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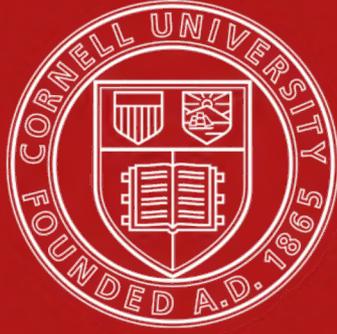
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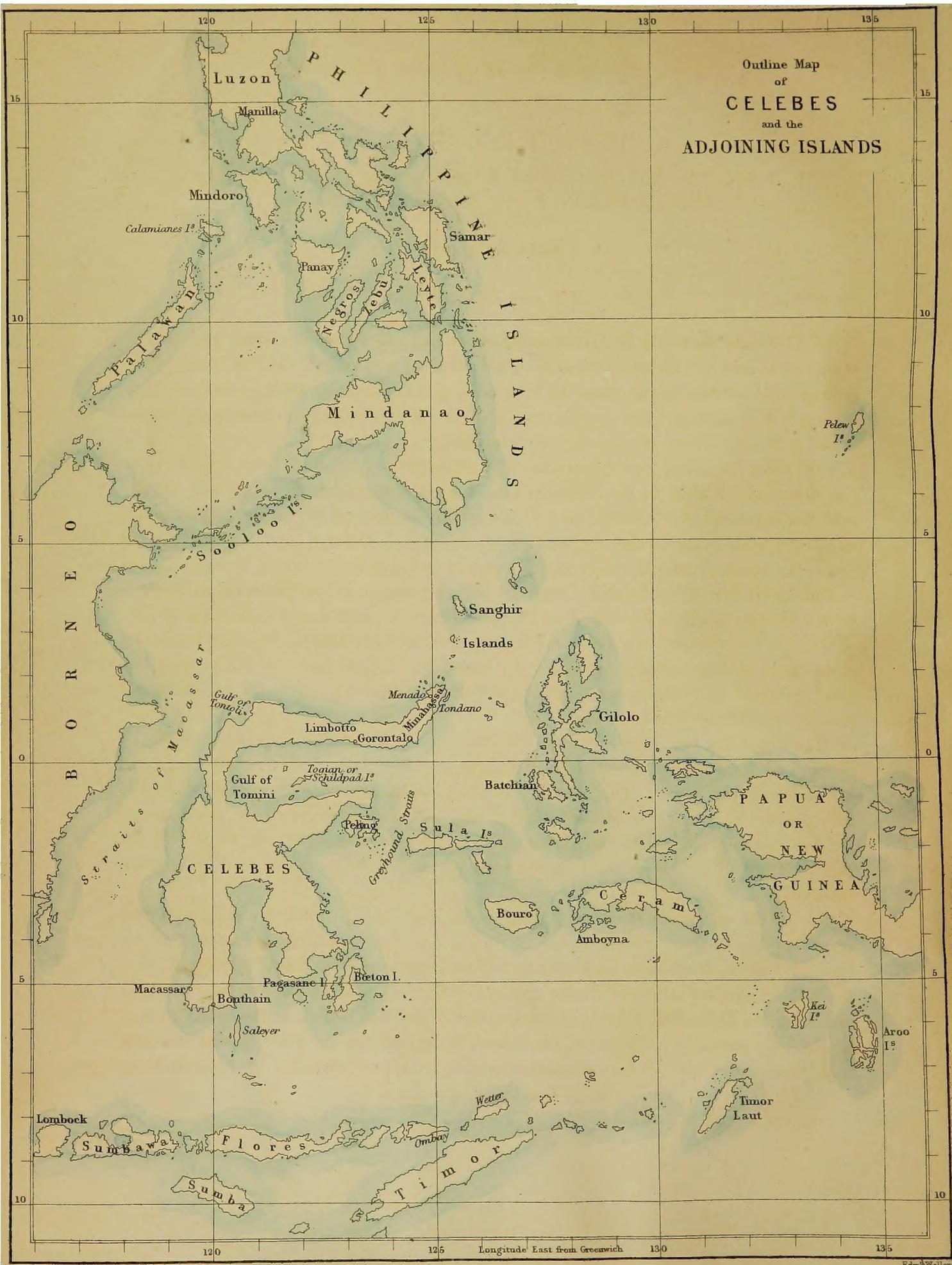
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Outline Map
of
CELEBES
and the
ADJOINING ISLANDS



Longitude East from Greenwich

II. *A List of the Birds known to inhabit the Island of Celebes.* By ARTHUR,
Viscount WALDEN, *F.R.S.*, *President of the Society.*

Read May 2nd, 1871.

[PLATES III. to X.]

SITUATED in the midst of the vast collection of islands which contribute to form the Malay archipelago, Celebes possesses an avifauna of a type peculiar to itself. The geographical position of the island and the leading characteristics of its fauna have been so clearly explained and depicted by Mr. Wallace¹, that it is almost unnecessary for me to add any observations of my own on these points.

This great naturalist has shown that the principal and most striking peculiarity of the fauna of Celebes is its individuality—a generalization fully supported by the evidence furnished by its birds; and it is the chief object of this paper to give a list of all the birds authentically recorded as inhabitants of Celebes, and to show in some detail the zoogeographical relations of its genera and species.

Our knowledge of the Celebean ornithology has been principally derived from the discoveries of the Dutch travellers Forsten, Von Rosenberg, and Bernstein, and from those of Mr. Wallace. Yet although the Dutch naturalists and our great English traveller ransacked those parts of Celebes they traversed or resided in, they all more or less covered the same ground. The larger portion of the island (fully two thirds of its area) still remains ornithologically unknown.

All the species yet described from Celebes appear to have been obtained from the districts of Macassar and Bonthain in the south, and from the districts of Gorontalo and Minahassa in the north. That part of the island which stretches north from about the fifth parallel S. lat. to the Gulf of Tontoli, and east thence to Limbotto, the lesser of the two eastern limbs of the island, the whole of the south-east limb, and all the central country from which these limbs extend seem to have never been explored by an ornithologist.

The group of islands of which Peling is the largest, and which are only separated from the Sula Islands by the Greyhound Straits, the Togian or Schildpad Islands in the Gulf of Tomini, the islands of Pagasane and of Boeton, and the island of Saleyer, with its train of smaller satellites almost connecting Celebes with Flores, are nearly wholly unknown. The Sanghir Islands in the north, and the Sula Islands to the east, although as yet only partially investigated, have been shown to possess some species identical with those found in Celebes; consequently they have been regarded by recent authors

¹ Malay Archipelago, vol. i. chap. xviii.

as forming along with Celebes a separate zoological subarea. But I propose in the following list to include only those species of birds which are known to inhabit the island of Celebes itself. A more definite and more accurate idea of the peculiarities of the Celebean ornithology will thus be presented, than if genera which occur in the Sula Islands were placed side by side with Celebean genera. If we threw together the ornithology of the Sula Islands with that of Celebes, we should find non-Celebean genera (such as *Criniger*, *Ceyx*, *Platycercus*, *Pachycephala*, and *Monarcha*) appearing in the list, and the really anomalous character of the Celebean avifauna actually existing on the main island would thereby be apparently greatly modified.

Mr. Wallace (*op. cit.* i. p. 425) has estimated the number of known Celebean species of birds at one hundred and ninety-one. I have only been able to add two more to that number; yet there are doubtless many more species represented by Celebean examples in the museums of Europe. On the other hand, many species have been described as possessing a Celebean origin which most assuredly do not occur in the island.

To give a clear idea of the geographical relation of the Celebean avifauna I have thrown its one hundred and forty-eight genera into tables, and classed them according to the regions and subregions they may be said to belong to. The geographical character of a genus has been determined according to the area which possesses the preponderating number of species. Thus *Artamus* is classed as an Australian genus, because at least thirteen species of it occur within the Australian region, while one only is peculiar to the Indian; *Arachnothera* as an Indian genus, although one species is found in New Guinea.

By means of these tables it will be seen that thirty-seven Indian genera occur in Celebes; of these, three are peculiarly Indo-Malayan.

TABLE I.—Showing the Indian genera found in Celebes.—N.B. Those peculiar to the Indo-Malayan subregion are marked with an asterisk.

| | | | |
|---------------|----------------|----------------|----------------|
| Poliornis. | Phœnicophaës. | Cyornis. | *Prionochilus. |
| Spilornis. | *Centrococcyx. | Myiolestes. | Munia. |
| Polioaëtus. | Cranorrhinus. | Hypothymis. | *Padda. |
| Limnaëtus. | Lyncornis. | Æthopyga. | Acridotheres. |
| Neopus. | Pelargopsis. | Nectarophila. | Sturnia. |
| Lophospiza. | Callialcyon. | *Anthreptes. | Osmotreron. |
| Ephialtes. | Geocichla. | Arachnechthra. | Gallus. |
| Loriculus. | Brodcripus. | Dicæum. | Erythra. |
| Yungipicus. | Trichostoma. | Arachnothera. | Rallina. |
| Mulleripicus. | | | |

The next table consists of the twenty-three Australian genera which are also Celebean. Two of these appear to be peculiar to the Australian subregion¹; of the remainder some are Papuan, and some extend into the Polynesian subregion.

¹ *Conf.* Sclater, P. Z. S. 1869, p. 125.

TABLE II.—Showing the Australian genera found in Celebes.—N.B. Those belonging especially to the Australian subregion are marked with a dagger (†); to the Papuan¹ with an asterisk (*).

| | | | |
|----------------|-------------|-----------------|----------------|
| *Teraspiza. | Collocalia. | *Chalcostetha. | *Lamprotreron. |
| *Erythrospiza. | †Scythrops. | *Zoncenas. | *Iotreron. |
| Cacatua. | *Dicrurus. | *Turaccena. | *Leucotreron. |
| *Tanygnathus. | Artamus. | *Calœnas. | Megapodius. |
| Trichoglossus. | Graucalus. | Phlogœnas. | †Hydralector. |
| Sauropatis. | Lalage. | *Myristicivora. | |

Eighteen Celebean genera may be considered common to the Indian and Australian regions, the proportion of species in each region being about equal. Some occur outside the limits.

TABLE III.—Showing the genera found in Celebes which are also common to the Indian and Australian regions.—N.B. Genera which do not occur in the Polynesian subregion are marked with an asterisk.

| | | | |
|--------------|----------------|---------------|-----------------|
| *Tachyspiza. | Cacomantis. | *Calornis. | *Geopelia. |
| *Haliastur. | *Macropteryx. | *Ducula. | *Carpophaga. |
| *Cuncuma. | *Hirundinapus. | *Macropygia. | *Excalfactoria. |
| *Baza. | *Pitta. | *Chalcophaps. | *Esacus. |
| *Eudynamis. | *Volvocivora. | | |

Fifty-eight are genera which are found within the limits of the Indian region and also beyond. Eight of these belong to the Rapaces, six to the Picariæ, two to the Gallinæ, twenty-five to the Grallæ, ten to the Anseres, and only seven to the Passeres. Nine of these fifty-eight genera are unrepresented in the Australian subregion.

TABLE IV.—Showing the genera represented in Celebes which likewise occur both within and beyond the limits of the Indian region.—N.B. Genera not occurring in the Australian subregion are marked with an asterisk.

| | | | |
|-----------------|---------------|--------------|-----------------|
| Tinnunculus. | Eurystomus. | Turnix. | Actitis. |
| *Hypotriorchis. | *Aleedo. | Eudromias. | Lobipes. |
| *Pernis. | *Buceros. | Ægialites. | Totanus. |
| Milvus. | Acrocephalus. | Charadrius. | Limosa. |
| Elanus. | Cisticola. | Strepsilas. | Tringa. |
| Circus. | *Budytes. | Himantopus. | Gallinago. |
| Athene. | *Pratincola. | Porphyrio. | Melanopelargus. |
| Strix. | *Monticola. | Hypotœnidia. | Falcinellus. |
| Hirundo. | Zosterops. | Rallina. | Ardea. |
| Merops. | Corvus. | Gallinula. | Herodias. |
| *Coraciæ. | *Turtur. | Numenius. | Ardetta. |

¹ The Papuan *Dicruri* are generically separable.

| | | | |
|--------------|----------------|--------------|----------------|
| Demiegretta. | *Querquedula. | Onychoprion. | Phalacrocorax. |
| Ardeola. | Mareca. | Pelecanopus. | Dysporus. |
| Nycticorax. | Dendrocygna. | Plotus. | Podiceps. |
| Butorides. | Hydrochelidon. | | |

The following nine genera are peculiar to the island of Celebes:—*Meropogon*, *Monachalcyon*, *Ceycopsis*, *Artamides*, *Gazzola*, *Streptocitta*, *Enodes*, *Scissirostrum*, *Megacephalon*. One genus is restricted to Celebes and the Sanghir Islands, *Cittura*; one to Celebes and Philippines, *Prioniturus*; and one to Celebes and Ceram, *Basilornis*.

Of these twelve genera, *Meropogon*, *Streptocitta*, and *Basilornis* belong to the non-Australian families; *Gazzola* to the almost universal Corvinæ; *Monachalcyon*, *Ceycopsis*, and *Cittura* are isolated genera of a family in which the Australian region is pre-eminently rich; *Enodes* and *Scissirostrum* have affinities with genera common to the Indian and Australian regions; *Megacephalon* is strictly Australian. The affinities of *Prioniturus* seem to be with Australian genera.

The total number of Celebean genera also found within the Indian region, but not in the Australian, is forty-eight¹.

The total number of Celebean genera also occurring in the Australian region, but not in the Indian, is twenty-three. If we compare these numbers, we find that Celebes contains twenty-five more Indian than Australian genera.

If we make the same comparison by orders, the following results are obtained:—

| | Indian region. | Australian region. |
|--------------------|-----------------|--------------------|
| Psittaci | 1 | 3 |
| Rapaces | 10 | 2 |
| Picariæ | 11 | 3 |
| Passeres | 20 | 5 |
| Columbæ | 2 | 8 |
| Gallinæ | 1 | 1 |
| Grallæ | 2 | 1 |
| Anseres | 1 | 0 |
| | Total | 48 23 |

So, while the Celebean Rapaces and Passeres contain a large majority of Indian genera, in the Psittaci and Columbæ Australian genera preponderate. *Loriculus* is classed as an Indian genus; yet until the zoogeographical positions of the Philippines and of Celebes are determined the zoogeographical characters of *Loriculus* cannot be established. Within the limits of the Philippine and Celebean areas, seven out of the thirteen known species occur. Another, *L. amabilis*, a representative form of the Celebean *L. stigmatus*, occurs in the Sanghir Islands, and is also Papuan, being found at Gilolo and Batchian.

¹ It is true that *Buceros*, *Alcedo*, *Budytes*, and *Pratincola* occur in some of the Papuan and Moluccan islands; but they cannot be regarded as genera belonging to the Australian region.

The remaining five, one of which (*L. flosculus*) is the Flores representative of the Javan *L. pusillus*, are peculiar to the Indian region. If, then, we cease to regard *Loriculus* as having an Indian origin, all the five genera of Psittaci known in Celebes are either Australian or peculiar. The Columbæ, while imparting a decided, it may even be affirmed an absolute, Australian character to the Celebean avifauna, as clearly indicate a very close Philippine affinity.

Among the Gallinæ, *Gallus* and *Megapodius* are severally representatives of equally important typical families, characterizing one the Indian, the other the Australian region. But Celebes and the Philippines¹ are the only areas where representatives of the Phasianidæ and Megapodidæ are associated.

Among the Picariæ, the presence of *Scythrops* can hardly be deemed sufficient to balance the two genera of Piciidæ, more especially if *Scythrops* be migratory in Celebes, as in Australia. But though three of the genera belonging to the Alcedinidæ are Indian, yet the great richness of the family in Celebes forms an important element in favour of the Australian nature of the Celebean ornithology.

But to obtain a still more complete conception of the zoogeographical characters of Celebean ornithology the following tables have been prepared, showing the principal Indian and Australian genera that do not occur in the island.

Notwithstanding the great preponderance of Indian genera, some entire families, and a large number of genera characteristic of, if not altogether peculiar to, the Indian regions are wanting in Celebes. For instance, the following important families are without representation:—Sittidæ, Trogonidæ, Megalaimidæ, Paridæ, Brachypodidæ, Pycnonotidæ, Laniidæ, and Alaudidæ.

And the great families of the Piciidæ and Timaliidæ are but poorly indicated—the first by two genera, the last by but a single genus. Among the Grallæ and Anseres, the Otididæ, Cursoriidæ, Glareolidæ and Gruidæ, and the Phœnicopteridæ, all families having representation in the Indian region, appear to be unknown in Celebes. The absence of the Vulturidæ is a feature in common with the whole Indo-Malayan region. The number of Anatidæ and Laridæ recorded from Celebes is so small that it seems probable that members of those families have been overlooked by collectors.

After excluding from the list of genera found in the Indian region all those that do not likewise possess an Indo-Malayan habitat, at least eighty-eight Indian genera are absent from Celebes; of these twelve are purely Indo-Malayan.

TABLE V.—Showing the principal Indian genera which are wanting in Celebes.
N.B. Purely Indo-Malayan genera are marked with a dagger.

| | | | |
|---------|-----------|-----------------|-------------|
| Ierax. | Bulaca. | Batrachostomus. | Psarisomus. |
| Ketupa. | Phodilus. | †Eurylaimus. | †Corydon. |

¹ It is as yet uncertain whether the Philippine *Gallus* inhabits the same islands as the Philippine *Megapodii*. *Gallus* is only known for certain to occur in Luzon.

| | | | |
|-----------------|---------------|---------------|-----------------|
| †Cymbirhynchus. | Iole. | Dissemurus. | Meiglyptes. |
| †Calyptomena. | Criniger. | Chaptia. | Hemicircus. |
| Harpactes. | Irena. | Bhringa. | Micropternus. |
| Ceyx. | Analcipus. | Pericrocotus. | Chrysocolaptes. |
| Nyctiornis. | Brachypteryx. | Hemipus. | Chrysophlegma. |
| Chalcococcyx. | Myiophonus. | Eumyias. | Tiga. |
| Dendrophila. | Mixornis. | †Philentoma. | Sasia. |
| Chalcoparia. | Malacopteron. | Tchitrea. | Rhopodytes. |
| Orthotomus. | †Macronus. | Leucocirca. | Coccystes. |
| Prinia. | Alcippe. | Cissa. | †Peloperdix. |
| Enicurus. | Timalia. | †Temnurus. | Arborophila. |
| Corydalla. | Megalurus. | Dendrocitta. | Perdicula. |
| Copsychus. | Garrulax. | Crypsirhina. | Pavo. |
| Cittocinclá. | Pomatorhinus. | Eulabes. | †Argusianus. |
| Phyllornis. | Pteruthius. | Ploceus. | Polyplectron. |
| Iora. | Parus. | Passer. | Euplocamus. |
| Hypsipetes. | †Platylophus. | Mirafra. | †Rollulus. |
| Ixos. | Lanius. | Palæornis. | Metopidius. |
| Brachypodius. | Tephrodornis. | Megalaima. | Gallicrox. |
| Pycnonotus. | Buchanga. | Xantholæma. | Hydrophasianus. |

The islands to the eastward of Celebes (the Papuan or Austro-Malayan region of Mr. Wallace) are characterized by a large number of peculiar genera. Of these at least forty-four are absent from Celebes. Besides the families of the Epimachidæ and the Paridiseidæ, important groups, such as *Podargus*, *Pachycephala*, and *Manucodia*, are all wanting. Nor does a single Papuan Muscicapine form occur in Celebes. Papuan genera belonging to the two great orders Psittaci and Columbæ, orders which are so largely developed in the Australian region, and in no part of that region to a greater extent than in its Papuan subregion, are found in Celebes. This fact is justly regarded as sufficient to stamp the ornis of that island with a Papuan character. Yet among the Psittacidæ such essentially typical Australian genera (also Papuan) as *Lorius* and *Platyercus* do not extend to Celebes. And several peculiar Papuan types are there unknown. The Columbæ of the Papuan subregion are well represented in Celebes; yet, with one exception (*Phlogænas*), all the Papuan genera of the Gouridæ are missing¹.

By the annexed table it will also be seen that several remarkable Papuan forms belonging to another characteristic Papuan family (Alcedinidæ) are not found in Celebes.

¹ *Calænas* is a migratory form.

TABLE VI.—Showing the principal Austro-Malayan or Papuan genera which do not occur in Celebes.

| | | | |
|---------------|------------------|------------------|------------------------------------|
| Henicopernis. | Meliphaga. | Mimeta. | Geoffroyius. |
| Podargus. | Anthochæra. | Rectes. | Charmosyna. |
| Ægotheles. | Philemon. | Cracticus. | Platycercus. |
| Eurystopodus. | Gerygone. | Pachycephala. | Psittacula (<i>Cyclopsitta</i>). |
| Choucalcyon. | Petroica. | Myiolestes. | Nasiterna. |
| Mellidora. | Peltops. | Manucodia. | Microglossum. |
| Cyanalcyon. | Machærirhynchus. | Ptilonorhynchus. | Dasyptilus. |
| Syma. | Arses. | Lycocorax. | Trugon. |
| Alcyone. | Monarcha. | Gymnocorvus. | Goura. |
| Myzomela. | Piezorhynchus. | Eos. | Henicophaps. |
| Entomophila. | Micræca. | Lorius. | Casuarius. |
| Glyciphila. | Todopsis. | | |

The zoogeographical relationship of the Philippines and Celebes, as exemplified by their birds, has been adverted to by Mr. Wallace and other writers. Unfortunately the Philippine archipelago, with its twelve hundred islands, has been but imperfectly explored; while the localities of many, if not of all, the known Philippine species are but vaguely ascertained. Luzon, the island whose ornithology has been the most investigated, is the furthest off from Celebes, and has the large island of Mindanao and many of less importance intervening. The resemblance which exists between the Celebean and Philippine avifaunas rests on the occurrence of Papuan genera in Mindanao, and perhaps in South Luzon, which likewise occur in Celebes: *Cacatua*, *Tanygnathus*, *Phlogœnas*¹, *Hemiphaga*, and *Megapodius* may be cited. Two genera seem to be confined to Celebes and the Philippines—*Prioniturus* and *Pyrrhocentor*; this last is only known from Mindanao. *Megapodius cumingi* (Gould) is stated by Camel (v. Martens, *op. cit.* p. 26) to be found in Mindanao and in Mindoro. The exact habitats of the other genera remain to be determined. The known Philippine genera of the Picariæ and Passeres are nearly all Indo-Malayan; but then they have mostly been as yet only obtained from the neighbourhood of Manilla. They include characteristic Indian genera unknown in Celebes. Such are, besides *Hierax*, *Harpactes*, *Chrysocolaptes*, and several other Piciæ, *Xantholæma*, *Irena*, *Copsychus*, *Cittacincla*, *Tchitrea*, *Ixos*, *Hypsipetes*, *Parus*, and genera such as *Lanius* and *Turdus*.

That Mindanao contains a strong Indian element, however, is shown by the fact that *Xantholæma*, *Irena*, and *Copsychus* have been there obtained; *Irena* also occurs in the island of Panay. Thus enough is known of the Philippine ornithology to justify anticipation, when it is worked out, of highly interesting zoogeographical facts, but not sufficient to enable us to determine the degree of relationship between the avifauna of the Philippine and Celebean areas.

¹ *Phlogœnas luzonica* (Scop.), = *cruenta* (Gm.), is said by Buzeta to occur in the Calamines (*conf.* v. Martens, J. für O. 1866, p. 25).

The absence of the two genera *Criniger* and *Rhipidura* in Celebes constitutes one of the many peculiarities of its ornithology. *Criniger*, represented in the neighbouring Sula Islands by a peculiar species, possesses other representatives in many of the Moluccan islands and throughout the Indo-Malayan subregion.

Rhipidura is still more widely and largely represented in the whole Australian region, and in the Indo-Malayan subregion, having representatives in all the islands of the Malay archipelago, excepting Celebes and the Sula Islands.

Then, again, the presence of the two genera *Coracias* and *Myiaclestes* is equally remarkable; for they are both unknown in any part of the Indo-Malayan region, and only reappear on the mainland of Asia.

