his Indian Reptiles, p. 433. Theobald in his Catalogue referred to, p. 85; gives this frog as follows:—

"*Polypedates Smaragdinus*, Kelaart, Ceylon. Eye bones armed with spines. Limbs studded with tubercular sharp pointed spines. A very peculiar species, and probably a distinct generic form."

Jerdon in the paper referred to, pp. 83-84, and Anderson in his list of accessions to the collection of reptiles in the Indian Museum, since 1865, refer distinctly to an Indian frog described by Blyth in foot-note to p. 48 of Appendix to Kelaart's Pro. Faun. Zeyl, as the *Polypedates Smaragdinus*, found on the Khasi hills. The specific name here means *Emerald Green*, and Mr. Theobald's *P. Smaragdinus*, ought to have been *P. Schmardana*. On page 85 of the Annals and Magazine of Natural History for January, 1872, containing "descriptions of some Ceylonese Reptiles and Batrachians by Dr. Günther, this frog is finally and I suppose properly named, though not yet described, as *Ixalus Schmardanus*," (Kelaart.)

[Read 5th February, 1873.]

NOTE ON THE IDENTITY OF PIYADASI AND ASOKA.

BY MUDALIYÁR LOUIS DE ZOYSA, CHIEF TRANSLATOR
TO GOVERNMENT.

When James Prinsep discovered the lost alphabet of ancient India, and read the rock inscriptions at Delhi, Girnar, Cuttack and Affghanistan, which had baffled the attempts of all previous Orientalists and others to decipher, he found that they were written in the Páli language, and were edicts issued by a king whose name was "Devánampiya Piyadasi Rája," "Piyadasi, the beloved of the gods;" but he was unable to find the name of such a sovereign in any Indian history, or record. He however lost no time in communicating his wonderful discovery to his friend and fellow-labourer in Ceylon, the late Honourable George Turnour, who at once identified the sovereign as "Asoka" or "Dharmásoka," the great Buddhist Emperor of India, under whose auspices Buddhist Missionaries were sent to Ceylon and various other countries in Asia, and in support of his statement, quoted a passage from the *Dípa Vansó*, an ancient history of Ceylon. Mr. Prinsep in acknowledging the service thus rendered to him by Mr. Turnour, wrote as follows:—"The first correction in point of importance, comes, as usual, from Ceylon, the very Lanka (to apply its own fabulous prerogative metaphorically,) the very first meridian whence the true longitude of all ancient Indian history seems destined to be calculated!" And again, "Mr. Turnour has thus most satisfactorily cleared up a difficulty that might long have proved a stumbling-block to

the learned against the reception of the lāt inscriptions as genuine monuments of a fixed and defined period, the most ancient yet achieved in such an unequivocal form.”—(*Bengal Asiatic Society’s Journal for September, 1837.*)

In 1849 however, after the death both of Prinsep and Turnour, the late Professor H. H. Wilson, the great Sanskrit scholar, read before the Royal Asiatic Society of Great Britain and Ireland, an elaborate paper, extending over 100 pages, giving a proposed re-translation of Prinsep’s edicts, together with the translation of one, then recently discovered at Kapurdigiri in Affghanistan. In this paper, the learned Professor while admitting the probability of these edicts being issued by a Buddhist king, and for the purpose of disseminating Buddhism, contended that the evidence on which these opinions were expressed by Mr. Prinsep, was not “conclusive,” and that the identification of “Piyadasi” with the Buddhist emperor Asoka, rested on an isolated passage quoted by Mr. Turnour from the *Dīpa Vansó* of Ceylon.*

Mr. Edward Thomas, the learned Editor of “Prinsep’s Indian Antiquities,” says,—“that in a subsequent article on the Bhabra Inscription, the Professor frankly admits that “although the text is not without its difficulties, yet there is enough sufficiently indisputable to establish the fact, that Priyadasi, whoever he may have been, was a follower of Buddha.” Mr. Thomas adds, “Our leading Orientalist, it will be seen, still hesitates, therefore to admit the identity of Priyadasi and Asoka. With all possible deference to so

* The doubts raised by Professor Wilson on the identity of Piyadasi, and Asoka, have induced Dr. R. G. Latham to read before the Royal Asiatic Society an elaborate paper entitled “Date and Personality of Priyadasi,” in which he proposes to identify Piyadasi, with Phraates, king of Parthia!

high an authority, I am bound to avow that I see no difficulty whatever in the concession. We may stop short of absolute and definite proof, that Asoka enunciated his edicts under the designation of Priyadasi, 'the beloved of the gods,' but all legitimate induction tends to justify the association which is contested by no other enquirer."— (*Turnour, Lassen, Burnouf, Cunningham, Sykes, Max-Müller, &c*).

I venture to think that something like "the absolute and definite proof" alluded to by Mr. Thomas may be found in the Buddhist annals of Ceylon. The identification of Piyadasi and Asoka, does not rest, as supposed by Professor Wilson, on a single passage of the *Dīpa Vansó*, but the fact is well known to all Buddhist nations, at least to those of Ceylon, Burma, and Siam.

I am happy to be able to produce a few passages from Buddhist works other than the *Dīpa Vansó*, in which the name "Piyadasi" is applied to king Asoka.

The first passage I shall quote is from *Sumangala Vilásini*, Buddhaghosa's Commentary on the "Digha Nikáya." In his Commentary on the "Mahá-parinibbána Suttan," the Commentator gives an account of the death, and funeral of Buddha, and the division of his relics amongst the various kings of India and the surrounding countries. He relates moreover, that after the distribution of the relics amongst the Princes of India, the main portion was deposited in a "Thupa" built of stone, and in it was also placed a golden plate on which the following words were inscribed:—

“අනාගතෙ පියදාසො නාම කුමාරො ඡත්තං උසුඤ්ඤා පෙඤා අසොකො ධම්මරජු භවිස්සති—සො ඉමංධාතුංසො විජාරිතා කරිස්සති”

“Anágate Piyadáso náma kumáro chattan ussápetvá Asoko Dhamma Rájá bhavissati So imá dhátuyo vittháritá karissatí.”

“In a future (age) a prince named Piyadáso, raising the umbrella of dominion, will become king Asoka the righteous, and he will distribute these relics.”

The Commentator further relates that 218 years afterwards, when king Asoka after his conversion to Buddhism, caused the relic receptacle to be opened for the purpose of obtaining relics to build “Thupas,” he found to his inexpressible wonder and joy, the gold plate on which the above prediction was inscribed, and thenceforward, he became the most zealous patron that Buddhism ever had.

In *Rasaváhini*, which is a Collection of tales and stories relating to ancient India and Ceylon, the author in his account of Asoka, quotes the abovementioned prediction, and also mentions the fact that Asoka in his youth was named prince “Piyadáso.”

The *Saddharmálanḅhára*, which by some is supposed to be a Sinhalese version of the *Rasaváhini*, and by others its original, gives the following interesting and additional particulars, which are not found in any other work I have met with. It states that Asoka, on his birth, received the name of prince “Piyadása,” “because his countenance was radiant as the polished surface of a mirror and pleased all beholders;” * “that when he held the Government of ‘Avanti’ under his father Bîndusára, he was known as prince ‘Asoka.’” † That he was afterwards surnamed “Chandásóka,” or “Asoka the Cruel,” on account of his putting his brothers to death, and finally “Dharmásoka.” ‡ or “Asoka the righteous,” on his conversion to Buddhism, and becoming a zealous patron of religion.

L. DE Z.

* Vide selections from *Saddharmalankara*, p. 4.

† *Ibid*, p. 5.

‡ *ibid*, p. 14.

ON THE ISLAND DISTRIBUTION OF THE BIRDS IN THE SOCIETY'S MUSEUM.

BY W. VINCENT LEGGE, R.A., F.Z.S.

LIST OF BIRDS IN THE MUSEUM ON 31ST MAY, 1873.

| No. | | No. | |
|-----|---|-----|--|
| 1 | SPILORNIS BACHA, <i>Daudin.</i> | 4 | YUNGIPICUS GYMNOPTHALMOS, <i>Blyth.</i> |
| 1 | HALIAETUS LEUCOGASTER, <i>Gmel.</i> | 4 | CHRYSOCOLAPTES CHLOROPHANES, <i>Vieill.</i> |
| 1 | POLIOAETUS ICTHYAETUS, <i>Horsf.</i> | 4 | BRACHYPTERNUS CEYLONUS, <i>Forster.</i> |
| 3 | HALIASTUR INDUS, <i>Bodd.</i> | 1 | Do. PUNCTICOLLIS, <i>Malh.</i> |
| 1 | MILVUS GOVINDA, <i>Sykes.</i> | 2 | CENTROPUS RUFIPENNIS, <i>Illiger.</i> |
| 2 | TINNUNCULUS ALAUDARIUS, <i>Gmel.</i> | 3 | POLYPHASIA FASSERINA, <i>Vahl.</i> |
| 3 | MICRONISUS BADIUS, <i>Gmel.</i> | 1 | SURNICULUS DICRUROIDES, <i>Hodson.</i> |
| 1 | ELANUS MELANOPTERUS, <i>Daudin.</i> | 2 | COCCYSTES JACOBINUS, <i>Bodd.</i> |
| 1 | CIRCUS SWAINSONII, <i>A. Smith.</i> | 6 | EUDYNAMIS HONORATA, <i>Linn.</i> |
| 1 | Do. CINERACEUS, <i>Montague.</i> | 1 | PHENICOPHŒUS FYRRHOCEPHALUS, <i>Forster.</i> |
| 2 | ATHENE CASTANEONOTA, <i>Blyth.</i> | 3 | ZANCLOSTOMUS VIRIDIROSTRIS, <i>Jer-</i> |
| 1 | NINOX HIRSUTA, <i>Temm.</i> | 2 | NECTAROPILA ZEYLANICA, <i>Linn.</i> |
| 4 | EPHIALTES BAKKAMUNA, <i>Forster.</i> | 4 | ARACHNECHTHRA LOTENIA, <i>Linn.</i> |
| 1 | SYERNIUM INDRANEE, <i>Sykes.</i> | 1 | DENDROPHILA FRONTALIS, <i>Horsf.</i> |
| 3 | CAPRIMULGUS ASIATICUS, <i>Latham.</i> | 1 | UPUFA NIGRIPENNIS, <i>Gould.</i> |
| 1 | Do. ATRIPENNIS, <i>Jerdon.</i> | 2 | HEMIPUS FICATUS, <i>Sykes.</i> |
| 2 | CYPSELUS BATASSIENSIS, <i>Gray.</i> | 2 | VOLVOCIVORA SYKESII, <i>Strickl.</i> |
| 1 | DENDROCHILIDON CORONATUS, <i>Tickl.</i> | 3 | GRAUCULUS LAYARDI, <i>Blyth.</i> |
| 4 | CORACIAS INDICA, <i>Linn.</i> | 4 | PERICROCOTUS FLAMMEUS, <i>Forster.</i> |
| 3 | HARPACTES FASCIATUS, <i>Forster.</i> | 5 | Do. PEREGRINUS, <i>Linn.</i> |
| 3 | PELARGOPSIS GURIAL, <i>Pearson.</i> | 3 | ARTAMUS FUSCUS, <i>Vieill.</i> |
| 3 | HALCYON SMYRNENSIS, <i>Linn.</i> | 3 | LANIUS CRISTATUS, <i>Linn.</i> |
| 6 | ALCEDO BENGALENSIS, <i>Gmel.</i> | 4 | TEPHRODOENIS PONDICERIANA, <i>Gmel.</i> |
| 1 | CERYLE RUDIS, <i>Linn.</i> | 2 | DISSEMURUS LOPHORHINUS, <i>Vieill.</i> |
| 3 | MEROPS PHILIPPENSIS, <i>Linn.</i> | 4 | BUCHANGA LEUCOPYGIALIS, <i>Blyth.</i> |
| 1 | Do. VIRIDIS, <i>Linn.</i> | 2 | MYIALESTES CINEREO-CAPILLA, <i>Vieill.</i> |
| 3 | Do. QUINTICOLOR, <i>Vieill.</i> | 1 | LEUCOCERCA AUREOLA, <i>Lesson.</i> |
| 2 | TUCKUS GINGALENSIS, <i>Shaw.</i> | 7 | TCHITREA PARADISI, <i>Linn.</i> |
| 3 | LORICULUS INDICUS, <i>Gmel.</i> | 2 | ALSEONAX LATIROSTRIS, <i>Raffles.</i> |
| 1 | PALŒGNIS ALEXANDRI, <i>Linn.</i> | 4 | CYORNIS JERDONI, <i>G. R. Gray.</i> |
| 1 | Do. TORQUATUS, <i>Bodd.</i> | 3 | PITTA BRACHYURA, <i>Jerdon.</i> |
| 3 | Do. ROSA, <i>Bodd.</i> | 2 | OREOCINCLA SPILOPTERA, <i>Blyth.</i> |
| 1 | Do. CALTHROPÆ, <i>Layard.</i> | 1 | ALCIPPE NIGRIFRONS, <i>Blyth.</i> |
| 3 | MEGALAIMA ZEYLANICA, <i>Gmel.</i> | 2 | DUMETIA ALBOGULARIS, <i>Blyth.</i> |
| 4 | Do. FLAVIFRONS, <i>Cuvier.</i> | 2 | DRYMOCATAPUS FUSCICAPILLUS, <i>Blyth.</i> |
| 1 | XANTHOLEMA RUBRICAPILLA, <i>Gmel.</i> | | |
| 1 | Do. INDICA, <i>Lath.</i> | | |

- 2 POMATORHINUS MELANURUS, *Blyth*.
 1 GARRULAX CENEREIFRONS, *Blyth*.
 2 MALACOCERCUS STRIATUS, *Swains*.
 6 LAYARDA RUFESCENS, *Blyth*.
 3 HYPSPETES GANEESA, *Sykes*.
 3 CRINIGER ICTERICUS, *Strickl*.
 5 IXOS LUTEOLUS, *Lesson*.
 3 PYCNONOTUS HÆMORRHOUS, *Gmel*.
 1 RUBIGULA MELANICTERA, *Gmel*.
 6 PHYLLOORNIS JERDONI, *Blyth*.
 1 Do. MALABARICUS, *Lath*.
 1 IORA ZEYLONICA, *Gmel*.
 7 ORIOLUS CEYLONENSIS, *Bonap*.
 4 COPSYPHUS SAULARIS, *Linn*.
 3 KITTACINCLA MACRUMA, *Gmel*.
 3 THAMNOBIA FULICATA, *Linn*.
 4 CISTICOLA SCHENICOLA, *Bonap*.
 2 PRINIA SOCIALIS, *Sykes*.
 4 DRYMOIPAS VALIDUS, *Blyth*.
 1 PHYLLOSCOPUS NITIDUS, *Latham*.
 3 CALOBATES SULPHUREA, *Bechst*.
 2 LIMONIDROMUS INDICUS, *Gmel*.
 2 BUDYTES VIRIDIS, *Gmel*.
 3 COREDALLA RICHARDI, *Vieill*.
 1 Do. RUFULA, *Vieill*.
 3 ZOSTEROPS PALPEBROSUS, *Temm*.
 1 Do. CEYLONENSIS, *Holdsworth*.
 5 PABUS CINEREUS, *Vieill*.
 2 CORVUS LEVAILLANTI, *Lesson*.
 3 Do. SPLENDENS, *Vieill*.
 1 CISSA ORNATA, *Wagler*.
 3 ACRIDOTHERES TRISTIS, *Linn*.
 4 EULABES RELIGIOSA, *Linn*.
 7 PLOCEUS BAYA, *Blyth*.
 3 MUNIA UNDULATA, *Lath*.
 1 Do. MALACCA, *Linn*.
 3 Do. STRIATUS, *Linn*.
 1 Do. KELAARTI, *Blyth*.
 1 ESTREDA AMANDAVA, *Linn*.
 5 PABER INDICUS, *Jerd. and Shelby*.
 4 MIRAFRA AFFINIS, *Jerdon*.
 2 PYRHULAUDA GRISEA, *Scop*.
- 1 ALAUDA GULGULA, *Franklin*.
 2 OSMOTREBRON BICINCTA, *Jerdon*.
 5 Do. POMPADOURA, *Gmel*.
 2 CARPOHAGA SYLVATICA, *Tickell*.
 2 TURTUR SURATENSIS, *Gmel*.
 2 CHALCOPHAPS INDICA, *Linn*.
 3 GALLUS STANLEYI, *Gray*.
 4 GALLOPERDIX BICALCARATA, *Forst*.
 1 ORTYGORNIS PONDICERIANA, *Gmel*.
 1 EXCALFACTORIA CHINENSIS, *Linn*.
 4 TURNIX TAIGOOR, *Sykes*.
 2 CHARADRIUS FULVUS, *Gmel*.
 4 ÆGIALITES MONGOLICUS, *Pallas*.
 1 Do. DUBIUS, *Scop*.
 3 LOBIVANELLUS INDICUS, *Bodd*.
 1 CEDIENEMUS CREPITANS, *Temm*.
 1 STREPSILAS INTERPRES, *Linn*.
 2 GALLINAGO STENURA, *Temm*.
 3 RHYNCHÆA BENGALENSIS, *Linn*.
 2 ACTITIS HYPOLEUCOS, *Linn*.
 2 HYDROPHASIANUS CHIRURGUS, *Scop*.
 1 PORPHYRIO POLIOCEPHALUS, *Lath*.
 7 GALLINULA PHENICUREA, *Forster*.
 1 GALLICREX CRISTATUS, *Lath*.
 1 PORZANA FUSCA, *Linn*.
 2 RALLINA ZEYLONICA, *Gmel*.
 3 ARDEA PURPUREA, *Linn*.
 3 BUPHUS COROMANDUS, *Bodd*.
 3 ARDEOLA GRAYII, *Sykes*.
 1 BUTORIDES JAVANICA, *Horsf*.
 3 ARDETTA FLAVICOLLIS, *Lath*.
 3 Do. CINNAMOMEA, *Gmel*.
 2 NYCTICORAX GRISEUS, *Linn*.
 1 GOISACHUS MELANOLOPHUS, *Raffles*.
 2 ANASTOMUS OSCITANS, *Bodd*.
 2 DENDROCYGNA JAVANICA, *Horsf*.
 3 PODICEPS PHILIPPENSIS, *Bonn*.
 1 STERNA NIGRA, *Linn*.
 4 HYDROCHELIDON LEUCOPARCIA,
Natt.
 1 THALASSEUS CRISTATUS, *Stephens*.
 1 Do. BENGALENSIS, *Lesson*.

THE large collection of birds which the Society possesses at the present time, and which the foregoing catalogue, numbering in all 154 different birds, fully testifies to, may perhaps be considered to possess sufficient interest as a public exhibition, and an important branch of the Museum, to warrant a few remarks on the distribution, throughout the Island, of the different species composing it. I therefore venture to submit for the Society's perusal the following notes, which are chiefly the result of four and-a-half years' labour among my feathered friends in Ceylon. I have also availed myself of the experience of Messrs. Layard and Kelaart, and of Mr. Holdsworth, in cases where they have recorded birds from parts which I, myself, have not visited. I regret to say that my knowledge of what birds in particular are located in the Eastern Province proper is very limited, and therefore I fear that these notes will contain but little information concerning either the residents in or migrants to that part. It is a district which I have as yet only touched upon from the north and south, but neither myself nor either of the abovenamed gentlemen have ever collected in or explored that extensive and wildest of all Ceylon regions—the Friar's Hood and False Hood ranges, and the immediate south-lying flats, known as the "Park Country." It is here that more new species await discovery at the hands of some enterprising naturalist, and when they are found they will, I am confident, possess the additional interest of being, like Mr. Bligh's newly-discovered *Arrenga* and my *Prionochilus*, analogous to Malayan and not to Indian forms. Setting aside the Eastern Province however entirely, the distribution of species in the other great divisions of the Island is exceedingly interesting, and demonstrates in a remarkable manner how closely vegetation and features of soil are affected by climate, and how birds in their turn are influenced in their choice of habitat by that vegetation and the natural resources of sustenance which it affords them. The north-western and south-eastern districts, or the country surrounding Mannár and

Hambantōṭa, respectively, possess a similar avifauna, with the difference perhaps, that natatorial birds abound more in the latter than in the former, owing to the presence of large tanks in the Mágam and adjoining Pattus, but the list of insessorial birds in the two places is precisely the same: the great mountain zone districts are peculiar features lying as a dividing medium between them. Again, the damp hill-country of the south-west, and the vast forest-covered region of the north-east, lying between Anurádhapura and Trincomalee, possess the same birds, with the exception of one or two very local species, such as *Temenuchus senex* and *Prionochilus Vincens*, which are only located in the mountains of the former part; moreover, the south-western corner of the Island possesses scarcely anything in common with the adjacent lying hot and flat country of the south-east, the eastern slopes of the Kolonná and Morowak Kóralé mountains and their off-shoots, leading southwards to Mátara, acting as a barrier or dividing line beyond which, on either side, the typical forms of the two regions (*Temenuchus senex*, *Rubigula melaniçtera*, *Prionochilus Vincens*, &c., on the west, and *Pyrrhulaunda grisea*, *Temenuchus pagodarum*, *Sarciophorus bilobus*, &c., of the east) do not appear to pass. While on the subject of the south-west and its avifauna, it would be well to remark that it is somewhat noteworthy, that two species of "Ceylon" birds, *vide supra*, should only be found in that district, and this certainly would allow us to premise that others, as yet undiscovered members of our Fauna, may be confined solely to the hills of the Eastern Province. Lastly, there exists another region which, as the late Dr. Kelaart prophesied in his "Prodrómus Faunæ Zeylanica" has proved to be "a distinct centre of creation" analogous to that of the correspondingly elevated zone of the Neilgherries in South India. I speak of NuwaraEliya and its surrounding mountains. Doctor Kelaart referred generally to Zoology and Botany, but we have there, as far as birds even are concerned, three of the peculiar Ceylon species, *Merula Kinisii*, *Arrenga Blighi*, *Brachypteryx Palliseri*, and perhaps a fourth, *Ochronella Nigrorufa* (found also

on the Neilgherries), confined to the immediate vicinity of the sanatorium. Notwithstanding that this singular concentration of these restricted species to such a small area can be easily accounted for on the strength of their being peculiar to the Island, and the highest mountains about Nuwara Eliya being the only district of such an elevation, and therefore with the same cool climate, in the country, yet there is no parallel to it in the distribution of birds throughout the whole peninsular part of India, and it must therefore I think, be viewed as the most remarkable feature in the history of Ceylon birds. Students of our Ornithology are much indebted to Mr. Holdsworth, who, assisted by the most eminent Indian Ornithologists at home, has worked out, in his catalogue of Ceylon birds, published last year in the proceedings of the London Zoological Society, the right nomenclature of all our birds, and the history and authorship of all those species about which there was any doubt. He has shewn that several members of our old lists, such as *Yungipicus gymnophthalmos*, *Tephrodornis affinis* (Blyth), and *Grauculus Pussillus* (ibid), hitherto assigned to Ceylon only, are found in South India, and that one of our hill fly-catchers, *Euymias serdida*, Walden, on the other hand, as an inhabitant of the peninsula, is peculiar to this Island, and was hitherto confounded with *E. melanops*, Vigors; while again he has proved that a few species described as new by Layard and others, such as *Butalis Muttui*, *Zoothera imbricata*, are identical with the hitherto recorded from India, *Alseonax terricolor* and *Oreocincla Neilgherrienses*. It is a pity that this gentleman confined his labours and attention to the cultivated districts of the Western Province and the neighbourhoods of Mannár and Nuwara Eliya only, instead of exploring the Island to a greater extent, particularly in the south-west and east, and thereby acquiring a thorough knowledge of the distribution of our species; by so doing he would have rendered his catalogue much more valuable to the enquirer, and afforded much information as to where different birds were to be found. In the

following notes I have adopted Mr. Holdsworth's nomenclature, followed by Layard's and Kelaart's synonyms, used in the *Annals and Magazine of Natural History* for 1853-54, and the "*Prodromus Faunæ Zeylanica*" published in 1852.