After rejecting all those species whose Celebean origin does not rest upon the most undoubted authority, I find that the number of birds inhabiting Celebes amounts to, at least, one hundred and ninety-three. Of this number sixty-five are peculiar to the island. Twenty more are found also in the Sula Islands, or the Sanghir group, making a total of eighty-five species peculiar to Celebes and the two groups just mentioned. Of the remaining one hundred and eight species, fifty-five have Indian affinities (that is, are elsewhere only found in the Indian region as opposed to the Australian), though many extend beyond the limits of the Indian region; fourteen are found in the Australian and not in the Indian region, and twenty-eight are common to both regions; eight more species seem to be confined to the Moluccan islands; and three, not included above, are doubtfully found beyond Celebes: these are *Elanus hypoleucos*, *Ephialtes menadensis*, and the Celebean form of *Iotreron melanocephala*.

PSITTACI.

PLYCTOLOPHIDÆ.

CACATUA, Vieillot.

1. CACATUA SULPHUREA (Gm.), S. N. ed. xiii. i. p. 330, "Moluccas" (1788), ex Brisson, Orn. iv. p. 206, no. 9; O. Finsch, Papag. i. p. 296.

Cacatua æquatorialis, Temm., Wallace, P. Z. S. 1864, p. 280.

Hab. Tomini (*Forsten*); Flores, Lombok (*Wallace*).

Dr. O. Finsch regards the individuals inhabiting the islands of Flores and Lombok as belonging to this Celebean species. This is also Mr. Wallace's view (*l. c.*). Both authors concur in specifically separating the Timorese bird. On the other hand, Professor Schlegel continues to include the Timorese form (*C. sulphurea*, *apud* Wallace *l. c.*, = *P. buffoni*, O. Finsch, *op. cit.* p. 300). The eminent Professor also mentions that in the Celebean Cockatoo the iris is red, while in those of Flores, Timor, and Lombok it is of a darker red, often passing into brown (*conf.* Nederl. Tijdschr. 1866,

p. 319). Dr. O. Finsch (*l. c.* p. 298), on the contrary, says that he has seen undoubted Celebean examples with the iris almost black. Mr. G. R. Gray (Hand-list, no. 8395) enumerates *C. æquatorialis*, Temm., as the title of a second Celebean species of *Cacatua*: Temminck's title was given in fact to *C. sulphurea* (Gm.), and there is no evidence of two species of Cockatoo occurring in Celebes.

PSITTACIDÆ.

TANYGNATHUS, Wagler.

2. TANYGNATHUS MÜLLERI (S. Müller & Schlegel), Verhandl. Land- en Volkenk. p. 108, "Celebes" (1839).

Psittacus sumatranus, Raffles, Trans. Linn. Soc. xiii. p. 281, "Sumatra" (1822).

Tanygnathus albirostris, Wallace, P. Z. S. 1862, p. 336, "Celebes and Sula Islands."

Eclectus mülleri (Temm.), O. Finsch, Papag. p. 357; Schlegel, Nederl. Tijdschr. 1866, p. 185.

Hab. Macassar, Menado, Sula Islands (*Wallace*); Sanghir Islands (*Schlegel*); Sama Island (*Cuming*).

Professor Schlegel and Dr. O. Finsch affirm that the white-billed form (*T. albirostris*) represents only a phase of colouring, and is not a species distinct from the red-billed *T. mülleri*. The evidence which they have produced in support of this view (O. Finsch, Papag. ii. p. 361) is strong; and examples of both forms in my own collection appear to belong to the same species. Mr. Wallace, on the other hand, maintains that the two birds are distinct species, and recently has written to me that "*T. albirostris* is certainly distinct." While Dr. O. Finsch (*l. c.*) states that he has seen living examples in the Amsterdam Zoological Gardens with the white bill passing into the red bill of *T. mülleri*, Mr. Wallace informs us (*l. c.*) that the cry of *T. albirostris* is different from that of *T. mülleri*, and that the white-billed form "is universally recognized by the natives of Celebes as another bird." Between the highest authority on the *Psittaci* and the greatest field-naturalist of the day it is difficult to decide; and we must leave the question open for further investigation.

If the white-billed species prove distinct, it will have in strictness to take the title of *sumatranus* of Raffles. And if both forms prove to be the same species, the title of *mülleri* will have to fall. In his remarks on Raffles's title, Dr. O. Finsch (*l. c.*) has somewhat misunderstood Sir Stamford's words. That author distinctly left it to be understood that his *P. sumatranus* was an indigenous Sumatran species. That it is not an inhabitant of Sumatra seems to be quite established.

PRIONITURUS, Wagler.

3. PRIONITURUS PLATURUS (Kuhl), Consp. p. 43, "Nova Caledonia" (1820).

Psittacus setarius, Temm. Pl. Col. 15, "Timor," *errore* (October 7, 1820).

Prioniturus wallacei, Gould, Birds of Asia, pt. 14, "Celebes" (1862).

Hab. Menado, Macassar (*Wallace*).

Dr. O. Finsch in his great work (Papageien, ii. p. 395) has thoroughly disentangled the synonymy of this species, the true *habitat* of which Mr. Wallace was the first to discover. The existence of any species of the genus, much less of this one, in the island of Timor, is quite unauthenticated; nor has this bird been found in New Caledonia.

4. PRIONITURUS FLAVICANS, Cassin, Proc. Ac. Nat. Sc. Phil. vi. p. 73 (1853); Gould, Birds of Asia, pt. 14.

Hab. Tondano (*Försten*).

LORICULUS, Blyth.

5. LORICULUS STIGMATUS (Müller & Schlegel), Verhandl. Land- en Volkenk. p. 182, "Celebes" (1841); Schlegel, Dierentuin, p. 70, woodcut.

Hab. Gorontalo, Tondano (*Forsten*); Macassar (*Wallace*).

6. LORICULUS SCLATERI, Wallace, P. Z. S. 1862, p. 336, pl. 38, "Sula Islands."

Hab. Sula Islands (*Wallace*); Celebes (*Von Rosenberg*, fide *Schlegel*, Nederl. Tijdschr. 1866, p. 186).

7. LORICULUS EXILIS, Schlegel, Nederl. Tijdschr. p. 185 (1865); O. Finsch, Papag. ii. p. 729, pl. 5.

Hab. North Celebes (*Schlegel*, fide *O. Finsch*); Menado (*Meyer*).

In the original description the origin of this species was omitted by Professor Schlegel.

TRICHOGLOSSIDÆ.

TRICHOGLOSSUS, Vigors & Horsfield.

8. TRICHOGLOSSUS ORNATUS (Linn.), Syst. Nat. ed. 12, i. p. 143. no. 19, "Asia" (1766), ex Edwards, pl. 174.

Hab. Macassar (*Wallace*); Minahasa (*Von Rosenberg*); Menado (*mus. nostr.*).

This species is also stated by S. Müller and Von Rosenberg to inhabit the island of Buton—an assertion on which Dr. O. Finsch (Papag. ii. p. 844) places little reliance.

9. TRICHOGLOSSUS MEYERI (Pl. IV.), Walden, Ann. N. H. series 4, vol. viii. p. 281, "Menado" (1871).

Hab. Menado (*Meyer*).

RAPACES.

FALCONIDÆ.

FALCONINÆ.

HYPOTRIORCHIS, Boie.

10. HYPOTRIORCHIS SEVERUS (Horsf.), Trans. Linn. Soc. xiii. p. 135, "Java" (1822); Wallace, Ibis, 1868, p. 5.

Falco aldrovandi, Reinw., Temm. Pl. Col. 128, "Java" (August 2, 1823).

Hab. Macassar, Salwatty; most probably occurs in every island of the archipelago (*Wallace*); Java (*Schlegel*); Nipaul (*Hodgson*); Himalayas (*Jerdon*); Ceylon (*Holdsworth*).

TINNUNCULUS, Vieillot¹.

11. TINNUNCULUS MOLUCCENSIS, Jacquin. & Pucheran, Voy. Pôle Sud, Zool. iii. p. 47, "Amboyna" (1853).

Cresserelle des Moluques, Hombr. & Jacquin. *op. cit.* Atlas, pl. 1. fig. 2 (July 1843); Schlegel, Faun. Jap. *Aves*, p. 3 (1842).

Hab. Celebes, all the Moluccas, Flores, Timor, and Goram (*Wallace*); Borneo (*Schlegel*); Java (*Bocarmé*); Menado (*mus. nostr.*).

The Javan *habitat* of this Kestrel seems to rest solely on the authority of the Vicomte de Bocarmé, as quoted by Professor Schlegel (*Mus. Pays-Bas, Falcones*, p. 28).

ACCIPITRINÆ.

LOPHOSPIZA, Kaup.

12. LOPHOSPIZA GRISEICEPS (Schlegel), *Mus. Pays-Bas, Astures*, p. 23 (1862), "Celebes;" Wallace, Ibis, 1864, p. 184, pl. 5.

Hab. Macassar, Menado (*Wallace*); Menado (*mus. nostr.*); Gorontalo (*Forsten*).

TERASPIZA, Kaup.

13. TERASPIZA RHODOGASTRA (Schlegel), Valkv. Nederl. Ind. pp. 21 & 60, pl. 12. figs. 5 & 6. *Nisus virgatus rhodogaster*, Schlegel, *Mus. Pays-Bas, Astures*, p. 32.

Hab. Celebes (*Wallace*); Menado (*mus. nostr.*); Gounong-Pello, district of Gorontalo (*Forsten*).

ERYTHROSPIZA, Kaup.

14. ERYTHROSPIZA TRINOTATA (Bp.), *Consp. Av.* i. p. 33, "Celebes" (1850).

Nisus trinotatus, Schl. *Mus. Pays-Bas, Astures*, p. 45; Valkv. Nederl. Ind. pp. 27 & 65, pl. 19. figs. 1, 2, 3.

Hab. Macassar, Menado (*Wallace*); Menado (*mus. nostr.*); Gorontalo (*Forsten*).

¹ It is a debatable question whether the generic title *Cerchneis*, Boie (1826), the type of which is *F. rupicolus*, Daud., should not be employed rather than that of *Tinnunculus*, Vieillot (1807), the type of which is *F. columbarius*, Linn.

ERYTHROSPIZA IOGASTRA (S. Müller), Verhandl. Land- en Volkenk. p. 110, "Amboyna" (1839?).

Accipiter hyogaster, S. Müller, Jacquin. & Pucheran, Voy. Pôle Sud. iii. p. 48, "Macassar."

Epervier océanien, Hombron & Jacquin. *op. cit.* Atlas, pl. 2. fig. 1.

Jacquinet is our only authority for the occurrence of this species, as identified by Pucheran, in Celebes; but as his notes relating to localities are not always trustworthy, and as *A. iogaster* is not given from Celebes by either S. Müller, Professor Schlegel, or Mr. Wallace, I shall not include it in this list. In this instance Jacquinet's authority is doubly untrustworthy; for he identified *A. rufitorques*, Peale, with *A. iogaster*, and noted the two examples, which he figured (*l. c.*) as having been obtained in the Viti Islands and at Macassar. It is quite possible that *A. iogaster* does occur in Celebes; and it is difficult to determine the *A. cruentus*, Gould, *ap.* Schlegel, M. P.-Bas, *Astures*, p. 42, mâle adulte, Célèbes, Voy. de Reinwardt, "gorge d'un roussâtre uniforme," unless we refer it to *A. iogaster*. And yet, under *Nisus cruentus* (Valkv. Nederl. Ind. p. 61), Professor Schlegel does not allude to this specimen, nor does he give Celebes as a locality for *N. cruentus*.

TACHYSPIZA, Kaup.

15. TACHYSPIZA SOLOËNSIS (Horsf.), Trans. Linn. Soc. xiii. p. 137, "Java" (1822); Mus. Pays-Bas, *Astures*, p. 44.

Falco cuculoides, Temm. Pl. Col. livr. xxii. pls. 110, 129, "Java" (August 2, 1823).

Hab. New Guinea, Batchian, Sumatra, Malacca (*Wallace*); Java, Philippines (*Schlegel*); Menado (*mus. nostr.*); North Celebes (*Forsten*).

AQUILINÆ.

NEOPUS, Hodgson.

16. NEOPUS MALAYENSIS (Reinw.), Pl. Col. 117 (26th June, 1824), "Java, Sumatra."

Hab. Java, Sumatra (*Temminck*); most of the hilly and jungly districts of India (*Jerdon*); Simla (*mus. nostr.*); Nepaul (*Hodgs.*); Malacca (*mus. nostr.*); Celebes (*Bernstein*); Ceylon (*Layard*).

LIMNAËTUS, Vigors.

17. LIMNAËTUS LANCEOLATUS, Bp. Consp. Av. i. p. 29, "Celebes" (1850).

Spizaëtus cirratus, Schlegel, Mus. Pays-Bas, *Astures*, p. 9, ex Celebes.

Hab. Celebes (*Wall.*); Menado (*mus. nostr.*); Tondano (*Forsten*); Sula Islands (*Wallace*).

The example in my collection has been identified by Mr. J. H. Gurney as a young individual of the above species. Underneath pure white; thigh-coverts faintly fringed with pale fulvous; entire head and nape pale fulvous-white; remaining upper plumage hair-brown, darkest in shade at the end of each feather, unexposed portion of each

feather being pure white; minor and major under wing-coverts pure white, a few possessing a terminal light-brown spot or drop; axillaries immaculate white; major wing-coverts brown on outer, white, barred with brown, on the inner web; no trace of an occipital crest; bill exceedingly powerful, height from festoon to culmen being full five eighths of an inch. This bird closely resembles a Cingalese example of a young *S. cirrhatus*, Gm. (= *S. cristatellus*, Temm.) in my collection. The only points of difference in the Cingalese individual being, besides its smaller dimensions, a black occipital crest three inches and a half long, the major wing-coverts being mostly white, and the axillaries and thigh-coverts being white, largely dashed, freckled, and barred with a clear tint of pale rufous. In the Celebean bird the tarsal feathers incline to cover the insertion of the toes. Dimensions:—wing 16 inches, tail $11\frac{6}{8}$, tarsus $3\frac{1}{2}$, mid toe with claw $2\frac{1}{2}$, bill from gape 2.

POLIOAËTUS, Kaup.

18. POLIOAËTUS HUMILIS (Müll. et Schlegel), Verh. Ned. overz. Bez. *Aves*, p. 47, pl. 6, "Sumatra;" Wallace, *Ibis*, 1868, p. 14; Schlegel, Mus. Pays-Bas, *Aquila*, p. 18.

Hab. Celebes (*Wallace*); Sumatra (*Müller*); Malay peninsula (*Blyth*); Bengal (*Schlegel*).

CUNCUMA, Hodgson.

19. CUNCUMA LEUCOGASTER (Gm.), Syst. Nat. i. p. 257 (1788); Valkv. Neder. Ind. pl. 4. figs. 1, 2; Wall. *Ibis*, 1868, p. 15; Mus. Pays-Bas, *Aquila*, p. 14.

Hab. Malacca, Celebes, Gilolo, Batchian, Morty, Aru Islands (*Wallace*); Macassar (*mus. nostr.*); all over India, chiefly on the coast (*Jerdon*); Australia, Tasmania (*Gould*); Timor, Sumatra, Java, Ternate (*Schlegel*); Ceylon (*Layard*).

SPILORNIS, G. R. Gray.

20. SPILORNIS RUFPECTUS, Gould, P. Z. S. 1857, p. 222, "Macassar;" Schlegel, Valkv. Nederl. Ind. p. 72, pl. 23; Mus. Pays-Bas, *Buteones*, p. 27.

Hab. Menado (*mus. nostr.*); Celebes (*Wallace*); Tondano, Gorontalo (*Forsten*).

MILVINÆ.

HALIASTUR, Selby.

21. HALIASTUR LEUCOSTERNUS, Gould, P. Z. S. 1837, p. 138, "Australia;" Birds of Austr. i. pl. 4; Valkv. Nederl. Ind. pl. 4. fig. 3.

Hab. Celebes, all the Moluccas, New Guinea (*Wallace*); northern and eastern shores of Australia (*Gould*); Macassar (*S. Müller*); Goenong-Tello, district of Gorontalo, Tondano (*Forsten*).

MILVUS, Cuvier.

22. MILVUS AFFINIS, Gould, P. Z. S. 1837, p. 140; Birds of Austr. i. pl. 21; Wallace, Ibis, 1868, p. 16; Valkv. Nederl. Ind. pl. 20. fig. 1.

Hab. Macassar, Timor (*Wallace*); Australia (*Gould*).

I hesitate to include Sumatra within the range of this form, as that *habitat* rests only on the correct identification of a skeleton in the Leyden Museum.

ELANUS, Savigny.

23. ELANUS HYPOLEUCUS, Gould, P. Z. S. 1859, p. 127, "Macassar;" Wallace, Ibis, 1868, p. 17.

? *Elanus intermedius*, Schlegel, Mus. Pas-Bas, *Milvi*, p. 7 (1862).

Hab. Macassar (*Wallace*); and if the same as *E. intermedius*, Schlegel, North Celebes, Borneo, Java (*Schlegel*).

PERNIS, Cuvier.

24. PERNIS PTILORHYNCHA (Temm.), Pl. Col. livr. viii. pl. 44, "Java et Sumatra" (26th July, 1823); Verh. Ned. overz. Bezitt. *Aves*, p. 49, pl. 7, "Sumatra."

Pernis cristata, Cuv.¹ R. Anim. ed. 2, i. p. 335, "Java" (1829).

Var. *celebensis*, Schlegel, Valkv. Nederl. Ind. pl. 26. f. 4; Wall. Ibis, 1868, p. 17.

Hab. Celebes only, if distinct from Indian and Malayan species (*conf. Wallace, l. c.*).

In Mr. J. H. Gurney's opinion the Celebean *Pernis* should receive a distinct specific title; and Mr. Wallace writes that it is distinct. I have been unable to examine any examples.

BAZA, Hodgson.

25. BAZA MAGNIROSTRIS, G. R. Gray, List Birds Brit. Mus. 1844, p. 19, "Philippine Islands;" Kaup, Isis, 1847, p. 343; Schlegel, Nederl. Tijdschr. Dierk. 1866, p. 328; Schlegel, Vog. Nederl. Ind. Valkv. pp. 40, 75, pl. 28. f. 4, 5.

Pernis crassirostris, Kaup, Contrib. Orn. 1850, p. 77.

Hab. Philippines (*type*); Celebes, Sulu Islands (*Wallace*); Borneo (*Schlegel*).

Professor Schlegel (Valkv. p. 77) states that the types of *Lophotes reinwardtii*, Schlegel & Müller (Verh. Ned. overz. Bezitt. *Aves*, p. 37, pl. 5. figs. 1, 2, "Celebes"), were not obtained by Reinwardt in Celebes, and that the Dutch travellers have never obtained it in that island. The Professor, while identifying the Celebean *Baza* with the Philippine species, points out differences which may eventually prove sufficient to justify the Celebean bird being specifically separated from the Philippine.

In the 'Hand-list' Mr. Gray has introduced *B. reinwardtii* as a second Celebean

¹ It seems to have been overlooked that, although Cuvier discriminated this species in 1817, he only conferred a Latin title on it in 1829.

species. No authentic account of its occurrence in Celebes has as yet been published, while Professor Schlegel and Mr. Wallace restrict its range to Bourou, Ceram, and Amboyna.

BUTEONINÆ.

POLIORNIS, Kaup.

26. POLIORNIS LIVENTER (Temm.), Pl. Col. livr. lxxiv. pl. 438, "Java" (September 22, 1837); Schlegel, Mus. Pays-Bas, *Buteones*, p. 21.

Hab. Celebes (*Wallace*); Java, Timor (*Mus. Lugd.*); Macassar (*S. Müller*); Toungoo, Burma (*mus. nostr.*); Siam (*Gurney*).

27. POLIORNIS INDICUS (Gm.), Syst. Nat. ed. 13, i. p. 264. no. 68 (1789), ex Latham.

Javan Hawk, Lath. Gen. Syn. i. p. 34*. no. 8, 7d, "Java."

Falco javanicus, Lath. Gen. Hist. i. p. 163. no. 87, ex Lath. (1821).

Falco poliogenys (Temm.), Pl. Col. livr. lv. pl. 325, "Ile de Luçon" (February 28, 1825).

Buteo pyrrhogenys, Schlegel (*lapsu calami*), Faun. Jap. *Aves*, p. 21, pl. 7 B, "Japan."

Astur barbatus, Eyton, Ann. Nat. Hist. xvi. p. 227, "Malacca" (1845).

Buteo pygmæus, Blyth, J. A. S. B. 1845, p. 177, "Tenasserim provinces," *op. cit.* 1850, p. 339.

Hab. Menado (*mus. nostr.*); Gilolo (*mus. nostr.*); Luçon (*Dussumier*); Japan (*Schlegel*); Morty Isl., Sanguir Isl. (*Mus. Lugd.*); Java (*Latham*); Malacca (*Eyton*); Tenasserim Prov. (*Blyth*).

The designation *F. indicus*, Gm., is rejected by Professor Schlegel (Mus. Pays-Bas, *Buteones*), on the ground of its being undeterminable. Gmelin gave that title to the *Javan Hawk*, described by Latham from an individual which flew on board a vessel off the coast of Java. Mr. J. H. Gurney informs me (*in epist.*) that, having compared Latham's description with the three Asiatic species of *Poliornis*, he agrees with the late Mr. Strickland (and consequently with Mr. G. R. Gray, List B. Mus. p. 68, 1848) in identifying it with *F. poliogenys*, Temm. "Latham's description agrees in all respects," continues Mr. Gurney, "except that he speaks of five transverse bars on the tail, and I have not seen more than four, and in one specimen only three." My Celebean and Gilolo examples only possess three bars. But in the 'Fauna Japonica' Professor Schlegel states that this species has four or *five* caudal bands.

Mr. Blyth tells me that he considers his *B. pygmæus* to be the same as *F. poliogenys*, Temm., and that Mr. Eyton's description of *Astur barbatus* sufficiently applies to *B. pygmæus*.

CIRCUS, Lacépède.

28. CIRCUS ASSIMILIS, Jardine & Selby, Illustr. Ornith. ii. pl. 51, *juv.*, "New Holland" (1826); Schlegel, Mus. Pays-Bas, *Circi*, p. 9; Valkv. Nederl. Ind. pl. 20. figs. 2, 3.

Circus jardini, Gould, P. Z. S. 1837, p. 141, "New South Wales;" Wallace, Ibis, 1868, p. 19, *adult*.

Hab. Celebes (*Wallace*); Menado (*mus. nostr.*); Gorontalo (*Forsten*); Macassar

S. Müller); New South Wales (*Gould*); Central Polynesia, if identical with *C. approximans* (*Peale*); Viti islands (*Finsch and Hartlaub*).

Professor Schlegel (*l. c.*) mentions that the Macassar example in the Leyden Museum, a female in first plumage, obtained by S. Müller, perfectly agrees with the figures of *C. assimilis* as given by both Jardine and Selby and by Mr. Gould. But *C. assimilis*, J. & S., and *C. assimilis*, J. & S. *apud* Gould (B. Austr. pl. 26), are two distinct species, both inhabiting Australia, but with different ranges, *C. assimilis*, J. & S., being the young bird of *C. jardinii*, Gould, pl. 27, and *C. assimilis*, J. & S. *apud* Gould, pl. 26, being a distinct species ranging into New Zealand, but not occurring in South Australia, and named *C. gouldi*, Bp. Consp. p. 34, ex Austr., and Rev. de Zool. 1850, p. 491, "de la Nouvelle Hollande." *C. gouldi*, Bp., was described by its author (*vide* Schlegel, *l. c.*) from specimens in the Leyden Museum, "acquis comme provenant de la Patagonie;" and Professor Schlegel identifies them with *C. macropterus*, Vieill. Mr. J. H. Gurney is of opinion that they are not *C. macropterus*, that the types came from Australia, as twice over stated by Prince Bonaparte, and not from South America, and that they are identical with *C. assimilis*, J. & S. *apud* Gould, *nec* J. & S. *C. assimilis*, J. & S., = *C. jardinii*, Gould, Mr. Gurney informs me, has alone been obtained in Celebes. *C. wolffi*, Gurney, P. Z. S. 1865, p. 823, pl. 44, ex New Caledonia, and which Messrs. Finsch and Hartlaub (Centr. Polyn. p. 7) identify with one of the two Australian Harriers (for they confound the two), Mr. Gurney assures me is a perfectly distinct species.

STRIGIDÆ.

ATHENE, Boie.

29. ATHENE PUNCTULATA (Quoy et Gaim.), Voy. Astrolabe, Zool. i. p. 165, pl. i. f. 1, "Celebes" (1830); Mus. Pays-Bas, *Striges*, p. 29.