1. *SPIJORINS BACHA*, *Dandin*.—The Crested Serpent Eagle, the "Ceylon Eagle" of some writers; *Rájáli*, *Sinh*. In young plumage, *Spilornis Spilogaster*, *Blyth*—vide Holdsworth, *Catalogue Ceylon Birds*, P. Z. S. 1872, No. 13. *Hæmatornis Cheela*, Layard, *Annals Natural History*, 1853, page 99, volume 12; Kelaart, *Prodromus Faunæ Zeylanica*, page 114.

Distributed throughout the whole Island up to the highest parts of the Central Province; common in all the coffee districts, and both in low wooded and the hill country of the south-west; numerous in the neighbourhood of Trincomalee, and occurs throughout the Eastern and Northern Provinces, affecting marshes and the borders of large tanks; scarce in the dry districts of the south-east.

2. *HALIAETUS LEUCOGASTER*, *Gmelin*.—The white-bellied Sea Eagle, Grey-backed Sea Eagle. *Pontoætus Leucogaster*—Layard, *Annals Natural History*, 1853, volume 12, page 100; Kelaart, *Prodromus Faunæ Zeylanica*, page 112.

Distributed round the whole coast of Ceylon, affecting chiefly mouths of large rivers, brackish lakes, salt lagoons, and large inland back waters; most numerous in the Hambantota district, and on the chain of lagoons and lakes between Trincomalee and the Jaffna Peninsula; common at Jaffna and down the west coast to Puttalam; scarce in the south-west, occurring at the mouths of rivers and on brackish lagoons in that part; extends some distance up large rivers, but it is not found on inland tanks.

3. *POLIOAETUS ICHTHYAETUS*, *Horsf*.—The white-tailed Sea Eagle. *Pontoætus Ichthyaetus*.—Layard, *Annals Natural History*, page 101, 1853; omitted from Kelaart's list, *Prodromus Faunæ Zeylanica*.

Numerous about tanks in the Eastern Province, on the north-eastern coast, and in the Vanni; frequents the salt lagoons and estuaries to the north of Trincomalee; occurs on the north-west coast (Holdsworth's *Catalogue Ceylon Birds*), rare on the south-east coast, but observed in the Hambantota and Kataragama country. This species is nowhere so abundant as *P. leucogaster*.

4. *HALIASTUR INDUS*, *Bodd*.—Brahminy Kite; Brown-backed Kite; *Rájáli*, *Sinh*.

Abundant about most of the bays, mouths of rivers, salt lagoons, and brackish waters round the whole Island, affects in particular Galle

and Trincomalee harbours and the Jaffna lake, though not so numerous in the latter part as *Milvus Govinda*; frequents paddy lands in many districts far inland, and breeds sometimes as far as thirty or forty miles up large rivers.

5. *MILVUS GOVINDA*, *Sykes*.—Pariah Kite.

Numerous only about the Jaffna peninsula and down the west coast as far as Kalpiṭiya and Chilaw districts; extends sparingly to the south; pairs now and then seen in Galle and Mátara districts, but I have not observed it on the south-east coast. Affects Trincomalee harbour in the south-west monsoon, but leaves in the north-east.

Note.—It is strange that this Kite should be comparatively local in Ceylon, when it is so widely distributed round the Indian coast. I have seen it in no part of the Island so abundant as about the town of Jaffna.

6. *TINNUNCULUS ALAUDARIUS*, *Gmelin*.—Kestrel.

The Kestrel, which is a winter visitor to Ceylon, is found all round the coast wherever there are rocky cliffs, about which it always remains, roosting on the same spot the whole season. I did not observe it on the south-east coast, but it no doubt affects that part as well as Trincomalee, Jaffna, and all round the west coast to Galle, where an individual takes up its abode each year regularly at the high corner of the ramparts overlooking the sea. Arrives about first week in October, and leaves again as late as the 20th April in the extreme south. Layard says of this bird, *Annals Natural History*, 1853, page 102, "common in all open plains throughout the Island which are dotted with jungle." I conclude he means open plains along the sea border, as I have never observed it far inland; the only district where I should imagine it would be found at any distance from the sea, would be the Northern Province, south of Jaffna, and in the upper part of the Vanni.

7. *MICRONISUS BADIUS*, *Gmelin*.—The "Shikra," Indian Sparrow-hawk; *Accipiter Badius*—Layard, *Annals Natural History*, 1853, page 104; Kelaart, *Prodromus Faunæ Zeylanica*, page 115.

Common throughout the low country on both sides of the Island; abundant in the north-east of the Province and in the south; extends into the Central Province up to 4,000 feet; occurs frequently in Dumbara.

8. *ELANUS MELANOPTERUS*, *Daud*.—The black-shouldered Kite; Layard, *Annals Natural History*, 1853, page 104.

Western Province, hill district of south-west and flat country of the south-east; occurs at Bópé and throughout the Rayigam and

Pasdun Kóralés; frequents citronella grass estates and open lands in the Galle district, more numerous however in the Kataragama country, and probably frequent throughout the Eastern Province. I did not observe it in the north-east, though Layard, *loc. cit.*, records it from Jaffna as one of our rarest Raptores.

9. *CIRCUS SWAINSONII*, *A. Smith*.—The Pale Harrier; Swainson's Harrier. Layard, *Annals Natural History*, 1853, page 104.

Local in distribution, common in parts. In the Southern Province on large tracts of paddy land and open hill sides near Galle, in parts of Tangalla and near Hambantōṭa, and round the south-east coast generally; in the north-west and about Trincomalee, where it is common.

Note.—The Harriers, which are all winter visitants to this country, arrive in September mostly in young plumage, and are more numerous some years than others.

10. *CIRCUS CINERACEUS*, *Mont*.—Montague's Harrier. Layard, *Annals Natural History*, 1853, page 105.

Inhabits open bushy plains in dry parts of the country, differing in its choice of habitat from the foregoing species, which frequents by choice marshy and paddy lands in company with *Circus Cœruginosus*. Found about Colombo, but is rare; more numerous on the south-east coast, tolerably frequent in the Kataragama district.

11. *ATHENE CASTANEONOTA*, *Blyth*.—The Chesnut-winged Owl. *Athene Castanotus*, *Blyth*.—Layard, *Annals Natural History*, 1853, page 105; also Kelaart, *Prodromus Faunæ Zeylanica*, page 110.

This little owl, which is our only raptorial bird peculiar to the Island, is local in its distribution. Inhabits both low and high country; have seen it in Upper Dimbula; common in the Knuckles district, where it is found about mountain streams at sunset; numerous in the south-west, particularly up the Gindurah; found about Colombo at times, frequenting also the Negombo districts. Recorded from Nuwara Eliya (Kelaart, *Prodromus Faunæ Zeylanica*, *Natural History of Nuwara Eliya*.)

12. *NINOX HIRSUTA*, *Temm*.—The brown Hawk-owl. *Athene Scutellata*, *Gray*.—Kelaart, *Prodromus Faunæ Zeylanica*, page 110. *A. Scutellata*, *Raffles*.—Layard, *Annals Natural History*, 1853, page 106.

This is the rarest owl. Found in the wooded districts round Bó pé and Avisáwella, also in the neighbourhood of Puttalam. I am unable to say whether it is found in the hills, but I have seen it once in the wooded country of the south-west.

13. *EPHIALTES BAKKAMUNA*, *Forster*.—The little-eared Owl. *Ephialtes Lempigii*, *Horsf.*—Layard, *Annals Natural History*, 1853, page 106; Kelaart, *Prodromus Faunæ Zeylanica*, page 116.

Numerous throughout all the low country, abundant in the neighbourhood of Galle; common round Colombo, also in the north; extends to considerable elevation in the hills. Frequents rows of trees in towns, church steeples, also bamboo thickets and low jungle, native gardens, &c.

14. *SYRNIUM INDRANEE*, *Sykes*.—The brown Wood Owl. *Bacha Muna*, *Sinh.*

Affects forest (*Múkalána*) in the low country and in the hills; ranges up to 5,000 feet in Central Province; found in the forests near *Haywella* in the Western Province, also in all forests of the south-west of the Island; frequents the low jungle of the *Mannár* district. (*Holdsworth's Catalogue Ceylon Birds*, 1872, No. 27.)

Note.—It is as difficult to define accurately the range of *Strigidæ* and to note the particular districts they affect most, as it is to acquire a thorough knowledge of their economy. Their nocturnal habits lead to their being passed over in some instances by all but the most diligent observers, particularly if their notes are not well known. Until the past few years the Forest Eagle Owl of the South of India (*Huhuæ Pectoralis*, *Jerdon*) which has, of course, always been resident in this island, was not known to inhabit it, but since Mr. Bligh procured his specimens in the Central Province, a good many of the species have been either shot or seen. I met with it in the great forests of the north-east last January, and find that it inhabits the higher "*Múkalána*" all throughout the south-west.

15. *CAPRIMULGUS ASIATICUS*, *Latham*.—The Indian Night-jar.

Abundant in the scrubby country along the sea border at *Trincomalee*, also in all similar localities on the north and west coast, for instance, in the *Cinnamon Gardens* near Colombo; not so plentiful as the next species in the south; very plentiful in the jungles of *Hambantota* and in the *Mágam Pattu*.

16. *CAPRIMULGUS ATRIPENNIS*, *Jerdon*.—The black-winged Night-jar. *Bassa*, *Sinhalese*, for this family as well as for small Owls. *Caprimulgus mahrattensis*, *Sykes* (erroneously)—Layard, *Annals Natural History*, 1853, page 166; Kelaart, *Prodromus Faunæ Zeylanica*, page 117. Vide *Holdsworth, Catalogue Ceylon Birds*, No. 46.

Numerous in the low country and subsidiary hill districts of the south-west (notably round *Wakwella* and *Baddegama*), in the

low jungles of the Hambantota and Kirinda country, and tolerably plentiful in the north-east near Trincomalee; occurs sparingly in the Western Province, and almost absent from the North. (Layard, *loc. cit.*)—I presume he speaks of the Jaffna district.

Note.—This species, unlike the foregoing, perches much on trees; the male when uttering at sunset the remarkable note, so much heard in the south, is always perched on a branch of a tree.

17. *CYPSELUS BATASSIENSIS*, *Gray*.—The Palm Swift. *Wahælâyna*, *Sinh.* *Cypselus* “*Balassiensis*,” *Gray*—Layard, *Annals Natural History*, 1853, page 167. Kelaart, *Prodromus Faunæ Zeylanica*, page 117.

Equally numerous in all parts of the country, and extending into the hills to the elevations of Nuwara Eliya and Horton Plains. I observed it less numerous in the north-east monsoon about the neighbourhood of Kataragama than elsewhere, which may have been owing to their having been collected in other parts to breed. It ranges throughout the Morowak Kóralé, and other southern hills. Kelaart omits it from his list of Nuwara Eliya birds, *Prodromus Faunæ Zeylanica*.

18. *DENDROCHILIDON CORONATUS*, *Tickell*.—The Crested Swift. *Macreptenyx*, *Swainson*; *M. coronatus*—Layard, *Annals Natural History*, 1853, page 167; Kelaart, *Prodromus Faunæ Zeylanica*, page 117.

Resident all the year round in the south, but not always affecting the same localities; migratory to the Western Province in the north-east monsoon, occurs about Trincomalee at the same season, probably more numerous there in the other monsoon. Abundant generally in the vicinity of Galle; affects precipitous hill-sides and open clearings where there are dead trees, on which it perches much.

19. *CORACIAS INDICA*, *Linn.*—The Roller. “Jay” of Europeans. Distributed throughout the low country, but very local in its habitat. I have never met with it in any part of the south-western hill-country. Most numerous about Jaffna and the “peninsula,” and in the open country near the tanks throughout the north coast from Trincomalee to Anurádhapura. Near Colombo it occurs at Bópé, Pora, and many parts of the Rayigam Kóralé.

20. *HARPACTES FASCIATUS*, *Forster*.—The Trogon. *Harpactes fasciatus*, *Linn.*—Layard, *Annals Natural History*, 1853, page 171.

Throughout the whole Island where there is primeval forest or “Múkalána;” abundant in such spots in the Rayigam Kóralé, being found near Haywella, within twelve miles of Colombo; in all

the forests of the Gangaboða and Hinidum Pattus and Kukulu and Morowak Kóralés, as regards the south of the Island; throughout all the coffee districts and highest hills of the Central Province, and in the great forests between the north road and Trincomalee.

21. PELARGOPSIS GURIAL, *Pearson*.—The Cape King-fisher, Buff-breasted King-fisher. Maha Pilihudua, *Sinh.*; vide Holdsworth's Catalogue Ceylon Birds, P.Z.S. 1872, No. 54; Halcyon Capensis, *Linn.*—Layard, *Annals Natural History*, 1853, page 171; Kelaart, *Prodromus Faunæ Zeylanica*, page 119.

Throughout the low country wherever there is water. In the Western Province it is found about Bolgoda Lake and up the Kalu Ganga; in the Southern Province it is abundant on the Gindurah and Nilwelle rivers, extending to the foot of the hills; numerous on all tanks of the Eastern Province and about all the swamps and inland waters of the Northern Province, from Trincomalee to Anurádhapura; abundant about Batticaloa, according to Layard.

22. HALCYON SMYRNENSIS, *Linn.*—The Smyrna King-fisher, White-breasted King-fisher. Pilihudua, *Sinh.*—Layard, *Annals Natural History*, 1853, page 172.

Common throughout the low country, extending into the hills to 4,000 feet, and Kelaart includes it in his Nuwara Eliya list of birds (*Prodromus Faunæ Zeylanica*); abundant in the Western and Southern Provinces, occurring in the Morowak Kóralé sparingly, not so numerous in the south-east.

23. ALCEDO BENGALENSIS, *Gmelin*.—The Indian King-fisher, Little King-fisher. Pilihudua, *Sinh.*

Distributed throughout the whole Island, extending into the Central Province to the plains of Nuwara Eliya, very abundant about paddy fields, rivers and streams in the Western and Southern Provinces, and less numerous in the south-eastern district; plentiful in the Northern Province and in the neighbourhood of Trincomalee; common close to Galle; believed may at times be seen on the rocks at the entrance to the Dutch Canal; occurs in Colombo lake in numbers.

24. CERYLE RUDIS, *Linn.*—The Pied King-fisher—Layard, *Annals Natural History*, 1853, page 172.

Numerous on canals, streams, and the stiller parts of rivers in the Southern Province, extending inland to the foot of the hills; tolerably frequent in the Western Province, at Kalutara, near Bentota, on Bolgoða lake, and the like spots; found on the salt lagoons of the Hambantota and Trincomalee districts. In the

south it is particularly numerous on the Gindurah as far up as the "Haycock."

25. *MEROPS PHILIPPENSIS*, *Linn.*—The Blue-tailed Bee-eater. "Fly-catcher" of Europeans. Layard, *Annals Natural History*, 1853, page 173. Kelaart, *Prodromus Faunæ Zeylanica*, page 119.

Migratory to Ceylon, arriving at the beginning of September in the north, and reaching the south about the middle of that month. Spread throughout the Central Province up to 6,000 feet, at which elevation I have found it numerous near Pusselláwa and in the Knuckles; exceedingly abundant throughout the low country of the south-west and about the Fort at Galle; scarce in the Morowak Kóralé, and not plentiful in the south-east; tolerably numerous in parts of the Trincomalee country and in the extreme north. Kelaart records it from Nuwara Eliya in his list from that part. It is rare about Colombo. Leaves the south about the 1st of April, though stragglers remain some years as late as the middle of that month. Holdsworth also records it as very numerous at Aripo; says it leaves the north during the same month.

26. *MEROPS VIRIDIS*, *Linn.*—The Green Bee-eater.

This charmingly tame little bird is partial to certain districts of the low country, and does not extend into the hills. It prefers the dry and hot portions of the Island, is absent from the south-west, but exceedingly abundant from Tangalla round the south-east and east coasts to Trincomalee and the extreme north. It is more numerous in the neighbourhood of Hambantota than about Trincomalee, and is, I imagine, resident in that district throughout the year. Holdsworth says it is abundant at Aripo, and mentions it being seen sometimes about Colombo. I have not remarked it there.

27. *MEROPS QUINTICOLOR*, *Vieill.*—The Chestnut-headed Bee-eater.

Very local in its distribution. Affects the borders of rivers, in particular, in the south-west up to thirty or forty miles from the sea, but does not extend to an elevation of more than 1,000 feet. Notably numerous on the Gindurah, from where the banks become hilly to beyond the Haycock, also on the Kaluganga to Ratnapura.

Note.—I confess I cannot look on this as a strictly hill species; it is very partial to rivers with hilly banks, and follows them up into or just to the foot of the mountains; although it has been found in the vicinity of Kandy, it must be far scarcer there than on the rivers of the south-west, where it breeds in numbers. When Layard says, *Annals Natural History*, 1853, page 174, "Whilst the two former frequent low open plains and are rarely,

if ever, seen in the elevated districts, the present species on the contrary affects the hilly forest region;" I cannot but think that he must have been mistaken in his identification. These remarks of a certainty do not apply to *M. Philippinus*, which I have found on all elevated patanas from the Knuckles to Upper Dimbula, in which localities I have never seen a sign of the Chestnut-headed bird. I do not think it extends above the elevation of Kandy. I have never met with it in the south-east, though it is found sparingly near the borders of jungle in the Trincomalee districts. Holdsworth records it in his catalogue from near Kandy.

28. *TUCKUS GINGALENSIS*, *Shaw*.—The Ceylon Horn-Bill. "Toncan" of Europeans. *Këndetta*, *Sinh.*; *Buceros* apud, *Shaw*. *Buceros Gingalensis*, *Shaw*.—Layard, *Annals Natural History*, 1854, volume 13, page 260. Kelaart, *Prodromus Faunæ Zeylanica*, page 126.

Affects all forests on the south-west and north-east, the high jungle of the Morowak and Kukulu Kóralés and all parts of the Central Province up to 2,000 feet, likewise the jungle in the north-west, according to Holdsworth; but I did not observe it in the analogous district of Kataragama, though it is possible it inhabits the forests along the rivers of that part. It is numerous near Galle in the Kottowe Múkalána and in the great Opaté and Uđugama, as well as in the Morowak Kóralé and Hinidum forests; also common in the jungles between Anurádhapura and Trincomalee, and probably in the wild country between Ratnapura and Avisáwélla.

29. *LORICULUS INDICUS*, *Gmelin*.—Ceylon Lorikeet. Girawa Malitchia, *Sinh.* Vide Holdsworth's *Catalogue Ceylon Birds*, P. Z. S., No. 66; *Loriculus Asiaticus*, *Lath.*—Layard, *Annals Natural History*, 1854, page 261; Kelaart, *Prodromus Faunæ Zeylanica*, page 127.

Very abundant in the south-west (which part is its head quarters) in the cocoanut districts throughout all the cultivated parts of the interior, and also in the forests at certain seasons when various species of timber trees are in flower; common in the Central Province, about wooded patanas in the Pusselláwa, Dumbara, Knuckles, and other districts of similar elevation. Occurs in the Pasdun and adjoining Kóralés in the Western Province, but not so abundantly as in the south. Layard traced it as far east as Hambantota, but I believe it is absent from the country beyond that, as also from the Eastern Province. I did not meet with it in the districts between Anurádhapura and Trincomalee, where I found so many of our peculiar Ceylon birds (*vide Note* on Phænico-phyrrocephalus), but I should not be surprised if it were added to my list from that locality before long.

30. *PALÆORNIS ALEXANDRI*, *Linn.*—The red-shouldered Parokeet. Loku Girawá, *Sinh.*—Layard, *Annals Natural History*, 1854, Volume 13, page 262.

Appears to be chiefly confined to the east coast, always abundant in the Batticaloa country, and at seasons near Trincomalee; occurs as a straggler in the low country from Pánaduré down to Mátara, but I did not meet with it in the south-east.

31. *PALÆORNIS TORQUATUS*, *Bodd.*—The Rose-winged Parokeet. Rana Girawá, *Sinh.* *Palæornis torquatus*, *Briss.*—Layard, *Annals Natural History*, 1854, page 262; Kelaart, *Prodromus Faunæ Zeylanica*, page 127.

Very abundant round Trincomalee, particularly about Tampalákámam; numerous near Hambantota and about Tanggalla; very abundant down north-west coast (Puttalam, Chilaw, &c.) According to Layard, this Parokeet frequents maritime districts for the most part. I have not met with it in the interior, it is a low-country bird.

32. *PALÆORNIS ROSA*, *Bodd.*—Purple-headed Parokeet. *Palæornis Cyannaphalus*, *Linn.*—Layard, *Annals Natural History*, 1854, page 264. Kelaart, *Prodromus Faunæ Zeylanica*, page 127.

South-western and central hill districts. Common all through the low wooded country of the south-west, up to highest parts of Morowak Kóralé, where however it is less numerous than at lesser elevations; abundant about the patanas of the Knuckles, Pusselláwa, and Deltota districts, and in fact all through the Central Province up to 3,000 feet. Absent from the south-east.

33. *PALÆORNIS CALTHROPÆ*, *Layard.*—Ceylon Parokeet. Alloo Girawá, *Sinh.*

Note.—Kelaart seems to have reversed the English names of this and the last species (*Prodromus Faunæ Zeylanica*, page 127) when he calls this bird the “Purple-headed Parokeet,” and the former the “Ashy-headed Parokeet.”

Ranges from the hills north of Kandy to the subsidiary ranges at the Upper Gindurah, down to 700 or 800 feet above the sea; this latter is the lowest point at which it is found. Common round Kandy, in the valley of Dumbara, and about the lower patanas in the Knuckles and Pusselláwa districts; exceedingly abundant in the Sinha Rájah forests and on the south of the Kukulu Kóralé (the head-quarters of so many “Ceylon” birds), and tolerably abundant in parts of the Morowak Kóralé. Kelaart notes it at Nuwara Eliya (*List of Nuwara Eliya Birds*, *Prodromus Faunæ Zeylanica*.)

34. *MEGALAIMA ZEYLANICA*, *Gmelin*.—The Ceylon Barbet, Kottóruwá, *Sinh.*; *Megalaima caniceps*, *Frank*, (the Indian species);—Layard, *Annals Natural History*, 1854, page 446.