Hab. Macassar (*Wallace*); Menado (*Schlegel*).

30. ATHENE OCHRACEA (Schlegel), Nederl. Tijdschr. Dierk. 1866, p. 183, "Negrilamá, Celebes" (1866).

Hab. Celebes (*Rosenberg*).

I refer this species to *Athene* with some doubt, never having seen an example. The description reads like that of a *Ninox*. One specimen only, and that of a female, seems to be known. Professor Schlegel (*l. c.*) remarks that it resembles generally his *Noctua philippensis*¹, but that it has a longer tail, and that the style of colouring differs.

¹ Nederl. Tijdschr. Dierk. 1866, p. 183, = *Ninox philippensis*, Bp. Compt. Rend. xli. p. 655 (1855)?

EPHIALTES, Keyserling & Blasius.

31. EPHIALTES MAGICUS (Schlegel), Faun. Jap. *Aves*, p. 25, "Amboyna, Celebes" (1842);
Bp. Consp. p. 46; Schlegel, Mus. Pays-Bas, *Oti*, p. 22.

Ephialtes leucospila, G. R. Gray *apud* Wall. Ibis, 1868, p. 25.

Hab. Amboyna (*S. Müller*); Gorontalo (*Forsten*).

The range of the Celebean species referred to the above title has not as yet been ascertained; and its right to that title even has yet to be proved. *Otus magicus* is the MS. title given by S. Müller to a Scops Owl inhabiting Amboyna. Professor Schlegel (Faun. Jap.) seems to have identified the Celebean bird with that of Amboyna; for there is no note in the Mus. Pays-Bas of Celebean examples obtained by S. Müller. Unfortunately, as Müller never published a description, his title cannot be fixed on the Amboyna bird. If Professor Schlegel is right in considering the Amboyna and Celebean species identical, there can be no question that their title must stand *E. magicus*. But this view is not adopted by Mr. Wallace, who identifies (*l. c.*) the Celebean species with the Papuan *E. leucospila*, G. R. Gray, and leaves *E. magicus* as the title of the Amboyna and Ceram forms. Mr. J. H. Gurney is doubtful whether *E. leucospila* can be separated from *E. magicus*, but has had no Amboyna examples for comparison. He has kindly sent me the following note on the subject:—"The Norwich Museum has ten specimens of *Ephialtes leucospila*, but only one of *E. magicus* as limited by Mr. Wallace. This specimen does not differ from some of those of *E. leucospila* more than they do amongst themselves; and I am therefore disposed to agree with Professor Schlegel in thinking that the two are not really separable, unless it be right to separate the different phases of *E. leucospila*, which appear to vary somewhat in measurement, and also a good deal in the relative darkness of their markings. In the following list of the Norwich specimens I begin with the darkest and finish with the lightest, and I also give the length of the tarsus and of the wing from the carpal joint to the tip:—

| | Wing. | Tarsus. | |
|---------------------------------------|---------|---------|--|
| <i>E. LEUCOSPILA.</i> | | | |
| No. 1. East Gilolo ¹ | 7" 6''' | 1" 3''' | Very dark. Mr. Gray's type specimen. Dark and rufous. |
| 2. Morty Island | 7 0 | 1 2 | |
| 3. Morty Island | 6 6 | 1 2 | } Intermediate in colour between the darkest and lightest extremes, and all nearly alike. |
| 4. Morty Island, ♀ | 7 0 | 1 2 | |
| 5. Gilolo | 6 9 | 1 2 | |
| 6. Ternate, ♂ | 7 0 | 1 2 | |
| 7. Batchian, ♀ | 7 0 | 1 2 | |
| 8. Celebes, ♀ | 7 6 | 1 3 | |
| 9. Bouru, ♂ | 7 5 | 1 3 | } Much paler, and nearly alike. |
| 10. Bouru, ♀ | 7 5 | 1 3 | |
| <i>E. MAGICUS.</i> | | | |
| 1. Ceram | 7 2 | 1 3 | } Rather more mottled on the back than the specimen of <i>E. leucospila</i> , but comes very near to no. 8. |

¹ Erroneously given in P. Z. S. 1860, p. 345, as 6" 6'''.

“If the races are separable, I should think that probably the birds from Ceram, and Amboyna also (according to Wallace), and perhaps those from Celebes, should stand as *E. magicus*, and those from Morty, Gilolo, Ternate, and Batchian as *E. leucospila*, from which the pale-coloured birds from Bouru *may* be also separable. But the differences are too slender to form a basis for specific distinction, and very probably are not constant.”

Mr. G. R. Gray (Hand-list, i. p. 46) treats these forms as distinct species, but makes them both to be inhabitants of Celebes.

32. *EPHIALTES MENADENSIS* (Quoy et Gaimard), Voy. Astrolabe, Zool. i. p. 170, pl. 2. fig. 2, “Menado” (1830); Schlegel, Mus. Pays-Bas, *Oti*, p. 20; Wallace, Ibis, 1868, p. 25.

Hab. Gorontalo (*Forsten*); Macassar, Menado, Island of Flores (*Wallace*).

Dr. Hartlaub (Faun. Madagasc.) identified the Madagascar brown form, *Scops mada-gascariensis*, Grandid., with the Celebean *E. menadensis*, but retained *S. rutilus*, Pucher. (Archives du Mus. iv. pl. 22), as a distinct species. Professor Schlegel (Rech. s. l. Faun. Mad.) concurs with Dr. Hartlaub, but besides points out that *S. rutilus* is nothing but the rufous phase. Mr. J. H. Gurney (Ibis, 1869, p. 452) admits the identity of the two Madagascar forms, but considers the Madagascar to be a larger local race of the Celebean *E. menadensis*, and (*in epist.*) “would be disposed to rank it as one for which a specific name is convenient.” One of Forsten’s Celebean examples (Mus. Pays-Bas, *l. c.*), “teintes tirant fortement au roux,” leads us to expect that *E. menadensis* will yet be found in Celebes exhibiting the rufous livery of *S. rutilus*, Pucher. The Flores habitat rests solely on the authority of Mr. Wallace. Celebean examples only are contained in the Leyden Museum.

NINOX, Hodgson.

33. *NINOX JAPONICUS* (Bp.), Consp. i. p. 41 (1850), ex Schlegel, Faun. Jap. pl. 9.

Noctua hirsuta japonica, Schlegel, Nederl. Tijdschr. 1866, p. 182.

Hab. Celebes (*Von Rosenberg*); Japan, China (*Schlegel*).

The occurrence of a species of *Ninox* in Celebes was first made known by Professor Schlegel (*l. c.*). One example, collected by Von Rosenberg, is stated by the Professor to be absolutely identical with Japanese and Chinese individuals. A second Celebean example, obtained by the same collector, Professor Schlegel considers to be more nearly related to the *Ninox* of continental India. A third example, sent from the island of Sanghir, the same author regards as most nearly resembling the Bornean form *Athene borneensis*, Bp., but with larger dimensions. The range of the subgenus *Ninox* is extensive. Its members are found in Ceylon, which furnished the type of *Strix hirsuta*, Temm.; in Southern and Central India, *S. lugubris*, Tickell; in the Himalayas, *N. nipalensis*, Hodgs., whence they extend eastward and north-eastward to Japan, where

they become *A. japonica*, Bp. To the southward they are found in Bengal, Burma, and Cochin China. In the Malaccan peninsula they bear the title of *A. malaccensis*, Eyton, in the Andamans, *N. affinis*, Tytler; while of the Indo-Malayan Islands, Sumatra contains the type of *S. scutulata*, Raffles; Borneo, *A. borneensis*, Bp.; and the Philippines, *N. philippensis*, Bp. (Compt. Rend. xli. p. 655, 1855). A skeleton in the Leyden Museum is our only evidence of Java possessing a species of this group, to which *A. florensis*, Wallace, ex Flores, appears also to belong. The Madagascar *N. madagascariensis*, Bp., so closely resembles the Indian *Ninox*, that Dr. Hartlaub (Faun. Madagasc.) considers that it can hardly be separated as even a local race (*conf.* J. H. Gurney, Ibis, 1869, p. 453). Enough has been said to show that all the local varieties have yet to be rigidly compared with one another before the exact title of the Celebean *Ninox* can be absolutely determined.

STRIX, Linnæus.

34. STRIX ROSENBERGI, Schlegel, Nederl. Tijdschr. iii. p. 181, "Celebes" (1866); Wallace, Ibis, 1868, p. 26.

Hab. Molido, Boni, Gorontalo (*Rosenberg*); Menado (*mus. nostr.*); Macassar (*Wallace*).

A very distinct and fine species.

PICARIÆ.

PICIDÆ.

MULLERIPICUS, Bonaparte.

35. MULLERIPICUS FULVUS (Quoy et Gaimard), Voy. Astrol. i. p. 228, pl. 17. f. 2, ♂, "Celebes" (1830); Malh. Monogr. i. p. 53, pl. 14. f. 1, ♂, f. 2, ♀.

Hab. Macassar, Menado (*mus. nostr.*).

The affinities of this interesting species are nearer to *M. pulverulentus* (Tem.) than to the group of large black-and-white species represented by *P. javensis*. Malherbe (*l. c.*) erroneously referred *P. fulvigaster*, Drap. (Dict. Sc. Nat. viii. p. 621, ex Java), to this species, instead of to *P. javensis*, ♂, Horsf. (1822), = *P. horsfieldii*, ♂, Wagler (1827), = *P. leucogaster*, Reinw. (1830).

YUNGIPICUS, Bonaparte.

36. YUNGIPICUS TEMMINCKII (Malherbe), Rev. Mag. Zool. 1849, p. 529, "Celebes;" Malh. Monogr. i. p. 155, pl. 36. f. 3, ♀.

Hab. Celebes (*Mus. Lugd.*); Macassar (*Wallace*).

Founded on a single example of a female in the Leyden Museum. Allied to *Y. kisuki*, but considered a good species by Temminck and Bonaparte.

Prince Bonaparte (Consp. i. p. 129) described a specimen of a Woodpecker, *Picus sanguineus*, Lichtenst. (Cat. Hamb. p. 17), which was wrongly labelled in the Leyden Museum as coming from Celebes, under the title of *Venilia albertuli*.

MEROPIDÆ.

MEROPS, Linnæus.

37. MEROPS PHILIPPINUS, Linn. Syst. Nat. ed. 13¹ (Vindob.), i. p. 183. no. 5 (1767), ex Brisson.

Apiaster philippensis major, Brisson, Orn. iv. p. 560, "Philippine Islands."

Hab. Menado (*mus. nostr.*); Indian region.

Examples of the Bee-eater, usually referred to Brisson's Philippine species, from North-east India, Candeish, Malabar, Coorg, Ceylon, Sumatra, and Java, are undistinguishable; and my Celebean specimens do not appear to differ.

In the Hand-list, no. 1208, Mr. G. R. Gray keeps the species which inhabits India, Ceylon, Java, Flores, Lombok, and Timor separate from the Philippine bird, and refers it to *Merops daudini*, Cuvier. Cuvier bestowed this title (Règne Anim. i. p. 442) on Levaillant's *Guêpier daudin* (pl. 14). Levaillant distinctly states that he described his species from examples brought from the Philippines by Sonnerat and Poivre. The title of *Merops daudini* therefore applies to a Philippine species, and cannot be used for the Indian species even if the Indian bird really does differ.

38. MEROPS ORNATUS, Latham, Ind. Orn. Suppl. p. xxxv, "New Holland" (1801); Wallace, Ibis, 1860, p. 147; P. Z. S. 1862, p. 338.

Hab. Celebes (*Wallace*); Java (*mus. nostr.*); Flores, Lombok, Timor, Sula Islands, Sumbawa, Ternate, Mysol, New Guinea (*Wallace*); Gilolo (*Bernstein*); New South Wales, South Australia (*Gould*); Clarence River, Port Albany (*mus. nostr.*).

Sula-Island examples perfectly agree with Australian. The Philippine Bee-eater referred to this species by Von Martens (J. für Orn. 1866, p. 17), seems to belong to another species allied to *M. viridis*, Linn.

MEROPOGON, Bonaparte.

39. MEROPOGON FORSTENI (Temm.), Bp. Consp. i. p. 164, "Celebes" (1850); Schlegel, Mus. Pays-Bas, *Merops*, p. 8; Meyer, J. für O. 1871, p. 231.

Hab. Tondano (*Forsten*); Rurukan (*Meyer*).

Mr. Wallace failed in obtaining this species (Ibis, 1860, p. 142).

¹ In the twelfth edition ("Holmiæ") the title of this species was omitted by the printer's mistake.

CORACIIDÆ.

CORACIAS, Linnæus.

40. CORACIAS TEMMINCKII (Vieillot), N. Dict. Sc. Nat. xxix. p. 435, "l'Inde" (1819), ex Levaillant, Hist. Nat. Promér. & Guêp. iii. Suppl. p. 46, pl. G; Schlegel, Mus. Pays-Bas, *Coraces*, p. 138; Wallace, Malay Archipel. i. p. 337.

Coracias papuensis, Quoy et Gaimard, Voy. de l'Astrol. Zool. p. 220, pl. 16, "Dorey," *errore* (1830).

Hab. Kema (*Forsten*); Gorontalo, Modelido (*Von Rosenberg*); Menado (*mus. nostr.*); Macassar (*Wallace*).

In the 'Hand-list,' no. 899, Mr. G. R. Gray extends the range of this species to the Sula Islands. Mr. Wallace is unable to confirm this statement, but writes to me that it is probable. I have failed in finding any confirmation among the Dutch writers.

EURYSTOMUS, Vieillot.

41. EURYSTOMUS ORIENTALIS (Linn.), S. N. ed. 12, i. p. 159, ex Briss.; Schlegel, Mus. Pays-Bas, *Coraces*, p. 139.

Eurystomus pacificus (Lath.), ap. Wallace, P. Z. S. 1862, p. 339.

Hab. Limbotto, Gorontalo, Bongka, Ayer-pannas, Boné (*Von Rosenberg*); Menado (*mus. nostr.*); Indian region.

The *Eurystomus* of Celebes belongs to the Asiatic and not to the Australian type, *E. pacificus* (Lath.). It is not to be distinguished from Ceylon and Indian examples.

ALCEDINIDÆ.

DACELOININÆ.

MONACHALCYON, Reichenbach.

42. MONACHALCYON PRINCEPS (*Forsten*), Mus. Lugd.; Bp. Consp. i. p. 154, "Celebes," adult; Schlegel, Vog. Ned. Ind. *Ijsvogels*, pl. 7. f. 1, 2, 3.

Dacelo cyanocephalus, *Forsten*, Mus. Lugd.

— *monachus*, *Temm.* Mus. Lugd.

Monachalcyon monachus, *Sharpe*, Mon. Alcedinidæ, pt. xi. no. 87.

Hab. Kema, Menado (*Forsten*).

Mr. Sharpe, in his excellent Monograph, has adopted the specific title of *monachus*, given by Temminck to the very young bird. I have preferred, in the absence of any recognized rule in such a case, to use the title bestowed by Forsten on the fully adult bird.

Ceram and Ternate are cited by Mr. G. R. Gray (Hand-list, no. 1068) as additional *habitats* of this remarkable species; it appears, however, to be a purely Celebean bird.

SAUROPATIS, Cabanis.

43. SAUROPATIS CHLORIS (Bodd.), Tabl. Pl. Enl. p. 49 (1783), ex Buff.; Sharpe, Monogr. pt. xii. no. 102.

Alcedo collaris, Scopoli, Fl. Faun. Insub. ii. p. 90 (1786), ex Sonn.

Hab. Macassar (*Wallace*).

The geographical distribution of this species will be found fully given by Mr. Sharpe (*l. s. c.*).

44. SAUROPATIS SANCTA (Vig. & Horsf.), Trans. Linn. Soc. xv. p. 206, "New Holland" (1825); Sharpe, Monogr. p. xii. no. 104.

Mr. Sharpe (*l. c.*) has not included Celebes within the range of this species; but Mr. Wallace has informed me that he obtained it, as well as *S. chloris*, at Macassar.

45. SAUROPATIS FORSTENI, Temm. Bp. Consp. i. p. 157, "Celebes" (1850); Schlegel, Mus. Pays-Bas, *Alcedines*, p. 37; Schlegel, Vog. Ned. Ind. *Ijsvogels*, p. 29, pl. 11. f. 1; Sharpe, Monogr. pt. xii. no. 103.

Hab. Gorontalo (*Forsten*).

The type specimen, an adult female, preserved at Leyden, is the only individual known. In Prince Bonaparte's diagnosis Professor Schlegel (*l. c.*) substitutes the words "*subtus nigrescens*" for "*subtus alba*." Mr. Sharpe informs me that "it is close to *H. chloris*, of which perhaps it is only an accidental variety."

Todiramphus funebris (*Forsten*), Bp. (*l. c.*), is from Gilolo, and not from Celebes, nor has *Alcedo diops*, Temm., been found there since Temminck described the species.

CALLIALCYON, Bonaparte.

46. CALLIALCYON RUFUS (Wallace), P. Z. S. 1862, p. 338, "Sula Islands and Celebes."
Halcyon coromanda (Lath., pt.), Sharpe, Monogr. pt. ix. no. 69.

Hab. Celebes, Sula Islands (*Wallace*); Macassar (*Wallace*).

The Celebean *Callialcyon* is the largest and most brilliantly coloured of the group. In both these respects it differs; and I therefore do not hesitate to retain Mr. Wallace's title.

CITTURA, Reichenbach.

47. CITTURA CYANOTIS (Temm.), Nouv. Rec. livr. xlv. pl. 262, "Sumatra" (!), *errore* (March 27, 1824); Sharpe, Monogr. pt. ii. no. 10, "Celebes;" Wallace, Ibis, 1860, p. 142.

Hab. Kema (*Forsten*); Celebes (*Wallace*); Menado (*mus. nostr.*).

The true *habitat* of this species was made known by Professor Schlegel some seven years ago (Mus. Pays-Bas); and to Mr. Wallace we owe not only a confirmation of the fact, but interesting notes on the habits of the bird. It is not improbable that the differences whereon Mr. Sharpe founded his *C. sanghirensis* will prove to be common to the Celebean bird in certain phases of plumage.

CEYCOPSIS, Salvadori.

48. CEYCOPSIS FALLAX (Schlegel), Nederl. Tijdschr. Dierk. 1866, p. 187, "Celebes;" Sharpe, Monogr. part v. no. 37.

Hab. Edges of creeks in the mountainous parts of Celebes (*Schlegel*); Menado (*mus. nostr.*).

Tanysiptera riedelii, J. Verreaux, N. Arch. du Mus. ii. Bulletin, p. 23, pl. 3. f. 1 (1866), is not a Celebean bird. See P. Z. S. 1872, p. 1.

ALCEDININÆ.

PELARGOPSIS, Gloger.

49. PELARGOPSIS MELANORHYNCHA (Temm.), Pl. Col. 391, "Celebes" (10th June, 1826); Sharpe, Monogr. pt. ix. no. 66.

Hab. Celebes (*Reinwardt*); Menado (*mus. nostr.*); Sula Islands (*Wallace*).

ALCEDO, Linnæus.

50. ALCEDO MOLUCCENSIS, Blyth, J. A. S. B. xv. p. 11, "Moluccas" (1846); Cat. Calc. Mus. no. 215, p. 49, "Celebes, Moluccas;" Sharpe, Mongr. pt. x. no. 74.

Alcedo minor moluccensis, Schlegel, Mus. Pays-Bas, *Alcedines*, p. 8; Schlegel, Vog. Ned. Ind. *Ijsvogels*, p. 5, pl. 1. f. 4, 5.

Hab. Gorontalo (*Forsten*); Celebes, Bouru, Gilolo, Flores (*Wallace*); Salawati, Ceram, Batchian, Mysol, Amboina (*Von Rosenberg*).

It was probably Celebean examples of this species which Temminck mistook for the common European Kingfisher (Pl. Col. 272, note).

51. ALCEDO ASIATICA, Swainson, Zool. Illustr. 1st ser. i. pl. 50, "some part of India" (1820-21); Sharpe, Monogr. pt. x. no. 75.

Alcedo meninting, Horsf. Trans. Linn. Soc. xiii. p. 172, "Java" (1822); Temm. Nouv. Rec. pl. 239. f. 2, "Java and Sumatra;" Schlegel, Vog. Ned. Ind. *Ijsvogels*, p. 6, pl. 3. f. 2, 3.

Hab. Indo-Malayan region, Macassar (*Wallace*); Gorontalo (*Von Rosenberg*); Lombok (*Wallace*).

CYPSELIDÆ.

MACROPTERYX, Swainson.

52. MACROPTERYX WALLACII (Gould), P. Z. S. 1859, p. 100, "Macassar."

Hab. Celebes, Sula Islands (*Wallace*); Macassar, Menado (*mus. nostr.*).

This species is closely allied to *M. klecho*, but differs in being considerably larger and in having the crown of the head, the shoulder-coverts, the edgings of the quills, and the upper surface of the rectrices of a deeper shade of blue-green. Dimensions of wing in *M. wallacii*, seven inches and a quarter; in *M. klecho*, six inches and a quarter.

COLLOCALIA, G. R. Gray.

53. COLLOCALIA ESCULENTA (Linn.), Syst. Nat. ed. 12, i. p. 343. no. 2 (1766), ex Rumph. Herb. Amb.; Wallace, P. Z. S. 1863, p. 384.

Collocalia hypoleuca, G. R. Gray, P. Z. S. 1858, p. 170, "Aru Islands;" Hand-list, no. 749; Ann. Nat. Hist. 3rd ser. vol. xvii. p. 120.

Hab. Celebes, Timor, Moluccas, Aru Islands (*Wallace*).

Notwithstanding the reasons advanced by Mr. G. R. Gray (*l. c.*), Mr. Wallace's arguments in favour of this species being the true *Hirundo esculenta*, Linn., appear to me to be decisive. Rumphius does not speak of "the concealed white spots on the tail-feathers as if there were one on each" (Gray, *op. cit.* p. 126). On the contrary, by the expression "only when the feathers are separated the white spots become visible," Rumphius leaves it to be inferred that all the white spots are concealed, and therefore that the middle pair of tail-feathers are immaculate. The statement of Linnæus that "all the tail-feathers are spotted with white," is an inaccurate rendering of the description given by Rumphius.

54. COLLOCALIA FUCIPHAGA (Thunberg), Act. Holm. xxxiii. p. 151, pl. 4, "Java" (1772); Wallace, P. Z. S. p. 384.

Collocalia nidifica, var., G. R. Gray, Ann. Nat. Hist. 3rd ser. vol. xvii. p. 119; F. Moore, Cat. Mus. E. Ind. Co. i. p. 98.

Hab. Macassar (*Wallace*); Java (*H. esculenta*, ap. Horsf.); Sumatra (*H. esculenta*, ap. Raffles); Bourbon, Mauritius (var. *francica*, Gm.); Neilgherries (*H. unicolor*, Jerdon, = *C. concolor*, Blyth); Malabar coast and Western Ghauts (*Jerdon*); Ceylon (*Layard*); Darjeeling (*Tickell*); Assam (*H. brevirostris*, McClelland); Bootan (*Pemberton*); Sikim (*Blyth*); the whole of the Malay islands (*Wallace*).

The further limits of this species depend on the true value of *H. vanicorensis*, Quoy & Gaim., = *M. leucophæa*, Peale.

HIRUNDINAPUS, Hodgson.

55. HIRUNDINAPUS GIGANTEUS (V. Hasselt): Pl. Col. livr. xli. pl. 364, "Java" (27th August 1825).

Chatura gigantea, var. *celebensis*, Slater, P. Z. S. 1865, p. 609, "Menado."

Hab. Java (*type*), Sumatra, Celebes (*Mus. Lugd.*); India (*Jerdon*); Ceylon (*Layard*).

Dr. Slater (*l. c.*) points out differences which distinguish the Celebean *Hirundinapus* from typical Javan and Sumatran examples. As one of these distinctions he mentions "a well-marked narrow white patch on the front on each side of the nostrils." Dr. Slater also alludes to the Celebean bird as "a very distinct form." The white frontal marks are also found in the Indian bird, while in a Penang specimen, along with other slight differential characters, Dr. Jerdon (B. of Ind. i. p. 173) found the white frontal patches wanting. This Penang individual thus agreed with the type as described by Temminck.

But it seems possible that the absence and presence of the white frontal spots only denote phases of plumage. If not, the Indian bird will belong to a different species, while the Celebean may be either the same as the Indian (in itself highly improbable), or represent a third form.