Very abundant throughout most parts of the low-country, more so in the south than the north however; extends up to about 2,000 feet in the Central and Southern Provinces. I did not find it in the Kataragama districts, nor did Mr. Holdsworth in the north-west; it is however tolerably numerous in the north-eastern jungles between the Central road and Trincomalee. It is more abundant some little distance inland from the vicinity of Colombo than anywhere else.

35. *MEGALAIMA FLAVIFRONS*, *Cuvier*.—The yellow-fronted Barbet; Kottóruwá, *Sinh.*

Southern, Western, and Central Provinces. Occurs in the Rayigam Kóralé, some little distance from Colombo, and ranges into the Central Province up to 3,000 feet, being particularly abundant in all the coffee districts and patanas of that part; but, common as it is there, it is nowhere so numerous as in the Kukulu Kóralé, Sígha Rájah, and Uđugama forests of the Southern Province. Those magnificent reserves of timber too low for coffee cultivation, and which sweep up and down the hills and valleys of that part, stretching away for miles in an unbroken sea of green, without scarcely a kurakkan clearing to arrest the eye, are the choice resorts of most of our peculiar Ceylon species, and there they are found in greater abundance than elsewhere. *M. Flavifrons* inhabits all the hills on the banks of the Gindurah down to Kottowe forest, ten miles from Galle.

36. *XANTHOLÆMA INDICA*, *Lath.*—The red-breasted Barbet, "Copper-smith" of Europeans; *Megalaima Philippensis*, *Briss.*—Layard, *Annals Natural History*, 1854, page 447; Kelaart, *Prodromus Faunæ Zeylanica*, page 127.

Very abundant throughout the north, extending beyond Trincomalee towards Batticaloa on the east, and down to the forests between Kurunégala and Puttalam on the west. It is rare in the latter district and very numerous in both jungle and cultivated country between the Central road and Trincomalee. Holdsworth records it as common at Aripu.

37. *XANTHOLÆMA RUBRICAPILLA*, *Gmelin*.—The red-headed Barbet, "Copper-smith" in the Western Province. *Megalaima rubricapilla*, *Gmelin*.—Layard, *Annals Natural History*, 1854, page 448; Kelaart, *Prodromus Faunæ Zeylanica*, page 127.

Most parts of the low-country, except in the dry and hot districts of the south-east and north-west, extending into the hills to about 1,000 feet. Layard records it from Batticaloa and Jaffna. The

Western and Southern Provinces are however its head quarters, in all districts of which it is exceedingly abundant; occurs throughout the wooded country of the north-east, but is not plentiful there.

38. *YUNGIPICUS GYMNOPTHALMOS*, *Blyth*.—The Pigmy Wood-pecker. Layard's Wood-pecker, *Picus Gymnophthalmos*, *Blyth*.—Layard, *Annals Natural History*, 1854, page 448. Kelaart, *Prodromus Faunæ Zeylanica*, page 128.

Western and Southern Provinces. In the Colombo district it is found some little distance inland, particularly about the wooded country round Hanwella; in the Southern Province it is more numerous, and affects all the low hill-country up to 2,000 feet in the Morowak Kóralé. In the Central Province I have traced it up to 2,000 feet in the Pusselláwa coffee districts.

39. *CHRYSOPHLEGA CHLOROPHANES*, *Vieill.*—The Southern Yellow-naped Woodpecker; *Gecinus Chlorophanes*, *Vieill.*—Layard, *Annals Natural History*, page 448; Kelaart, *Prodromus Faunæ Zeylanica*, page 128.

Sparingly distributed throughout the north-east, west, and south-west of Ceylon, and extending into the hills, where Kelaart procured it as high as Nuwara Eliya. Found within ten miles of Colombo; tolerably frequent up the valley of the Gindurah, and rare in the north-east near Trincomalee. It most likely affects the Anurádhapura, Vanni, and the country to the east of the central mountain zone.

40. *BRACHYPTERNUS CEYLONUS*, *Forster*.—The Ceylon red Woodpecker; Kéralá, *Sinh*.

Widely distributed throughout the low-country of the southern half of the Island and in the north-east, and extending into the hills up to 3,000 feet or more in the Pusselláwa and Knuckles districts. The headquarters of this Woodpecker are from a little south of Colombo round the south-west to Mátara; in this locality it is exceedingly abundant, especially in the cocoanut lands of the maritime districts. I did not observe this species as frequent in the Morowak Kóralé as I should have expected.

41. *BRACHYPTERNUS PUNCTICOLLIS*.—The Lessen Golden-backed Woodpecker. Vide Holdsworth, *Catalogue Ceylon Birds*, P. Z. S., 1872, No. 73, *bis*.

Jaffna peninsula and Vanni district, and in the maritime districts of the north-east. I found this Woodpecker near the sea coast in the neighbourhood of Trincomalee, and likewise in the forests between the Central road and that place; it is nowhere common, unless the bird mentioned by Layard under the name of *B. Aurantius*, as being so numerous in the Jaffna peninsula, be this species.

Note.—Mr. Holdsworth says with justice, *loc. cit.*: “A further examination of the golden-backed Woodpeckers of Ceylon appears desirable, as the species generally met there is more likely to be *B. Puncticollis*, common in Southern India, than *Brachypternus Aurantius*, which has a more northerly range.” I think that it is extremely probable that future investigation will shew that the Jaffna bird, spoken of by Layard, as so numerous there, is the former species and not the latter, as noted in his Catalogue, *Annals Natural History*, 1854, page 448, under the name of *B. Aurantius*. I received two specimens from Doctor Ondaatje in 1870, which were shot in the peninsula, and presented by him to the Society's Museum, and these proved to be *B. Puncticollis*, and not *B. Aurantius*.

42. *CENTROPUS RUFIPENNIS*, *Illiger*.—The red-winged Ground Cuckoo, “Jungle Crow.” *Ēṭi-kukulá*, *Sinh*. *Centropus Philippensis*, *Cuvier*.—Layard, *Annals Natural History*, 1854, page 450. Kelaart, *Prodromus Faunæ Zeylanica*, page 128.

Numerously distributed in the low-country, and extending up to 3,000 feet in the central zone and in the Morowak Kóralé. Kelaart has it in his list of Nuwara Eliya birds (*Prodromus Faunæ Zeylanica*.) This Cuckoo is specially numerous throughout the Western Province, among the low wooded hills and cultivated lands of the south-west, and in the maritime districts of the north-east. Holdsworth found it once even in the north-west about Aripu. It is also an inhabitant of the jungles on the south-east coast.

43. *POLYPHASIA PASSERINA*, *Vahl*.—The Plaintive Cuckoo. *Cuculus apud*, *Blyth*, in his Catalogue, *Birds in Asiatic Society's Museum*. *Cuculus tenuirostris*, *Gray*.—Layard, *Annals Natural History*, 1854, page 453; Kelaart, *Prodromus Faunæ Zeylanica*, page 129.

Migratory to Ceylon, appearing, according to Layard, about Jaffna in February, and in the north-east (about Aripu), according to Holdsworth, in January. They were however plentiful in the neighbourhood of Trincomalee in October last, so that they would appear to frequent the eastern side of the Island at an earlier date than the entrance north. Particularly abundant in the Northern and Eastern Provinces and south-eastern districts; frequents the Euphorbia jungles about Hambantota in numbers. It is rare in the south-west and likewise in the Western Province.

44. *SURNICULUS DICRUROIDES*, *Hodgson*.—The Drongo tailed Cuckoo. Omitted from both Layard and Kelaart's lists.

Inhabits inland jungles in the Western and Northern Provinces (Trincomalee district), and has been procured in the lower hills

near Kandy, (Holdsworth, Catalogue Ceylon Birds.) I have not met with it either in the south-western hills or in the low-country of that part; but it probably occurs on the south-east coast in the jungles there. It occurs rarely in all these localities. Also found as near Colombo as Kótté, and has been procured in several places in the Héwágam Kóralé and in the Kurunégala district. All examples that have been brought to me, or that I have myself shot, have occurred in the north-east monsoon. If it is resident in Ceylon, which I doubt, it is most probably migratory from the eastern side during that season.

44 *bis*. COCCYSTES JACOBINUS, *Bodd.*—The Crested Cuckoo. *Oxylophus Serratus*, *Spars.*—Kelaart, *Prodromus Faunæ Zeylanica*, page 128. *Oxylophus Melanoleucos*, *Gmelin.*—Layard, *Annals Natural History*, 1854, page 451.

Abundant in the north and south-east, where the country is covered with low jungle; sparingly distributed through the low-country of the south-west; occurs in the Trincomalee district in the north-east monsoon; it is decidedly migratory to the south-west during that season. It extends into the hills, being found in Dumbara.

45. EUDYNAMIS HONORATA, *Linn.*—The Koel: Kohá, Kavadi-kohá, *Sinh.* *Eudynamis Orientalis*, *Linn.*—Layard, *Annals Natural History*, 1854, page 451; Kelaart, *Prodromus Faunæ Zeylanica*, page 129.

Very numerous in the south-west, where it is resident all the year round; common in the Hambantota and Trincomalee districts during the north-east monsoon; tolerably plentiful in the Western Province, where I have procured it in the south-west monsoon not far from Colombo. I am not aware that this species extends to any considerable elevation into the hills.

Note.—Holdsworth says (Catalogue Ceylon Birds, No. 88) that he never met with this bird after April, and that he believes it to be “a true migratory bird.” This, as it appears from the above distribution, is erroneous. I have shot it in the Galle district at the end of June, and seen it during the whole of the south-west monsoon. It is possible that it may, like some few of our birds, notably *Dendrochelidon Coronatus* and *Tephrodorius Pondiceriana*, migrate from the south to the north of the Island at certain seasons.

46. PHÆNICOPHÆUS PYRRHOCEPHALUS, *Forster.*—The red-faced Malkoha. Mal Këndettá, *Sinh.*

This rare and beautiful bird I have discovered lately to have a much more extended range in Ceylon than has hitherto been supposed. It inhabits the high tree jungles and forests situated some distance

inland in the Western Province, those of the south-west from Baddégama to the foot of the hills, and the vast stretches of timbered country between the Northern road and Trincomalee. I have never seen or heard of any examples of this Cuckoo from the Central Province or southern hills, and am therefore of the opinion that it is exclusively confined to the low-country.

Note.—The discovery that I made last January of this and other Ceylon birds hitherto only recorded from the Southern and Central Provinces, such as *Oreocincla spiloptera*, *Chrysocolaptes Stricklandi*, *Drymocataphus fuscicapillus*, and the present species, in the northern forests between Anurádhapura and Trincomalee, very agreeably surprised me, and it only shews how imperfectly the more remote parts of the Island have been worked, and how much information as regards some peculiar Ceylon birds there is yet in store for the persevering naturalist.

47. *ZANCLOSTOMUS VIRIDIROSTRIS*, *Jerdon*.—The green-billed Malkohá. Mal-kohá, *Sinh*.—Layard, *Annals Natural History*, 1854, volume 13, page 453; Kelaart, *Prodromus Faunæ Zeylanica*, page 129.

Widely distributed throughout the low-country; tolerably frequent in the south-west in low, thick, scrubby jungle near the sea (Watering Point, &c.); abundant in the districts of the south-east, also in the maritime districts near Trincomalee, and, according to Holdsworth, in the neighbourhood of Aripu and Mannár. It occurs, but not very frequently, in the Western Province.

48. *NECTAROPHILA ZEYLONICA*, *Linn*.—The yellow-breasted Honey-eater. "Sunbird," "Humming bird" of Europeans; *Leptocomo* apud Cabanis, *Nectarina Zeylonica*, *Linn*.—Layard, *Annals Natural History*, 1853, page 175; Kelaart *Prodromus Faunæ Zeylanica*, page 119.

Found in abundance in all parts of the Island (except the north-west, where Holdsworth and Layard did not observe it) up to 4,000 feet in the Central Province. Most abundant in the Western and Southern Provinces; tolerably numerous all throughout the north-east up to Jaffna; found on all patanas of the coffee districts, and frequents the forests of the low-country when certain trees are in flower.

Note.—Layard, *loc. cit.*, remarks that *Nectarina minima* replaces this species in the north. It is not clear what part he writes of, except it be the north-west. I did not meet with it anywhere in the Trincomalee district, nor have I even been fortunate enough to procure a specimen in Ceylon, so that I imagine it is very rare. *N. Zeylonica* is common enough about the Naval Port.

49. *ARACHNECHTHRA LOTENIA*, *Linn.*—The Long-billed Honey-eater, Purple Honey-eater, “Humming bird” of Europeans.

Equally widely distributed with the above, but not so common in the hills; abundant in the Western and Southern Provinces; not so numerous in the Hambantota country or in the north-east.

Note.—It is singular that the other species of this genus, *A. Asiatica*, should be almost absent from the south-west, where its place is taken by the last named, when it is so common on either side of that district, viz., in the Western Province and in the south-east.

50. *DENDROPHILA FRONTALIS*, *Horsf.*—The Creeper.—Layard, *Annals Natural History*, 1853, volume 12, page 176.

Distributed throughout all the hill districts, from Nuwara Eliya, where Kelaart and Holdsworth procured it, to the low-country, in which it occurs sparingly and at uncertain times. It is very common in the Udugama and Morowak Kóralé forests as well as in the central mountains.

51. *UPUPA NIGRIPENNIS*, *Gould.*—The Hoopoe. *Upupa Senegalensis*, *Swains.*—Layard, *Annals Natural History*, 1853, page 174; Kelaart, *Prodromus Faunæ Zeylanica*, page 119.

Abundant in the north-west (Aripu district) in the winter months, according to Holdsworth; common in the Jaffna peninsula, where I found a pair breeding in January; abundant in the Kataragama district in the north-east monsoon, where it frequents the edges of the scrubs surrounding the salt lakes. It is rare in the Western Province.

52. *HEMIPUS PICATUS*, *Sykes.*—The little Pied Shrike.

Distributed throughout the low-country of the Western, Southern, and part of the Northern Provinces, and likewise extending into the hills of the Central Province to the highest altitudes. The only part of the low-country where it is common is among the woods and low hills of the Southern Province, becoming still more abundant in the intermediate forests of the Gindurah. It is found all through the Kukul and Morowak Kóralés, and is common in all districts in the central zone that I have visited. It is rare about Colombo, affecting the wooded country near Hanwella, and it is sparingly located in the forest country between Trincomalee and the central road. It affects the finer and more verdant strips of jungle along the rivers of the south-east coast. Layard records it from Jaffna.

53. *VOLVOCIVORA SYKESII*, *Strickland.*—The lesser Cuckoo Shrike. *Campephaga Sykesii*, *Strick.*—Layard, *Annals Natural History*, 1854, page 128; Kelaart, *Prodromus Faunæ Zeylanica*,

omitted; vide Holdsworth, Catalogue Ceylon birds, P. Z. S., 1872, No. 106, as to female.

Found throughout all the low-country, and extending into the Central Province and southern hills to an elevation of 3,000 feet; rare in the Western Province, where it appears confined to certain districts; common in the south-west up the valleys of the Gindurah and its tributaries, plentiful on the south-east coast, abundant in the bushy lands surrounding some of the salt lakes of the north-east, and, according to Holdsworth, very common in the north-west (Aripu.)

Note.— My experience of the plumage of the female of this bird accords with that of Mr. Holdsworth, *loc. cit.* I have never obtained or seen a single example with the black head and neck.

54. *GRAUCALUS LAYARDI*, *Blyth*.—The large Southern Cuckoo. *Campephaga Macei*, *Lessen.*—Layard, Annals Natural History, 1854, page 128; *Graucalus Pussellus*, *Blyth*.

A rare bird in Ceylon; Layard mentions it as found in the Southern Province, Annals Natural History (*loc. cit.*), but I have never yet met with it here. It occurs in the Western Province between Colombo and Ratnapura, and is likewise procured now and then in Dumbara.

55. *PERICROCOTUS FLAMMEUS*, *Forster*.—The Scarlet Minivet. “Fly-catcher” of Europeans. “Sultan” of Coffee planters.—Layard, Annals Natural History, 1854, volume 13, page 127; Kelaart, *Prodromus Faunæ Zeylanica*, page 123.

Widely distributed, inhabiting the hills in numbers and descending into the low-country in some parts, though not occurring near the sea. Abundant in the Knuckles and Pusselláwa districts, affecting mostly the high jungle in “múkalana,” and very numerous in all the fine Southern forests. Holdsworth says it is abundant at Nuwara Eliya, where however Kelaart did not seem to have observed it. I have not met with it nearer Colombo than the small tract of forest at Poré, where the Trogon is also common. It is found in the north-eastern forests.

56. *PERICROCOTUS PEREGRINUS*, *Linn.*—The little Minivet. Layard, Annals Natural History, 1854, volume 13, page 127; Kelaart, *Prodromus Faunæ Zeylanica*, page 123.

Common throughout the Island from the maritime districts up to 3,500 feet, according to my observation, and extending in the north-east monsoon up to Nuwara Eliya, where Holdsworth found it plentiful, and from where it is recorded in Kelaart's list, *loc. cit.* It is common at all seasons in the Galle district, and I have met with it in the Fort at Jaffna.

57. *ARTAMUS FUSCUS*, *Vieill.*—The Wood Swallow. Layard, *Annals Natural History*, 1854, volume 13, page 128; Kelaart, *Prodromus Faunæ Zeylanica*, page 124, also gives in addition, by some mistake, *A. Leucorhynchus*, a Philippine Islands species.

Abundant in many localities of all parts of the low-country, notably round the Bolgođa and Pánaduré lakes in the north-east monsoon, up the valley of the Gindurah at all seasons, and about Trincomalee in the winter season. Rare about Colombo and common in the north-west, according to Holdsworth. It does not appear to extend far inland, being found mostly along the sea border.

58. *LANIUS CRISTATUS*, *Linn.*—The Rufous Shrike. “Butcher bird” of Europeans. *Lanius superciliosus*, *Linn.*—Layard, *Annals Natural History*, 1854, page 130; omitted from Kelaart’s list, *Prodromus Faunæ Zeylanica*.

Although Layard does not mention it, I am sure this bird is migratory in the north-east monsoon to Ceylon. Holdsworth and myself have only procured it in that season. Abundant on all dry, bushy, open lands throughout the low-country, particularly so at Hambantota and parts of the south-west in the vicinity of Galle, near Trincomalee, and according to Holdsworth, at Aripu. I have found it in patanas in all the coffee districts, and Mr. Holdsworth obtained it at Nuwara Eliya. It sometimes remains in the Southern Province as late as the last week in April.

59. *TEPHRODORNIS PONDICERIANA*, *Gmeln.*—The Wood Shrike, *Tephrodornis affinis*, *Blyth.* (Vide Holdsworth, *Catalogue Ceylon Birds*, P. Z. S., 1872.) *Tephrodornis affinis*, *Blyth.*—Layard, *Annals Natural History*, 1854, page 131; Kelaart, *Prodromus Faunæ Zeylanica*, page 124.

Resident all the year round in the south of the Island, and appears to migrate to the north and west in the north-east monsoon; common in the valley of the Gindurah, also in the Western Province, and at Trincomalee in the north-east monsoon; likewise on the south-east coast at the same season. I have never seen it at Colombo in the south-west monsoon, nor has Mr. Holdsworth observed it in the north-west during the prevalence of that wind.

Note.—The movements of this and some few other birds in our list, are extremely puzzling; they would seem (these apparently adventuresome individuals) to move in part from the south, where they are resident throughout the year, to the north and west in the face of the north-east monsoon, or else those we have here do not migrate to the east during the south-west monsoon, finding shelter enough from the wind among the countless little hills of which this corner of the Island is composed, and hence are stationary here at all seasons, whereas their congeners, inhabiting the

north and west, are driven from those more exposed parts to the other side of the Island, and return again with the influence of the north-east monsoon. If this latter is the correct hypothesis, and I am inclined to think it is, no migration takes place at all up the west coast in the north-east monsoon from this district, those parts being supplied only from the eastern side; but I regret to say my knowledge of what species frequent the Eastern Province from May until October is not sufficient to enable me to arrive at any definite conclusion in the matter.

60. *DISSEMURUS LOPHORHINUS*, *Vieill.*—The Ceylon crested Drongo. “Kaputu báale” Sinhalese name for all the family. *Dicrurus Edoliformis*, *Blyth.*—Layard, *Annals Natural History*, 1854, page 129; Kelaart, *Prodromus Faunæ Zeylanica*, page 124.

Exclusively confined to forests and has its head-quarters in the south-west, where it is found in the “Mukalana” up all the lower hills up to 3,000 feet or more in the Siggha Rájah ranges and in the Morowak Kóralé; occurs also in the jungles of the Héwágam and Kuruwiñi Kóralés. Layard procured it at Ambaganuwa, but I did not meet with it in the coffee districts of the Central Province, and therefore I would put it down as one of the most locally distributed birds we have.

61. *BUCHANGA LECOPYGIALIS*, *Blyth.*—The Ceylon Drongo “King Crow” of Europeans.

Confined to the Western, Central, and Southern Provinces; very abundant all through the hilly country of the south-west, affecting cultivated lands in the valleys, clearings, copses, &c. I found it in one or two of the coffee districts at an elevation of 3,000 feet, and I met with more examples in the Pupuressa district than elsewhere to the south of Kandy.

62. *MYIALESTES CINEREO CAPILLA*, *Vieill.*—The grey-headed Fly-catcher. *Cryptolopha Cinereo capilla*, *Vieill.*—Layard, *Annals Natural History*, 1854, page 127; Kelaart, *Prodromus Faunæ Zeylanica*, page 123.

An inhabitant of the upper hills of Ceylon. I have failed to find this little bird anywhere out of the Central Province, but in the higher parts of the Morowak Kóralé. In India, Jerdon says that it visits the plains in the cold weather, but however it must be looked upon as strictly a hill species. It is abundant all through the coffee districts down to about 3,500 feet, affecting especially the edges of the forests above the estates. Holdsworth has it as very common at Nuwara Eliya.

63. *LEUCOCERCA AUREOLA*, *Lesson.*—The White-fronted Fan-tail. *Leucocerca compressisostriis*, *Blyth.*—Layard, *Annals*

Natural History, 1854, page 126; Kelaart, *Prodromus Faunæ Zeylanica*, page 123. *Leucocerca Albofrontata*, *Franklin*.—Holdsworth, *Catalogue Ceylon Birds*, P. Z. S. 1872, No. 119.

A rare species in Ceylon, being found sparingly here and there, both in the low-country and Central Province, up to 3,000 feet. It occurs in the south-west, the specimen in the Museum having been shot at Matara, and I have procured it at Baddégama; frequent about tanks in the south-eastern Province, affecting the magnificent tamarind trees which grow on those spots. I have seen it in the Knuckles in November, and Mr. Neville writes of some species of this genus (J., R. A. S., C. B., 1867-70) inhabiting the neighbourhood of Nuwara Eliya, but whether it be this bird or *L. fuscoventris*, is not as yet quite clear.

64. *TCHITREA PARADISI*, *Linn.*—The bird of Paradise Flycatcher. “Bird of Paradise” of Europeans. “Gini-hora,” *Sinh.* (in the red stage) “Redi-hora (in the white stage). Layard, *Annals Natural History*, 1854, volume 13, page 136; Kelaart, *Prodromus Faunæ Zeylanica*, page 123.

Migratory to Ceylon in the north-east monsoon, very numerous in the north-east about Trincomalee as early as the first week in October; in the Western and Southern Provinces at the end of that month. In the latter district it is abundant until March, particularly on the tanks of the Gindurah as far as the “Haycock;” I found it on the rivers of the south-east in March.

65. *ALISEONAX LATIROSTRIS* *Raffles.*—The Brown Flycatcher. *Butalis Latirostris*, *Raffles.*—Layard, *Annals Natural History*, 1854, page 127; Kelaart, *Prodromus Faunæ Zeylanica*, page 123.

A winter visitant to Ceylon, and distributed throughout all parts of the low-country and the hills up to 4,000 feet. It is nowhere numerous, isolated examples being now and then met with in the season, affecting detached clumps of trees, native gardens, the edges of woods, and such like spots.

66. *CYORNIS JERDONI*, *G. R. Gray.*—The Blue Red-breast. omitted from Layard and Kelaart’s lists, but perhaps *C. Rubeculoides*, *Vigors.*—Layard, *Annals Natural History*, 1854, page 125, as it is doubtful what species he wrote of at the time.

Occurs plentifully in forests in the Western Province (Héwágam Kóralé) where it breeds; numerous in the jungles round Trincomalee, even close to the sea, and in the forests between the Central road and that place; common in the hill forests of the south-west, but not found in the maritime districts of that part.

Note.—The bird found in the Southern Province has more blue at the chin and along the side of the throat than my Western and Northern Province examples, corresponding in fact to the description Holdsworth gives (Catalogue Ceylon Birds, P. Z. S. 1872, No. 125.) of the peculiarity in the throat, of Ceylon examples of *C. Rubeculoides*. I however have examples of this species from the north with the entire blue throat and not with “the orange colouring of the breast running up the centre” of it. Can there be a third species peculiar to the Island, which has been mistaken for *C. Rubeculoides*, inhabiting the forests of the south-western hills?

67. *PITTA BRACHYURA*, *Jerdon*.—The Pitta. The Short-tailed Ground Thrush; “*Avichiyá, Sinh.*”

Migratory to Ceylon, arriving here in September, distributed over the whole Island up to Nuwara Eliya, and almost equally common in all parts. It is perhaps less numerous in the hills and in the cultivated parts of the Western Province than in the low jungles of the south-west, north-east, and south-east. In the neighbourhood of Hambantota and Trincomalee I have found it more abundant than in this district. It seems especially fond of the low Euphorbia scrub in the Kataragama district.

68. *OREOCINCLA SPILOPTERA*, *Blyth*.—The Spotted Mountain Thrush.

I have lately discovered this bird to have a much more extended range than hitherto supposed. It is distributed throughout parts of the Central Province, not mounting as high as Nuwara Eliya according to Holdsworth, over the Morowak and Kukulú Kóralés, and occurs plentifully in places in the Northern Province in the north-east monsoon. I met with several in one spot in the splendid forests on the road from Trincomalee to Anurádhapura. It doubtless occurs in the low-hill forests of the Gangaboda Pattu in the Galle district. I have once or twice got a glimpse of a bird along the rocky streams of those jungles which could have been no other than this species. It is, as regards the Central Province, especially common in Dumbara.

69. *ALCIPPE NIGRIFRONS*, *Blyth*.—The Ceylon Wren-babbler. *Battichhá, Sinh.* Layard, *Annals Natural History*, 1853, volume 12, page 269.

Numerous in jungles all over the Island, except perhaps the dry country of the north-west (Aripu), where I observe Mr. Holdsworth did not find it. It is however abundant in parts of the Trincomalee district, and likewise occurs (though not in jungle near the sea) in the neighbourhood of Hambantota and Kataragama. In the Central Province it is numerous up to the highest points, and it is especially abundant in the bamboo thickets of the low-

country near Galle, becoming perhaps a little less plentiful in the Morowak Kóralé and higher parts of the Hinidum Pattu. It is found close to the Cinnamon Gardens, as regards Colombo, and is numerous in all the woods and jungles of the Western Province.

70. *DUMETIA ALBOGULARIS*, *Blyth*.—The White-throated Wren-babbler; “Pig Bird” of Europeans in India; *Battichchá*, *Sinh*.—Layard, *Annals Natural History*, 1853, volume 12, page 272.

Great mistakes have been made about the range of this babbler owing to its shy and skulking habits. I have discovered it to be widely distributed throughout the Island and in some localities common, although Layard remarks, *loc. cit.*, “confined to the vicinity of Colombo,” and Holdsworth (*Catalogue Ceylon Birds*, P. Z. S. 1872, No. 138) says that he only saw it in the vicinity of the Cinnamon Gardens. It appears, it is true, to be rather numerous in that particular locality, but it occurs in various parts of the Western Province, and all through the low wooded districts of the south-west, as well as in the Central Province up to 2,500 feet, at which elevation I met with it near Madulkelé in the Knuckles.

71. *DRYMOCATAPHUS FUSCICAPILLUS*, *Blyth*.—The whistling Wren-babbler; *Battichchá* *Sinh*.—Layard, *Annals Natural History* 1853, volume 12, page 269.

Another bird hitherto passed over and considered very rare. Exceedingly numerous all through the low-country of the south-west up to 2,000 feet in the Morowak Kóralé and Hinidum Pattu, and equally so in the Trincomalee district. Holdsworth remarks of it in his *Catalogue*, No. 139, “I only know of three specimens having been obtained, two of them by Layard in Colombo and on the central road leading northwards from Kandy, and one by myself also from the latter part of the Island.” It has hitherto escaped observation owing to its shy habits and frequenting thick jungle, and I might have missed it as well as my predecessors, had not my attention, on first collecting in this district, been directed to the very remarkable note or whistle resembling the words, “to meet you,” which I found on procuring a specimen emanated from this bird. Having once identified its voice, I found it an inhabitant of every bit of jungle and thicket in the neighbourhood. It occurs rarely, I imagine, in the Western Province, and will be found also in the lower parts of Sabaragamuwa. Mr. Bligh of Kandy has procured it in the Central Province, but I am not aware at what elevation.

72. *POMATORHINUS MELANURUS*, *Blyth*.—The Ceylon Scimitar Babbler.

Numerous in the jungles of the Héwágam Kóralé and interior of the Western Province generally, throughout the wooded country

of the south-west, but not so plentiful as I expected, in the upper parts of that district, in the Kandy country, and all throughout the Central Province as high as Nuwara Eliya. In the low-country of the south-west it affects by choice bamboo jungles.

73. *GARRULAX CINEREIFRONS*, *Blyth*.—The Ashy-headed Babbler.

Distributed sparingly throughout the Western, Central, and Southern Provinces (south-west), and inhabiting the damp and gloomy “múkalána” only. It is somewhat common in parts of Dumbara, I am told, and I have met with it in the Kukulu Kóralé, where I have no doubt it is more numerous than anywhere else, as the great Siṅha Rájah forest contains so many of our peculiar Island species in abundance.

74. *MALACOCERCUS STRIATUS*, *Swainson*.—The striated Babbler, “Dung Thrush” of Europeans; Demalichchá, *Siṅh.*; *Malacocercus Bunalensis*.—Layard, *Annals Natural History*, 1853, page 271; *Malacocercus Striatus*, *Swainson*; Kelaart, *Prodromus Faunæ Zeylanica*, page 122.

Throughout all the low-country in great abundance, especially numerous in the maritime districts of the Western and Southern Provinces, extending both into the Central and Morowak Kóralé hills to an elevation of about 2,500 feet; common up the valleys of the Gindurah and other southern rivers, numerous in the north-east; in fact, Layard says, *loc. cit.*, “it is one of our commonest birds,” to which I would add also, *Allcippe nigrifrons*, *Pycnonotus hæmorrhous*, *Ixos luteolus*, *Orthotomus longicauda*, our two species of *Corvidæ*, and a few others.

75. *LAYARDA RUFESCENS*, *Blyth*.—The Rufous Babbler, “Red Dung Thrush” of Europeans; Kalu-parandal, *Siṅh.*; *Malacocercus Rufescens*. *Blyth*.—Layard, *Annals Natural History*, 1853, volume 12, page 271; Kelaart, *Prodromus Faunæ Zeylanica*, page 122.

Central, Western, and Southern Provinces. In the former it is common in parts of Pusselláwa, Deltota, Dumbara, Knuckles, and, according to Holdsworth, at Nuwara Eliya in the north-east monsoon, in the Western Province; it is abundant in the jungles and sometimes in the native gardens of the Héwágam, Rayigam, and Kuruwiṭi Kóralés (I noticed it particularly plentiful at Labugama during the Kraal in 1871); in the Southern Province it is numerous all through the low wooded country on either side of the Gindurah up to the Siṅha Rájah and Morowak Kóralé forests, where I found it at the latter end of the south-west monsoon. It is remarkable that out of the seven species of Babblers found in this Island, five are peculiar to it.

76. *HYPSSIPETES GANEESA*, *Sykes*.—The Cinereous Bulbul; The Neilgherry Bulbul; *Hypsipetes*, *Neilgherrienses*, *Jerdon*; vide Holdsworth, Catalogue Ceylon Birds P.Z.S., 1872, No. 144; Kelaart, *Prodromus Faunæ Zeylanica*, page 123; Layard, *Annals Natural History*, 1854, page 125.

Western, Central, and Southern Provinces. More abundant in the latter than elsewhere, frequenting the Morowak Kóralé, Kukulú Kóralé, Upper Gindurah, Uđugama, and Kođuwa forests in vast numbers. It is perhaps more numerous in the latter low hill-forest ten miles from Galle than in the other parts; affects the chena-covered hills between that place and the sea and those on the banks of the Lower Gindurah, above Baddégama. Common in the low hill-jungles of the Western Province and in the Central Province on wooded patanas. Holdsworth found it at Nuwara Eliya in February, and Kelaart has it in his list from that place.

77. *CRINIGER ICTERICUS*, *Strickland*.—The yellow Forest Bulbul.—Layard, *Annals Natural History*, 1854, volume 13, page 124.

Abundant in many parts of the Island: throughout the Central Province to an elevation of 3,500 feet, in all the coffee districts, and in all parts of the low-country where there is forest. In the west it is found in all the forests of the Héwágam and Rayigam Kóralés, in the south-west in the “múkálana” of Kottowe (ten miles from Galle), Uđugama, Opata, and in all the high-tree jungle of the Hinidum Pattu and Kukulú and Morowak Kóralés. It is more abundant at the medium altitudes of the above southern forests than elsewhere in the Island. In the north-east it is common in the district between Trincomalee and the Central road, and, as regards the south-east, it frequents the luxuriant parts along the Kirinde Ganga, and other rivers. This species together with *Harpactes fasciatus*, *Dissemurus lophorhinus*, *Brachyptenus Stricklandi*, and one or two others, is exclusively confined to forests.

78. *IXOS LUTEOLUS*, *Lessen*.—The White Bulbul, “Cinnamon Thrush” of Europeans. *Pycnonotus flavirictus*, *Strickland*.—Layard, *Annals Natural History*, 1853, page 128; Kelaart, *Prodromus Faunæ Zeylanica*, page 123.

Western, Northern, Southern, and Central Provinces up to 4,500 feet. Very abundant throughout all the low-country, particularly in the neighbourhoods of Colombo, Galle, Hambantota, and Trincomalee, and (according to Holdsworth) Aripu. It is common at all elevations up to that abovenamed, but decreases in numbers as it ascends.

79. *PYCNONOTUS HÆMORRHOUS*, *Gmelin*.—The common Bulbul, Madras Bulbul, “Dysentery Bird” of Europeans; *Koṇḍa Kurullā* of the Sinhalese.

This may perhaps be styled the commonest of Ceylon birds; it is abundant in all parts of the low-country except where there are large stretches of forest, and is numerous in the Central Province up to an altitude of about 4,000 feet. It is less numerous in the Morowak and Kukulū Kóralés on account of their being so heavily timbered, than at corresponding heights in the Kandy country. It is found throughout the low scrubby districts of the Mágan Pattu, and in the north it is as abundant as anywhere else.

80. *RUBIGULA MELANICTERA*, *Gmelin*.—The Black-headed Bulbul.—*Pycnonotus atricapillus*; Layard, *Annals Natural History*, 1854, volume 13, page 125. *Pycnonotus nigricapillus*; Kelaart, *Prodromus Faunæ Zeylanica*, page 123.

Tolerably plentiful in the woods of the Héwágam Kóralé, and exceedingly abundant in all situations in the south-west from the sea border up to 2,000 feet in the Morowak and Kukulū Kóralés; throughout the Central Province up to the same altitude, and occurring in considerable numbers in many parts of the wooded country between Trincomalee and the Central road. It will be found in the damper parts of the south-east, in all probability, but it is most likely absent from the arid tracts of the north-west.

81. *PHYLLORNIS JERDONI*, *Blyth*.—The Green Bulbul.—Layard, *Annals Natural History*, 1853, volume 12, page 176; omitted from Kelaart's list, *Prodromus Faunæ Zeylanica*.

Northern, Western, Southern, and lower hills of the Central Province; numerous in the low cultivated country of the Western and Southern Provinces, occurring also in the forests of those parts; tolerably plentiful in some districts of the north-east; occurs in Dumbara, in company with many other low-country species, but I have not heard of it from higher parts.

82. *PHYLLORNIS MALABARICUS*, *Latham*.—The golden fronted Bulbul.—Layard, *Annals Natural History*, 1853, volume 12, page 176.

Not nearly so common as the last species, but much more widely distributed than has been supposed. Found in the north-eastern forests between Anurádhapura and Trincomalee, likewise in the Kottowe and Uḍugama “múkálana,” along the sources of the Gindurah, and in the Sípha Rájah and Kukulū Kóralé forests, throughout the Hinidum Pattu, and in the jungles of the Morowak Kóralé. Mr. Laurie of Madulkeḷé has procured it in the Knuckles district. Layard, *loc. cit.*, remarks that Dr. Kelaart got

this species at Nuwara Eliya, but that naturalist does not include it in his list from the sanatorium. Layard himself got it at Gillywally.

83. *IORA ZEYLONICA*, *Gmelin*.—The black-headed Bush Bulbul; the “Ceylon Bush-creeper” (Kelaart).—Layard, *Annals Natural History*, 1853, volume 12, page 267.

Abundant throughout the whole low-country both north and south, and extending into the hills of the Central and Southern Provinces to an elevation of about 1,000 feet; as far as I have observed this is one of the most strictly low-country species of its order that we have.

84. *ORIOLOUS CEYLONENSIS*,—The Southern Oriole “Mango bird” of Europeans; “Kaha Kurullá, *Sinh*.”

Throughout the low-country; generally common in the north-west (Holdsworth), likewise in the north-east, frequenting the forests there by choice; occurs in the Western Province in some districts more than others; numerous in the south-west, frequenting there open cultivated lands studded with clumps of trees, native gardens, and the like; occurs in the interior of the south-east.

85. *COPSYCHUS SAULARIS*, *Linn*.—The Magpie Robin; Pollichcha, *Sinh*.—Layard, *Annals Natural History*, 1853, volume 12, page 263.

Throughout the low-country and extending into the hills to an elevation of 3,500 feet. It may be often seen in the latter part, about the patanas near the bungalows of coffee estates; very numerous in the south-west and north-east, but somewhat occurs in the Hanbantota, and Kataragam districts, where its place is in a great measure taken by the equally charming and familiar little species, *Thamnobia fulvicata*.

86. *KITTACINCLA MACRURA*, *Gmelin*.—The Shama. The Long-tailed Robin, Long-tailed “Thrush.”

Western, Northern, Central and Southern Provinces. The districts in which this bird is most abundant are the Kataragam country (Mágam and adjoining Pattus) and the jungles of the north-east, particularly in the neighbourhood of Trincomalee. As it is a shy bird and frequents the densest part of the woods, it is seldom seen, but its melodious notes are heard on all sides in both those parts. Rare in the south-west, frequenting the bamboo jungles of the country round Baddégama, but rarely or ever seen owing to the thickness of the scrub; occurs in the interior of the Western Province, ranging up to the altitude of Kandy, where it is more plentiful; it probably occurs in the higher parts of the south as well. Holdsworth notices that it is abundant along the Kandy and Trincomalee road.

87. *THAMNOBIA FULICATA*, *Linn.*—The Black Robin.—Layard, *Annals Natural History*, 1853, volume 13, page 266.

Distributed throughout the whole of the low-country. According to Holdsworth is numerous at Aripu on the north-west; it decreases then towards the Western Province, being found there about chena clearings in the interior; becomes more plentiful in the same localities of the south-west, and abounds in the dry maritime districts from Hambantota round to the north-east. It is more plentiful in the south-east than in the latter district. I have not traced it, in the hills, to a greater elevation than 1,000 feet.

88. *PRINIA SOCIALIS*, *Sykes.*—The Bluish Wren Warbler.—Layard, *Annals Natural History*, 1853, volume 12, page 263; omitted from Kelaart's, *Prodromus Faunæ Zeylanica*.

Northern, Western, Central, and Southern Provinces. Sparingly distributed in all these parts, frequenting grass fields in the Western Province, sugar-cane fields about Galle and Baddégama, and patanas in the Central Province, up to, as far as I have observed, 3,000 feet. I did not find it in the north-east, but it most probably occurs there, as Layard, *loc. cit.*, found it at Point Pedro.

89. *CISTICOLA SCHÆNICOLA*, *Bonap.*—The Rufous Grass Warbler. *Cisticola Cursitans*, *Blyth.*—Layard, *Annals Natural History*, 1853, volume 12, page 262; Kelaart, *Prodromus Faunæ Zeylanica*.

Widely distributed over the whole Island from the sea coast up to Nuwara Eliya and the Horton Plains, in both of which districts it is said by Kelaart and Holdsworth to be very abundant, equally so on all patanas of the Central Province, and in paddy fields and grassy lands in most parts of the low-country. Less numerous than elsewhere in the south coast, there being but little land in that part suited to its habits.

90. *DRYMOIPUS VALIDUS*, *Blyth.*—The Ceylon Wren Warbler. *Drymoica Valida*, *Blyth.*—Layard, *Annals Natural History*, 1853, volume 12, page 262.

Western, Southern, and Central Provinces, and likewise in the north-eastern districts. This species, according to my observation, is not so abundant as *D. Jerdoni*, the common species about Colombo; it occurs in the Central Province in hill paddy fields, in the southern parts of the Island, in clearings in the valleys, and in the upper districts of the Hinidum Pattu in "kurukkan" fields. Not observed in the south-east.

91. *PHYLLOSCOPUS NITIDUS*, *Latham.*—The Green Tree Warbler. *Phyllopeuste nitidus*, *Blyth.*—Layard, *Annals Natural*

History, 1853, page 263. Omitted from Kelaart's list.

Migratory, appearing in September, and leaving in the latter part of April. It affects the tops of high trees in the forests of the Central Province, and in the jungle bordering the patana streams; the same in the southern and north-eastern parts of the Island; and affects pieces of detached jungle where the timber is large in the low-country of the south-west. It is met with near Colombo, about Póré, Hanwëlla, Bópé, and such parts as are wild and uncultivated.

92. CALOBATES SULPHEREA, *Beckst.*—The Grey and Yellow Wagtail, the Grey Wagtail. *Motacilla boarula*, *Linn.*—Layard, *Annals Natural History*, 1853, page 268; Kelaart, *Prodromus Faunæ Zeylanica*, page 121.

Migratory, as are all the Wagtails, arriving in September and leaving in May. I have found it in the Western, Central, and Southern Provinces; it remains about the coast for the first three weeks, during which time I have often seen it on the rocks of the sea shore, and then ascends to the hills, where it is found on every stream up to 6,000 feet. Mr. Holdsworth procured it at Nuwara Eliya; it is scarcely ever seen about streams at intermediate heights under 2,000 feet.

93. LIMONIDROMUS INDICUS, *Gmelin.*—The Indian Wood Wagtail. *Gomaritá*, *Sinh.*—*Nemoricola*, *Blyth.*; *Motacilla indica*, *Gmelin.*—Layard, *Annals Natural History*, 1853, volume 12, page 268; Kelaart, *Prodromus Faunæ Zeylanica*, page 121.

Migratory to the Northern, North-Eastern, and Western Provinces; common in the jungles from Dambulla to Trincomalee and especially numerous in the vicinity of the latter and along the Anurádhapura road, affecting alike jungle paths and roads through the forest and open glades; very rare in the Western Province, having once or twice been procured near Colombo, and occurs no doubt in the jungles of the northern part of the Seven Kóralés.

Note.—This is, without any exception, in my opinion, the most charming of our birds. Fearless and most inquisitive in its disposition, it is the constant companion of the naturalist in his wanderings through the lonely jungles of the Northern Province, exhibiting on all occasions the most familiar and confiding character; often when I have been resting in some silent spot, the branches of the trees forming a thick canopy overhead and the open ground beneath strewed with dead leaves, this little denizen of the woods has come to within a couple of yards of me, busily searching about, running to and fro, and ever and anon “balancing” its elegant little body in the peculiar manner common to all its genus, and after surveying me for a moment with the quietest

curiosity, has hopped up, with its lively little "chuck, clink," to the nearest branch, and, after running along it for an instant, has again commenced feeding within a few yards of the murderous weapon lying across my arm. I never could find it in my heart to shoot more than two specimens of it.

94. *BUDYTES VIRIDIS*, *Gmelin*.—The Indian Field Wagtail. *Budytes viridis*, *Scop*. Layard, *Annals Natural History*, 1853, volume 12, page 268.

Migratory, as the others of its family; common in all open grass lands in the Northern, Western and Southern Provinces; frequents newly-ploughed paddy fields, at times, in great numbers, and is especially noticeable on the esplanades of Galle, Colombo, and Trincomalee.

Note.—These birds remained very late this year, occurring at Galle as late as the 6th May.

95. *CORYDALLA RICHARDI*, *Vieill*.—Richard's Pipit. *Anthus Richardi*, *Temm*.—Layard, *Annals Natural History*, 1853, page 268.

A winter migrant to the Northern, Western, and Southern Provinces, arriving in September, and departing as late as the first week in May; common on all such open lands as those cited for the last named species; not so numerous in the Southern as in the Western Province and north-eastern districts. Found plentifully in the Jaffna peninsula.

96. *CORYDALLA RUFULA*, *Vieill*.—The common Indian Pipit. Layard, *Annals Natural History*, 1853, page 288.

Abundant all over the Island, to an elevation from the sea coast; frequents plains and patanas in the Central Province, and open grass lands, paddy fields, &c., in the low-country. It appears to be nowhere as plentiful in the south-west as in the north-east monsoon.

97. *ZOSTEROPS PALPEBROSUS*, *Temm*.—The common White-eye; "Tit" of Europeans. The *Zosterops*.