CAPRIMULGIDÆ.

LYNCORNIS, Gould.

56. *LYNCORNIS MACROPTERUS*, Bp. *Consp.* i. p. 62, "Celebes" (1850); Wallace, *Ibis*, 1860, p. 141.

Hab. Menado (*Wallace*).

BUCEROTIDÆ.

BUCEROS, Linnæus.

57. *BUCEROS EXARATUS*, "Reinw.," Temm. *Nouv. Recueil*, livr. xxxvi. pl. 211, ♀, "Celebes" (2nd August, 1823); Schlegel, *Mus. Pays-Bas*, *Buceros*, p. 10. (Pl. V. fig. 1, ♂; fig. 2, ♀.)

Hab. Tondano (*Forsten*); Menado (*mus. nostr.*); appears to be restricted to the north-eastern parts of Celebes.

The male is distinguished from the female by having the throat, cheeks, ear-coverts, sides of neck, and superciliary stripes springing from base of mandible white. In my examples the white supercilium has light ferruginous-brown feathers intermixed. In dimensions the female appears to be somewhat smaller. The example I note from is marked by the collector "female," while the entirely black individuals are marked "males." According to Professor Schlegel (*l. c.*) the subject of Temminck's plate was a female; and, together with Salomon Müller, he describes the male as having the throat and sides of the head white.

As this curious form does not belong to any of the established subdivisions of the family, I leave it for the present in the old Linnæan genus. It is certainly not a *Hydrocissa*, as classed by Prince Bonaparte. It belongs to the group of Hornbills, in which the casque and the true maxilla are completely blended together, the prolongation of the casque forming, in old birds, the apex of the maxilla.

CRANORRHINUS, Cabanis.

58. *CRANORRHINUS CASSIDIX* (Temm.), Pl. Col. 210, ♂, "Celebes" (2nd August, 1823).

Buceros cassidix, Temm.; Schlegel & Müller, *Verhandel. Zool. Aves*, p. 24, pl. 4 bis, ♀; Schlegel, *Mus. Pays-Bas*, *Buceros*, p. 9; Wallace, *Malay Archip.* i. p. 364.

Hab. Tondano (*Reinwardt*); Menado (*mus. nostr.*); district of Maros, Macassar (*Wallace*).

The types of the two plates above cited came from Tondano. In the old males the

colouring of the neck is pale tawny, with scarcely any of the bright ferruginous tint exhibited by the younger birds. Thus the dark chestnut-brown feathers on the crown, occiput, and nape appear more isolated, the much paler hue of the neck-plumage forming a greater contrast. In other respects there are no characters whereby the younger may be distinguished from the older birds, save the somewhat smaller general dimensions, and the form, proportion, and adjuncts of the bill. After the full plumage has been acquired, the bill still passes through three very distinct stages of structure. In the younger (fig. 1) the casque looks more like an inflation of the

Fig. 1.

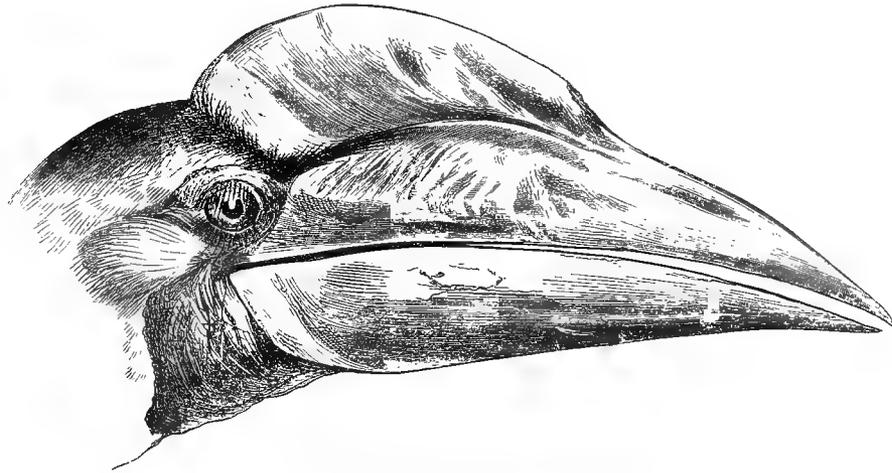
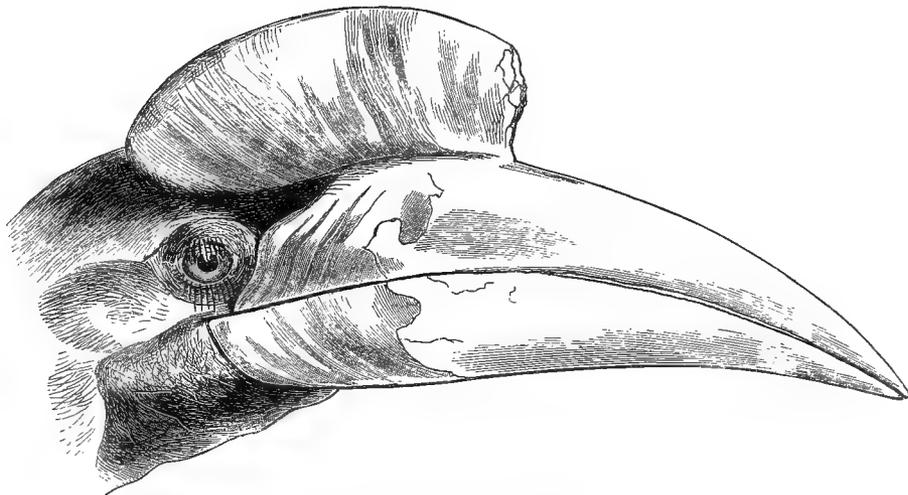
*Cranorrhinus cassidia*, ♂ juv.

Fig. 2.

*Cranorrhinus cassidia*, ♂ jun.

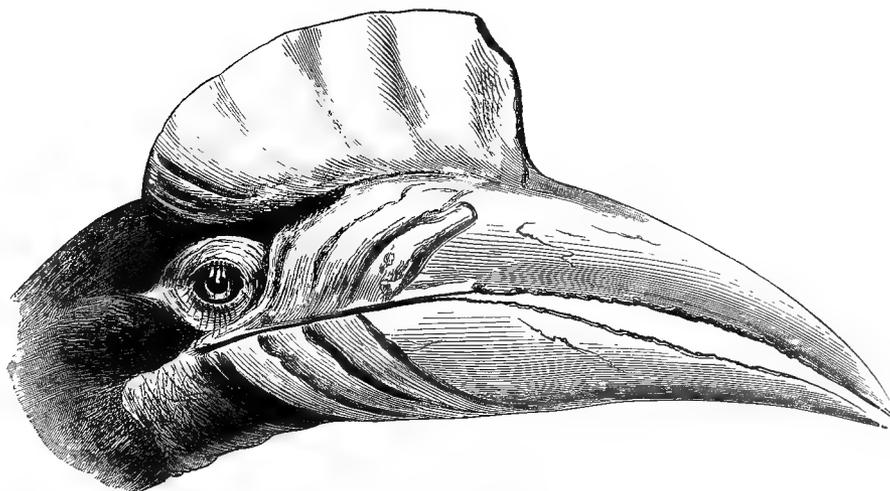
culmen than a separate part of the maxilla, so little is it detached. It is swollen posteriorly, and already reaches to above the eye. Anteriorly it falls rapidly towards

the culmen without exhibiting an erect edge. The cutting-edges of the mandibles are not broken or serrated. In the mature bird the bill measures two inches more than in the younger; yet in the younger bird the mandibles are as high, or are higher, throughout their length than in the fully adult; or, in other words, in the latter the bill

Fig. 3.

*Cranorrhinus cassidix*, ♂ ad.

Fig. 4.

*Cranorrhinus cassidix*, ♀.

is prolonged at the expense of its height. In this stage there are no traces of the basal lateral plates. The walls of the mandibles are quite smooth, without any indications

of lateral folds. But the position which is occupied by the lateral plates in older individuals is indicated by a dingy reddish brown colour.

In the next stage (fig. 2, p. 48) the bill measures about one inch longer, and has acquired the form which exists in the old bird; but the cutting-edges are unbroken. The casque is more inflated, appears more detached from the culmen, and reaches further back on the crown of the head. In front it stands up at a right angle to the culmen, and is much compressed. A thin, smooth plate has grown on the basal half of the two mandibles; but there are no traces of folds or grooves. The substance of these plates seems to be secreted from the walls of the mandibles.

In the fully adult bird (fig. 3, p. 49) the commissure is serrated, notched, and broken. The casque extends back past the line of the eye. Anteriorly it is less compressed than in the previous stages, although not so much swollen as the posterior portion. The anterior edge stands at an acute angle to the culmen. The casque displays five distinct folds or, rather, undulations. At the base of the mandibles the lateral plates are much thickened. On each side of the maxilla they are divided by a single, deep, diagonal groove into two equally broad flat folds. On the sides of the mandible there are two grooves thus forming three similar folds.

In the adult female (fig. 4, p. 49) the commissures are much broken and serrated. The casque is smaller, the anterior edge rising at a right angle to the culmen. It is also divided into five almost equal undulations or folds. The basal plates are divided both on the mandibula and maxilla into three broad flat bands. In a second example of a female (*mus. nostr.*) a third band has been partially arrested in its development, the groove being being partly obliterated. While the female has certainly three flat bands at the base of both the mandibles, it will be interesting to know whether the male has never more than two at the base of the maxilla. In Temminck's plate (*l. c.*) the male is figured with only two; while in that given by Schlegel and S. Müller (*l. c.*) the female is figured with three both above and below. The following dimensions are taken from Menado examples in my collection. The bill is measured in a straight line from the gape to the apex.

Dimensions.

| | Wing. | Tail. | Bill. | Circumference of casque. | | Casque. |
|------------------------------|-----------------|-----------------|----------------|--------------------------|-------------------|--------------------|
| | inches. | inches. | inches. | Outer. inches. | Inner. inches. | Height. inches. |
| Male, young | $16\frac{1}{2}$ | $11\frac{1}{4}$ | $6\frac{3}{4}$ | $5\frac{1}{2}$ | 4 | $1\frac{1}{2}$ |
| Male, intermediate | $17\frac{1}{4}$ | 14 | $7\frac{3}{4}$ | $5\frac{1}{4}$ | $3\frac{1}{4}$ | $2\frac{1}{4}$ |
| Male, adult | $17\frac{1}{4}$ | 14 | $8\frac{3}{4}$ | $7\frac{1}{2}$ | $3\frac{1}{4}$ | $3\frac{3}{4}$ |
| Female, adult | 15 | 12 | $7\frac{1}{4}$ | 5 | $3\frac{1}{4}$ | 2 |

It will be seen that the bill increases in length after the wings and tail have reached their maximum. The inner circumference of the casque is greater in the youngest than in the adult. The anterior part of the casque, at its union with the culmen,

appears to become absorbed, and to retreat as the bird increases in age; or, as the anterior edge becomes more and more perpendicular to the culmen, it perhaps wears off, or is broken off. This can be traced in one example—the indent or hollow from which the fore part of the casque sprung, and in which it was attached to the culmen, a groove shaped like a V, three quarters of an inch long, not being filled up.

Buceros sulcatus, Temm., from the Philippines, and *B. corrugatus*, Temm., from Borneo, belong to the same genus.

CUCULIDÆ.

SCYTHROPINÆ.

SCYTHROPS, Latham.

59. SCYTHROPS NOVÆ-HOLLANDIÆ, Lath. Ind. Orn. i. p. 141, "Nova Hollandia" (1790); Schlegel, Mus. Pays-Bas, *Cuculi*, p. 36; Temm. Pl. Col. 290.

Cuculus præsagus, Reinw. MS., ex Celebes.

Hab. Menado, Macassar (*mus. nostr.*); Kema (*Forsten*); Ceram, north coast (*Mus. Lugd.*); Ceram, south coast, adult males, April (*Hoedt*); Obi-major, adult male, 29th of June, Batchian, adult male and female, end of June, a male, 8th of September (*Bernstein*); Flores (*Wallace*); New South Wales, between October and January (*Gould*); Cape York (*mus. nostr.*).

Two individuals from the vicinity of Menado are, in their colouring and markings, almost identical with an example from Cape York. The dimensions of the wing and tail also agree. But the bill of the Menado male, measured from the nostril, is full two inches and three quarters in length, and that of the female two and five eighths, whereas that of the Cape-York bird is only two inches and a quarter. In form the bill of the Celebean bird differs from that of the Cape-York example. In the latter the culmen is rounded, smooth, and broad, and there is only one lateral channel or groove present. This starts from above the nostril, and runs in a line more or less parallel with the culmen. In the Menado male the culmen, on leaving the forehead, forms a distinct narrow ridge; on each side of it is a depression or shallow valley, formed and bounded by a second ridge, below which again is the channel observable in the Cape-York bird. In the bill of the Menado female the culmen is sharper and still more clearly defined; and the lateral channels, while being deeper, are prolonged nearly to the apex of the maxilla¹. The type of structure is essentially that of the bill in some species of the Bucerotidæ.

We know nothing of this form out of Australia. In that country it is migratory. Its geographical distribution in the archipelago, as at present known, is anomalous; for it occurs in Flores, and is not recorded from Lombeck or Timor. It has been found in Batchian, but not in Gilolo; in Ceram, but not in Bourou.

¹ A Macassar example, since obtained, presents a similar structure.

PHŒNICOPHAINÆ.

PHŒNICOPHÆS, Vieillot.

60. PHŒNICOPHÆS CALORHYNCHUS (Temm.), Nouv. Rec. livr. lix. pl. 349, "Celebes" (25th of June 1825); Wallace, Malay Archip. ii. p. 340.

Le Malkoha à bec peint, Less. Complém. de Buffon, ii. p. 618, pl. —. fig. 1.

Hab. Gorontalo (*Forsten*); Menado, Macassar (*mus. nostr.*).

MM. Verreaux proposed (Rev. & Mag. Zool. 1855, p. 356) to restrict Vieillot's generic title *Phœnicophaës* to a small group consisting of this species, of *P. curvirostris*, Shaw, *P. erythrognathus*, Temm., and a fourth species, *P. œneicaudus*, Verr., not since obtained. And they suggested a new generic title, *Alectorops*, for the reception of *Cuculus pyrrhocephalus*, Forster. But, as Forster's Ceylon Malkoha is the type of *Phœnicophaës*, this arrangement cannot be recognized.

Dr. Cabanis (Mus. Hein. iv. p. 85), concurring in the propriety of separating the Ceylon species from the others, retained it, Vieillot's type species, in *Phœnicophaës*, and proposed *Rhamphococcyx* for the small Indo-Malayan group. The grounds for this separation are the great extent of naked space surrounding the eye, the abnormal colouring of the plumage, the form of the bill, and the position and shape of the nostrils in *P. pyrrhocephalus*. The naked space is certainly more extended than in *P. curvirostris* or *P. erythrognathus*; but then *P. calorhynchus* has the ophthalmic region almost entirely clothed. The colouring of the plumage differs principally in that white replaces the rufous of *P. curvirostris* and *P. erythrognathus*, thus evincing an affinity to *Rhopodytes*, Cab. (*Zanclotomus* of Indian authors, but not of Swainson). The tail is tipped with white instead of rufous; but the upper plumage in all three is green. In *P. calorhynchus* green is entirely absent, and the tail is uniform in colour. In colouring *P. calorhynchus* is as much an isolated species as *P. pyrrhocephalus*. The form of the bill in all four species is very similar; but the position and shape of the nostrils is different in each of the four. The nostril of *P. pyrrhocephalus* (fig. 8) is placed in a narrow, depressed, lengthened, oval slit, which runs almost parallel with the commissure, yet slightly descending. Its situation is almost on the edge of the commissure, and at an unusual distance from the base of the maxilla. In *P. curvirostris* (Shaw) (fig. 6) the nostrils are set at the commencement of a deep narrow groove or channel. In *P. erythrognathus*, Bp.¹ (fig. 7), the nostril is a simple round hole. The nostril of *P. calorhynchus* (fig. 5) is an elongated slit, like that of *P. pyrrhocephalus*, but running quite parallel with the commissure, and not so near its edge; nor is it as advanced from the base of the maxilla. The position and shape of the nostrils in these four species is so peculiar and distinctive, that the species could be determined from a fragment of the maxilla alone. The striking difference in the shape of the nasal opening of the Javan *P. curvirostris* and Sumatran, Moluccan, and Bornean *P. erythrognathus* (forms which

¹ Consp. i. p. 98.

are otherwise difficult to recognize as distinct species) is very remarkable. The four species form a natural group which cannot be consistently subdivided, unless *P. calorhynchus* be also made the type of a separate genus. Within the limits of *Phœnicophaës* I am also inclined to include *Melias diardi*, Less., and also *Cuculus sumatranus*, Raffles

Fig. 5.

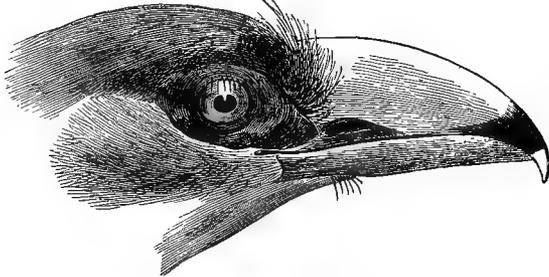
*Phœnicophaës calorhynchus.*

Fig. 6.

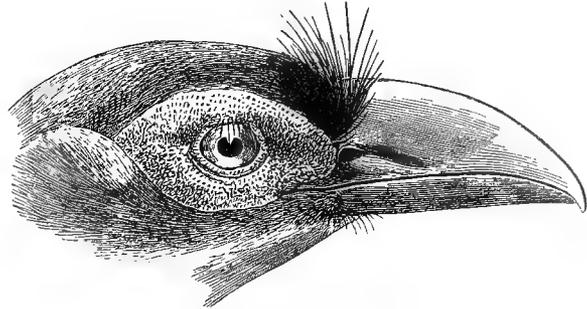
*Phœnicophaës curvirostris.*

Fig. 7.

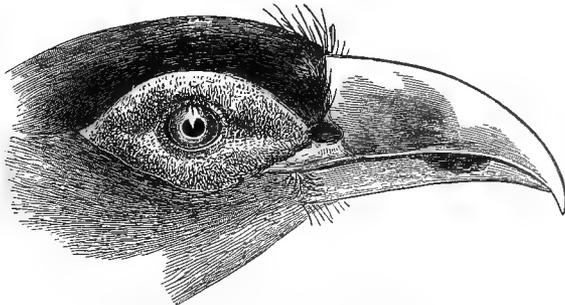
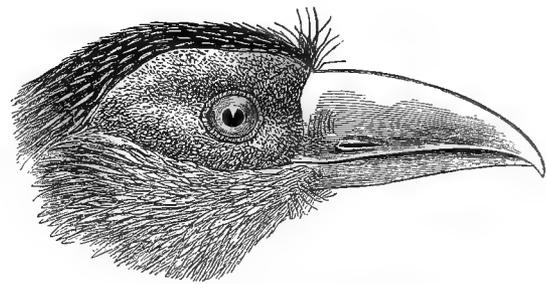
*Phœnicophaës erythrognathus.*

Fig. 8.

*Phœnicophaës pyrrhocephalus.*

CUCULINÆ.

EUDYNAMIS, Vigors & Horsfield.

61. EUDYNAMIS MELANORHYNCHA, S. Müller, Verhandl. p. 176; Schlegel, Mus. Pays-Bas, *Cuculi*, p. 20; Walden, Ibis, 1869, p. 344.

Hab. Kema, Tondano, Gorontalo (*Forsten*); Menado (*mus. nostr.*).

CACOMANTIS, S. Müller.

62. CACOMANTIS LANCEOLATUS, S. Müller, Verhandl. p. 178.

Hab. Macassar (*Wallace, mus. nostr.*); Java (*type*).

The synonymy of the species usually comprised in *Cacomantis*, S. Müller, is still so entangled, that a few general remarks on the Plaintive Cuckoos of the Indian and Australian regions are necessary to enable us to establish the identity of the Celebean member of the genus.

In India there are two species: 1, *C. passerinus* (Vahl), without any rufous in the adult plumage; 2, *C. tenuirostris* (Gray, apud Jerdon), with a rufous belly. Both pass through an hepatic phase. *C. passerinus* (Vahl) chiefly inhabits western and south-western India and Ceylon; *C. tenuirostris*, Gray, ap. Jerdon, frequents Bengal and the countries to the eastward, including Burma. In Bengal the two species are said to meet and interbreed. *C. passerinus* (Vahl) has no representative; but *C. tenuirostris*, Gray, ap. Jerdon, is represented in the Malay peninsula by *C. threnodes*, Cab.; in Borneo by *C. borneensis*, Bp.; in the Philippines by *C. merulinus* (Scopoli) *verus*; and in Java by *Cuculus flavus*, Gm., apud Horsf., S. Müller, &c., = *Cacomantis merulinus*, Scop., ap. Cab., and *Polyphasia merulina*, Scop., ap. Horsf. & Moore. The Javan bird, in the hepatic stage, is probably the *C. lanceolatus*, S. Müller. When fully adult it has the head, nape, throat, and breast pale ashy; the remaining lower parts fulvous, more or less inclining to rufous; the caudal bands are white; and the quills unicolorous. In the young and in the transition stage these bands, which are broad, equidistant, and unbroken, are rufous, and the quills are either all or partly rufous-banded. This description will apply more or less to all the races above alluded to.

C. sepulchralis, S. Müller, is the title of a third very distinct species, which inhabits Java. When adult it may be at once recognized from *C. merulinus* of Java by its longer bill, and from all the races of that species by its much longer wings and tail, by the chin, cheeks, and ear-coverts *only* being pale ashy, the head dark grey, the upper surface bronze-green, and by the whole under surface, the chin excepted, being ruddy fulvous. The white markings on the rectrices are fewer, smaller, and chiefly consist of triangular edge-spots, and not of bands running right through. In transition plumage this is in all probability the *C. pyrogaster*, Drapiez. *C. sepulchralis*, S. Müller, belongs to the group which includes *C. flabelliformis*, Lath., *C. dumetorum*, Gould, and *C. insperatus*, Gould, from Australia, also several races of small Cuckoos of the Austro-Malayan archipelago, as *C. assimilis*, G. R. Gray, Aru Islands, *C. infaustus*, Cabanis, Mysol, and some undetermined species in Goram, Batchian, Morty, and Salawati, likewise *C. simus*, Peale, Feejee Islands, *C. castaneiventris*, Gould, Cape York, and *C. bronzinus*, G. R. Gray, in New Caledonia. No member of this group has been identified as inhabiting Continental Asia; yet the Bengal specimen, stated by Dr. Jerdon (B. of Ind. i. p. 335) to have the rufous extending to the chin, may belong to it.

A fourth group of Plaintive Cuckoos is represented by *C. tymbonomus*, S. Müller, from Timor; to it belongs the *C. pallidus* (Lath.) of Australia, and an undetermined species from Waigiou. In *C. tymbonomus* the upper surface is pale olive-brown, inclining to ashy on the head and rump; the under surface is paler and more cinereous; under tail-coverts tawny, or pallid rufous; middle pair of rectrices immaculate, but broadly tipped with brown; the remainder tipped with white, and partially toothed on the inner webs with white. This species and its allies also pass through a rufous phase.

C. sonnerati, Lath., founded on Sonnerat's *Petit coucou des Indes* (Voy. Indes, ii. p. 211), from its being more or less rufous at all ages, and a small species, has been often confounded with either one or other of the foregoing. Its Javan representative, but slightly differing, is the *C. pravatus*, Horsf., = *C. fasciolatus*, S. Müller, = *C. rufovittatus*, Drapiez. The group is also represented in Sumatra, Malacca, Borneo, and Ceylon. This form, raised to generic rank by Dr. Cabanis (*Penthoceryx*), has the bill long, broad at the base, and uncompressed throughout its entire length, the maxilla overlapping the mandibula. In old birds the rufous and dark brown bands of the upper plumage are washed with bronze-green. From the chin to the under tail-coverts each feather is white, traversed by usually three narrow, dusky, irregular lines; the white interspaces being three or four times as broad as the dusky lines. A uniform transverse striated appearance is thus imparted to the under plumage, never found in any other group of the small Asiatic Cuckoos. The middle pair of rectrices are, according to age, either almost entirely dark brown with a bronzy gloss, or else have both sides of the shaft dark brown, indented with bright rufous. The lateral rectrices are never evenly barred through, are always bright rufous with dark cross marks, have a white or else a pale fulvous terminal spot and a penultimate broad dark brown band. Many of the frontal plumes are white at their base and in the centre—a character alone sufficient to distinguish this group from any of the Plaintive Cuckoos in hepatic plumage.

C. infuscatus, Hartl., is either another type of the Plaintive Cuckoos, or else it belongs to the same subsection of *C. passerinus*; or it may prove to be only a phase of *C. simus*.

A Macassar specimen, collected by Mr. Wallace, appears to belong to the group of which *C. merulinus* is typical. It has six of the secondary quills with rufous bars, part of the unmoulted hepatic dress; otherwise it is undistinguishable from Javan examples of *C. lanceolatus*. The lateral rectrices are, as in that species, broadly barred with pure white. It is, however, a larger bird, with wings and tail somewhat longer. Wing $4\frac{1}{8}$, tail $4\frac{6}{8}$.

CENTROPODINÆ.

PYRRHOCENTOR, Cabanis.

63. PYRRHOCENTOR CELEBENSIS (Quoy & Gaimard), Voy. Astrol. Zool. i. p. 230, pl. 20, "Menado" (1830).

Centropus bicolor, Cuvier, Mus. Paris, *vide* Pucheran, Rev. et Mag. Zool. 1852, p. 472; Lesson, Tr. p. 137 (1831).

Hab. Menado (*mus. nostr.*); Gorontalo (*Forsten*).

I cannot find that Cuvier ever published his title of *C. bicolor*. A second species of this subsection inhabits the Philippines (*P. unirus*, Cab.). But it is not unlikely that

Cabanis's species is the same as *C. melanops*, Less. ex Cuv., said to have been obtained by the Paris Museum from Java (*conf.* Pucheran, *op. cit.* p. 473). *C. melanops* is certainly not a Javan bird; and though Professor Schlegel has identified it with *C. rufipennis*, Illiger, it belongs to a different group of Coucals. Notwithstanding the opinion of the learned Professor, of Prince Bonaparte, who made it equal to *C. medius*, Müller, and Dr. Cabanis, Mr. Cassin appears to have correctly identified it with *C. nigrifrons*, Peale. *C. ateralbus*, Less., ex New Ireland, is a closely allied form.

In *P. celebensis*, the fully adult bird loses the bright yellow-rufous chin-, throat-, neck-, and breast-plumage of the younger bird. These parts become very pale fulvous, and contrast with the dark chestnut of the remaining lower region. In this state Cuvier's title of *bicolor* is applicable. The young bird is bright rufous throughout; and, judging by analogy, the Philippine *P. unirufus*, Cab., is the young bird of *C. melanops*, Less., = *C. nigrifrons*, Peale.

CENTROCOCYX, Cabanis.

64. CENTROCOCYX AFFINIS (Horsf.), Trans. Linn. Soc. xiii. p. 180, "Java" (1821).

Centropus medius, Bernst. Nat. Tijdschr. Ned. Ind. xxi. p. 27; J. für Orn. 1860, p. 269.

— *rectunguis*, Strickl., ap. Schlegel, Mus. Pays-Bas, *Cuculi*, p. 69.

Hab. Macassar (*mus. nostr.*); Java (*mus. nostr.*).

The red-and-black Coucals of the Indian region form a natural and well-defined group; and I concur with Dr. Cabanis in the propriety of separating them from the African genus *Centropus*. Notwithstanding the labours of Dr. Cabanis and Professor Schlegel, the species are far from being clearly established. Examples of two species from Celebes are in my collection, and would, were I to follow Professor Schlegel, be referable to *C. rectunguis*, Strickl., a title made by the learned Professor to include most of the smaller Asiatic Coucals and even an African species. An examination of a considerable series of this group has led me to conclusions widely differing from those contained in the Catalogue of the Leyden Museum.

The difficulties which meet a student of the genus *Centrocoxyx* arise from the general resemblance in the plumage of its members, the blue, the green, or the purple hue of the black portion, and the deeper or less intense shades of the rufous not being sufficiently striking and well marked, except in perfect plumage, to be relied on as distinguishing characters. We also find in the Coucals, as in other natural groups the members of which are numerous, the colouring of the adult in one species representing, more or less, the transition colouring of the young of another species. Thus the dingy greenish brown hue of the rectrices in an immature *C. rectunguis* changes to glossy dark green in the next stage, and is again converted into deep blue in the adult bird. But in the common Indian Crow-Pheasant the colour of the rectrices is arrested at the green stage, and green remains the hue of that part of the plumage in the fully adult bird. A complete series of fully adult examples from all parts is consequently essential

before characters founded on the colouring can be relied on. Another source of difficulty is the extreme variability of the plumage in the first and second years, the young wearing a livery greatly resembling in general characters the adult garb of Australian *C. phasianus* and its allies. It is likely that this variability is more apparent than real, and that each species, as in *Eudynamis* for instance, has special phases of immature plumage peculiar to itself. Happily certain characters are always present whereby typical specific groups can be separated from one another. The most important are the dimensions and the form of the bill. Three distinct groups of Asiatic Coucals can thus be separated; and as Java is the only known locality where all three are represented, we may use the Javan species as standards:—

First, *C. bubutus*, Horsf., as the type of the large species, such as:—*C. sinensis*, Stephens, ex China; *C. rufipennis*, Illiger, India and Ceylon; *C. eurycercus*, A. Hay, Malacca; *C. borneensis*, Bp., Borneo; and the very distinct *C. chlororhynchus*, Blyth, ex Ceylon. This group appears to be unrepresented in Celebes; nor has it been discovered in the Philippines or in Formosa.

The second group comprises species smaller in size, with short, but proportionally very high bills, the diminished length of the bill making it appear disproportionately broad at the base. The Javan representative is *C. affinis*, Horsf. An identical form inhabits Flores; and a somewhat larger species is found in Ceram, which, if the same as the Amboyna *Centrococcyx*, must stand as *C. medius*, Bp., ex Müller. A Macassar individual, collected by Mr. Wallace, although in young plumage, bill pale flesh-colour, and plumage streaked and mottled, so closely resembles Javan *C. affinis* in dimensions and form of the bill, that I cannot separate it.

The third group consists of the smallest species, represented in Java by *C. javanensis*, Dumont, = *C. lepidus*, Horsf. In these the bill is a miniature resemblance of that of the second group. The upper tail-coverts are highly developed, or, in other words, they are the tail-coverts of the *C. affinis* group. *C. bengalensis*, Gm., of India; *C. viridis*, Scop., of the Philippines; *C. moluccensis*, Cab., ex Bernst., of Ternate, very near to *C. javanensis*, but with a proportionately longer tail; and *C. dimidiatus*, Blyth, = *C. lignator*, Swinh., of Formosa and China, come within these limits. Malaccan and Banjarmassing individuals scarcely differ from the Javan species; and judging from the measurements given by Professor Schlegel, representatives occur in Ceram, Sambawa, Bangka, Sumatra, and Amboyna.

A Celebean example of a young bird, with a pale bill and buff-streaked plumage, offers no distinctive characters, either in its proportional dimensions or in the form of the bill, whereby it can be separated from *C. javanensis*. Yet it must be recollected that the adult bird may present characters more than enough to stamp it as distinct. *C. rectunguis*, Strickland, a perfectly distinct species, as yet only known from Malacca, is a miniature *C. rufipennis*. By its external structure it belongs to the first group. The bill is long and much compressed. The wings are short and much rounded, the

seventh quill, if any thing, the longest. The claw of the hallux is short, and therefore appears straight; in character, it is the claw of the large species, shortened in proportion to the size of the bird. In the second and third groups the hind claws are not proportionately diminished, and therefore appear disproportionate when compared with those of the large species. The upper surface of the tail is a deep, rich, almost purple blue. The nape is glossy violet-blue, contrasting with the duller green-black of the head. The adolescent plumage possesses characters peculiar to the species. From this it will be seen that it has no characters in common with the members of the second and third groups. It does not appear to be contained in the Leyden Museum.

The following is a synopsis of the smaller Asiatic Coucals, together with the dimensions of the individuals I have had access to. *Cuculus tolu*, Gm., ex Madagascar, seems to belong to the Asiatic and not to the African section of Centropodinæ.

A.

1. *Centrococcyx affinis* (Horsf.), Trans. Linn. Soc. xiii. p. 180, "Java" (1821).

Cuculus tolu, Gm., ap. Raffles, Trans. Linn. Soc. xiii. p. 285, is either the Sumatran form of this species or else of *C. javanensis*.

Hab. Java, Sumatra (?), Celebes, Flores.

2. *Centrococcyx medius* (Bp.), ex Müller, Consp. i. p. 108, "Amboyna" (1850).

Professor Schlegel applies this title to the Amboyna species. Prince Bonaparte includes the Javan form.

Hab. Amboyna, Ceram.

B.

1. *Centrococcyx javanensis* (Dumont de Ste. Croix): Dict. Sc. Nat. xi. p. 144, "Java" (1818).

Centropus lepidus, Horsf. Trans. Linn. Soc. xiii. p. 180, "Java" (1821).

Centropus pumilus, Less. Traité, p. 136, "Java" (1831).

Lesson described partly from the example on which Dumont founded the title of *javanensis*. My Bornean example is smaller than Javan individuals.

Hab. Java, Malacca, Banjermassing, Celebes.

2. *Centrococcyx viridis* (Scop.), Del. Fl. Faun. Insub. ii. p. 89 (1786), "Philippines," ex Sonn.

Centropus philippensis, Cuv. R. An. i. p. 426 (1817), ex Pl. Enl. 824, "Philippines."

Corydonix pyrrhopterus, Vieill. Enc. Method. iii. p. 1353, ex Pl. Enl. 824, "Philippines" (1823).

Centropus molkenboeri, Bp. Consp. i. p. 108, descr. orig. (1850), "Philippines."

In the first edition of the Règn. An., Cuvier erroneously quotes Pl. Enl. 884. In the edition of 1829 this error is corrected. Vieillot founded his species on Pl. Enl. 225—also

an obvious error. I am not acquainted with this species. It is admitted as perfectly distinct by Professor Schlegel.

Hab. Philippines.

3. *Centroccocyx moluccensis*, Cab., ex Bernst. Mus. Hein. iv. p. 113 (1862), "Tinor" (Timor?).

The types of Bernstein's MS. title *moluccensis*, in the Berlin Museum, were from Ternate. Is Tinor a misprint for Timor or Tidore?

Hab. Ternate.

4. *Centroccocyx bengalensis* (Gm.), Syst. Nat. ed. 13, i. p. 112 (1788), "Bengal," ex Brown, pl. 13.

Corydonix maculatus, Vieill. Enc. Meth. iii. p. 1353 (1823), ex Brown, pl. 13.

Centropus pygmaeus, Hodgs. Gray's Zool. Misc. p. 85 (1844), "Nipaul."

Centropus viridis, Scop., ap. Blyth, Jerdon, Horsf. & Moore, and Swinhoe.

The following titles are usually associated with this species:—*Polophilus lathami*, Leach, Zool. Misc. pl. 56, described from a British Museum specimen; locality unknown. The species is undeterminable, Leach's plate and description being insufficient.

Centropus rufinus, Cuv. R. An. (1817), p. 426, and *Polophilus rufus*, Stephens, Gen. Zool. *Aves*, ix. p. 44 (1815), titles founded on Levaillant's 221st plate (Ois. d'Afr.), would take precedence of *C. affinis*, Horsf., if, as suggested by Professor Sundevall, Levaillant figures the Javan bird (Krit. Framst. p. 48). Dr. Cabanis deems it more probable that the "Lesser Indian Coucal" formed the subject of Levaillant's plate. From the figure it is impossible to decide which of these two opinions is correct; while Levaillant's mendacious account only tends to mislead us.

Hab. Bengal, Mysore, Central India, Burma.

5. *Centroccocyx dimidiatus* (Blyth), J. A. S. B. 1842, p. 945, "Chusan."

Centropus lignator, Swinhoe, Ibis, 1861, p. 48, ex Formosa, Amoy, Hong Kong.

Centropus viridis (Scop.), ap. Swinhoe, P. Z. S. 1863, p. 266, "South China, Formosa;" Ibis, 1870, p. 235, "Hainan."

It is not as yet satisfactorily determined whether the Chinese Lesser Coucal is a distinct species—and if not, whether it is the same as *C. viridis* (Scop.) or *C. bengalensis* (Gm.).

Hab. South China, Hainan, Formosa (*Swinhoe*).

I have compared two Macassar male examples collected by Mr. Wallace with a large series of Javan individuals, and have failed in detecting any valid specific differences. The black-naped Orioles, before attaining their full plumage, pass through a stage wherein the two centre rectrices retain the olive-green hue found in younger birds, while they have already put on the black feathers which surround the head, and the full bright adult yellow plumage of the entire under surface, the crown, the neck, and the rump, the plumage of the back alone showing immaturity by traces, more or less, of dingy greenish-yellow. It would seem that the central pair of olive-coloured rectrices are not moulted and replaced by a pair of new black feathers, but rather that the olive-green hue changes gradually into black, commencing from near the tips, which are pure yellow at the earliest stage, and thence passing upwards. In adult Javan examples the lesser wing-coverts are tipped with yellow, thus forming a conspicuous yellow speculum. But in Javan examples in the stage of plumage above described, these yellow tips are frequently absent, or only commencing to be developed. The two Macassar examples are in the intermediate stage of plumage described above: one has no yellow tips to the lesser wing-coverts; in the other they are just appearing. Whether in perfect plumage the yellow alar bar is wanting, as in the *Sula B. frontalis*, has yet to be ascertained. In the mean time I shall retain the Macassar Oriole under the title of the Javan bird. The Macassar species is somewhat larger. Wing $5\frac{6}{8}$, tail $4\frac{4}{8}$, bill $\frac{7}{8}$.

The only Menado example I have been able to examine is in the intermediate stage of plumage, with green middle rectrices and no alar bar. It differs in that the black coronal ring does not unite at the nape, the yellow of the crown being thus confluent with that of the nape. As indications of the complete black circle in *Broderipus* appear in the earliest stages of plumage, this break in the coronal ring cannot be a sign of nonage. The dimensions differ from those of the southern form. Wing $5\frac{2}{8}$, tail $4\frac{5}{8}$, bill $\frac{7}{8}$. It possibly represents a distinct species.

TURDIDÆ.

GEOCICHLA, Kuhl.

67. *GEOCICHLA ERYTHRONOTA*, Sclater, Ibis, i. p. 113, "Macassar" (1859). (Pl. VI. fig. 2.)

Hab. Macassar (*Wallace*).

This species and *G. interpres* (Kuhl) form a section of the genus which perhaps deserves a subgeneric title.

Turdus avensis, J. E. Gray, Griffith, Anim. Kingd. Birds, i. p. 530, pl. —, named from an Indian drawing, is either *G. interpres* or else an unknown Burmese representative form.

TIMALIIDÆ.

TRICHOSTOMA, Blyth.

68. TRICHOSTOMA CELEBENSE, Strickland, Contr. Ornith. 1849, p. 128, pl. —, "Celebes."

Hab. Macassar (*Wallace*).

A species of the above genus, collected by Mr. Wallace, is referred, with some doubt, to the bird figured and described by the late Mr. Strickland. The chin and throat are white; the rest of the under surface is washed with pale ferruginous faintly tinged with brown. The upper plumage and wings are dark olive-brown, the loose plumes of the lower back being tinged with rusty, and the upper tail-coverts being distinctly rust-coloured. The outer edges of the rectrices are rusty brown. Lores and cheeks dingy white. Wing $2\frac{7}{8}$, tail $2\frac{3}{8}$, tarsus 1.

While evidently belonging to the genus *Trichostoma*, this species differs structurally from *T. bicolor* (Lesson) of Sumatra and Malacca, by having the rictal bristles but slightly developed and the tail proportionally short.

PITTIDÆ.

MELANOPITTA, Bonaparte.

69. MELANOPITTA FORSTENI (Bp.), Consp. i. p. 256, "Celebes" (1850).

Pitta melanocephala, Forsten (nec Wagler), Schlegel & S. Müller, Verhandl. Zool. Aves, p. 19, "Tondano;" Westerman, Bijdr. i. pt. 6. p. 46, pl. 2; Schlegel, Vog. Ned. Ind. *Pitta*, p. 5, pl. 2. f. 1.

Brachyurus forsteni, Bp. Elliot, Monogr. p. 83, pl. 24; Wallace, Ibis, 1864, p. 106.

Hab. Kema, Tondano (*Forsten*).

ERYTHROPITTA, Bonaparte.

70. ERYTHROPITTA CELEBENSIS (Forsten), Schlegel & S. Müller, Verhandl. Zool. Aves, p. 18, "Tondano;" Westerman, Bijdr. i. p. 6. p. 46, pl. 3; Schlegel, Vog. Ned. Ind. *Pitta*, p. 17, pl. 4. fig. 4; Wallace, Ibis, 1864, p. 106.

Brachyurus celebensis (Forst.), Elliot, Monogr. p. 67, pl. 17.

Hab. North Celebes (*Forsten*).

This species was found to be scarce by Mr. Wallace (Ibis, 1860, p. 142). When remarking that three species of *Pitta* inhabited Celebes, Mr. Wallace (*l. c.*) was probably misled by Bonaparte's Conspectus, wherein *P. mülleri*, Bp., is stated to be from Celebes instead of Borneo.

SAXICOLIDÆ.

MONTICOLA, Boie.

71. MONTICOLA SOLITARIA (P. L. S. Müller), Syst. Nat. Suppl. p. 142. no. 46 (1776), ex Buffon, Pl. Enl. 564. f. 2.

Le Merle solitaire de Manille, Montb. Hist. Nat. Ois. iii. p. 363. no. 1, descr. orig. ex Sonnerat; Pl. Enl. 636, ♂; 564, f. 2, ♂ vel ♀ adolesc.

Turdus manilla, Boddaert, Tab. Pl. Enl. 636 (1783).

Merula solitaria philippensis, Briss. Orn. ii. p. 272, no. 32, "Ins. Philipp." descr. orig. ex Poivre (avis juv?).

Le Merle solitaire des Philippines, Montb. op. cit. p. 364, no. 2; Pl. Enl. 339, ex Brisson, no. 32¹.

Turdus philippensis, P. L. S. Müller, op. cit. p. 145. no. 59, ex Buffon, Pl. Enl. 339 (1776).

Turdus philippensis, Bodd. op. cit., ex Buffon, Pl. Enl. 339 (1783).

Turdus eremita, Gm. Syst. Nat. 13th ed. i. p. 833 (1788), ex Brisson, no. 32.

Merula solitaria manillensis, Brisson, op. cit. p. 270. no. 31, "Manilla," descr. orig.

Turdus manillensis, Gm. op. cit. p. 833 (1788), ex Brisson, no. 31.

Turdus manillensis, auct.; Schlegel, Faun. Jap. *Aves*, p. 67.

Hab. North Celebes (*Forsten*); Philippines (*type*); China, Formosa, Japan (*Swinhoe*).

There seems little doubt that the *Merle solitaire de Manille* and the *Merle solitaire des Philippines* of Montbeillard are the same species in different phases of plumage. This was Montbeillard's own opinion (*op. cit.* p. 365). The most recent authors, however, have continued to treat them as distinct.

PRATINCOLA, Koch.

72. PRATINCOLA CAPRATA (Linn.), Syst. Nat. ed. 12, i. p. 335. no. 33, "Luzon" (1766), ex Brisson, Orn. iii. p. 440.

Hab. Macassar (*Wallace*); Philippines (*mus. nostr.*); common all over India (*Jerdon*); Tongoo (*mus. nostr.*); Aracan (*Blyth*); Java (*Horsfield*); Nipaul (*Hodgson*); Moulmein, Lombock, Timor, Flores (*mus. nostr.*); Simla (*Beavan*); Coorg, Candeish (*mus. nostr.*).

An example of a young male individual of this species was collected by Mr. Wallace at Macassar. It in no way differs from Philippine specimens in my collection.

Examples from the localities above cited agree well in their dimensions. Those from Candeish are larger, but not so large as the Ceylon *P. atrata*, Blyth.

¹ Montbeillard's account contains internal evidence sufficient to prove that it was compiled from Brisson's description. The plate (339) appears also to have been drawn from Brisson's description only. This will explain the unnatural colouring of the head.

SYLVIIDÆ.

ACROCEPHALUS, Naumann.

73. ACROCEPHALUS ORIENTALIS (Bp.), Consp. i. p. 285 (1850), ex Schlegel.

Salicaria turdina orientalis, Schlegel, Faun. Jap. *Aves*, p. 50, pl. 21, "Japan."

Acrocephalus magnirostris, Swinh. Ibis, 1860, p. 51, "Amoy, Shanghai."

Hab. Celebes (*Schlegel*); Menado (*mus. nostr.*); Japan (*Schlegel*); China (*Swinhoe*).

Two examples of a large Reed-Warbler from Menado agree best with Amoy individuals. I therefore provisionally refer them to the Chinese species. They, however, differ from my examples of *A. orientalis* (Amoy), *A. brunnescens* (Coorg), and *A. arundinaceus* (Linn.) (Holland), in having the rectrices conspicuously tipped with dirty white. The proportion of the quills in these examples does not exactly coincide with the proportions existing in the other species alluded to; nor do the dimensions completely agree.

| | Bill. | Wing. | Tail. | Tarsus. |
|--|-------|---------|---------|---------|
| | inch. | inches. | inches. | inch. |
| <i>A. arundinaceus</i> (Linn.) | ·4375 | 3·5625 | 3·250 | 1·0000 |
| <i>A. brunnescens</i> (Jerd.) | ·5625 | 3·4375 | 3·250 | 1·1250 |
| <i>A. orientalis</i> (Bp.) | ·5625 | 3·2500 | 3·000 | 1·1250 |
| <i>Acrocephalus</i> , sp., ex Cashmere | ·6250 | 3·4375 | 3·500 | 1·1875 |
| " " Menado | ·5625 | 3·4375 | 3·000 | 1·1250 |

A. arundinaceus (Linn.). First long primary nearly as long as second, which is longest; third shorter than first.

A. brunnescens (Jerd.). First much shorter than third and fourth, which are longest. In one example the third is longest; in another the fourth is longest.

A. orientalis (Bp.). Second longest, third nearly equal to second, first equal to fourth.

Ex Menado. Second longest, first nearly equal to third, first longer than fourth.

Ex Cashmere. Second equal to fourth, third longest; first somewhat shorter than second and fourth, which are nearly equal to third.

The Cashmere example seems to belong to a distinct species, and differs from *A. brunnescens* of Southern India in its longer and stouter bill, longer tail, and in the upper plumage being darker brown.

CISTICOLA, Kaup.

74. CISTICOLA CURSITANS (Franklin), P. Z. S. 1831, p. 118.

Sylvia cisticola, Temm. Man. d'Orn. i. p. 228 (1820).

Cisticola schænicola, Bp. Birds of Europe, p. 12 (1838).

Hab. Macassar (*Wallace*). For complete range *cf.* Von Heuglin, Orn. N.-O. Afr. pp. 269, 270.

A Macassar example of a male *Cisticola*, kindly lent to me by Mr. Wallace, I am unable to distinguish from Assamese and Daccan individuals of *C. cursitans*. It is labelled *C. lineocapilla*, Gould, with the note, "tail rather more distinctly marked." Wing $1\frac{7}{8}$, tail $1\frac{1}{8}$. The range of this tiny species is very extensive.

MOTACILLIDÆ.

BUDYTES, Cuvier.

75. *BUDYTES VIRIDIS* (Gm.), Syst. Nat. ed. 13, i. p. 962 (1788), "Ceylon," ex Brown, pl. 33.

Hab. Menado (*mus. nostr.*).

One example, in winter plumage. Olive-green above. Upper part of breast sulphur-yellow; rest of under surface pure white, some of the ventral and under tail-coverts dashed with sulphur-yellow. Supercilium conspicuous, broad, and pure white. Agrees perfectly with examples from continental India.

Motacilla flavescens, Stephens, Gen. Zool. *Aves*, x. p. 559, is enumerated in the 'Hand-list' by Mr. G. R. Gray as a distinct species, with the habitats of the Moluccas, Celebes, Timor, and Java assigned. Stephens gave this title to Buffon's "Bergeronnette de l'île de Timor," Hist. Nat. v. p. 275. Buffon's bird belongs to that phase of plumage of *B. viridis* (Gm.) in which the superciliary stripe is yellow, the upper plumage ash-coloured, and the under yellow.