Widely distributed over the whole Island, and found in the hills of the Central Province up to 3,400 feet, at which elevation it is common in the Pussellawa district. Abundant at times in the trees in the Colombo and Galle forts, and found in both open groves and jungle where there are large trees.

98. *ZOSTEROPS CEYLONESIS*, *Holdsworth*.—The Ceylon White-eye. Ceylon *Zosterops*; vide Holdsworth, *Catalogue Ceylon Birds*, P. Z. S., 1872, No. 181, (Plate xx, Fig. 2.)

Zosterops annulosus, *Swains.* Layard, *Annals Natural History*, 1853, page 267.

One of our late additions by Mr. Holdsworth, and confounded hitherto with *Z. Annulosus*, *Swainson* (an African species), as well as with the subject of the forgoing note by Layard, *loc. cit.* Inhabits the hills from Nuwara Eliya, down to an altitude of about 2,000 feet in the Southern Province; abundant in the higher forests of the Knuckles, Upper Dimbula, and Pussellawa, as well as in the high mountain jungle round Nuwara Eliya. In the Southern Province it inhabits all the high parts of the Morowak Koralé, and is very abundant in the great Sinha Rája forest and other similar localities in the Kukulú Koralé and Hinidum Pattu; occurs sparingly on the highest parts of the Uḍugama and Opatá hills (2,000 feet.)

99. *PARUS CINEREUS*, *Vieill.*—The Indian Titmouse, “Coffee bird” of Planters.—Layard, *Annals Natural History*, vol. xii, 1853, page 267.

Distributed throughout the hills of both the Central and Southern Provinces, affecting much coffee bushes in the plantations. Not resident much below 2,000 feet, and scarcer above that altitude in the Morowak Koralé than in the central zone. Descends to the low-country at times in the North-East monsoon, occurring rarely along the west coast, at Colombo, Pánaduré, Kalutara, and Ambalangoda.

100. *CORVUS SPLENDENS*, *Vieill.*—The Grey Crow, *Karavy-kákká*, *Sinh.*—Layard, *Annals Natural History*, volume 13, 1854, page 214.

Abundant in the low-country of the north, north-west, and north-east, likewise at Colombo, and all down the west coast as far as Bentota, where, according to my experience and that of Mr. Neville (J., R. A. S. Ceylon, 1870–71, page 33) it suddenly ceases, and is replaced entirely on the south-west by the next species, *Corvus Levaillanti*. At Hambantota I believe it occurs now and then, but the prevalent species at that place is the same as at Galle.

101. *CORVUS LEVAILLANTI*, *Lessen.*—The Carrier Crow. *Goyagamma-kákká*, *Sinh.* *Corvus Culminatus*, *Sykes.*—Layard, *Annals Natural History*, 1854, page 213; Kelaart, *Prodromus Faunæ Zeylanica*, page 124.

Distributed throughout the low-country and occurring in the hills up to 5,500 feet, at which altitude it is scarce. Common in the north and west, and very abundant in the extreme south, where it takes the place, as a citizen, of the last species.

In places where the grey bird is abundant, as at Colombo and along the west coast generally, this bird frequents rather inland districts, being invariably found about native villages and detached cottages in the woods.

102. *CISSA ORNATA*, *Wagler*.—The Ceylon Jay. *Cissa puella*, *Blyth*.—Layard, *Annals Natural History*, 1854, page 213; Kelaart, *Prodromus Faunæ Zeylanica*, page 124.

Throughout the Central Province and Morowak and Kukulu Kóralé hills. It affects the upper forests in the north-east monsoon, coming down in the other season much lower. I have found it on the Gindurah, in the interior part of the Hinidum Pattu, perhaps under 1,500 feet. It is very numerous in parts of the Rakwána districts and towards the Sinha Rája forest at all seasons.

103. *EULABES RELIGIOSA*, *Linn.*—The Hill Myna, "Sela-lényiá," *Sinh.*; *Gracula Religiosa*, *Linn.*—Layard, *Annals Natural History*, 1854, page 216; Kelaart, *Prodromus Faunæ Zeylanica*, page 126.

Western and Southern Provinces and lower parts of mountain zone; commences at some little distance from the sea in the south-west, and occurs up the valley of the Gindurah in abundance, and in all the subsidiary hill forests up to about 1,700 feet in the Morowak Kóralé and Hinidum Pattu. It is found about Negombo, in the Western Province. Compared with other Indian species inhabiting the Island, its distribution is very local.

104. *PLOCEUS BAYA*, *Blyth*.—The common Weaver Bird, the "Baya." Tattéh Kurullá, *Sinh.* *Ploceus Philippinus*, *Linn.*—Layard, *Annals Natural History*, 1854, volume 13, page 257.—*P. Bengalensis*, *Linn.*; Kelaart, *Prodromus Faunæ Zeylanica*, page 126.

Western, Northern and Southern Provinces. Numerous in the north-west, in the Mannár district, breeding there, according to Holdsworth, in December; frequents the Western Province about Kótté and other localities not far distant from Colombo, breeding there in May and June; abundant in the south-west, breeding in all parts of that district from Ambalangođá to Mátara, from May until August; the same in the north-east, breeding about Trincomalee in the north-east monsoon from October till December.

105. *MUNIA UNDULATA*, *Lath.*—The spotted Munia, *Amadina undulata*, *Lath.*—Layard, *Annals Natural History*, 1854, page 258; Kelaart, *Prodromus Faunæ Zeylanica*, page 125.

Entire low-country, North and South, and Central Provinces, and southern hills up to 3,000 feet, at which elevation I have observed

it on the patanas of all the coffee districts. It is equally abundant in all parts of the low-country (except perhaps in the Kataragama district) wherever the features of the locality suit its habits.

106. *MUNIA MALACCA*, *Linn.*—The Black-headed Munia, The Cinnamon-backed Munia; *Amadina Malacca*, *Linn.*—Layard, *Annals Natural History*, page 258; Kelaart, *Prodromus Faunæ Zeylanica*, page 125.

Northern, Western, and Southern Provinces. Appears not to ascend into the hills, and is not very abundant anywhere in the low country. Found in the Western and Southern Provinces about inland paddy fields, surrounded with wild jungle, and occurs in such like localities in the north-east, about Trincomalee. In the south-west it occurs near Galle, when the paddy is in ear, coming down from the interior, and evidently retiring again after the harvest. Layard found it at Jaffna, *loc. cit.*

107. *MUNIA STRIATUS*, *Linn.*—The White-backed Munia. “Wí-kurullá,” Sinhalese name for all the Munias. *Amadina Striata*, *Linn.*—Layard, *Annals Natural History*, 1854, page 258; Kelaart, *Prodromus Faunæ Zeylanica*, page 126.

Throughout the low-country of the north-west and south and probably the east, and ascending up to 3,000 feet on the patanas of the Central Province. In the western district occurs about Kótté and its neighbourhood, and throughout the country at the same distance from the sea down to the Galle district, where it is numerous about Baddégama and such places. Affects grassy, scrubby clearings and overgrown gardens in preference to paddy fields. Not abundant in the north-east.

108. *MUNIA KELAARTI*, *Blyth.*—The Ceylon Munia. Kelaart’s Munia. *Amadina pectoralis*,* *Jerdon*; Layard, *Annals Natural History*, 1854, volume 13, page 258.

Common in the Central Province from Nuwara Eliya down to as low as 2,500 feet, where I have seen it in the same patana with *M. Undulata* and *M. Striatus*. I have not met with it in the Kukulú or Morowak Kóralé, and doubt if it occurs in the Southern hills.

109. *ESTRELLA AMANDAVA*, *Linn.*—The Amaduvad. Red Wax-bill. *Vide* my notes (J., R. A. S., C. B., 1870-71.)

Neighbourhoods of Colombo and Galle. No doubt this bird has become acclimatised in, or rather been introduced into, the Island

* An Indian species, allied to our bird, which has been separated from it since Layard wrote.

from having escaped from cages brought from India to both the above towns. I have only seen it twice in Galle, and that was at the Esplanade close to the Fort.

110. *PASSER INDICUS*, *Jerd. and Shelby*.—The Indian House Sparrow. *Gé-kurullá*, *Sinh.*

Throughout the whole island wherever there are inhabitants.

111. *MIRAFRA AFFINIS*, *Jerdon*. The Southern Bush-Lark.—Layard, *Annals Natural History*, 1854, volume 13, page 258.

On dry, open grass and scrubby land in the northern, western, and south-eastern districts; scarce in the Western Province, occurring in the Cinnamon Gardens; absent from the south-west; abundant in the lowlands of the south-east, particularly near the sea, and from thence round the east coast to Trincomalee and the north; very numerous about the grassy margins of tanks in the north-east. Layard found it at Point Pedro, and Holdsworth records it as plentiful at Aripu, just the kind of country to suit it.

112. *PYRRHULAUDA GRISEA*, *Scop.*—The Indian Finch Lark.—Layard, *Annals Natural History*, 1854, volume 13, page 259.

Abundant in the Northern Province, in the south-east, and probably all round the east coast to Trincomalee, where it is numerous; also strays into the Central Province. Jaffna, the north-east coast, and the Kataragama and Hambantota country are the localities where I have found this bird numerous, and on the 17th November, 1870, while riding up the Rambođa Pass I was astonished to find a *male feeding in some grass by the road side at an elevation of 6,000 feet!* I was within ten yards of it, and watched for five minutes; so I made no mistake when noting this extraordinary occurrence down. In India I am not aware that it has ever been recorded at such an elevation, being essentially a low-country, plain-and-desert-loving bird.

113. *ALAUDA GULGULA*, *Frank.*—The Indian Sky-Lark.

Northern, western, and south-eastern districts, and probably throughout the Eastern Province; migratory to the south in the north-east monsoon. It is abundant throughout the dry districts of the north, north-west, and north-east, and occurs on the western and south-western coasts in such places as the "Galle Face" at Colombo, and esplanade at Galle, or on any similarly situated open land. I did not find it anywhere on the hill patanas, and am of opinion that it never leaves the low-country.

114. OSMOTRERON BICINCTA, *Jerdon*.—The Orange-breasted Fruit Pigeon, “Green Pigeon” of Europeans. Batagoyá, Sinhalese name for all the genus. *Treron Bicincta*, *Blyth*.; Kelaart, *Prodromus Faunæ Zeylanica*, page 130.

Northern, Western, Central, and Southern Provinces. Occurs rarely in Dumbara; tolerably numerous in Trincomalee district; scarce about Colombo, becoming more plentiful a little distance inland, and towards the south, where it is (in the Galle district) almost as numerous as *Turtur Suratensis*. It extends in that part, up the valley of the Gindurah, to about 30 miles in a straight line from the sea, and then seems to be replaced almost entirely by the next species. This pigeon visits certain districts according as its favourite fruits abound; common along rivers in south-east.

115. OSMOTRERON POMPADOURA, *Gmelin*.—The Maroon, Maroon-backed Fruit Pigeon; vide Holdsworth, *Catalogue Ceylon Birds*, P. Z. S., 1872, No. 20.

Northern, Western, Central, and Southern Provinces. Local in its distribution through these parts. Common about Trincomalee and inland from thence to the Vanni district; abundant in parts of the south-western hill country, commencing some distance inland, and extending up to 2,000 feet in the Hinidum Pattu and Morowak Kóralé; plentiful on the Kirinde Ganga and other rivers of the Kataragama district; occurs in the country round Kurunégala, and in the wilder parts of the Héwágam and Pasdun Kóralés. Layard found it in the central mountain zone, but I do not think that it ranges about 2,000 feet.

116. CARPOPHAGA SYLVATICA, *Tickell*. — The Green Imperial Pigeon, “Wood-pigeon” of Europeans in the low-country. Maha Nil Goyá, *Sinh*.—Kelaart, *Prodromus Faunæ Zeylanica*, page 130. *Carpophaga*, *Pussilla*, *Blyth*.—Layard, *Annals Natural History*, volume 14, page 59?*

Throughout the forest-covered and heavily-wooded districts of the Island; more abundant below 2,500 feet than above that height; common in the district between Anurádhapura and Trincomalee; abundant in parts of the Eastern Province and also in the south-east, especially in the vicinity of Tissamaharáma; in all the forests of the south-west from the Kukulu Kóralé to the neighbourhood of Galle; likewise in the wilder parts of the Western Province, between Ratnapura and Colombo.

* Unfortunately the few pages containing Layard's notes on this and one or two other pigeons are torn out of the volume in the Royal Asiatic Society's Library.

117. *TURTUR SURATENSIS*, *Gmelin*.—The spotted Turtle-dove. “Kobeyá,” *Sinh*.—Kelaart, *Prodromus Faunæ Zeylanica*, page 130.

Common throughout the whole Island up to 2,000 feet in the Central Province; especially abundant in the north, north-east and south-west. I have not met with it above 1,500 feet in the Hinidum Pattu and Morowak Kóralé, although it occurs at greater elevations than that in the Kandy country.

118. *CALCOPHAPS INDICA*, *Linn*.—The Ground Dove, Green Dove. “Green Pigeon,” “Bronze Wing,” and Beetle-winged Pigeons of Europeans. “Nil-Kobeyá;” *Sinh*.—Layard, *Annals Natural History*, 1854, volume 14, page 62.

North-east, Central Province, West, and whole of the South. Very common in the Bamboo chena country from Galle inland to the Hinidum Pattu and parts of the Morowak Kóralé.

119. *GALLUS STANLEYI*, *Gray*.—Ceylon Jungle Fowl. “Weli-Kukulá;” *Sinh*.—Layard, *Annals Natural History*, 1854, volume 14, page 62. *Gallus Lafeyetti*, *Lesson*.—Kelaart, *Prodromus Faunæ Zeylanica*, page 131.

Found on the whole Island, extending from all parts of the coast where there is jungle up to Nuwara Eliya; less numerous in the cultivated maritime districts of the west and south-west coasts than elsewhere; not very abundant in the hill country of the south-west, becoming exceedingly numerous east of Tangalla, through all the flat country of the Hambantota and Kataragama districts round to the north; equally so in the Trincomalee district, particularly in the jungles along the sea coast; abundant in the upper hills, especially when the “nelloo” (*Strobilanthes viscosus*?) is in flower, at which time I am informed the jungles round the Horton Plains swarm with this species.

120. *GALLOPERDIX BICALCARATA*, *Foster*.—The Spur-fowl, Spurred Partridge. Haban-kukulá, *Sinh*.—Layard, *Annals Natural History*, 1854, volume 14, page 105; Kelaart, *Prodromus Faunæ Zeylanica*, page 131.

Central, Southern and Eastern Provinces. Does not appear, as far as the low-country is concerned, to extend north of Negombo on the west and Batticaloa, although on the northern slopes of the Knuckles its range would of course extend beyond the latitude of those places. It may occur in the forests of the north-east, but I was not successful in tracing it there. Abundant throughout the Central Province, in the north-east monsoon especially, frequenting the jungle above the coffee estates to an altitude of about 5,000 feet. I noticed it particularly numerous in Upper Dimbula.

Common in the Sabaragamuwa district. It is more numerous in the south-western hill groups than in other parts of the Island, this part being its headquarters; it frequents all the bamboo and chena scrub, secondary jungle, and primæval forest from close to Galle up to the highest parts of the Morowak Kóralé. I did not meet with it in the maritime districts of the south-east, but it is doubtless found at some little distance inland, as it occurs in the Friar's Hood district of the Eastern Province.

121. ORTYGORNIS PONDICERIANA, *Gmelin*.—The grey Partridge. Oussa Watuwá, *Sinh*. *Francolinus Ponticerrinus*, *Gmelin*.—Layard, *Annals Natural History*, 1854, volume 14, page 107; Kelaart, *Prodromus Faunæ Zeylanica*, page 131.

Northern and Western Provinces. Common from Jaffna along the west coast down to Puttalam, not found at the east coast however; tolerably numerous near Colombo about the Cinnamon Gardens, where I imagine it has introduced itself by escaping from confinement. Layard, *loc. cit.*, says it is found at Taggalla; I have however not heard of it from that part, and did not meet with it further round to the south-east. Kelaart procured it at Nuwara Eliya.

122. EXCALFATORIA CHINENSIS, *Linn*.—The Chinese Quail. Blue-breasted Quail. “Wenella-watuwá,” *Sinh*. *Coturnix Chinensis*, *Linn*.—Layard, *Annals Natural History*, 1854, page 107, volume 14, page 107.

Western and Southern Provinces; abundant in all the paddy fields of the south-west, and extreme south as far round as Mátara, not extending far inland however; common in swampy fernbrakes in the Cinnamon Gardens near Colombo and in like situations down the West Coast.

123. TURNIX TAIGOOR, *Sykes*.—The Black-breasted Quail. “Rain Quail.” Panduru Watuwá, *Sinh*. *Turnix Ocellatus*, *Scop*.—Layard, *Annals Natural History*, 1854, volume 14, page 107; *Coturnix Coromandelica*, *Gmelin*.—Kelaart (erroneously) *Prodromus Faunæ Zeylanica*, page 131.

Throughout all the low-country north and south, where the features of the land suit its habits. Abundant in the north-west, and tolerably common on the other coast near Trincomalee; inhabits low copses, overgrown clearings, &c., in the low hills and intervening flats of the south-west. It is not numerous in the Hambantota district, being probably found more in the open “park” country than near the sea.

Note.—Layard, *loc. cit.*, says this species is abundant in the south, and the variety which Mr. Blyth designates as *T. Bengalensis*.

sis, in the north. *P. Bengalensis* is however synonymous with *P. Taigoor*; I did not see any difference, in examples procured in the Trincomalee district, from many south country specimens, and I notice that Holdsworth, Catalogue Ceylon Birds, P. Z. S., 1872, No. 223, does notice the fact of another variety existing in the north.

124. *CHARADRIUS FULVUS*, *Gmelin*.—The Indian Golden Plover. “*Oleya*,” “*Rana Watuwá*,” *Sinh.*; *Charadrius longipes*, *Temm.*—*Charadrius Virginicus*, *Beck.*—Layard, Annals Natural History, volume 14, page 109.

Migratory to Ceylon, appearing in September and leaving in April, generally distributed in the low-country and found where there are open lands; more numerous between Baddégama and Galle than anywhere else in the south; occurs near Colombo in hot weather; found in the maritime districts of the south-east, but not in any great numbers. This species wanders about a good deal in hot weather; being found there in spots which it never frequents at other times.

125. *ÆGIALITES MONGOLICUS*, *Pallas*.—The Lesser Sand Plover; “*Watuwá*,” *Sinh.* *Hiaticula Leschenaulii*, *Lesson*.—Layard, Annals Natural History, volume 14, page 109; Kelaart, Prodrum Faunæ Zeylanica, page 133.

Around the whole coast of Ceylon, arriving in October and departing as late as the first week in May. Frequents sandy banks of rivers and open lands in the south-west; found after rain in such spots as the “*Galle Face*” at Colombo, and the esplanade at Galle; numerous round all the salt lakes and lagoons from Hambantota to Trincomalee, and very abundant north of that on Niláveli, Kumburaputty, Periya Karrety, and Mullaittivu back-waters and in all lagoons to the extreme north. At the west coast it is numerous from Jaffna down to Negombo lake.

126. *ÆGIALITES DUBINS*, *Scop.*—The Indian Ringed Plover. *Ægialites Philippensis*, *Scop.* *Hiaticula Philippina*, *Scop.*; Layard, Annals Natural History, 1854, volume 14, page 109.

North, west, east, and south-east coasts. Not nearly so abundant as, and more local than, the last species; common in the north-west, where Mr. Holdsworth thinks it is resident; occurs at times down the west coast on grass lands near the sea; absent from the south-west and not frequent on the salt pans of Hambantota and Kirinda; more numerous, as far as I have observed, along the north-east coast than elsewhere, where it affects the shores of all the salt lagoons beyond Niláveli to Mullaittivu. All these small species of *charadrinæ* are met with on the lagoons and estuaries of Jaffna.

127. *LOBIVANELLUS INDICUS*, *Bodd.*—The Indian Lapwing-Red-wattled Lapwing; Kibulla, *Sinh.* *Lobivanellus Gœnsis*, *Gmelin*; Layard, *Annals Natural History*, volume 14, page 109; Kelaart, *Prodromus Faunæ Zeylanica*, page 132.

Abundant throughout all the low-country both in the maritime districts and at some distance inland, wherever there are open lands, swamps, tanks, paddy fields, &c. Less plentiful in the south-west, perhaps, than in other districts. In the south-east frequents borders of tanks and the flat lands around the salt pans.

128. *ÆDICNEMUS CREPITANS*, *Temm.*—The Stone Plover-Norfolk Plover. “Thick-knee.”—Layard, *Annals Natural History*, 1854, volume 14, page 108; omitted from Kelaart, *Prodromus Faunæ Zeylanica*.

Northern, Western, and Eastern Provinces, and south-eastern districts. Common on both coasts in the north, being numerous about Trincomalee. In the south-east it is plentiful at Kirinda and all that neighbourhood; in the west it is scarce, occurring in the Cinnamon Gardens during the first part of the north-east monsoon. I have never met with it in the Galle district; it appears to be migratory to those parts of the south which it frequents.

129. *STREPSILAS INTERPRES*, *Linn.*—The Turustone.—Layard, *Annals Natural History*, 1854, volume 14, page 110; *Cinclus Interpres*, *Linn.*—Kelaart, *Prodromus Faunæ Zeylanica*, page 133.

Migratory; very local in its distribution, and our rarest wader. Layard records it, *loc. cit.*, at Point Pedro in the month of January. Occurs down the north-west coast, and probably on the salt lakes and lagoons of the Mullaitivu and Trincomalee districts. It is absent from the south-west, and more numerous, I am of opinion, in the south-east than elsewhere; I found it in that district in pairs, frequenting the shores of the salt lagoons.

130. *GALLINAGO STENURA*, *Temm.*—The Pin-tailed Snipe-Indian Snipe. Kas-watua, *Sinh.*—Layard, *Annals Natural History*, 1854, volume 14, page 266; Kelaart, *Prodromus Faunæ Zeylanica*, page 135.

Found throughout the Island up to an elevation of 3,000 feet, beyond which a few stray to the upper hills. Arrives in the Western Province as early as the 20th September, and remains as late in the Southern Province as the 6th of May; these are of course only individual instances. Especially numerous in the Kurunégala district, at Tamblegam in the north-east, about some of the tanks in the Eastern Province, and at Uđugama in the south western forest district.

131. *RHYNCHŒA BENGALENSIS*, *Linn.*—The Painted Snipe. “King Snipe.” “Rajah-watuwa,” *Sinh.*—Kelaart, *Prodromus Faunæ Zeylanica*, page 135; Layard, *Annals Natural History*, 1854, volume 14, page 266.

Found throughout the whole of the low-country, arriving about the same time as the “Pin-tail,” and leaving in May, although many individuals remain here to breed.* It is locally numerous, being common in some districts where there are marsh and deserted paddy lands, and rare in others equally favourable to its habits of concealment. Numerous about Pánaduré and Bolgoða lakes, near Kalutara and Wakwella, Mátara, &c.; likewise in the north-east about Tamblegam, the “salt lake,” and other localities in the vicinity of the Naval Port. In this latter district it affects much the salt marshes near the edge of the tidal flats round the salt lagoons. Tolerably frequent in the Jaffna district. I am not aware whether it frequents the south-eastern parts of the Island in any quantity.

132. *ACTITIS GLAREOLA*, *Gmelin.*—The spotted Sandpiper. “Watuwa,” *Sinh.*

On salt marshes, near and on tidal flats, along margins of brackish lagoons, on the borders of tanks, and in paddy fields newly ploughed all round the shores of the Island, extending into the interior where there are tanks and cultivated fields; more numerous perhaps in the north-west, about Jaffna, and all down the north-east coast, and also all the salt-pans of the south-east, than in the Western Province and south-western districts; in these latter parts, however, it is generally distributed, being, in company with the next species, the only waders found on the dreary shores of the mangrove-lined lagoons of Amblangoða, Rogalla, and the like places.

133. *ACTITIS HYPOLEUCOS*, *Linn.*—The common Sandpiper; *Totanus hypoleucos*, *Linn.*—Layard, *Annals Natural History*, 1854, volume 14, page 265; Kelaart, *Prodromus Faunæ Zeylanica*, page 134.

Throughout all the low-country and up to 3,000 feet in the hills, frequenting the borders of rivers far inland, the shores of the salt lagoons and brackish lakes, and the rocks of the seashore round the Island. For the greater part migratory, arriving very early in September and leaving in May, but some few remain throughout the year; whether they breed or not, I am unable to state.

* This bird has been known to breed at Anurádhapura, Kalutara, Uđugama, and Póré, near Colombo, from which latter place the “nestling” in the Society’s Museum was procured.

134. *HYDROPHASIANUS CHIRURGUS*, Scop.—The Pheasant-tailed Jacana, the “Water Pheasant;” Ballat-saarū or “Cat Teal” of the Sinhalese.—Layard, *Annals Natural History*, 1854, volume 14, page 267. *Hydrophasianus Sinenses*, *Waghtler*.—Kelaart, *Prodromus Faunæ Zeylanica*, page 135.

Throughout the whole of the low-country, on all fresh water tanks, swamps, and lakes. Very numerous on all the inland tanks of the Vanni and Trincomalee districts, in Bintenna lake, on the tanks of the east and south-east (particularly Tissa Maha Rama and Sittrawella in the Kataragama country); about Mátara, on Bolgoða lake, and on Kotte lake, and other sheets of water in the Western Province.

135. *PORPHYRIO POLIOCEPHALUS*, Lath.—The Blue Coot, Purple Coot. Kittala, *Sinh*.—Layard, *Annals Natural History*, 1854, volume 14, page 268. Omitted from Kelaart’s *Prodromus Faunæ Zeylanica*.

Throughout the low-country generally. Rare on Bolgoða, Amblangoða lakes, frequenting secluded nooks; occurs about the marshes near Mátara; more common on the tanks of the south-east and throughout the Eastern Province, and abundant on the tanks of the Western Province and on Bintenna lake.

136. *GALLINULA PHŒNICURA*, Forster.—The white-breasted Water-hen. “Korowaka,” *Sinh*.—*Gallinula Phœnicura*, *Pennant*.—Layard, *Annals Natural History*, 1854, volume 14, page 268; Kelaart, *Prodromus Faunæ Zeylanica*, page 135.

Abundant throughout the low-country, and occurring in the valleys of the Central Province at about 2,000 feet. Affects swamps, marshes, paddy fields, tanks, ditches, and all spots where there is water permanently.

137. *GALLICREX CRISTATUS*, Lath.—The Water-cock. “Kora” in India. “Willi-kukula,” *Sinh*.—*Gallinula cristata*, Lath.—Layard, *Annals Natural History*, 1854, volume 14, page 268; Kelaart, *Prodromus Faunæ Zeylanica*, page 135.

Occurs sparingly in all marshy districts throughout the low-country. In the Western Province at Kótté, and in Pánaduré and Bolgoða lakes; in the south-west about Amblangoða, Wákwellā, and Mátara; on Tissa Maha Rama and all tanks of the south-east and Eastern Province; in similar localities in the neighbourhood of Trincomalee, where it is tolerably plentiful. It appears to be migratory to the south.

Note.—This species is always found in damp places covered with long grass.

138. *RALLINA CEYLONICA*, *Gmelin*.—The Banded Rail. *Porzana Zeylonica*, *Gmelin*.—Layard, *Annals Natural History*, 1854, volume 14, page 267. *Covettuera Zeylanica*, *Brown*.—Kelaart, *Prodromus Faunæ Zeylanica*, page 135.

Migratory to the west coast, coming in with the long shore wind in October. It extends to the Kandyan country, being occasionally found in Dumbara. I have not heard of it from the east coast.

139. *PORZANA FUSCA*, *Linn*.—The Ruddy Rail; Layard, *Annals Natural History*, 1854, volume 14, page 267. Omitted from Kelaart, *Prodromus Faunæ Zeylanica*.

Western and Central Provinces. This is a very rare species; Layard got it at Kotte, near Colombo, and I have heard of individuals from the Kandy district, these being the only places where it has as yet been observed.

140. *ARDEA PURPUREA*, *Linn*.—The Purple Heron; Blue Heron. "Karawal Koka," *Sinh*.—Layard, *Annals Natural History*, volume 14, page 110; Kelaart, *Prodromus Faunæ Zeylanica*, page 133.

Throughout the marshy, well-watered districts of the Island, but more numerous down the west coast than on the opposite side of the Island, where the Grey Heron takes its place in some measure. Numerous about Kalpitiya, Negombo, Bolgođa and Amblangođa, lakes and marshes to the south of the latter, and about Mátara; occurs on the tanks in the Kataragama district, and generally throughout the Eastern Province; more plentiful again towards the north, frequenting Topur tank and all the salt lakes from Trincomalee and Nilaveli northwards through Terria and Mullaitivu to Jaffna.

141. *BUPHUS COROMANDUS*, *Bodd*.—The Cattle Egret. "Paddy Bird" of Europeans. "Gelevi Koka," *Sinh*.—*Ardea bubulcus*, *Javig*.—Layard, *Annals Natural History*, 1854, volume 14, page 111; Kelaart, *Prodromus Faunæ Zeylanica*, page 133.

Throughout the low-country; more abundant in the south and west than on the east side and in the Northern Province. Inhabits paddy fields and open lands in the vicinity of streams and swamps between Colombo and Ambépassa, throughout the Rayigam and Pasdun Kóralés, and in the Galle and Mátara districts; occurs in similar localities, but not so plentifully, in the neighbourhood of Kataragama and throughout the Eastern Province, likewise in the vicinity of all the salt lagoons between Trincomalee and the Jaffna district, and occurs frequently in Dumbara.

142. *ARDEOLA GRAYII*, *Sykes*.—The Pond Heron. "Paddy Bird." "Kanna Koka," *Sinh*.—*Ardeola leucoptera*, *Bodd*.—

Layard, *Annals Natural History*, 1841, volume 14, page 112; Kelaart, *Prodromus Faunæ Zeylanica*, page 133.

Throughout all the low-country and extending into the Central Province to 2,500 feet; abundant in all marshes and paddy fields and in the vicinity of fresh water; perhaps less numerous in the dry districts of the north-west and south-east than elsewhere.

Note.—There is a small colony of these Herons in the Fort at Trincomalee, around which they may be seen perched on the rocks catching fish. This is the only place where I have ever observed the species in such situations.

143. *BUTORIDES JAVANICA*, *Horsf.*—The Little Green Bittern.—Layard, *Annals Natural History*, 1854, volume 14, page 113; omitted from Kelaart's List, *Prodromus Faunæ Zeylanica*.

Throughout the low-country generally, but most numerous in the north, north-east, and south-west. In the north it is found in the Fort ditch at Jaffna and other similar spots, and frequents the borders of all salt lagoons in the Trincomalee district which are immediately surrounded by underwood and jungle, in which it lurks by day, coming out just before sunset to feed. Occurs on Colombo lake and about Kótté, likewise on Bolgođa and Amblangođa lakes; numerous on the banks of some of the south-western rivers to a distance of thirty or forty miles from the sea. Layard, *loc. cit.*, remarks that it replaces *Ardetta Sinensis* in the north, and appears to have overlooked it in the south. It affects the immediate banks of rivers, hiding during the day under the overhanging bushes and jungle, and is thus likely to be passed over in places, where, as on Gindurah river, it is common.

144. *ARDETTA FLAVICOLLIS*, *Lath.*—The Black Bittern; Layard, *Annals Natural History*, 1855, volume 14, page 113; omitted from Kelaart's list, *Prodromus Faunæ Zeylanica*.

Migratory to the west and south of Ceylon during the north-east monsoon; frequents the swamps in the vicinity of Colombo, where it first arrives; occurs in reedy, grassy spots on the borders of all the lakes of the Western Province. I did not meet with it either in the south-east or in the Trincomalee district. Layard, *loc. cit.*, says it is "not uncommon about Mátara."

145. *ARDETTA CINNAMOMEA*, *Gmelin.*—The Chesnut Bittern. "Nati-Korowaka," also "Meti-Korowaka," *Sinh.*—Layard, *Annals Natural History*, 1854, volume 14, page 113; Kelaart, *Prodromus Faunæ Zeylanica*, page 133.

Western and south-western districts. Common in the Cinnamon Garden fernbrakes and in paddy fields throughout the Rayigam

Kóralé, and in the neighbourhood of Bolgođa and Amblangođa lakes; likewise in the Galle district as far east as Mátara. I did not meet with it in the north-east, but it most likely inhabits that district, which has much in common with the south.

146. *NYCTICORAX GRISEUS*, *Linn.*—The Night Heron. “Ra-Kana Koka,” *Sinh.*—Layard, *Annals Natural History*, 1854, volume 14, page 114; omitted from Kelaart’s list, *Prodromus Faunæ Zeylanica*.

On the borders of secluded lakes and tanks throughout all the low-country; frequents sequestered spots, living in “colonies” on Amblangođa, Bolgođa, and Tangalla lakes, Sittrawella and Uđuwella tanks in the Kataragam country, and similar localities in the north-east.

147. *GOISACHIUS MELANOPHOLUS*, *Raffles.*—The Malay Bittern. *Tigrisema Melanophila*, *Raffles.*—Layard, *Annals Natural History*, 1854, volume 14, page 114; omitted from Kelaart’s list, *Prodromus Faunæ Zeylanica*.

An occasional visitor occurred in the vicinity of Colombo in November, 1852, vide Layard, *loc. cit.*; at Aripu in the north-west, during the same month of 1866; and, finally, near Colombo, where the Society’s specimen was obtained during last November. It has generally been obtained in marshes, the natural abode of Bitterns, the only exception to that rule having been in the case of Mr. Holdsworth’s example, which was found lurking among some thick bushes in his compound at Aripu, and had, in all probability, not been more than a few hours in the Island.

Note.—The occurrence of this Malayan form, in Ceylon, which appears to be migratory to the country with the north-east monsoon, is extremely interesting. It has never yet been procured on the Indian coast, and would seem to be drifted to the south-west from the opposite side of the Bay of Bengal purely by the influence of the wind from that quarter. Its visits certainly are few and far between, and it must accordingly be viewed in the light of an “occasional visitor, and not a regular migrant.” It has always, it will be observed from the above remarks, been found here at the beginning only of the north-east monsoon, but this is easily explained by the fact, that birds on first arriving in a new country are always more readily procured than afterwards, when they have wandered into their accustomed haunts. It has moreover been shot, in each instance, on the west side of the Island—that farthest removed from its natural habitat, Malacca, but this, I think, is entirely owing to the absence of any very diligent researches into the avifauna of the east coast during the north-east monsoon or at any other time of the year.

148. *ANASTOMUS OSCITANS*, *Bodd.*—The Shell Ibis “Shell-eater” of the Indian sportsmen. Gombelli-koká, *Sinh.*—Layard, *Annals Natural History*, 1854, volume 14, page 115.

Throughout the low-country, but rare along the western coast. There is a “colony” on the lake near Amblangoða, and the specimen in the Society’s Museum (a young bird) was procured in the Kełani-gaᅅga. Very abundant in the south-east, frequenting Sitrawella, Tissa Maha Rahma, Uđuwella, and other tanks in the Kataragam district, and extending from thence through the Eastern Province. It is rare in the north-east, occurring on Tóppu tank. Probably numerous on the Paderia and other inland sheets of water in the Northern Province.

149. *DENDROCYGNA JAVANICA*, *Horsf.*—The Whistling Teal. “Teal” of Europeans. Saaru, *Sinh.*—*Dendrocygna arcuata*, *Cuv.*—Kelaart, *Prodromus Faunæ Zeylanica*, page 136; Layard, *Annals Natural History*, 1854, volume 14, page 269.

Throughout the whole of the low-country, not extending into the hills. In the Western Province particularly abundant at times, about Bolgoða and on the borders of the Bendoða river; about Mátara and in the neighbourhood of Baddégama in the south; likewise on all the eastern and northern tanks.

150. *PODICEPS PHILIPPENSIS*, *Bonn.*—The Indian Grebe “Dab-chick”; Layard, *Annals Natural History*, 1854, volume 14, page 270; *Podiceps nimor*, *Lathan.*—Kelaart, *Prodromus Faunæ Zeylanica*, page 137.

Common in the Northern, Eastern, and Western Provinces, somewhat scarce in the south. Found on Colombo lake, and numerous on many of the tanks in the north.

151. *STERNA NIGRA*, *Linn.*—The white-winged Black Tern. *S. Leucoptera*, *Temm.*—Holdsworth, *Catalogue Ceylon Birds*, P. L. S., 1872, No. 310.

North-west coast. Procured by Holdsworth near Aripu in May 1860; and a very rare visitor to our shores. *Hab.* “India, China, North Africa, and South Europe.”

152. *HYDROCHELIDON LEUCOPARCIA*, *Natt.*—The small Marsh Tern. *Hy. Indica*, *Stephens.*—Layard, *Annals Natural History*, 1854, volume 14, page 270.

On inland marshes, paddy fields, and tanks in the vicinity of the sea round the whole coast. Abundant also on the salt lakes of the north-east, and extending inland in that part to the tanks of the Vanni district; frequents the salt-pans near Hambantoto; more numerous in paddy fields in the south-west than in other localities; common on Bolgoða lake.

153. (?) *THALASSEUS CRISTATUS*, *Stephen*.—The large Sea-Tern. May be *St. Bergii*, *Licht*.—Hume, "Stray Feathers," volume 1, page 283; Layard, *Annals Natural History*, 1854, volume 14, page 270; omitted from Kelaart's list, *Prodromus Faunæ Zeylanica*.

Chiefly along the west and south coasts. Numerous at Colombo and Galle, and frequenting all parts where there are isolated wells at a little distance from the shore; less so on the south-east, and not so abundant along the north-east coast as the next species.

154. *THALASSEUS MEDIUS*, *Horsf.*—The Lesser Sea Tern. *Thalasseus Bengalensis*, *Lesson*.—Layard, *Annals Natural History*, volume 14, page 270; omitted from Kelaart's list, *Prodromus Faunæ Zeylanica*.

Equally abundant on parts of all our coasts: Aripu, Colombo, Galle, on the west; Hambantota, Batticaloa, and Trincomalee, on the east; the Jaffna peninsula on the north. More numerous than any other species of Tern, with perhaps the exception of *Gelochelidon anglica*.

Galle, 20th May, 1873.

BRAND MARKS ON CATTLE.

BY JAMES D'ALWIS.

CATTLE, as considered by all Oriental nations, are a necessary part of a man's substance. It was therefore that Abraham is said to have been "*rich in cattle*, as well as, in *silver and gold.*" (Gen. xiii. 2.) Not only from the esteem in which the possession of cattle was anciently held, as a part of man's wealth, but from considerations of policy the destruction of the animal was prohibited, and visited with severe punishment. In process of time people ceased to kill cattle for food, and cattle-stealing became a crime unknown in the land. The force of this habit however became gradually so strong that the Sinhalese had as much aversion to beef as a Moorman has a dislike for pork. There are not few in this island, especially in the Kandyan provinces, who have not tasted, and would not taste, beef. We have known instances where noblemen, invited to the houses of their friends, have refused to partake of food, simply because there was beef on the table. When, in one of our visits into the interior, many years ago, we accepted an invitation of Mahavalatenne Raṭémahatmayá, though the Kumárihámi of the late Adigar did the company the honor to be present, she nevertheless abstained from partaking any food, simply on account of *geri-mas* 'beef.' 'Gerimaha-gulámálá' was, as we learn from history, the opprobrious term with which the Sinhalese reproached Europeans for a long time after the British conquest.*

* See Marshall's Conquest of Ceylon.

The laws and usages relating to cattle were universally the same in the East. Those of the Singhalese were particularly identical with the Institutes of Manu.

The principles, as laid down in that primeval law, are briefly as follows:—If cattle, fed and kept in one's house, trespass, by day, the blame falls on the herdsman; if by night, on the owner. But, if the place in which they are secured be different, the keeper alone is responsible for any damage. He, too, is responsible for the loss of a beast, which, for want of due care on his part, has strayed, has been destroyed by wild animals, or has died by falling into a pit. He is exempted from all responsibility when a loss is occasioned by *vis major*; but, even in such a case, he is required to give prompt notice to the owner, and to make diligent search soon after the loss. So great seems to have been the jealousy with which the acts of herdsmen were watched over, that he was required, upon the death of any cattle in his charge, to produce to his master their ears, hides, tails, limbs, &c.—a practice still rigidly observed in all parts of Ceylon, by the production of the hide containing the familiar “brand-mark” of the owner.—*Manu* viii. 299. *et seq.*

The punishment for violence against cattle was the same as if the injury was inflicted on man. The offender received punishment as severe as the presumed suffering; and, where such injury resulted in “hurting a limb, wounding, or fetching blood,” the offender was also to make good the expense of a perfect cure.—*Ib.* viii. 236, 7.

Besides punishment adequate to the offence, which was inflicted in ordinary cases of cattle-stealing, thefts of cattle belonging to temples, &c., were punished more severely.—*Ib.* 324, 5.

These regulations were not less salutary in a moral point of view—putting cattle-stealing beyond all temptation—than in the promotion of agriculture. Even after the

destruction of the agricultural prosperity of this island by foreign invasions and internal commotions during the long period which preceded the British conquest in 1815, the number of cattle in the Island, as we gather from casual observations of travellers, diplomatists, and historians, was greater at that date than they are now. It is a positive fact that the Island now produces, annually, less than the number slaughtered by honest or foul means. Though, perhaps, the number killed by the butcher exceeds that which falls a prey to the knife of the cattle-stealer, yet, few—very few, people have a correct conception of the great loss which the country, and the interests of agriculture in general, have suffered, and suffer by cattle stealing.

To prevent this great evil, or rather to promote the agricultural interests of the land, various enactments have been ordained from time to time by the legislature of this country. Two proclamations declared it penal to introduce into healthy districts cattle, suffering from contagious diseases. When, in 1816 and 1828 an extraordinary murrain produced an extensive mortality among cattle, the Government unconditionally prohibited the destruction for a time of "cows and cow-calves," under a penalty of Rds. 50. In 1836 cattle-stealing increased so much that the legislature prevented the private killing of cattle by restrictions of different kinds, of which the description of the animal by its "marks" was made a condition precedent for obtaining a ticket authorizing its slaughter. Besides other measures, by which even the possession of beef, unless satisfactorily accounted for, was made criminal, a provision was made by the Ordinance No. 2 of 1835, amongst other things, for the registration and the *branding* of cattle [see cl. 7.] However leniently this law is enforced, the practice of branding cattle is carried on by all parties

as it was done from great antiquity;* and it serves as a more powerful check to cattle-stealing than any which the owner may devise.

Shortly after the enactment in question, when Mr. (since Sir) William Ogle Carr became the Queen's Advocate, he found some difficulty in retaining the different names given for cattle-brands, during prosecutions for cattle-stealing, and requested an officer of the Court to collect the names in a descriptive catalogue. The following is the result of that officer's labours, which I have the honor to present to this Society.

NOTE.

The plates are given in the Appendix in the integrity in which they were found in the original. I regret that I have not been able, as I intended, to add explanatory notes to the names.

* Arrian states that an Indian nation called Sibæ marked their oxen with a club to distinguish them.—Vol. 2, p. 195.

NOTES ON THE OCCURRENCE OF A RARE EAGLE NEW
TO CEYLON; AND OTHER INTERESTING OR RARE
BIRDS.

BY S. BLIGH, ESQ., *Kotmalé.*

I HAVE the great pleasure of recording the occurrence of that rare and beautiful eagle, "*Limnaetus Kienieri*," of De Sparre, called by Jerdon ("*Birds of India*," page 74) the "*Rufous-bellied Hawk Eagle*." I shot a fine male example of this splendid-looking bird on the 20th October last; and as it has not hitherto been recorded as occurring in Ceylon, and is rare even in India, the following particulars of its capture and description may be of interest and worth recording.

An hour before sundown, as I was walking by the skirts of a narrow belt of jungle surrounded by patanas, I heard the call-note of a Java Sparrow; being desirous of obtaining a specimen, I went in search of it, and soon discovered a small flock of these birds on the top of a very high tree, evidently enjoying the beautiful evening as much as myself after so many weeks of rain, as they were piping their pleasant notes incessantly. Whilst waiting for the chance of a shot, I saw a large bird of prey leisurely sailing just above the trees in circles, in a very buoyant and graceful manner, rarely flapping its wings, evidently hunting for a supper (on dissection the stomach proved to be quite empty). My little terrier was frisking about some thirty yards off, and on arriving over the spot, the bold bird at once altered its flight, hovering in small circles, with a heavy flapping of the wings, evidently with a view of examining the dog--giving me an opportunity of making a clear but long shot. I brought it down with a broken wing. On going to pick it up, I saw it was an unknown species to me. It put itself in an attitude of defence

at once, and a formidable bird he looked, with beak open, head thrown back, wings spread, and talons ready for action, and its beautiful brown eyes looking so fierce. Securing it with some difficulty, I should have wished to have kept it alive, but found the wing too much fractured. I may here remark, as it may not be generally known, that a good plan of killing large birds, when wounded and desired as specimens, is to tightly press the thumb on the trachea just by the roots of the tongue. I killed the eagle so very quickly without injuring a feather.

I look upon the capture of this rare Indian eagle in Ceylon as not only a highly interesting addition in itself, but also as full of promise that some of the more commoner kinds found in India may yet be added to the local list, as yet not half the species of diurnal raptores found in India have been recorded as occurring in Ceylon.