HIRUNDINIDÆ.

HIRUNDO, Linnæus.

76. *HIRUNDO GUTTURALIS*, Scopoli, Del. Fl. Faun. Insubr. ii. p. 96. no. 115, ex Sonn. (1786).

L'Hirondelle d'Antigue, Sonn. Voy. Nouv. Guin. p. 118, pl. 78.

Hirundo panayana, Gm. Syst. Nat. i. p. 1018, ex Sonn. (1788).

Hab. Menado (*mus. nostr.*); Indian region.

Celebean examples agree with specimens from India, Japan, China, Java, Malacca, and Morty Island. In one the crown is ashy brown, the forehead albescent. The black pectoral band is present, and the chin and throat are dirty rufous; on the outer tail-feathers the white mark is in the form of a diagonal oval drop. An example of an adult bird has the head steel-blue; forehead, chin, and throat deep rufous, as in the European *H. rustica*, the rufous breast being bounded by the usual black pectoral band. Wing $4\frac{1}{2}$ inches.

Whether this and the other races of Chimney-Swallows which inhabit the Malay archipelago and Eastern Asia are or are not of the same species as the European bird, they undoubtedly belong to Sonnerat's *Hirondelle d'Antigue*.

77. *HIRUNDO JAVANICA*, Sparrman, Mus. Carls. pl. 100, "Java" (1789).

Hab. Indo-Malayan region.

Mr. Wallace informs me that he found this species common at Macassar, "building its mud nests in verandas in the town."

MUSCICAPIDÆ.

CYORNIS, Blyth.

78. *CYORNIS RUFIGULA*, Wallace, P. Z. S. 1865, p. 476, "Menado." (Pl. VII. fig. 3.)

Hab. Menado (*Wallace*).

MYIALESTES, Reichenbach.

79. *MYIALESTES HELIANTHEA* [(Wallace), P. Z. S. 1865, p. 476, "Menado. (Pl. VII. fig. 1.)

Hab. Menado (*Wallace*).

This is a representative form of *M. cinereocapilla* (Vieill.), differing from that species by wanting the ashy head, nape, throat, and breast of the Indian bird. The head is subcrested.

HYPOTHYMIS, Boie.

80. *HYPOTHYMIS PUELLA* (Wallace), P. Z. S. 1862, p. 340, "Sula Islands and Celebes." (P. VII. fig. 2.)

Hab. Sula Islands and Celebes (*Wallace*).

The azure Flycatchers form a natural section consisting of several very closely allied species, which have yet to be worked out. The group is characteristic of the Indian as distinguished from the Australian region; and Boie's generic title is here adopted in preference to classing *M. azurea*, Bodd., and its allies with the Australian *Myiagra rubeculoides*, Vig. & Horsf., and its allied species.

81. *HYPOTHYMIS MANADENSIS* (Quoy et Gaimard), Voy. Astrol. Zool. i. p. 176, "Menado" (1830), pl. 3. fig. 3.

Hab. Menado (*Quoy et Gaim.*).

Prince Bonaparte (Coll. Delattre, p. 81) refers this form to *Hypothymis*, where I place it with doubt, being unacquainted with the species.

Butalis hypogrammica, Wallace, Ibis, 1862, p. 350, is recorded from Celebes by Mr. G. R. Gray (Hand-list, no. 4814). Mr. Wallace cannot assure me positively that it occurs in that island. But as it is a summer visitant in China, and was obtained in Ceram and Morty Island by Mr. Wallace, it is not unlikely to be a winter resident in Celebes. *Hemichelidon griseosticta*, Swinhoe, is undoubtedly the same species; and that title takes precedence (Ibis, 1861, p. 330).

ARTAMIDÆ.

ARTAMUS, Vieillot.

82. ARTAMUS MONACHUS, Temm.; Bp. Conspectus, i. p. 343, "Celebes" (1850); Wallace, P. Z. S. 1862, p. 340; Ibis, 1860, p. 141. (Pl. VI. fig. 1.)

Hab. Mountain districts of North Celebes, as well as the Sula Islands (*Wallace*).

The diagnosis by Mr. Wallace was taken from Sula examples. Neither does it, nor do Sula individuals (*mus. nostr.*) altogether agree with the description given by Prince Bonaparte (*l. c.*).

83. ARTAMUS LEUCORHYNCHUS (Linn.): Mantissa Plant. p. 524, ex Brisson, "Manilla" (1771).

Lanius manillensis, Briss. Ornith. ii. p. 180, "Manilla," descr. orig. (1760).

— *leucorhynchus*, Gm. S. N. ed. 13, i. p. 305, ex Brisson (1788).

— *dominicanus*, Gm. *op. cit.* p. 307, ex Sonnerat, Voy. Nouv. Guin. p. 55, pl. 25.

? *Lanius leucogaster*, Valenc. Mém. du Mus. vi. p. 27, "Timor" (1820).

Artamus leucopygialis, Gould, P. Z. S. 1842, p. 17, "Australia."

— *papuensis*, Temm.; Bp. Consp. i. p. 344, "Nov. Guinea, Timor."

Leptopteryx leucorhynchus (Linn.); Horsf. Linn. Trans. xiii. p. 244, "Java."

Lanius leucorhynchus, Linn.; Raffles, Linn. Trans. xiii. p. 306, "Sumatra."

Artamus leucogaster (Valenc.); Wallace, P. Z. S. 1863, p. 28; Walden, P. Z. S. 1866, p. 555; Beavan, Ibis, 1867, p. 324.

— *leucorhynchus*, Wallace, Ibis, 1860, p. 141.

Hab. Timor, Flores, Lombok, Bouru, and the whole archipelago from Sumatra to New Guinea, Celebes (*Wallace*); Sumatra (*Raffles*); Java (*Horsfield*); Andamans (*Beavan*); Cape York, Moreton Bay, Queensland, Mysol, Menado, Manilla, Andamans, Java (*mus. nostr.*).

I am unable to distinguish individuals of the white-bellied Swallow-shrike inhabiting the Philippines, Andamans, Java, Lombok, Mysol, Australia, and Celebes. In coloration they appear to be absolutely identical. In dimension, with the exception of the large Celebean form, they vary but little. I have therefore included all under the oldest title given by Linnæus to the Philippine bird. The Celebean is much the largest, and ought, perhaps, to receive a separate specific name. Mr. Wallace (P. Z. S. 1863, p. 485) entitles the Timor bird *A. leucogaster*, var.; but it was from Timor specimens that Valenciennes described *A. leucogaster*.

A. mentalis, Jard. (Fidjee Islands), and *A. melaleucus* (Forsten), a good species (New Caledonia), belong to this group. *A. monachus* (Temm.) ought, perhaps, to be also included.

Dimensions of Artamus leucorhynchus.

| | Wing. | Tail. | Tarsus. | Bill from forehead. | Bill from nostril. |
|-------------------|---------|---------|---------|------------------------|-----------------------|
| | inches. | inches. | inch. | inch. | inch. |
| Manilla | 5·250 | 2·625 | ·625 | ·7500 | ·5000 |
| Lombok | 5·250 | 2·750 | ·625 | ·8125 | ·5625 |
| Mysol | 5·250 | 2·625 | ·625 | ·7500 | ·5625 |
| Queensland | 5·375 | 2·625 | ·625 | ·6875 | ·5625 |
| Cape York | 5·250 | 2·625 | ·625 | ·6875 | ·5000 |
| Moreton Bay | 5·125 | 2·750 | ·625 | ·6875 | ·5000 |
| Java | 5·250 | 2·500 | ·625 | ·7500 | ·5625 |
| Andamans | 5·125 | 2·500 | ·5625 | ·6875 | ·5000 |
| Menado | 5·625 | 3·000 | ·625 | ·8750 | ·5625 |

CAMPEPHAGIDÆ.

GRAUCALUS, Cuvier.

84. GRAUCALUS ATRICEPS, S. Müll. Verhand. Land- en Volk. p. 190, "Celebes" (1839-44); Hartlaub, J. für Orn. 1864, p. 437.

Hab. Celebes (*S. Müller*); Ceram, Sumbawa, Flores (*Hartlaub*).

In his admirable monograph, Dr. Hartlaub (*l. c.*) describes from a Ceram male and a Sumbawa female. It is not stated whether they were compared with Celebean individuals, I therefore include these localities with some doubt. Mr. Wallace (*P. Z. S.* 1863, p. 485) notes only one *Graucalus* as inhabiting Flores, *G. personatus*, S. Müller.

85. GRAUCALUS LEUCOPYGIUS, Bp. Consp. i. p. 354, "Celebes" (1850); Hartlaub, J. für Orn. 1864, p. 443.

Hab. Macassar (*Hartlaub*); Macassar, Menado (*mus. nostr.*).

86. GRAUCALUS TEMMINCKII, S. Müller, Verhand. Land- en Volkenk. p. 191, "North-eastern Celebes" (1839-44); Hartlaub, J. für Orn. 1864, p. 446.

Hab. Gorontalo (*Forsten*, fide *Hartlaub*).

This is a most remarkable form, and seems to be rare. In 1864 only one example was contained in the Leyden Museum. Another, a male, is preserved in the British Museum. The types (for S. Müller also described the female, *l. c.*) were obtained by Forsten in North-eastern Celebes. Mr. Wallace (*P. Z. S.* 1862, p. 342) has added the Sula Islands to its range, on S. Müller's authority. I have failed in finding any statement of S. Müller to that effect.

VOLVOCIVORA, Hodgson.

87. VOLVOCIVORA MORIO (S. Müller), Verhandl. Land- en Volkenk. p. 189, "Celebes" (1839-44); Hartlaub, J. für Orn. 1865, p. 155. (Pl. VIII. fig. 1.)

Edoliosoma melanolæma, G. R. Gray, Hand-list, no. 5099, "Celebes" (1869).

Hab. Tondano, Gorontalo (*Hartlaub*); Macassar (*mus. nostr.*).

This and several Indo-Malayan and Papuan species are classed by Dr. Hartlaub (*l. c.*) under *Campephaga*, Vieillot, the type of that genus being the African *Campephaga nigra*, Vieill. This species, in its turn, Dr. Hartlaub transfers to Lesson's genus *Lanicterus*. I venture, however, to refer the Celebean bird to *Volvocivora*, Hodgs., as it is nearly allied to the type of that genus, *Lanius silens*, Tickell (1833), = *Ceblepyris lugubris*, Sundev. (1837), = *Volvocivora melaschistos*, Hodgs. (1837).

On examination I find that *Edoliosoma melanolæma*, a title published without description, refers to S. Müller's species; while the *E. morio*, of the Hand-list, no. 5097, appears to be *C. fimbriatus*, Temm. The British-Museum examples of the last are noted from Celebes; but that locality requires further confirmation.

LALAGE, Boie.

88. LALAGE LEUCOPYGIALIS, n. s. (Pl. VIII. fig. 2.)

Hab. Menado (*mus. nostr.*).

S. Müller, Hartlaub, O. Finsch, and others have hitherto included Celebes within the range of the *Lalage* of Java, *Turdus dominicus*, P. L. S. Müller, = *T. terat*, Bodd., = *T. orientalis*, Gm. Two examples of a *Lalage*, one of an adult male, and the other of an adult female, received by me from Menado, are to be readily distinguished from the Javan bird by having the lower back and rump pure white, the long upper tail-coverts only being grey. In this respect the Celebean *Lalage* agrees with *L. melanoleuca* (Blyth) from the Philippines; but that species is without a white supercilium (*vide* Hartl. J. für Orn. 1865, p. 163).

This is probably the *L. leucopygialis* of Mr. Gray's Hand-list; but as no description is given, his title cannot be noticed.

The *Lalage* which inhabits South-eastern Borneo differs from the Javan form in its longer wing and broader though not longer bill.

| | Wing. | Tail. | Tarsus. | Bill from nostril. | |
|----------------------------------|------------------|------------------|----------------|-----------------------|--------------------------|
| Java. ♂ adult | inches. 3·375 | inches. 3·000 | inch. ·7500 | inch. ·500 | <i>L. dominica.</i> |
| Banjarmassing. ♂ adult | 3·750 | 3·250 | ·7500 | ·500 | " " |
| Menado. ♂ adult | 3·500 | 3·125 | ·6875 | ·500 | <i>L. leucopygialis.</i> |
| Menado. ♀ adult | 3·500 | 3·125 | ·6875 | ·500 | " " |

Lalage aurea (Temm.), Pl. Col. livr. lxiv. pl. 382. fig. 2, "Timor" (21st December 1825); Bp. Consp. i. p. 355; Coll. Delattre, p. 78; Hartlaub, J. für Orn. 1865, p. 168.

This species is stated to occur in Celebes by Bonaparte and Dr. Hartlaub. Mr. Wallace, however, is of opinion that it cannot be considered a Celebean bird.

ARTAMIDES, Hartlaub.

89. ARTAMIDES BICOLOR (Temm.), Pl. Col. livr. xlvii. pl. 278, "Sumatra" (!) (June 26, 1824); S. Müller, Verh. Land- en Volk. p. 191, "Celebes;" G. R. Gray, Handlist, no. 5091, "Banda, Celebes, Sumatra."

Hab. Menado (*mus. nostr.*).

Salomon Müller (*l. c.*) expressly states that this species inhabits Celebes, and neither Sumatra nor Banda.

DICRURIDÆ.

DICRURUS, Vieillot.

90. DICRURUS LEUCOPS, Wallace, P. Z. S. 1865, p. 478, "Celebes."

Hab. Macassar, Menado (*Wallace*).

Closely resembles *D. pectoralis*, Wallace, of the Sula Islands, but is somewhat larger in all its dimensions. The irides are stated by Mr. Wallace to be invariably milk-white, while in the Sula species and in all others known they are red.

The type of Vieillot's genus *Dicrurus*, *Corvus balicassius*, L., appears to stand alone; and it will be perhaps necessary to form a separate genus for the reception of all the Austro-Malayan Dicruridæ, whose affinities seem to be with *Chibia*, Hodgs.

NECTARINIIDÆ.

NECTARININÆ.

ARACHNOTHERA, Temminck.

91. ARACHNOTHERA ———?

Arachnothera longirostra (Lath.), S. Müller, Verhandl. Zool. Aves, p. 69, ex Celebes.

I have not had an opportunity of examining an example of the Celebean *Arachnothera*, and am therefore unable to determine its correct title.

ANTHREPTES, Swainson.

92. ANTHREPTES MALACCENSIS (Scopoli), Del. Fl. et Faun. Insub. ii. p. 90. no. 62 (1786); Walden, Ibis, 1870, p. 47. no. 38.

Hab. Celebes (*Wallace*); Menado (*mus. nostr.*); Java, Sumatra, Borneo, Malacca

(*S. Müller*); Sula Islands, Flores (*Wallace*); Aracan, Tenasserim (*Blyth*); Labuan (*Motley & Dillwyn*); Banjermassing (*Slater*); Siam (*Gould*); Cambodia (*Walden*).

This must be a common species in the neighbourhood of Menado, judging from the number of examples sent from that locality.

CHALCOSTETHA, Cabanis.

93. CHALCOSTETHA PORPHYROLÆMA (*Wallace*), P. Z. S. 1865, p. 479, "Macassar;" *Walden*, *Ibis*, 1870, p. 46. no. 35.

Nectarinia aspasia (*Less.*), *Schlegel & S. Müller*, *Verhand. Zool. Aves*, p. 58, "Macassar" (?).

Hab. Macassar (*Wallace*).

ARACHNECHTHRA, Cabanis.

94. ARACHNECHTHRA FRENATA (*S. Müller*), *Verhandl.* p. 173, "New Guinea, Menado" (1843); *op. cit.* *Zool. Aves*, p. 61, pl. 8. f. 1; *Walden*, *Ibis*, 1870, p. 26. no. 6.

Hab. Celebes, Sula Islands, Mysol, Moluccas, Kaisa Island (*Wallace*); Batchian, Ternate, Aru Islands, New Guinea, Islands of Torres Straits (*G. R. Gray*); North-east coast of Australia (*J. Macgillivray*).

A. flavigastra (*Gould*), ex New Ireland, is closely related to this species. The male, as described by *Lesson and Garnot* (*Voy. Coq. Zool.* i. p. 344, note), is undistinguishable.

NECTAROPHILA, Reichenbach.

95. NECTAROPHILA GRAYI (*Wallace*), P. Z. S. 1865, p. 479, "Menado;" *Walden*, *Ibis*, 1870, p. 42. no. 30, pl. 1. f. 2.

Hab. Menado (*Wallace*).

ÆTHOPYGA, Cabanis.

96. ÆTHOPYGA FLAVOSTRIATA (*Wallace*), P. Z. S. 1865, p. 478, pl. 29. f. 2; *Walden*, *Ibis*, 1870, p. 35. no. 18; *Wallace*, *Ibis*, 1860, p. 141.

Hab. Menado (*Wallace*).

In the Proceedings of the Zoological Society (*l. c.*) Mr. *Wallace* states Menado to be the *habitat* of this species; but elsewhere (*Ibis*, *l. c.*) that gentleman states that he obtained this Sun-bird in a forest district beyond the Lake of Tondano, at an elevation of about 1500 feet.

A sixth species of *Nectarinia* appears to inhabit Celebes (*conf.* *Walden*, *Ibis*, 1870, p. 42. no. 30).

DICÆINÆ.

DICÆUM, Cuvier.

97. DICÆUM CELEBICUM, S. Müller, Verhandl. p. 162, "Celebes;" Wallace, P. Z. S. 1862, p. 324.

Dicæum leclancherii, Lafr. Rev. Zool. 1845, p. 94, "Menado;" op. cit. 1846, p. 42; Hartl. op. cit. 1846, pp. 4, 47, 111.

Hab. Celebes, Sula Islands (*Wallace*).

PRIONOCHILUS, Strickland.

98. PRIONOCHILUS AUREOLIMBATUS, Wallace, P. Z. S. 1865, p. 477, pl. 29. f. 1, "North Celebes;" Salvadori, Atti Accad. Scien. Torino, 1868, p. 420.

Parus — ?, Wallace, Ibis, 1860, p. 141.

Hab. Mountains of Minahasa (*Wallace*).

The female scarcely differs from the male.

MELIPHAGIDÆ.

ZOSTEROPS, Vigors.

99. ZOSTEROPS INTERMEDIA, Wallace, P. Z. S. 1863, p. 493, "Macassar and Lombock;" Hartl. J. für Orn. 1865, p. 16. (Pl. IX. fig. 2.)

Hab. Macassar, Lombock (*Wallace*).

The above specific title was attached to a Macassar example in the British Museum by Mr. G. R. Gray, and was adopted by Mr. Wallace, who first discovered and first described the species.

100. ZOSTEROPS ATRIFRONS, Wallace, P. Z. S. 1863, p. 493, "Menado." (Pl. IX. fig. 3.)

Zosterops nigrifrons, Temm. Mus. Lugd.; Hartl. J. für Orn. 1865, p. 22.

Hab. Menado (*Wallace*); Gorontalo (*Mus. Lugd.*).

PLOCEIDÆ.

PADDA, Reichenbach.

101. PADDA ORYZIVORA (Linn.), Amœn. Acad. iv. p. 243. no. 16 (1759), ex Edwards, pl. 41.

Hab. Macassar (*Wallace*); Java (*Horsf.*); Sumatra (*Raffles*); Malacca (*Cantor*); Lombock (*Wallace*); Banjarmassing (*Sclater*); South China (*Swinhoe*); Manilla (*Von Martens*).

Mr. Wallace informs me that this species is abundant near the town of Macassar.

MUNIA, Hodgson.

102. MUNIA NISORIA (Temm.), Pl. Col. 500. f. 2, "Java" (8 May, 1830); *conf.* Blyth, Ibis, 1870, p. 172; Walden, Ibis, 1869, p. 211, note.

Hab. Macassar (*Wallace*); Java (*mus. nostr.*).

A single Celebean example in Mr. Wallace's collection, the only individual I have been able to examine, agrees well with Javan specimens. The upper tail-coverts and edges of the rectrices, however, are olive-green, and not grey as is the case in all my Javan examples. Mr. Blyth (*l. c.*) observes that the Celebean race has no pale shafts to the feathers of the upper parts; but in this Macassar individual the pale shafts are very conspicuous. The two principal characters which distinguish the Javan *M. nisoria* (T.) from the Indian *M. punctularia* (L.), are the rufous colouring of the breast-markings and the grey colour of the upper tail-coverts and edges of rectrices. In the Indian bird these are golden yellow, and the breast-markings are almost black. Moulmein individuals, again, differ from those of India in having the breast-markings rufous, and from both Javan and Indian in having the upper tail-coverts and edges of the rectrices yellowish green; nor are the breast-markings in the Moulmein race as well defined. In the race which inhabits Flores the upper tail-coverts are pale olive-green, as in the Celebean bird.

M. punctularia and *M. nisoria*, in young plumage, before the breast-markings appear and the upper coverts assume the waxy lustre found in the adult, are extremely difficult to distinguish. The Indian bird, however, is considerably larger, and has the bill much stouter. From *M. rubro-nigra* and its allies, when in first plumage, they are likewise difficult to separate. The only sure characters are the sinuated commissure and massive form of the bill in *M. rubro-nigra*.

103. MUNIA MOLUCCA (Linn.), Syst. Nat. ed. 12, i. p. 302 (1766), ex Brisson, Orn. iii. p. 241. no. 10; Wallace, Ibis, 1860, p. 147.

Hab. Macassar (*Wallace*); Flores (*mus. nostr.*).

A Celebean example of an adult male collected by Mr. Wallace perfectly agrees with Brisson's description of Count Bentick's specimen obtained in the Moluccas, on which Linnæus bestowed the above specific title.

104. MUNIA BRUNNEICEPS, n. sp. (Pl. IX. fig. 1.) *Conf.* Blyth, Ibis, 1870, p. 171.

Hab. Macassar (*Wallace*).

Head, chin, throat, and breast brown; abdominal stripe, vent, and under tail-coverts black; remainder of plumage dark chestnut. From a Macassar example of a male collected by Mr. Wallace. In another example from the same locality, marked a female, the head and nape are of a lighter and less decided shade of brown. Wing 2 inches.

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Were it not that Mr. Blyth had already remarked the imbrowned colouring of the head and neck in examples from Celebes, contained in the Leyden Museum, I should have felt less confidence in considering these Macassar individuals distinct from *M. rubronigra*, Hodgs.

CORVIDÆ.

CORVUS, Linnæus.

105. CORVUS ENCA (Horsf.), Trans. Linn. Soc. xiii. p. 164, "Java" (1822); Schlegel, Bijdrag. part viii. p. 13, pl. 1. fig. 23; Mus. Pays-Bas, *Coraces*, p. 29.

Corvus validus, var., Wallace, partim, P. Z. S. 1862, p. 343.

Hab. Macassar (*Bernstein*); Limbotto, Gorontalo, Kema, Toulabelle (*Von Rosenberg*); Java (*type*).

The species inhabiting Celebes has not been satisfactorily identified. By Professor Schlegel it is considered the same as that found in Java, while true *C. validus*, Temm., Bp. (Consp. i. p. 385), is from Sumatra, and does not occur in Java.

GAZZOLA, Bonaparte.

106. GAZZOLA TYPICA, Bp. Compt. Rend. xxxvii. p. 828, "Nouvelle Calédonie," *errore* (5th December 1853); Notes Orn. Coll. Delattre, p. 6 (1854); Sclater, Ibis, 1859, p. 113.

Corvus advena, Schlegel, Bijdragen tot de Dierk. pt. viii. p. 3, pl. 2, "Sumatra," *errore* (1859); Mus. Pays-Bas, *Coraces*, p. 6, "Macassar;" Wallace, Mal. Archip. i. p. 375.

Hab. Macassar (*Wallace*).

This species has hitherto been found only in the Macassar district. Mr. Wallace (*l. c.*) alludes to it as rare. It is an anomalous form, hardly exceeding a *Lycos* in size, but with a bill equal to that of *Corvus corone*, and of much the same character. The arrangement of the quills is peculiar: The fourth much exceeds the others; and the first is very short. Prince Bonaparte separated it generically, but placed it next to *Corvus (Physocorax) moneduloides* (Less.), another unique and aberrant Corvine form, with which it has nothing in common beyond its general family relations.

This species has partly been the subject of some of the most curious mistakes in ornithological literature; and the position of the generic title *Gazzola*, Bp., whether among the Campephagidæ or the Corvidæ, depends on a correct history and explanation of how the confusion arose. In the thirteenth edition of the 'Systema,' Gmelin gave the title of *Corvus caledonicus* to Latham's "New-Caledonian Crow," a species described by Latham (General Syn. i. p. 377) from a drawing belonging to Sir Joseph Banks. This is a true New-Caledonian *Graucalus*. In the second supplement to the 'Synopsis,' Latham inserted a distinct bird (*Labillardière's* "Pie de la Nouvelle Calédonie") under the title of "Caledonian Crow," and called it in the supplement to the 'Index

Ornithologicus' *Corvus caledonicus*. Thus there became a *Corvus caledonicus*, Gm., and a *Corvus caledonicus*, Lath., the first being a *Graucalus*, the last a *Streptocitta*, the first being a really New-Caledonian species, the last being only found in Celebes. In 1850 Bonaparte founded his genus *Gazzola*, making *C. caledonicus*, Gm., the type, and associating with it the correct synonyms of true *C. caledonicus*, Gm. Still it is evident that Bonaparte was confounding the then unique specimen in the Paris Museum of the Celebean black-and-white Crow (which was labelled "*Corvus dauricus* de la Nouvelle Calédonie") with *Corvus caledonicus*, Lath., the black-and-white *Streptocitta*; for the Prince would never have identified a true *Graucalus* with either a *Pica* or a *Corvus*, and he made *Gazzola* the connecting link between the Garrulidæ and the Corvidæ. Thus the elements of confusion were these:—one *Corvus caledonicus*, Gm.; two species under that title in Latham, one of them being described as black and white; a black-and-white *Corvus* in the Paris Museum labelled "*C. dauricus* de la Nouvelle Calédonie,"—only one of the three species being a New-Caledonian bird. Three years later Bonaparte partly cleared up the confusion. He (Notes Ornith. *l. c.*) changed the title from *Gazzola caledonica* (Gm.) to that of *Gazzola typica*, Bp., on the ground that the type of his genus *Gazzola* was neither of the "deux *C. caledonicus*, de Latham,"¹ nor that of Labillardière, nor that of Gmelin. The question now arises whether *Corvus caledonicus*, Gm., ought to be considered the type of the genus *Gazzola*. It has been so treated by Mr. G. R. Gray (Hand-list, no. 1246). But as the Prince has described the species he founded the genus on, I have thought it best to retain *Gazzola* for that species, which is the same as *Corvus advena*, Schlegel.

MM. Verreaux and O. des Murs (Rev. & Mag. Zool. 1860, p. 432) included *Gazzola typica*, Bp., in their list of New-Caledonian birds, trusting, in all probability, to the erroneous locality on the label of the Paris-Museum specimen.

STREPTOCITTA, Bonaparte.

107. STREPTOCITTA CALEDONICA (Lath.), Ind. Orn. Suppl. p. xxv. no. 3 (1801), ex Voy. Entrecasteaux, ii. p. 226, pl. 35 (39?), "New Caledonia," *errore*.

Pie of New Caledonia, Labillardière, Voy. Entrecasteaux, Eng. Tr. (Stockdale), ii. p. 227, pl. 39; G. R. Gray, Cat. Birds Trop. Isl. p. 25.

Pica albicollis, Vieill. N. D. Sc. Nat. xxvi. p. 128, ex Voy. Entrecast. pl. 39.

Streptocitta caledonica, Bp. Consp. i. p. 382.

— *albicollis*, Sclater, Ibis, 1859, p. 113; Wallace, Malay Archip. i. p. 430.

Hab. Macassar (Wallace, fide Sclater; *Mus. Brit.*).

Although Labillardière (*l. c.*) tells us, very circumstantially, the date and the occasion when and where he obtained his *Pie de la Nouvelle Calédonie*, Mr. Sclater's explanation

¹ This is a good illustration of the confusion that may be created by not quoting the names of the original authors, or by replacing them with the names of subsequent authors, who may have quoted or misquoted.

(*l. c.*) of the probable cause of the error is most likely correct. Yet it must be borne in mind that Labillardière never set foot on the island of Celebes proper; nor does Entrecasteaux's expedition appear to have had any direct communication with that island on either of the occasions of its presence in the Moluccas. On its way from Bouru to Sourabaya, in October 1793, the expedition, after failing in its attempt to pass the Straits of Tioro, occupied several days in passing those of Boeton, and remained a day at the town of Boeton itself. During this period the French naturalist made several excursions on shore, and, as he particularly mentions, in the island of Pangasane, and one, of two hours' duration, in the neighbourhood of the town of Boeton. It is most probable therefore that this form of *Streptocitta* was obtained either on the island of Pangasane or of Boeton; for the expedition did not touch the mainland of Celebes, nor at the island of Saleyer when passing the straits of that name.

I identify the species which inhabits the district of Macassar with Labillardière's bird, because it best agrees with his short description. By him the bill is stated to be "of a light black from the root to within one third of the point, the remainder is yellowish." This and the green hue of the black portion of the plumage easily distinguish the South from the North Celebean species. The bill is also more slender than that of the following species.

108. STREPTOCITTA TORQUATA (Temm.), Nouv. Rec. 75^{ième} livr. Pl. Col. 444, "Celebes" (Jan. 5, 1828); G. R. Gray, Birds Trop. Isl. p. 25.

Hab. Menado (*Mus. nostr.*).

I quite agree with Mr. G. R. Gray in regarding this form as specifically distinct from the true *S. caledonica*, from which it differs by its strong, jet-black bill, and by having the black portions of its plumage glossed with dark blue. Mr. G. R. Gray (*l. c.*) states that the actual individual from which Temminck's figure was drawn is in the British Museum.

In this species the first quill is barely one inch long; the fourth and fifth are nearly equal, the fifth being slightly the longest; the third is somewhat shorter than the fourth; the second still a little shorter than the third. The wing measures $5\frac{1}{2}$ inches. The second pair of rectrices exceeds the first by $\frac{6}{8}$ of an inch; the third the second by $1\frac{1}{8}$; the fourth the third by $1\frac{4}{8}$; the fifth the fourth by $1\frac{4}{8}$; and the sixth, or middle pair, the fifth by $2\frac{7}{8}$; the total length of the middle pair is $11\frac{4}{8}$; bill from nostril $\frac{6}{8}$ of an inch; tarsus $1\frac{3}{8}$.

Temminck's surmise that this species occurs in Borneo has not been, as yet, realized.

Professor Schlegel has generically separated his *Charitornis albertinæ* from *Streptocitta*; but it is difficult to seize the characters wherein it generically differs. The structure of the wings, tail, and feet is identical. The colouring of the plumage is congeneric. The nostrils are similar in form and position. The bill differs in being

more arched and stouter, but it does not differ in form from that of *S. torquata* so much as the bill of *S. torquata* does from that of *S. caledonica*. In *C. albertinæ*, however, the naked spaces, which are confined to the ophthalmic region in the Celebean birds, extend to under the throat. In it also the frontal plumes are not developed and curved back as in the two species of *Streptocitta*. Indeed the normal condition of the frontal or nasal plumes is the only external character in which *Charitornis* differs from *Streptocitta*. It seems more in accordance with the facts to regard the three species as belonging to the same natural genus, with *S. caledonica* as the connecting link. In the colouring of the plumage *C. albertinæ* only differs from *S. caledonica* by having the head white. By the black-and-yellow colouring of the bill, the South-Celebean species occupies an intermediate position between the completely black bill of *S. torquata* and the completely yellow bill of *C. albertinæ*.

Mr. Wallace has led us to infer (Malay Archip. i. p. 430) that *Charitornis* is confined to Celebes; but this is doubtless an error. Professor Schlegel's types were obtained in the island of Soula Mangouli; and the species has not been recorded from any other locality.

I cannot concur with the Leyden Professor in placing *Streptocitta* among the Graculidæ; though a most anomalous form, its nearest affinities seem to be with the Corvidæ.

BASILEORNIS, Temminck.

109. *BASILEORNIS CELEBENSIS*, Temm. (Mus. Lugd.); G. R. Gray, P. Z. S. 1861, p. 184. no. 2, fig. 2; Wallace, Malay Archip. i. p. 430; Ibis, 1861, pl. 9. fig. 2.

Basileornis corythaiæ (Wagler), Bp. Consp. p. 420 (?), nec Wagler; Sclater, Ibis, 1859, p. 113.

Hab. Menado, Macassar (*Wallace*).

Prince Bonaparte's description is so vague that it is impossible to decide whether he described from the Celebean or the Ceramese bird.

ACRIDOTHERES, Vieillot.

110. *ACRIDOTHERES CINEREUS*, Müller (Mus. Lugd.); Bp. Consp. i. p. 420, "Celebes" (1850). (Plate X. fig. 1.)

Hab. Celebes (*Mus. Lugd.*); Macassar (*mus. nostr.*).

This is a well-marked species, most nearly allied to *A. javanicus*, Cab. (= *Pastor griseus*, Horsf., nec Wagl.), but readily distinguishable by the upper and lower plumage being light grey, and not dark iron-grey. All its dimensions are less; and it has the base of the mandible with traces of black, but not as marked as in its other congener, *A. fuscus* (Wagler), ap. Jerd., of continental Asia.

STURNIA, Lesson.

111. STURNIA? PYRRHOGENYS (Schlegel), Faun. Jap. *Aves*, p. 86, "Japan, Borneo" (1842).
Lamprotornis pyrrhopogon, Schlegel, *op. cit.* pl. 46.

Hab. Japan, Borneo (Schlegel); Philippines (Swinhoe, P. Z. S. 1863, p. 302. no. 217); Celebes (Salvin).

Three examples, agreeing in every respect with Japanese individuals, are contained in Mr. O. Salvin's collection; and that gentleman tells me that they were all procured in Celebes. Although I have adopted Professor Schlegel's name, I have little doubt that eventually, after comparison has been made with Philippine examples, it will have to give way to *dominicanus*, Bodd., = *T. dominicanus*, Gm. These similar titles were founded on *Le Merle dominiquain des Philippines* of Montbeillard (Hist. Nat. Ois. iii. p. 396), who described it from a Philippine individual obtained by Sonnerat which was figured by Daubenton (Pl. Enl. 627. f. 2). Gmelin's title has hitherto most unaccountably been applied to the *Sturnus dauricus*, Pall. *Pastor ruficollis*, Wagler, Syst. Nat. Av. p. 92, ex Manilla, is also clearly a synonym of *T. dominicanus*, Bodd. & Gm., and not a distinct species as enumerated by Prince Bonaparte.

One of Mr. Salvin's specimens has the chin, tips and outer edges of the quills, the under and upper tail-coverts, and the rectrices deeply tinged with bright rusty red. Traces of this hue appear in other parts of the plumage. This peculiarity in members of this group has been remarked upon by Mr. Swinhoe (P. Z. S. 1863, p. 302), and is said by him to prevail during the breeding-season. Is the species, therefore, a permanent resident in Celebes?

In *S. pyrrhogenys*, Schlegel, and *S. dauricus*, Pall., the first quill is longest, and the second nearly as long, the third and following quills being much shorter. This indicates an affinity of these two species to true *Sturnus*; and the structure of the tail and the metallic hues of the plumage strengthen the evidences of the relationship. The form of the bill is peculiar, being short and stout, albeit *Sturnine*. On the other hand, *Oriolus sinensis*, Gm., the type of *Sturnia*, Lesson, is a true *Temenuchus*, Cab.; consequently all the species falling under the latter generic title must be referred to *Sturnia*, and *Temenuchus* will have to be suppressed. A distinct subgenus will probably have to be made for *S. pyrrhogenys* and *S. dauricus*, and another for the reception of the isolated Cingalese form *Pastor senex*, Temm., = *Sturnia albofrontata*, Layard.

ENODES, Temminck.

112. ENODES ERYTHROPHRYS (Temm.), Nouv. Rec. xlv^e livr.; Pl. Col. 267, "Celebes, environs de Menado, et dans l'île Taguatto (1st of May 1824);" Wallace, Ibis, 1860, p. 141.

Hab. N.-E. Celebes, confined to the interior mountain districts, never abundant (Wallace).

CALORNIS, G. R. Gray.

113. CALORNIS NEGLECTA, n. s.

Calornis obscura, var., Wallace, P. Z. S. 1862, p. 343.

Hab. Celebes (*mus. nostr.*); Sula Islands (*Wallace*).

Having carefully compared examples of nearly all the described species of this genus, I have no hesitation in considering the *Calornis* of Celebes and the Sula Islands distinct. In colouring it most nearly approaches *C. chalybea* (Horsf.), ex Java, with the allied races from Sumatra, Malacca, Borneo, and Cambodja; but its dimensions are much greater. From *C. obscura* (Forst.), ex Gilolo and Batchian, it can be readily discriminated by its bright green colouring. From all the members of the *C. metallica* group it may be known by the total absence of any iridescent colours. It perfectly agrees with examples from the Sula Islands.

The individuals on which this species is founded were sent from Menado in a box which contained nothing but Celebean birds. Notwithstanding, therefore, Mr. Wallace's statement (Mal. Archip. i. p. 431) that the genus does not occur in Celebes, we may, I venture to think, conclude that that island is not an exception to the general rule which prevails in the geographic distribution of *Calornis*.

The following attempt at an analysis of the species belonging to this difficult genus may perhaps assist in clearing up the confusion in which the synonymy of its members is involved. All the species are divisible into two distinct groups:—first, those in which the plumage is uniform green, varying from light to very dark green; secondly, those which have, added to the prevailing green colour of the plumage, metallic reflections of purple and violet. The uniform green species may be further subdivided into light green and dark green; while the metallic-green species are usually also distinguished by having the middle pair of rectrices much prolonged. In general terms it may be said that the first subdivision embraces all the Indo-Malayan, the second and third all the Australian forms.

A. *Uniform green plumage.*

a. Light green.

1. *Muscicapa panayensis*, Scop., ex Sonn. pl. 73, = *Turdus cantor*, Gm., ex Sonn. pl. 73, = *Turdus columbinus*, Gm., ex Montbeillard, ex Sonn., "Philippines."
2. *Turdus chalybeus*, Horsf., = *Turdus strigatus*, Horsf. (*av. juv.*), = *Lamprotornis cantor*, Gm., ap. Temm. Pl. Col. 149, "Java."
3. *Turdus insidiator*, Raffles, "Sumatra."
4. *Calornis affinis*, A. Hay, "Tipperah, Arracan, Tenasserim, Nicobars."

It is very questionable whether these last three species are separable. To them

belong the Malaccan, Sarawak, and Cambodjan races, which are as yet without titles, but exhibit certain differences.

5. *Calornis neglecta*, nob., "Celebes, Sula Islands."

Turdus palmarum, Bodd., = *Turdus mauritianus*, Gm., both titles being founded on *Le Merle vert de l'île de France*, of Montbeillard; and Pl. Enl. 648. f. 2 belongs to one of these species; but to which, it is now impossible to say.

b. Dark green.

6. *Lamprotornis obscura*, Forst.; Bp. Consp. p. 417, "Gilolo." Given also from Batchian by Mr. G. R. Gray. A good species. Dark purplish green.
7. *Calornis crassirostris*, nob., "Lombok." Collected by Mr. Wallace. Very dark green. Bill high and stout as in *Aplonis*. The locality may not be correct.
8. *Calornis mysolensis*, G. R. Gray, "Mysol." Closely allied to, if not the same as, *C. obscura*.
9. *Calornis cantorooides*, G. R. Gray. Like *C. mysolensis*, only that the tail is shorter and nearly square. Considered by Mr. Wallace to be a good species (P. Z. S. 1862, p. 343).
10. *Lanius pacificus*, Gm., ex Lath., = *Calornis kittlitzii*, O. Finsch, = *Lamprotornis columbinus*, ap. Kittlitz ("Mariannes, Carolines, and Puynipet"), from the description, seems to belong to this subgroup.

B. Green with purple and violet reflections.

11. *Lamprotornis metallica*, Temm. Pl. Col. 226. Described from Timor and Celebes. The type was probably from Amboyna, perhaps from Australia, possibly from Timor.
12. *Calornis purpurascens*, G. R. Gray, = *C. metallica*, Temm., ap. Gould, "North and East Australia."
13. *Calornis amboinensis*, G. R. Gray, "Amboyna." Closely resembles the Australian species, but is smaller.
14. *Lamprotornis minor*, Müll.; Bp. Consp. 417, "Timor." Wallace gives it also from Flores and Lombok. A very distinct species.
15. *Calornis viridescens*, G. R. Gray, "Aru Islands." Near to *C. amboinensis*. Also given from Dorey by Mr. G. R. Gray under the inaccurate title of *C. virescens* (P. Z. S. 1859, p. 158).
16. *Calornis gularis*, G. R. Gray, "Mysol." Apparently nothing but *C. viridescens*.
17. *Calornis nitida*, G. R. Gray, "New Ireland," ex Less. & Garnot, Voy. Coq. Zool. i. p. 343. Seems to belong to the green and purple group.

Dimensions.

| | Wing. | Tail. | Bill. | Tarsus. | Locality. |
|--|---------|---------|-------|---------|------------|
| | inches. | inches. | inch. | inch. | |
| <i>C. purpurascens</i> , <i>G. R. Gray</i> | 4·250 | 4·750 | ·5625 | ·8750 | Cape York. |
| <i>C. amboinensis</i> , <i>G. R. Gray</i> | 3·875 | 3·500 | ·5000 | ·8125 | Amboyna. |
| <i>C. minor</i> (<i>Müll.</i>) | 3·875 | 2·500 | ·5000 | ·7500 | Timor. |
| <i>C. chalybea</i> (<i>Horsf.</i>) | 3·750 | 2·500 | ·5000 | ·7500 | Java. |
| <i>C. insidiator</i> (<i>Raffl.</i>)? | 4·000 | 2·875 | ·5000 | ·8125 | Malacca. |
| " " ? | 3·625 | 2·625 | ·5000 | ·8125 | Sarawak. |
| " " ? | 3·750 | 2·750 | ·5000 | ·8125 | Cambodja. |
| <i>C. neglecta</i> , nob. | 4·125 | 3·250 | ·5625 | ·8750 | Celebes. |
| <i>C. crassirostris</i> , nob. | 4·000 | 4·125 | ·5000 | ·8750 | Lombok. |
| <i>C. cantoroides</i> , <i>G. R. Gray</i> | 3·750 | 2·500 | ·5000 | ·8125 | Mysol. |

SCISSIROSTRUM, Lafresnaye.

114. SCISSIROSTRUM DUBIUM (Latham), Ind. Orn. Suppl. p. xviii. no. 5 (1801), ex Lath. Syn. Suppl. ii. p. 73. no. 11, descr. orig.

Scissirostrum pagei, Lafr. Rev. Zool. 1845, p. 93, "Manado;" Mag. Zool. 1845, pl. 59; Wallace, Ibis, 1860, p. 141; Malay Archip. i. p. 430.

Hab. Scarce at Macassar, plentiful near Menado (*Wallace*).

We owe the identification of this most anomalous form with the *Lanius dubius*, Lath., to Dr. Hartlaub (Arch. Nat. xiii. 2. p. 57). Notwithstanding Prince Bonaparte's incredulity (Consp. i. p. 423), a reference to Latham's original description, taken from a specimen "at Mr. Thompson's, Little St. Martin's Lane, London, but without any history of its manners or country annexed," leaves no doubt of its identity.

The sequence and relative proportions of the quills in this species are the same as in *Calornis*. The structure of the tail is similar to that of *Calornis metallica* (Temm.). The bill resembles most nearly, in its massiveness and general outline, that of *Eulabes javanus*, Cuv.; but the peculiar position of the nostrils, situated in narrow and deep ascending grooves, is quite unique. The sole existing representative of a subfamily (?) long since extinct, its systematic place seems to between *Calornis* and *Eulabes*.

COLUMBÆ.

TRERONIDÆ.

OSMOTRERON, Bonaparte.

115. OSMOTRERON VERNANS (Linn.), Mantissa, p. 526 (1771), ex Briss. Orn. i. p. 143, "Philipp. Ins.;" Gm. Syst. Nat. i. p. 789, ex Linn.; Wallace, Ibis, 1863, p. 320.

Columba viridis, Scop. Del. Fl. Insub. ii. p. 94 (1786), ex Sonnerat, Voy. Nouv. Guin. p. 110, pl. 64, ♂, pl. 65, ♀, "îles de Luçon et D'Antigue."

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Treron viridis (Scop.), Wallace, Ibis, 1865, p. 374.

— *vernans*, Steph., Schlegel, Nederl. Tijdschr. Dierk. i. p. 70.

Hab. Philippine Islands (*type*); Penang, Sumatra, Borneo, Macassar (*Wallace*); Java, Gorontalo, Sumatra, Bangka (*Schlegel*).

The Celebean form is here retained under the title of the Philippine bird, as I have not been able to compare examples from the two localities. But both from Mr. Wallace's and Professor Schlegel's remarks on the differences existing in examples from the different Indo-Malayan islands, it seems probable that the species inhabiting the localities given above will be all found to differ from one another specifically. On the Sumatran, Javan, Bankan, and Celebean birds, Professor Schlegel has bestowed the title of *griseicapilla*. And yet he distinguishes the Javan and Celebean forms from the Sumatran and Bankan species by remarking that the former has the head and throat dark greyish-green, while the latter has those parts "jolie gris bleuâtre."

116. OSMOTRERON¹ GRISEICAUDA (G. R. Gray), Mus. Brit. *Columbæ*, p. 10, "patr. incert." (1856); Wallace, ex Gray, P. Z. S. 1862, p. 344, "Sula Islands, Celebes;" Schlegel, Nederl. Tijdschr. Dierk. 1866, pp. 210, 346; Wallace, Ibis, 1863, p. 319.

Hab. Celebes, Sula Islands (*Wallace*).

Professor Schlegel (*l. c.*) is unable to discover any sufficient and constant distinctions between the Javan *T. pulverulenta*, Wallace, and this Celebean species. The Sanghir bird, on account of its stouter bill, the learned Professor considers to possess greater claims, but to be very closely allied. The Sula and Javan examples I have had an opportunity of comparing exhibit the differential characters Mr. Wallace has insisted on, and they seem to me sufficient. It would perhaps be convenient to separate the maroon-backed members of *Osmotreron* under a distinct subgeneric title.

LAMPOTRERON, Bonaparte.

117. LAMPOTRERON FORMOSA (G. R. Gray), P. Z. S. 1860, p. 360; Wallace, Ibis, 1865, p. 379, "Celebes."

Hab. Macassar, Menado (*Wallace*).

Closely allied to *P. superbus* (Temm.), and hardly admitted as distinct by Professor Schlegel.

¹ The type of *Treron*, Vieillot, is *C. curvirostra*, Gm., ex Lath., a species as yet not satisfactorily identified, and not *C. aromatica*, Gm., as stated by Mr. G. R. Gray (Gen. and Subgen. no. 1654). To whatever species Latham's Hooked-billed Pigeon belongs, it is evident from the plate (Syn. ii. pl. 59) that in it the corneous culmen extends to the forehead. Prince Bonaparte (Consp. ii. p. 10) reduced *Toria*, Hodgs., to a synonym of *Treron*, but associated *C. psittacea* and *C. aromatica* with *Toria nipalensis*, species not possessing the characters on which Mr. Hodgson founded his genus. *Treron* = *Toria* contains only two species, *T. nipalensis* and *T. nasica*; *C. curvirostris* belongs to either the one or the other, probably (as already suggested by Mr. Wallace) to *T. nasica*, Schlegel.

IOTRERON, Bonaparte.

118. IOTRERON MELANOCEPHALA (Forster), Zool. Indica, p. 16, pl. 7, "Java" (1781¹).

Ptilopus melanocephalus, Schlegel, Nederl. Tijdschr. Dierk. iii. p. 207.

Hab. Java (*type*); Flores, Sumbawa, Celebes, Sula Islands, Ceram, Sanghir (*Schlegel*); Lombock (*Wallace*).

Professor Schlegel (*l. c.*) has detailed the characters which distinguish the several races of this Pigeon inhabiting the islands of Java, Flores, Celebes, Sula, Ceram, and Sanghir. They undoubtedly should receive distinguishing titles; for until they and analogous forms are separately named, the physical geographer will only find half the truth when studying zoological catalogues. The Celebean bird has the yellow gular patch tinged with orange (*conf.* Schlegel, *l. c.*).

LEUCOTRERON, Bonaparte.

119. LEUCOTRERON GULARIS (Quoy et Gaimard), Voy. Astr. Zool. i. p. 247, pl. 29, "Menado" (1830).

Hab. Menado (*Wallace*).