Jerdon records two specimens only as existing in Indian Museums. My specimen agrees most accurately with Jerdon's description as to plumage, but differs in measurement, mine being smaller and a male. I presume his was a female, as the sex of the specimen he describes is not given, the difference being no more than what is usual between the sexes of raptorial birds, the female being the larger. The species may be readily distinguished from others of the same family in the adult state, having but three colours, each well defined and separate, the whole upper parts black, chin, throat and breast white, a few feathers on the side of the breast having oblong streaks or spots of black, the rest of the under parts rufous, each feather having a faint line or streak of black in the centre, excepting those of the tarsus which are much paler and without streaks, the larger under wing-coverts having but a very narrow inner edge and tip of rufous, the rest black form a very conspicuous band of that color across the wing when extended, the base of the crest feathers pure

white, that of the rest of the body not so pure or tinged with grey; I noticed that the bird did not elevate its crest but slightly above the level of the head. Wings when closed reach within $1\frac{3}{4}$ inch of the end of the tail; weight, $1\frac{3}{4}$ lb.; spread of wings, 45 inches; carpal joint, $14\frac{1}{2}$ inches; length, $19\frac{1}{2}$ inches; tail, 9 inches; longest crest feather, $2\frac{1}{4}$ inches; tarsus, 3 inches; greatest spread of foot, 5 inches; depth of closed beak, 1 inch; eye rich dark brown and $11\text{-}16\text{th}$ of inch in diameter.

A few of the upper wing-coverts and the 5th to the 10th primaries have a decided brownish tinge; the 9th and 10th also have a terminal edge of albescent. These feathers I should say, though quite perfect and shew no signs of abrasion, and are quite consistent with adult plumage, indicate that the bird has lately worn a browner livery. Probably the plumage of the first two or three years may bear a resemblance to that of commoner species, and in which stage may not be readily distinguished from them, and thus possibly this rare bird has been overlooked, and suffered their too often inglorious fate in this Island of being stuck on a tall pole as a warning to their congeners that an Appu's rusty gun is only too ready to protect his master's fowls.

NINOX HIRSUTA, *Temm.*

On the 12th November about noon, when making my way through a dense jungle, I suddenly came upon three owls sitting together on a horizontal branch of a low-tree, well shaded with foliage. The instant they knew they were observed, they dashed off in a sudden manner in different directions. I secured one which proved to be an adult male of this species. Three years since, I received a pair in the flesh from Kótté near Colombo, shewing that it frequents both the low and hill country; they are said to be rare in Ceylon. The above are the only instances I have met

with the species. The stomach contained the remains of beetles and grasshoppers.

CUCULUS CANORUS, *Linn.*—The “Cuckoo.”

Now the name recalls “Home” and floods the memory with recollections of far different scenes to those where I procured the second recorded specimen of this rare visitor to Ceylon. The only other specimen was procured by Layard near Colombo many years since. My specimen was flitting from bush to bush on the Harangolla patanas, and was very shy. Its stomach contained the remains of large hairy caterpillars.—(Shot on October 7th, a male in good plumage.)

HIEROCOCCYX VARIUS, *Vahl.*

On the 7th of November I shot a male of this species. Its flight is so like that of a small hawk, that I at first mistook it for one. It seems to prefer the skirts of the jungle bordering grass land to the open country. I flushed it several times before obtaining a shot. The plumage is partially moulting. The stomach contained the remains of grasshoppers.

TRINGILLA ORIZIVORA. “The Java Sparrow.”

This well-known cage-bird I believe is often seen in a wild state near Colombo. I have frequently seen them in the jungle here. They are so wild and keep so much to the tops of the highest jungle-trees, in inaccessible places, that I have not yet been able to obtain a specimen. They seem to be quite at home in this wild district, and I think the species is entitled to a place in the future local collection in the Colombo Museum.

ERYTHROSTERNA HYPERYTHRA, *Cabanis.*

So little seems to be known of this lately discovered species, that I watched for its appearance this season with interest, and first observed it on the 12th of October. I heard two on that day in a field of coffee. I was well

acquainted with its call note, having procured specimens in Haputalé in 1869. Not knowing at the time that it had only recently been made known, I looked upon it then as a winter visitor to this Island; now I have no doubt but they leave this for more northern climes for nesting purposes. As I have noticed with many other species of small migratory birds here, so with this; the males precede the females and immature males by several days. By the 24th of the month, their robin-like notes could be heard on all sides, and seemed to be the commonest bird here. Now (18th November) the greater number seem to have moved on, but still they are to be found in every suitable locality. Three or four are now chirping round the bungalow. Their most favourite haunts seem to be thick rocky chenas, interspersed with a few trees bordering on open ground. They are very restless birds; in habit they have much more affinity to the robins and chats than to fly-catchers. Its most common notes are like, "*hwit, jur, tick, tick, tick,*" indifferently uttered, separately or all together, and it has a pleasant little song. When the "*tick, tick,*" is uttered, the bird always elevates the tail, and reminds one most forcibly then of the familiar robin. They are the earliest birds to get up that I know of here; they are early enough to see the bat off to bed, and the other evening when watching one of those creatures breaking its day's fast on a luscious guava, the robin-chat was chirping his goodnight in an orange tree hard by.

[Read 3rd February, 1873.]

EXTRACTS FROM THE RECORDS OF THE DUTCH
GOVERNMENT IN CEYLON.

BY R. VAN CUYLENBERG, ESQ.

I BEG to lay before the Society certain notes I have taken from the Dutch Records preserved in the Government Record Office. They comprise extracts from Minutes of Councils held by the Dutch during some time of their rule in this Island. It may be mentioned that their Council proceedings were always opened with prayer.

November 13, 1658.—At a meeting held this day it was resolved that the Council do place on record their gratitude to God for their success in having conquered the Portuguese. They set apart the 20th of that month as a special day of thanksgiving and supplication for His further aid—to be observed by all, under a penalty of one hundred Rix-dollars for neglect of the order. Clergymen required to announce the same from their pulpits.

My next extract is from a Minute of Council bearing date the 10th June, 1659, where the Council after due deliberation on the subject of the welfare and prosperity of the Dutch and Native Burghers come of opinion that it was principally owing to their general apathy that their means were small and accordingly suggest a remedy. They propose that the body of Burghers should have a Captain over them. The qualifications necessary for a person holding this position having been discussed, it was agreed that George Blume the Captain of the Cinnamon Department be selected to fill the post, he being a man of active habits, and one possessing an intimate acquaintance with the people of the country and would be sure to incite them to the pursuit of useful and honest occupations.

Another measure brought before the Council on this day was one having reference to the baking of bread, and it was ruled that the best white bread should weigh 8 ozs., and mixed brown bread 16 oz., and that the price of a loaf was to be 2 stivers* when the parrah of wheat was sold at Rds. 1 18 stivers. Eight Dutchmen and eight Natives (whose names are mentioned) were to have licenses as bread-bakers, and the Captain of the Burghers was to make inquiries and find out what was the number of Christians who were engaged in baking bread, and none were for the future to have licenses to carry on this trade unless they were known to be pious men and regular attendants at divine worship.

20th December, 1659.—At a meeting held this day it was brought to the notice of the Council that out of those villages in the Belligam and Galle Kóralés that yield a revenue to Government, no less than sixty were found to be inhabited by dancing women and other useless people by which the Company suffered a loss. It was therefore decided that they be expelled from thence, and that 300 recently enlisted Lascoryns be sent there on a monthly allowance of one laryn each, and one parrah of rice.

May 24, 1664.—At a meeting held this day it was decided that all Storekeepers and Cashiers employed under Government were to be called upon to give security for the due discharge of their duties, and when neglect of duty was brought home to them they were to be deprived of situation and rank and employed as soldiers.

July 18, 1664.—It was brought to the notice of the Council that there were frequent complaints by Clergymen of the evils resulting from the practice, which was daily gaining ground, of Dutch soldiers marrying women of the country,

* Stiver—a Dutch coin of the value of 2 cents.

and it was resolved that these marriages should not be permitted to take place for the future, unless a certificate from the Clergyman was produced shewing that the woman professed the Christian religion.

It was also ruled that native women, wives of Dutch soldiers, were to be required to attend the weekly services of the church. The penalty for neglect of this order was that their husbands should forfeit their wages.

October 4, 1667.—Amongst other things that came before the Council on this day was the subject of agriculture in the Galle District, and it was resolved to reward those who were chief in promoting the same in the following manner.

To the Commander, a silver jug weighing 200 Rds.

To the Dissawe, a silver gorget and tray weighing 35 Rds.

To his Assistant, 150 Rds. in cash.

To Lieut. Hans Jacob Boeff, 100 Rds. in cash.

To the Native Chiefs, 150 Rds. in cash.

I BEG to place before the Society certain notes I have made from the Dutch Records, in continuation of the paper presented by me on the 3rd February last. They comprise Minutes of Councils held by the Dutch from November, 1667, to August, 1669.

November, 1667.—The Council resolve to purchase the house of the late Assistant Engineer, Adriaan de Leeuwe, situated in the east end of the street called Prince Street east of the Fort of Colombo, in breadth along the street over against the Fort, six Renish (?) roods, and in length along Prince Street, fifteen roods, for the sum of Rix-dollars 875*. This is interesting as serving to shew the value of property at that time as compared with the present.

* A rix-dollar = usually from 4s. to 4s. 8d.

November, 1667.—The Council permit Adriaan Baach, as a special favour, to disembark some rice brought from Tutu-coreen, the same being contrary to express orders and very detrimental to the progress of cultivation here.

The Council receiving an application from one Clara Van Der Hart, requesting that she may be exempted from paying the duty of 20 per cent., on imported cloth, grant her request, but on the distinct understanding that for the future none should be exempted.

January, 1668.—The Council learning that the ship “Vlaardingen” was sea-worthy, resolve to despatch her to Holland with a cargo of Saltpetre, Pepper, and Cinnamon, along with two other ships. These three vessels to be manned with 185 to 190 men, and to be supplied with all the necessaries for a ten months’ voyage.

It is also resolved that the two ships, the “Wassende Maan” and the “Wapen Van Der Jour,” that have arrived from Amsterdam, were to be sent back laden with Pepper, and one of them was to carry a chest of Pearls of the late fishery that was bought in for the Hon’ble Company at 38,582 guilders.* The Council moreover learning that these two vessels had performed their voyage to Ceylon in seven and six months respectively, direct that the half reward of 300 guilders be given to the former, and the half reward of 600 guilders to the latter, as ordered by the Hon’ble Company, which was to be expended in procuring necessaries for the return voyage.

The Council also set apart the 2nd of February as a day of supplication and fasting, owing to the departure of these ships for Holland.

The Council learning with pleasure that a new arrival by one of these vessels, in the person of Serjeant Cornelius

* Guilders, Dutch coin=38 cents, or 1s. 9d., Rs. 14,661 and 16 cents.

Seybol, was a Lawyer and an Advocate, it was decreed that he be made a member of the Council of Justice, and receive the salary of a junior merchant.

March, April, 1668.—Amongst other instructions by the Council on ecclesiastical matters, were the following. The native languages were to be learnt by all Clergymen. The Sinhalese and Tamil languages were to be used instead of the Portuguese, which was to be discontinued.

Slaves were not to be permitted to wear hats or long hair, who were not able to speak the Dutch language intelligibly.

August, 14, 1668.—The Council on hearing that certain fishermen were about to relinquish their calling, and being of opinion that the same would be prejudicial to the public, appoint a Committee to revise the list of the fishers, and to enjoin these men to continue to pursue their calling according to ancient usage.

May, 1669.—The Council finding that the cocconut plantation at (Souti Tangh) yields a revenue of not more than 1,260 rds. per annum, against an outlay of 620 rds. per mensem, resolve on renting it out to the Burgher Louis Tramble at 900 rds. per annum from the 21st June next to the end of February, 1671.

July, 1669.—The Council offer a reward of 400 laryns* to the person who shall produce the body of a certain murderer, alive or dead.

August 5, 1669.—The Council commute the sentence passed by the Court of Justice on Cappure Camby Chetty of Hunnupittia for adultery, which was, that he be hanged by the neck until he is dead, and his corpse be put into a sack and thrown into the sea: thus—that he be whipped severely beneath the gallows, branded and banished from the Island, and interdicted from returning to it on penalty of forfeiting his life.

* Laryn.—A Portuguese coin.

THE STATURE OF GOTAMA BUDDHA.

BY JAMES D'ALWIS, M. R. A. S.

THERE is no statement in any part of the Buddhist Canon regarding the stature of Buddha, or the ordinary stature of man in his age. Nor, so far as my investigations have extended, have I found any allusion to them in any of the Commentaries to the Canon. Dimensions, however, are recorded of habitations, furniture, clothes, &c., designed for the priesthood; and they are generally expressed by the terms "sugata vidatthi." At the place, where it is first mentioned (vide *Vinaya Piṭaka*, lib. 1, chap. 4) Buddhaghosa defines the measure thus:—

Sugata vidatthi nāma idāni majjhimassa purisassa tisso vidatthiyo vaḍḍhakī hatthena diyaddho hattho hoti—*i. e.* 'Sugata vidatthi, is three spans of a middle-size person of this (age), and one and a half cubits by a carpenter's cubit.'

Upon the above authority, and on the supposition, I believe, that by sugata, "Buddha's" was meant, the calculation of his height is in this wise. Taking Buddha's span to have been the length of "three spans of an ordinary person," and giving nine inches to the ordinary span, the *sugata* span is put down at (three by nine, equal to) twenty-seven inches. Two spans being generally considered to be a cubit, or the length of the lower-half of a man's arm; and four times that length being the average height of a well-proportioned man—Buddha's stature is said to have been (twenty-seven \times two \times four, equal to two-hundred and sixteen inches, or) eighteen feet.

It is not easy to ascertain with precision if Buddhaghosa in his gloss meant, by sugata vidatthi, "Gotama Buddha's

span," and thereby intended to give his height. He does not anywhere state, on what authority he, nine and-a-half centuries after the sage's death, fixed the standard of this measure, by which he would assign to Buddha's stature three times the average height of a middle-size man of his age. It is indeed extremely doubtful, that in this explanation he simply translated what Mahinda had previously stated in his Sinhalese Comment; for Buddhaghosa unquestionably refers to the size of a span of *this, i. e.*, his age; and it will be observed, that 700 years had then elapsed since Mahinda wrote his Sinhalese Commentary. That Buddhaghosa was therefore led into an error, from a misapprehension of the expression *sugata*, there is less reason to doubt, than that he was misled by any traditional account that might have come down to his own times; for, there is abundant testimony in the *Tepitaka* to prove that Gotama was an ordinary man of his age. What, therefore, was the height of man in the 6th century B. C., or what was meant by *sugata vidatthi* in the Institute already noticed, will form the subject of investigation in this paper which I respectfully submit to this Society.

Anciently people wrote the most extravagant things of man and his nature. Their books abound in the marvellous. We read of giants, and gigantic men. Even the Old Testament, using the current phraseology of the times, alludes to them in different places, in the same way that the *Mahavansa* speaks of them as once existing in Ceylon. But, I believe it may safely be affirmed that these giants were no more gigantic than the *Yakkhas* of *Mahanama*; or that the latter were no more devils than the "evil demons," who, according to Buchanan's *History of Scotland*, "having been allied to the daughters of Dioclesian, begot giants, whose descendants remained even at the landing of Brutus." The giants of the Bible, and the *Mahavansa* were

doubtless extraordinary men, both in stature, valour¹ and strength, like a Nimrod, a Níla, or a Porus.² That they were great in stature we readily believe; but that they were three times taller than men are at present, to say the least, has not been proved. That “the mighty men of old” were in stature greater than mankind of the present day, may, moreover, be conceded on the ground that they were also long-lived. But, when the average age of man came down in round numbers to 100 years, that man generally retained his abnormal stature cannot be easily credited. All that can be safely predicated of such, is, that people of extraordinary stature have appeared from time to time, like men of extraordinary mental calibre. Not a single statement in any book authorizes the conclusion that mankind were altogether gigantic in stature after the date assigned to the flood. If Goliath was ten feet seven inches high,³ Moses was by no means of the extraordinary height which he records. If, again, the ten warriors of Duṭṭhagámini were

1 Mahawanso calls them “warriors,” p. 137.

2 Arrian says that when Alexander saw Porus “he stopped his horse, and was seized with admiration at his tallness, for he was above five cubits.” Five cubits are equal to about seven and half feet of our measure. Plutarch, p. 37, says, that, according to most authors, he was reckoned to be four cubits and a hand’s breadth; but Raderus thinks that his four cubits ought to be five; because Eustathius in his notes to Dionysius, ver. 1027, tells us, that many of the Indians were above five cubits high. Curtius gives us no certain rule by which we may guess at his stature, he only affirming, lib. viii., chap. 13, 7, “that Porus exceeded the common height of men, and that his elephant as far surpassed the rest of the elephants in bulk, as he did the rest of his army in strength and stature.” Diodorus, p. 559, adds, that “his body was so big, that his breast-plate was twice the dimensions of the rest.”—See *Arrian’s History of Alexander*, vol. ii, p. 37.

3 1. Sam., xvii., 4.

strong men, it is nowhere stated that they reached even the alleged height of Goliath.

It may be perfectly true that, anciently, men varied in stature in different regions of the world, as they do now. Those who were of Anak's race might have been of such extraordinary height that the Israelites looked like grasshoppers before them.¹ Some of the European nations may excel the Londoners of the present day. So likewise, the Indians might have been a well formed people, measuring much above the average height of other nations. We may go farther, and admit, that even in one and the same region, the distinctive character of each race of man was, and is highly variable.² It has been also noticed that there was a difference in stature between the Polynesian Chiefs, and the lower orders within the same islands.³ In like manner, the Prussian Grenadier Guards present a striking difference to the rest of the same nation. Further, the self-same Indians of the time of Alexander, as Arrian states, were "taller in stature than all the rest of the Asiatics."⁴

But, we can by no means believe that they were eighteen feet high. For, the utmost height which the self-same historian gives to "many of them" (*i. e.*, the class of Indians just above described) is "little less than five cubits." Five cubits, however, is not a very marvellous height of man even in modern times.

The result of modern investigations is, that the tallest man who ever lived was no more than nine and-a-half feet high. The skeleton that was found on the site of the

1 This is simply a form of expression, or figure of speech to heighten the idea of extraordinary height.

2 Darwin's *Descent of Man*, 1, p. 225.

3 *Ibidem*, 115.

4 Arrian's *History of Alexander*, vol. ii., p. 9

Roman camp at St. Alban's was only eight feet high.¹ A Swede, once in the Prussian army, was found eight and-a-half feet high. Charles Byrne, or O'Brien, an Irishman, whose skeleton is in the Museum of the College of Surgeons, London, was eight feet four inches high when alive.²

Now, there is no satisfactory evidence to shew that Gotama exceeded in height, any of the above persons. Nor, on the other hand, can we believe that he was of the height of the "many" Indians, whom Arrian describes as having been "little less than five cubits high;" for, he is unquestionably represented in the Buddhist canonical works, as we shall hereafter shew, as an *ordinary man* of his age; and Arrian himself records that "five cubits" was such an extraordinary stature, that Alexander the Great "was seized with admiration" (amazement?) at the tallness of Porus (for he was above five cubits high), as well as at his beauty, and the justness of the proportion of his body."

The maximum age to which people lived in the times of Gotama was in round numbers one century;³ and it is the same that is assigned in Buddhist works to men of the present day. The fact is indeed undoubted, that he had not attained the age of a Mathusela, or that of any other antediluvian, or other ancient personage mentioned in Buddhist works; or much less the age of Henry Jenkins of Yorkshire, who was 157 years old at his death in 1670.⁴ For, Gotama died in the "fulness of time," when he was only "four-score" years of age; and it must be borne in mind that the

1 Philosophical Trans., No. 333.

2 Penny Cyclopaedia.

3 See *Parinibbāna Sutta*, translated by Turnour in the Bengal Asiatic Society's Journal.

4 See Lardner's Annual Physics, p. 693.

Buddhists nowhere venture to state, that the people generally of the age of Gotama were eighteen feet high. We shall now turn our attention to some of the legends regarding Gotama Buddha.

i. It is said that Nanda, Gotama's foster brother, who was four añgulas shorter than Gotama, wore a robe in size equal to that of the sage.

ii. More authorities than one, consisting of the Canon and the Gloss., mention the fact that Gotama exchanged robes with Mahá Kassapa ; and that they both used the robes of each other.

iii. It is expressly stated that Mahá Kassapa was a middle-size man of his age.

iv. When king Ajátasattha visited Mañḍamálaka, the monastery in Jívakambavana in Rájagaha, he saw, and entered the presence of a large concourse of priests surrounded by Gotama ; and yet, seeing nothing extraordinary in Gotama different from those by whom he was surrounded, asked an Ajívaka *where Buddha was?* The Ajívaka replied, "Mahárája, he is the same (person), who, facing the east, and leaning against the central pillar, is seated, surrounded by the bhikkhus and sañghas."

v. There appears to have been so little, if any, difference between Gotama and his disciples, that when the Bráhmaṇa Sundarika Bháradvája saw Gotama with his head covered, he approached him, mistaking him for one of his fraternity ; and, when he afterwards saw his bald head, the Bráhmaṇa left the sage in disgust.

vi. When king Pukkusáti of Takkasilá heard of the great renown of Gotama Buddha, he went down to see him ; and on his way, met the sage in a public hall, and entered into conversation. It was not until they had spoken together for a good while that the sage was recognized. Nor even then was it, indeed, from any personal characteristic

which distinguished him from the rest of mankind. It was after he had been told of the fact.

Without multiplying authorities to prove, what is already manifest, that Gotama Buddha was an ordinary man of the 6th century B. C., we may now proceed to consider the passage in the Vinaya, from which it is inferred that he was eighteen feet high.

This inference is drawn, it is believed, from a misapprehension of the meaning of "sugata" in *sugata vidatthi*.

Sugata, it is true, is an appellative for Gotama. The Buddhists in Ceylon, following the definition of Buddhaghosa, interpret sugata as "Bauddha" or "Buddha's," and *sugata vidatthi* as "Bauddha span," or "Buddha's span." A little reflection, however, must convince the reader that such could not be the meaning of this word. Gotama was a man either of extraordinary, or ordinary stature. If the former, and if moreover by sugata his *ownself* was meant, it is quite clear the measures given by the phrases *sugata vidatthi*, and *sugata aṅgula*, were exceptional, and therefore conveyed no correct notion to any person who had not previously known the exact size of Buddha's hand or finger: and it is remarkable that *that* measure is not stated by the law-giver in any part of his Canon, which was intended for priests scattered about in different parts of the Majjhimadesa,—some of whom had never seen the sage,—and for priests who might come into existence centuries after his death. We are, therefore, constrained to distrust, that he meant by *sugata vidatthi* his own span—the size of which is not stated. That he did not mean the ordinary span, which might vary from age to age is sufficiently proved by the use of *sugata* before *vidatthi*.

On the other hand, if, as we may abundantly prove, Gotama was an ordinary person of his age, it is simply absurd to believe that he would speak of an ordinary

common measure by reference to his own span; or by qualifying it by the word *sugata*. It would be far more reasonable to believe that he had referred to a particular measure in use, or to any other that was then sanctioned by usage or authority. Indeed it may be believed that he meant, not an ordinary measure, but one of several measures which were known in his time. It may be then inquired; if *sugata* does not mean *Bauddha*, can it have any other sense? We are not at a loss to assign to it that "other sense." *Sugata*, from *su* 'well,' and *gata* 'taken, received, accepted,' besides being a name for *Buddha*, means 'approved,' 'accepted,' 'well received;' equal to 'standard, imperial.' With this interpretation before us let us investigate the meaning of the expression *sugatassa* and *sugata* in the following passage in the *Vinaya*, lib. 2, chap. i., section 5.

Yo pana bhikkhu *sugata* cīvarappamānaṃ cīvaraṃ kārāpeyya atirekaṃ vā chedanakaṃ pācittiyaṃ—tatrīdaṃ *sugatassa* *sugata* cīvarappamānaṃ dīghaso nava vidatthiyo *sugata* vidatthiyā tiriyaṃ cha vidatthiyo—idaṃ *sugatassa* *sugata* cīvarappamānaṃ . . ti .

Before critically examining the meaning of *sugata* in the above Institute, it is necessary to examine the cause which led to its enactment. Nanda, *Buddha*'s foster brother, who was a priest, once wore a robe as ample as the one usually worn by *Buddha*. Other priests, seeing Nanda at a distance, and mistaking him for *Gotama*, evinced the usual marks of respect; but soon found out their mistake, and expressed their disapprobation of the conduct of one of their fraternity. Now, it was to meet the wishes of those who had been deceived, that *Gotama* enacted the above rule. If then we translate *sugata* as *Bauddha*, the above rule will run as follows:—

"Should a priest cause to make a robe of the size of *Buddha*'s robe, or in excess, [he would commit] *Pācittiya*, and [the excess]

should be cut off. Here; this is the size of Buddha's *bauddha* robe—nine vidatthi long in Buddha's vidatthí, and six in width. This is the size of Buddha's *bauddha* robe.”

From a careful perusal of Buddha's edicts we find that, where one matter or thing is stated in one set of words, the same set of words is repeated, as in an old act of Parliament, where the same matter or thing is again referred to. In the edict before us, however, we have a deviation from this principle of Buddhist composition. We have *sugata cívava* in the beginning, and *sugatassa sugata cívava* twice repeated afterwards. But, where *vidatthi* is mentioned *sugata* alone occurs here as elsewhere,—shewing clearly an omission of *sugatassa* before the first *sugata*; and shewing, moreover, that a different meaning was intended by *sugata* when used adjectively. If we render *sugata-cívava* as Buddha's robe, we can assign no meaning to the word *sugatassa* which precedes the expression. That word, moreover, is a noun in the genitive case, and is not given as an attributive of *cívava*, which *sugata* is. Taking then *sugatassa* to mean “Buddha's,” *sugata* which follows must have a different meaning, and we perceive no reason whatever not to assign to it the meaning of “the accepted,” in the sense of the “authorized robe,” *i.e.*, the robe approved by usage, or prescribed by rule.

By supplying the supposed omission, which, I must not omit to state, is found in all the books, to which we could gain access—and assigning to *sugata* the meaning of ‘approved,’ or ‘the imperial,’ the Pali text may be translated, thus:

“Should a priest cause to make a robe [exactly] to the dimensions of Buddha's approved robe, or in excess, he shall be guilty of *pácittiya*; and the excess [over the prescribed dimensions¹] shall

1 We have supplied the words by reading the text in connection with the following rule, which prescribes the dimensions of a priest's robe :

be cut off. Here,—this is the size of Buddha's approved robe,—nine vidatthi long, in *imperial* vidatthi, and six in width. This is the size of Buddha's approved robe."

Applying, therefore, to the word *sugata* the same sense when it is added to *vidatthi* or *aṅgula*, we cannot, we apprehend, be far wrong if we interpret *sugata-vidatthi* as the "accepted span," "the legally prescribed span," as opposed to "the span measured by the extended thumb, and little finger."

Let us then venture to ascertain what this, if I may so call, *imperial* measure was? It is stated that twelve *aṅgulas* make a *vidatthi* or span; and two *vidatthi*'s a *hâstha*, [or *ratana*, Páli] "the lower half of the arm."

Vidatthi is a Páli form of the Sanskrit word *vitasthi*. It was a measure known to Bráhmans as well as Buddhists. According to both, it is "a long span, measured by the extended thumb and little finger"; *Asvalāyana Grihyas* iv. 1. Both are agreed as to a *span* being considered "equal to twelve *aṅgulas* or fingers." [*i. e.*, finger's breadth.]

Now, to determine the exact value of *aṅgula* mentioned in any system of lineal measure, one must naturally look to the unit from which it is raised. This unit, according to the *Abhidhānapadīpikā*, is a *likkhā* or dot; and, according to the *Amarakōsa*, a *yava*, or "barley corn." It is however impossible to form a correct idea as to what this *likkhā* was, or what was the size of the *yava*, "proceeding downwards to the *paramānu*, or the 'most minute atom,' according to the authoritative works of the Hindus."¹ The Greek writers on India have given extraordinary accounts of the size of

Pacchimantena saṅghāti dīghato muṭṭhi pañcakaṇ.

Muṭṭhittikaṇ ca tiriyaṇ tato únaṇ navattati:

'The outer robe [shall be], at least, five short (cubits) in length, and three short (cubits in width—less (shall be) unlawful.'

¹ Princep's *Ind. Antiq.*, vol. ii. Part 2, p. 122.

grains. Herodotus speaks of "a sort of Indian seed about the size of the panicum in a cod."¹

Being thus compelled to abandon all attempts to arrive at a satisfactory conclusion by "beginning from the beginning," we shall next resort to some intermediate measure, which, as it refers to, and is descriptive of, a member of the human body, may be looked upon as the basis of all measures in ancient times. This is *aṅgula*, or finger being one-twelfth of a *vidatthi* or span—twice its length being equal to a *hāstha*, San., or *ratana* Pāli, "a cubit." Princep, in his Useful Tables, treating on the subject says, "That the cubit was of the natural dimensions (of eighteen inches more or less) can hardly be doubted. [?] Indeed, where the *hāth* is talked of, to this day, among the natives, the natural human measure is both understood and practically used, as in taking the draft of water of a boat, etc. In many places also, both in Bengal and in South India the English cubit has been adopted as of the same value as the native measure."² Here, it may be conceded that the *hastha* was also of the natural dimensions of the lower half of an ordinary well-proportioned man's arm; but, we are not therefore warranted in putting down its length in ancient times as having been *eighteen inches*, especially in an investigation to ascertain through its means, the stature of ancient Indians, which is variously stated by different writers. And this difficulty is the more increased, when we find that the linear measure in ancient India was totally altered during Akbar's administration, and that "the introduction, since, of European measures in the British Indian territories, and in the Dutch and Portuguese settlements before them"³

1 Herodotus, Thalia iii., § 100.

2 Princep's Ind. Antiq. ii., Part 2, p. 122.

3 *Ibid.*

has contributed not a little to confound all calculations upon the basis of the natural dimensions of the *hâstha*.

It is, therefore, I apprehend necessary that we should fall back upon *ângula* "finger's breadth." Upon this too, no accurate calculations can be made. For that too must have varied according to the size of the men of a particular age or locality. Treating on this subject, says Thomas in his Useful Tables :

"The *gaz*, or yard, now in more general use throughout India, is of Muhammadan introduction: whether this is derived also from the cubit (for the Jewish cubit is of the same length) is doubtful; but, like the *hasta*, it was divided into 24 *tasûs*, or 'digits,' corresponding more properly to inches.

"Abû-'l-Fazl in the 'Ayûn-i Akbarî,' gives a very full description of the various *gaz* in use under the emperors, as compared with the earlier standards of the Khalîfs. He expresses their correct length in finger's-breadths, which may be safely taken as three-quarters of an inch each.

"For facility of reference, his list is here subjoined, with the equivalents in English measure at this rate :—

ANCIENT GAZ MEASURES ENUMERATED IN THE 'AYÛN-I AKBARÏ'

The *Gaz-saudâ* of Hârûn-al-Rashîd = $24\frac{2}{3}$ (some MSS.

have $25\frac{2}{3}$) fingers of an Abyssinian slave, the same *English*.

used in the Nilometer of Egypt¹ = $18\frac{1}{2}$ in.

The *Kasbah gaz*, of Ibn Abûlîlah = 24 fingers = 18 ,,

The *Yûsufî gaz*, of Baghdâd = 25 ,, = $18\frac{3}{4}$,,

1 The cubit of the Nilometer is supposed to be the same as that of the Jews, which is exactly two feet English:—if so, the 24 digits will be, precisely, inches. Volney, however, makes it $20\frac{1}{2}$ French, or 22 English inches. Some allowance must probably be made for the broad hand of a negro, but the other measures will not be affected by the same error, as they must be referred to the ordinary delicate hand of a native of Asia.

| | <i>English.</i> |
|--|------------------------------|
| The small Hashamah gaz ¹ of | |
| Abú Músa Asharí..... = 28 $\frac{1}{3}$ „ | = 21 $\frac{1}{4}$ in. |
| The long Hashamah gaz of Man- | |
| súr 'Abbás..... = 29 $\frac{2}{3}$ „ | = 22 $\frac{1}{4}$ „ |
| The Umriah gaz of the Khalif | |
| Umr = 31 „ | = 23 $\frac{1}{4}$ „ |
| The Mámúniáh gaz of Mámún | |
| 'Abbási = 69 $\frac{1}{2}$ „ | = 52 $\frac{1}{8}$ „ |
| The gaz Masáhat..... = 28 „ | = 21 „ |
| Sikandar Lodi's gaz of 41 $\frac{1}{2}$ silver | |
| Sikandarís' diameter, modified | |
| by Humáyún to 43 Sikandarís = 32 „ | = 26 „ |
| This was used in land measurements till the 31st year of Akbar. ² | |

Major-General Cunningham² also puts down the Indian *ángula* at “somewhat under three quarters of an inch,” and, adds :—

“By my measurement of 42 copper coins of Sikandar Lodi, which we know to have been adjusted to fingers' breadths, the *angula* is .72976 of an inch. Mr. Thomas makes it slightly less, or .72289. The mean of our measurements is .72632 of an inch, which may be adopted as the real value of the Indian finger, or *angula*, as I found the actual measure of many native fingers to be invariably under three-quarters of an inch. According to this value the *hasta*, or cubit, of 24 *angulas* would be equal to 17.43168 inches, and the *dhanu* or “bow,” of 96 *angulas* would be 5.81 feet. But as 100 *dhanus* make one *nalwa*, 100 *nalwas* make one *krosa* or kos, it seems probable that the *dhanu* must have contained 100 *angulas* to preserve the centenary scale.³ According to this view

1 These two are also called the Gaz Mullik and Gaz Zíádiah, because Zíád, the adopted son of Abú Sofián, made use of them for measuring the Arabian Irak.

2 See his Ancient Geography of India, p. 575.

3 The same confusion of the numbers 96 and 100 exists in the monetary scale, in which we have 2 *báraganis*, or ‘twelvers,’ equal to 1 *panchi*, or ‘twenty-five.’

the *hasta*, or cubit, would have contained 25 fingers instead of 24, and its value would have been 18·158 inches, which is still below the value of many of the existing *hastas*, or cubits of the Indian Bâzârs."

That this measure falls very far short of the Buddhist *vidatthi* may be proved by the following references to the *Vinaya*.

1. A priest's habitation should be twelve by seven spans from wall to wall.—*Vide* lib. 1, cap. 2.

Taking a span or *vidatthi* at nine inches, the room will prove to be nine, by five and a quarter English feet. Though Gotama enacted this rule with a view to economy, and to shew that large spacious halls, which his followers "had been unable to complete," were inconsistent with the "beggarly" character of the monastic system which he founded; yet, on the other hand, I am inclined to believe that he could have scarcely considered that an apartment of nine by five and-a-quarter feet would be sufficient for the occupation of a priest. At least, the width is such as to render it fit for nothing more than stretching one's self down to sleep.

2. The height of a bed or chair should be eight *añgulas*.—*See* lib. 2, cap. 1, rule 5. At the above rate of calculation this height will represent six English inches. There is no doubt that the object of this rule, as stated in the legend, was the prevention of "high seats,"—but at the same time we cannot help thinking that a seat above six inches from the ground was inconveniently low.

3. The regulated dimensions of a cushion or carpet are two, by one and-a-half spans, which will be equal at the above rate, to eighteen, by thirteen and-a-half English inches.

This may not appear to be an unreasonable or inconvenient size, representing as it does the size of an ordinary chair of the present day, but it is very remarkable that the very

rule which follows the above provides for an enlarged cushion or carpet. The reason stated in the legend is not without importance. A priest by the name of Udayí once sat upon a cushion of the above dimensions, and it was thoroughly covered over by his robes, and Buddha altered the above rule by

4. Adding 'a span of fringe to the above dimensions'.—*See* lib. 2, cap. 1. This will raise the dimensions to twenty-seven by twenty-two and-a-half inches—a space which certainly suffices for the stoutest man to occupy. But the next rule, as well as the first, which we have noticed, suggests the propriety of an increased standard for the measurement of the vidatthi.

5. It was necessary to provide for those afflicted with cutaneous diseases, with an under-shift, *i. e.*, a coil of cloth round the loins; and the prescribed dimensions of this is four by two spans;—*See* lib. 2, cap. 1, rule 8.

This in English measure will be three feet by one and-a-half feet. Supposing that the object was to prevent the robes being saturated with matter in that part of the body which is generally put into action by sitting down, it is not reasonable to believe that three feet correctly represented the rotundity of an ordinary man; and from experience in this country, we find that that length is barely sufficient to go round the broader part of an ordinary man's body.

6. In examining the provision as regards a bath-cloth of a priest, we find it to be six by two and-a-half spans, or four and-a-half feet by twenty-two and-a-half inches.

The twenty-two and-a-half inches represent the width, that is the space between the waist and the knee; and though four and-a-half feet would be just sufficient to cover the nakedness of the body; yet, it will be granted, that in order to give to all these rules as a body, reasonable effect, we must raise the standard of our measure; especially in

view of the same rule, as adapted to the priestesses, which is—

7. That the bath-cloth of a bhikkuní should be four, by two spans, or three feet by one and-a-half feet.

This is ridiculously low according to our modern notions of propriety. Making all allowances for the narrow and illiberal views of society in general in remote antiquity, and the contempt with which woman was held by mankind in those days, Gotama Buddha not excepted,—we may not be surprised, that, in regulating the size of the garments for women, the sage reduced the dimensions prescribed for the males. Yet, judging from the great good sense which predominates his social ascetic system, we are justified in expecting from the law-giver a rule by which he effectually carried out the object for which a bath-cloth was at all provided—the concealment of shame. Bearing in mind that ablutions in the age of Gotama were performed in public places, and at open ferries (see *Vinaya* lib. 4) we certainly think that the same dimensions of a wrapper, intended as an under shift in the case of males afflicted with cutaneous diseases [vide *Supra*, Case 5], would scarcely suffice for women bathing at public rivers. Not only this, but the following rule which regulates the size of Buddha's robe clearly indicates that the standard of our measure should be raised.

8. The size of Gotama Buddha's robe is nine by six spans, equal to six and three-quarter by four and-a-half feet.

If the height of man in the age of Gotama was six feet, a robe of six and three-quarter feet, making allowances for a coil round the shoulder would scarcely fit him “from neck to ankle,” but the same cannot be said of the *width* of the robe of a “decently clad” priest, which is put down at four and-a-half feet—little above the length for a wrapper provided for by rule given in the fifth case cited above.

Abandoning therefore the standard of nine inches for a *vidatthi*, we shall here notice what has been said on the

subject by a learned Buddhist priest of Siam named Rāṅ-sisúriya-bandhu. He agrees with us that Gotama was an ordinary, or a middle-size man of his age, and cites much of the very circumstantial evidence which we have been at great pains to collect in proof of the fact. He does not, however, understand by *sugata vidatthi* an imperial measure, but takes it for granted, that by it Buddha's span was meant. He ridicules the idea of a *sugata vidatthi* having been, as stated by Buddhaghosa, three times the length of the span of an ordinary man of his age. And, though he holds the ancients in high esteem, and acknowledges that to them we are greatly indebted for much of what we know; he nevertheless affirms that in this respect Buddhaghosa's account cannot be accepted, and concludes that part of the subject by—not calling the ancients, as Lord Brougham did, “children” as compared with the age of moderns,—but, boldly asserting, that “we are not the slaves of the ancients.”

In fixing Buddha's height, he says¹ —“Buddha was by one-fourth taller than an ordinary man of *his* age. That is, when you divide such an ordinary man's height into three, three such parts, plus one more, constituted Buddha's height.² Buddha's height, he adds, was, by the carpenter's cubit of the present day, 129 inches.³ His fathom was of the same length.⁴ The height of man in Buddha's age was ninety-two *ánḡulas*⁵ and one *kalá*.⁶ Their fathom ninety-seven *ánḡulas*.

“Now that twenty-three centuries have elapsed since the death of Buddha, and we are in the twenty-fourth century,

1 Free translation from the Páli.

2 *i. e.*, He was taller by one-third the height of an ordinary man.

3 *i. e.*, ten and three-quarter feet.

4 He agrees here that the height was four times the *hâstha*.

5 *i. e.*, little more than seven and two-third feet.

6 And yet he says Buddha was an ordinary man.

we find the height of man to be seventy-five *án*gulas¹; and their fathom, eighty. *Century after century the height of man is reduced by three kalá.* The height of a child born in that age,² is fifteen and three-quarter *án*gulas, by the finger's breadth of a man of the present age. *The growth of man is at the rate of two and-a-quarter angula per year, from his birth to the completion of his twenty-sixth year.* Then his height in his twenty-sixth year is seventy-four and-a-quarter *án*gulas. The height of a child born in Buddha's age was eighteen and-a-quarter *án*gulas in Buddha's *án*gula. He grew till thirty-three years of age, at the rate of two and three-eighth *án*gulas; and when he had attained his thirty-third year he was 129 inches by the carpenter's cubit.

“*The maximum age of man in Buddha's time (Ransisuriya-bandhu continues) was 100 years. That of man at present is seventy-seven.* Thirty-four *án*gulas of an ordinary man of Buddha's age are equal to twenty-four and-a-quarter inches of the carpenter's cubit. Seven masa, or undu seeds constituted the size of the *án*gulas of an ordinary man of Buddha's age. Those kinds of seeds may be taken as equivalent to seeds of paddy. Be it known, that an inch by the carpenter's cubit represented the *án*gula of an ordinary man who lived 150 years after Buddha. The custom in Siam at present is to accept one-fourth of a carpenter's inch as a kalá, and one kalá as four anu-kalás; that is, at the rate of seven seeds for an *án*gula. This agrees with the lineal measure given in Abhidhánapadipiká, and Sammohavino-daniya.”

Amidst much that is interesting and contradictory, we notice that the writer has made his calculations on the

1 *i. e.*, six feet three inches.

2 MS. doubtful, contradictory.

supposition that man's stature is reduced by three kalá every century,—a dictum for which there is no more foundation or authority, than for the statement that “the average age of man was greater in Buddha's age” than it is at present. Yet, in testing his measure by the cases already considered we obtain the following results.

Taking the Siamese author's *aṅgula* (*i. e.*, *sugata aṅgula*) to represent two inches, that is treating an *aṅgula* as one-twelfth of a carpenter's two feet rule, we find that

1. A priest's residence was twelve by seven feet.
2. The height of a bed sixteen inches.
3. A cushion or carpet two by one and-a-half feet.
4. The same, with a fringe of one span, will make it three by two and-a-half feet.
5. The under shift four by two feet.
6. A priest's bath-cloth six by two and-a-half feet.
7. A priestess' bath-cloth, four by two feet ;
8. And Buddha's robe measured nine by six feet.

If these results are on the one hand in excess of our notions of propriety, from a general view of the principles of ascetism upon which Gotama seems to have enacted his rules—the evidence which we have adduced on the other, as to the stature of Indians in Buddha's age, leads to the conclusion that the dimensions produced upon the standard of Buddhaghosa's measure is inadmissible ; and that therefore the standard itself must be rejected. For, according to him—*i. e.*, at twenty-seven English inches per span

1. A priest's residence would be twenty-seven by fifteen and three-quarter feet—a spacious hall more than enough for a nobleman's sitting room even at the present day.

2. A cushion or carpet ; four and one-third feet, by three feet four-and-a half inches—would be quite an inconvenient appendage for even an ordinary chair, for which the carpet was intended ;

4. The same with a fringe of twenty-seven inches, equal to six and three-quarter feet by five feet seven and-a-half inches, would render its size unreasonably large;—

5. An under shift nine by four and-a-half feet;

6. A bath-cloth, ten feet one and-a-half inches by five feet seven and-a-half inches;

7. The same for a priestess, six and three-quarter feet by three feet four and-a-half inches; and

8. Buddha's robe, twenty and one-third by thirteen and-a-half feet.

In confining our remarks to the last case, it may be stated that the length of the robe is to go round the body, and that its width represents the length to which it is to hang down from the neck. If, therefore, Buddha was eighteen feet high according to the standard measure of Buddhagosa, it is quite evident that the prescribed robe of thirteen and-a-half feet would, with the folds round the neck, scarcely reach his ankle when hung from his shoulder, as it should according to rule; see Vinaya.

Hence, we are again forced to abandon all the measures founded upon the supposed length of the Mohammedan *gas*, or the Indian *aṅgula*, the Siamese standard, and Buddhagosa's lineal measure of twenty-seven inches for a span; and to resort to conjecture founded upon circumstantial evidence, which we shall here notice.

(i.) Both Buddhist and Brahaman writers are agreed as to *vidatthi* or *vitasthi* being, not "the span," but "the long span." By "long span" is doubtless meant a measure different from the ordinary span, measured by extending "the thumb and the little finger." That difference consists, moreover, in the *vidatthi* being *longer* than a span, which may be put down as nine English inches. This is further confirmed by Buddha, who lays down in his Canonical Rules, that the *vidatthi* meant by him was the

sugata, not the common, but (see ante) the *imperial* measure. The Greeks would also have us believe that the Indians were larger than the ordinary people of other Asiatic regions. It is thence also reasonable to believe that their span was larger; and, they being nevertheless various, a standard measure was doubtless fixed upon, as the *sugata vidatthi* or “imperial span,” two of which made a *hâstha* or “cubit.” This is the same cubit of which Major-General Cunningham says is longer than 18·158 inches, and which, he adds, is still the “*hâstha* of the Indian Bazaars.” This is moreover generally believed to be the “carpenter’s cubit or the carpenter’s two-foot rule,” which to this day is used in Ceylon—par excellence—as “the cubit.”

ii. When again, we find in History that the ancient Indians kept a constant intercourse with the Egyptians, and that between their habits and the Israelites there was scarcely any difference, we are naturally led to resort to Egyptian and Jewish standards for the ascertainment of the standard for the Indian cubit. Thomasz says, “The cubit of the Nilometer is supposed to be the same as that of the Jews, which is exactly two feet English:—if so, the twenty-four digits will be precisely inches”; and it is very remarkable that the constituent parts of a *hâstha* are twenty-four *aṅgulas*; and *aṅgula* or finger is still the word which the Buddhists of Ceylon use to express a carpenter’s inch, or an inch according to the English standard. This measure, when again applied to the height of a man (which is generally four times a *hâstha*, we obtain eight feet as the stature, nearly the height of an Indian’s height, as stated by the Greeks in round numbers, to be “five cubits” or seven and-a-half feet.

5 FEB 1887