C. diademata, Temm., *C. monacha*, Reinwardt, and *C. hypogastra*, Reinwardt, belonging to the *Ptilopodinæ*, were erroneously described by Temminck as inhabiting Celebes (*conf.* Wallace, *Ibis*, 1865).

CARPOPHAGA, Selby.

120. CARPOPHAGA PAULINA, Temm. Mus. Lugd. (*Columba aenea*, ♀, Temm., Knipp, Fig. i. pl. 4); Bp. Consp. ii. p. 35; Wallace, *Ibis*, 1865, p. 385; Schlegel, Nederl. Tijdschr. Dierk. iii. p. 200.

Hab. Macassar, Menado, Sula Islands (*Wallace*).

A Philippine example in the Leyden Museum is stated by Professor Schlegel (*l. c.*) to resemble the Celebean bird. But the differential characters it possesses render it likely that the Philippine bird is specifically distinct. The examples in the same collection, said to have been brought from the Mariannes (?), differ but slightly from the Celebean species, according to Professor Schlegel. Both Prince Bonaparte and Mr. Wallace rank this fine Fruit-Pigeon under *Ducula*, Hodgs. It appears to me to be a typical *Carpophaga*, Selby.

¹ I have not been able to refer to the first edition of Pennant's 'Indian Zoology;' but if this species is there named, it will have to take Pennant's title (1769).

DUCULA, Hodgson.

121. DUCULA ROSACEA (Temm.), Pl. Col. 578, "Timor" (1835); Wallace, Ibis, 1865, p. 386; Schlegel, Nederl. Tijdschr. Dierk. iii. pp. 201, 345.

Hab. Timor (*type*); Macassar, Flores (*Wallace*); Tolofoko (northern peninsula of Halmahera), Little Key Island (*Schlegel*).

The Celebean habitat of this Pigeon rests on the authority of Mr. Wallace (*l. c.*). The Gilolo bird discovered by the late Dr. Bernstein is stated by Professor Schlegel (*l. c.*) not to differ from the type species.

MYRISTICIVORA, Reichenbach.

122. MYRISTICIVORA LUCTUOSA (Reinw.), Temm. Pl. Col. livr. xlii. pl. 247 (26th Feb. 1825); Wallace, Ibis, 1865, p. 386.

Hab. Menado, Macassar, Sula Islands (*Wallace*); Menado (*mus. nostr.*).

Professor Schlegel (Nederl. Tijdschr. Dierk. iii. p. 343) mentions the fact that, in this species only, the breast and abdomen are sometimes washed or even spotted with black. Mr. Cassin (United States Exped. p. 266) pointed out that while *C. bicolor* (Scop.) possesses fourteen rectrices, the North-Australian *C. luctuosa* (= *M. spilorrhoea*, G. R. Gray) has only twelve. An examination of examples in my collection fully bears out this observation; for I find that examples of

1. *M. bicolor* (Scop.), ex New Guinea, has fourteen rectrices.
2. " " ex Batchian, has fourteen rectrices.
3. *M. luctuosa* (Reinw.), ex Sula Islands, has fourteen rectrices.
4. " " ex Menado, has fourteen rectrices.
5. " " ex Menado, has twelve rectrices.
6. *M. spilorrhoea*, G. R. Gray, ex Port Albany, has twelve rectrices.
7. " " ex Somerset, has twelve rectrices.

The Menado example, with only twelve rectrices (no. 5), appears to have originally possessed two more, which have been lost.

ZONENAS, Reichenbach.

123. ZONENAS RADIATA (Quoy et Gaim.), Voy. Astrol. Zool. i. p. 244, pl. 26, "Menado" (1830).

Hab. Macassar, Menado (*Wallace*).

HEMIPHAGA, Bonaparte.

124. HEMIPHAGA FORSTENI (Temm.), Knipp. Fig. ii. pl. 47; Bp. Consp. ii. p. 39; Wallace, Ibis, 1865, p. 387.

Hab. Menado; appears to be confined to the mountainous district of Minahassa (*Wallace*).

COLUMBIDÆ.

MACROPYGIA, Swainson.

125. *MACROPYGIA ALBICAPILLA*, Temm. Mus. Lugd.; Bp. Consp. ii. p. 57, "Celebes" (1857).

Hab. Macassar, Tondano, Sula Islands (*Wallace*).

126. *MACROPYGIA MACASSARIENSIS*, Wallace, Ibis, 1865, p. 389.

Hab. Macassar (*Wallace*).

Mr. Blyth (Ibis, 1870, p. 173) observes that *M. leptogrammica* (Temm.) is not from Java, but from Celebes. Its author (Pl. Col. 560) states that it inhabits Java and Sumatra. Mr. Wallace (*op. cit.* p. 390) restricts its range to west Java, where it is found up to an elevation of 7500 feet.

TURACÆNA, Bonaparte.

127. *TURACÆNA MENADENSIS* (Quoy et Gaim.), Voy. Astrol. Zool. i. p. 248, pl. 30, "Menado" (1830).

Hab. Macassar, Menado, Sula Island (*Wallace*).

Prince Bonaparte (Consp. ii. p. 59), apparently on Temminck's authority (Nouv. Rec. Pl. Col. 248), cites Celebes as the *habitat* of *Reinwardtæna reinwardti* (Temm.). Mr. Wallace (Ibis, 1865, p. 391) does not include Celebes within its range.

TURTUR, Selby.

128. *TURTUR TIGRINA* (Temm.), Knipp, Fig. pl. 43 (1811); Wallace, Ibis, 1865, p. 391. *Turtur chinensis*, ap. Wallace, Ibis, 1860, p. 147.

Hab. Java, Malay peninsula, Lombock, Flores, Timor, Ternate, Celebes (*Wallace*); Menado (*mus. nostr.*).

GOURIDÆ.

PHLOGÆNAS, Reichenbach.

129. *PHLOGÆNAS TRISTIGMATA* (Temm.), Mus. Lugd.; Bp. Consp. ii. p. 87, "Tondano" (1857); Wallace, Ibis, 1865, p. 393, pl. 10; Malay Archip. i. p. 413.

Hab. Macassar, Menado (*Wallace*).

CHALCOPHAPS, Gould.

130. *CHALCOPHAPS STEPHANI*, Jacq. et Puch. Voy. Pôle Sud, Zool. p. 119, "Nouv. Guinée, côte occidentale" (1853); *Peristère d'Etienne*, Homb. et Jacq. Atlas, pl. 28. f. 2 (January 1846); Wallace, Ibis, 1865, p. 394; Schlegel, Nederl. Tijdschr. Dierk. 1866, pp. 265, 345.

Hab. North Celebes (*Wallace*).

Mr. Wallace (*l. c.*) has separated the New Guinea, Waigiou, and Mysol race from that inhabiting Celebes, and conferred on it the title of *Ch. hombroni*. But as the type of *Ch. stephani* was obtained in New Guinea, if the two races are distinct, the Celebean, and not the New-Guinea bird requires a new title.

131. CHALCOPHAPS INDICA (Linn.), Syst. Nat. 12, i. p. 284 (1766), ex Edwards, pl. 14; Schlegel, Nederl. Tijdschr. Dierk. 1866, p. 267.

Only two species of this subgenus are recognized by Professor Schlegel:—first, *Ch. stephani*, as restricted above; secondly, all the remaining races of Asia, its islands, Australia, New Caledonia, and the islands of the Gilolo and Ceram groups. Members of this second species are stated by the Professor (*l. c.*) to also inhabit Celebes and New Guinea, but to be exceedingly rare in those two localities. Mr. Wallace does not appear to have met with it in either country.

GEOPELIA, Swainson.

132. GEOPELIA STRIATA (Linn.), Syst. Nat. ed. 12, i. p. 282 (1766), “India orientali” (1766), ex Brisson.

Hab. Macassar (*Wallace*); Java (*Sparrman*); Queda (*Sonnerat*); Lombock (*Wallace*); Philippines (*Von Martens*).

I include this species on the authority of Mr. Wallace.

CALŒNAS, G. R. Gray.

133. CALŒNAS NICOBARICA (Linn.), Syst. Nat. ed. 12, i. p. 283, “insula Nicombar” (1766), ex Albin, pl. 47; Wallace, Ibis, 1865, p. 400; Von Pelzeln, Reise der Novara, Vögel, p. 110.

Hab. Malacca and Singapore, Celebes, Batchian, New Guinea (*Wallace*); Treis Island, Nicobars (*Von Pelzeln*).

This species is given from Celebes by Mr. Wallace in his table of distribution (*l. c.*); but it is to be inferred, from the interesting account given by the same author of its range and habits (Malay Archip. ii. p. 65), that the Nicobar Pigeon is not found on the main island.

GALLINÆ.

PHASIANIDÆ.

GALLUS, Linnæus.

134. GALLUS BANKIVA, Temm. Fig. et Gallin. ii. p. 87, “Java” (1813).

Hab. Java (*type*); Macassar (*Wallace*).

Mr. Wallace has informed me that this species occurs in Celebes.

Gmelin's diagnosis of *G. ferrugineus* was undoubtedly taken from Latham's sixty-sixth plate, which represents the hen of the red Indian Jungle-fowl. But Gmelin first quoted Sonnerat's *Grande caille de la chine* (It. ii. p. 171), a bird that cannot, by its description, be referred to the genus *Gallus*, and which seems to have been described from an example of *T. perlatus*, Gm. Latham having erroneously identified Sonnerat's species with his own Hackled Partridge, was copied by Gmelin; hence two distinct birds are included under *Tetrao ferrugineus*, Gm.

It will be necessary to compare Celebean examples with those from other parts of Asia before we can decide to which species they belong.

TETRAONIDÆ.

EXCALFACTORIA, Bonaparte.

135. EXCALFACTORIA MINIMA, Gould, P. Z. S. 1859, p. 128, "Macassar," Birds of Asia, pt. xiii.

Hab. Macassar (*Wallace*).

A representative form of *E. chinensis* (Linn.), if admissible as distinct.

TURNICIDÆ.

TURNIX, Bonnaterre.

136. TURNIX RUFILATUS, Wallace, P. Z. S. 1865, p. 480, "Macassar."

Hab. Macassar (*Wallace*).

MEGAPODIIDÆ.

MEGAPODIUS, Quoy et Gaimard.

137. MEGAPODIUS GILBERTI, G. R. Gray, P. Z. S. 1861, p. 289, "Celebes;" Schlegel, Nederl. Tijdschr. 1866, p. 263.

Megapodius of small size, Wallace, Ibis, 1860, p. 142.

Hab. Celebes (*Wallace, Schlegel*); Island of Siao (Sanghir group?) (*Schlegel*).

M. rubripes, Temm. Pl. Col. 411, "Celebes," is neither from Celebes nor Amboyna (*conf. Schlegel, op. cit. p. 260*).

MEGACEPHALON, Temminck.

138. MEGACEPHALON MALEO, Temminck.

Megapodius rubripes, Temm., apud Quoy et Gaim. Voy. Astrol. Zool. i. p. 239, pl. 25, av. juv., nec Temm.

Megacephalon rufipes (Quoy et Gaim.), Gray & Mitch. Genera, iii. pl. 123.

— *maleo*, Wallace, Ibis, 1860, p. 142.

— *rubripes*, Wallace, Malay Archip. i. p. 413.

Megacephalon maleo, Temm., Bp. Compt. Rend. xlii. p. 876 (1856).

— *rubripes*, G. R. Gray, P. Z. S. 1861, p. 288; op. cit. 1864, p. 42, nec Temm.

Hab. North-east Celebes (*Wallace*).

Although we owe to Messrs. Gray and Mitchell (*l. c.*) an excellent figure, and to Mr. Wallace (*l. c.*) a most interesting account of this species, no description, with a distinctive title, appears ever to have been published of the adult bird. The specific title adopted above is the name by which this *Megapode* is known to the natives of North Celebes. Temminck's only published notice of the species is in these words:—"Le grand Mégapode, connu aux Célèbes sous le nom de *Maleo* ne nous est point encore parvenu" (Pl. Col. 411); and he then states that it must not be confounded with the other Celebean Megapode, *M. rubripes*, Temm. It was, however, so confounded for many years after, until Prince Bonaparte (*l. c.*) enumerated it as a distinct species in his 'Tableaux Paralléliques.' Temminck does not appear either to have published the characters of his genus *Megacephalon*.

A fine male from North-east Celebes (*mus. nostr.*) has the head, chin, throat, and entire upper half of the neck naked, with a few straggling, short, brown feathers interspersed. The quills, rectrices, upper and under tail-coverts are deep brown, nearly black, with a dark green gloss. Upper breast and entire upper surface dark brown. Under surface and flanks salmon-colour. Fifth and sixth quills equal, and longest; fourth and seventh a trifle shorter, and equal; third somewhat shorter than fourth; the second an inch shorter than the third, and the first an inch shorter than the second.

GRALLÆ.

CHARADRIIDÆ.

CHARADRIUS, Linnæus.

139. CHARADRIUS FULVUS, Gmelin, Syst. Nat. ed. 13, i. p. 687, ex Lath. Syn. iii. p. 211, "Otaheite;" Schelgel, Mus. Pays-Bas, *Cursores*, p. 30.

Hab. Gorontalo, April, males passing into perfect plumage, female passing into perfect plumage, April 20 (*Rosenberg*); Gorontalo, passing out of perfect plumage, September 24 (*Forsten*).

The complete range of this species cannot be given until we have agreed upon the races which ought to be included under the above title. For an exhaustive essay on the subject, *conf.* Finsch & Hartl. Faun. Centralpolyn. p. 188.

EUDROMIAS, Boie.

140. EUDROMIAS VEREDUS (Gould), P. Z. S. 1848, p. 38, "Northern Australia;" Harting, Ibis, 1870, p. 209.

Hab. Macassar (*Wallace*); Northern and Eastern Asia, Malay archipelago, New Guinea, Australia.

ÆGIALITES, Boie.

141. ÆGIALITES DUBIUS (Scop.), Del. Faun. et Fl. Insub. ii. p. 93. no. 81 (1786), ex Sonn. Voy. Nouv. Guin. p. 84, pl. 46, "Luzon."

Charadrius philippinus, Lath. Ind. Orn. ii. p. 745. no. 11 (1790), ex Sonn. *l. c.*

— *alexandrius*, Hasselq. var. δ , Gm. S. N. ed. 12, i. p. 684, ex Sonn. *l. c.*

— *philippinus*, Scop. (!), Schlegel, Mus. Pays-Bas, *Cursores*, p. 28.

? *Ægialites minutus* (Pall.), ap. Jerdon, Birds Ind. iii. p. 641.

Hab. Ayer-pannas, 6th of August (*Von Rosenberg*).

A Celebean example of a Ring-Plover, collected by Von Rosenberg, has been identified by Professor Schlegel (*l. c.*) with *Le petit Pluvier à collier de Luçon* of Sonnerat; and he has further united it with the Lesser Ring-Plover of Europe. A Philippine Ring-Plover has also been identified by Dr. von Martens (*J. für O.* 1866, p. 26) with the European bird, i. e. *C. curonicus*, Gm. (ex Beseke, Schr. Berl. Gesellsch. nat. Freunde, vii. p. 463. no. 48, who gave no title)—the *C. minor*, Meyer, of recent authors. In India, besides *C. curonicus* (= *C. minor*, or else *C. intermedius*, Ménétr., if really distinct), another small Ring-Plover occurs, the *Æ. minutus* (Pall.) ap. Jerdon, a species distinct from *C. curonicus*, Gm.; and the question arises whether this is not the species Sonnerat figured. As is the case in India, it is not impossible that both species inhabit the Philippines and also Celebes. Without inquiring into the validity of *C. minutus*, Pallas, and whether or not it indicates only *C. curonicus* in young plumage, as maintained by O. Finsch and Hartlaub (*Orn. Ost-Afr.* p. 661), these gentlemen seem to have been somewhat hasty in identifying Sonnerat's bird with *Æ. curonicus* (Gm.). Sonnerat states that the bill and feet are "noirâtres." Both Sonnerat and Buffon (*Hist. Nat.* viii. p. 93), who refers to Sonnerat's Philippine specimen, say that the Philippine species differs but little from the European Little Ring-Plover. But both those authors included it also among North- and South-American species, and Buffon hardly recognized the specific distinctness of *Æ. hiaticula*.

Æ. minutus (Pall.) ap. Jerd., is a smaller and more delicately formed species. In plumage it closely resembles *Æ. curonicus*, but has the head-markings better defined than those of any example of that species I have as yet seen. Its chief distinction is to be found in the smallness of the feet and shortness of the legs. A Katmandoo specimen has the legs dark reddish brown, instead of yellow. It behoves naturalists in India to investigate these differences. I am inclined to believe in there being two species, but have not been able to examine a sufficiency of individuals to form a decided opinion. Should the Philippine smallest Ring-Plover prove identical with the European *C. curonicus*, Gm., both will have to take the title of *dubius*, Scop.

Æ. minutus (Pall.) ap. Jerd. may be identical with *Charadrius pusillus*, Horsf. *Trans. Linn. Soc.* xiii. p. 187, ex Java.

Table of Dimensions.

| | Wing. | Tarsus. | Tail. | Bill. | |
|---|--------------------|---------|---------|-------|--|
| | inches. | inch. | inches. | inch. | |
| <i>Æ. curonicus</i> (<i>Gm.</i>) .. | 4·500 | ·8750 | 2·875 | ·5000 | Piedmont. ♀. May; not quite full plumage. |
| ” ” .. | 4·750 | ·8750 | 2·875 | ·5000 | Europe. Not quite full plumage. |
| ” ” .. | 4·625 | ·8750 | 2·625 | ·5625 | Bengal. Not quite full plumage. |
| ” ” .. | 4·500 | ·8750 | 2·625 | ·5000 | Malta, April 4. Not quite full plumage. |
| ” ” .. | 4·250 | ·8750 | 2·875 | ·5000 | Malta, April 4. Not quite full plumage. |
| ” ” .. | ¹ | ·8750 | 2·750 | ·5625 | Calcutta, February. Not full plumage. |
| ” ” .. | 4·875 | ·8750 | 2·750 | ·5000 | Turkey, May 7. Almost full plumage. |
| ” ” .. | 4·625 | ·8750 | 2·750 | ·5000 | Abyssinia, R. Amba, August 21. ♂. Young plumage. |
| ” ” .. | 4·875 | ·8750 | 2·750 | ·5000 | Coorg. Winter? or first plumage? |
| ” ” .. | 4·625 | ·8750 | 2·750 | ·5000 | Coorg. Winter? or first plumage? |
| <i>Æ. minutus</i> (<i>Pall.</i>), ap. | | | | | |
| <i>Jerd.</i> ? | 4·250 | ·7500 | 2·375 | ·4375 | Candeish. Full plumage. |
| ” ” .. | 4·125 | ·7500 | 2·875 | ·5000 | Candeish. Full plumage. |
| ” ” .. | 4·375 | ·7500 | 2·875 | ·4375 | North-western India. Full plumage. |
| ” ” .. | 4·375 | ·7500 | 2·875 | ·5000 | Maunbhoom, December 16. Full plumage. |
| ” ” .. | 4·125 | ·6875 | 2·875 | ·3750 | Katmandoo. Full plumage. |

142. *ÆGIALITES PERONII* (Temm.), Schlegel, Mus. Pays-Bas, *Cursorses*, p. 33, “l’Archipel Indien” (March 1865); Swinhoe, P. Z. S. 1870, p. 139. (Pl. X. fig. 2.)

Hab. Borneo, Java, Semaou (*Schlegel*); Macassar (*Wallace*).

An example of this species in summer plumage was obtained by Mr. Wallace in Celebes. Mr. Swinhoe, who has also examined this individual, agrees with me in identifying it as above. It belongs to the subsection of which *Æ. cantianus* may be regarded as the type. As it is a rare species, I append the following description:—

Forehead, from the base of the bill, pure white; a broad white superciliary stripe, confluent with the white forehead, terminates above the black ear-coverts; narrow frontal band, lores, ear-coverts, and a broad band crossing the back and reaching to the sides black; a black pectoral stripe, continued from the black sides, is narrowed into a thin line on the breast, where it does not quite meet; this excepted, the entire under surface, cheeks, under wing-coverts, and a broad nuchal collar pure white. Upper plumage pale earthy brown, most of the feathers with albescent edgings, conspicuous on the wing-coverts, some of which are edged with a purer white; primaries reddish brown; secondaries paler brown, broadly margined on the inner webs, and tipped with white, more or less cinereous; all the shafts white; three outer pairs of rectrices pure white; the next pair pale brown, much mixed with white (the rest of the rectrices are absent in this example); bill jet-black, no trace of any other colour; legs, in dried skin, pale yellow brown. Wing $3\frac{3}{4}$, bill from forehead $\frac{6}{8}$, tarsus 1, tail $1\frac{6}{8}$.

The frontal white patch is broad, more so than in European examples of *Æ. hiaticula*. In proportion the black frontal band is narrow, and is not posteriorly edged with white.

¹ First primaries wanting.

STREPSILAS, Illiger.

143. STREPSILAS INTERPRES (Linn.), Syst. Nat. ed. 12, i. p. 248; Schlegel, Mus. Pays-Bas, *Cursores*, p. 43.

Hab. Celebes (*Mus. Lugd.*): almost universal.

ESACUS, Lesson.

144. ESACUS MAGNIROSTRIS (Geoffroy St.-Hilaire): Vieill. N. Dict. xxiii. p. 231 (1818), nec Latham.

Ædicnemus magnirostris, Geoffroy, Temm. Pl. Col. 387, "Celebes;" Wagler, Syst. Av. *Charadrius*, no. 3, "New Holland" (1827); Schlegel, Mus. Pays-Bas, *Cursores*, p. 22.

Charadrius giganteus, Lichtenst.; Wagler, Isis, 1829, p. 647, "New Holland."

Esacus magnirostris, Geoffroy, Gould, Hand-b. B. Austr. ii. p. 213.

— — (Latham), Wall. P. Z. S. 1862, p. 346, nec Latham.

Hab. Celebes (*Reinwardt*); Island of Raou, near Morty, Island of Moor, east coast of Gilolo, Waigiou, Bangka (*Mus. Lugd.*); northern and north-western parts of Australia (*Gould*); Sula Islands, New Guinea (*Wallace*).

The Australian "Great-billed Plover" of Latham (Syn. Supp. ii. p. 319, *C. magnirostris*, Lath. Ind. Orn. Supp. p. 66) has been shown by Mr. Strickland (Ann. Nat. Hist. xi. p. 337) to be nothing but *Ædicnemus grallarius* (Lath.). Consequently Illiger's genus *Burhinus* (Prodrom. p. 250, 1811), founded on *C. magnirostris*, Lath., is synonymous, not with *Esacus*, but with *Ædicnemus*, over which generic title it takes priority.

The name *magnirostris*, Geoffroy, seems to have been an unpublished museum title. I can find no earlier description of the species than that of Vieillot's (*l. c.*), who adopted the name from the Paris Museum.

Temminck figured (*l. c.*) a Celebean example collected by Reinwardt; but he united with it as belonging to one species individuals from India, Java, and *les îles Papous*. The Celebean bird in size, he observes, holds a middle place between the Indian and the Papuan, the last being the largest and having the plumage very dark-coloured. The Indian *E. recurvirostris* (Cuv.) is a recognized species; but may not the Celebean bird prove to be a species distinct from the Australian? Professor Schlegel unites the archipelagic with the Australian; but have they been compared?

HIMANTOPUS, Brisson.

145. HIMANTOPUS LEUCOCEPHALUS, Gould, P. Z. S. 1837, p. 26, "Australia, Java, Sumatra;" Birds Austr. vi. pl. 24; Schlegel, Mus. Pays-Bas, *Scolopaces*, p. 106; *conf.* Blyth, Ibis, 1865, p. 35.

Hab. Gorontalo, October 9 (*Forsten*); Ayer-pannas, August 14; Limbotto, August 29; Wawou, a few days old, August 27 (*Rosenberg*); Bengal (*H. intermedius*, Blyth,

J. A. S. B. ?; Cat. Mus. Calc. no. 1573); rare in India, J. A. S. B. 1845, p. 459 (*Blyth*); Java, Borneo, Amboyna, Ternate, Sumbawa, Timor, Lobo (New Guinea) (*Mus. Lugd.*); Australia (*Gould*).

RALLIDÆ.

PORPHYRIO, Brisson.

146. PORPHYRIO INDICUS, Horsf. Trans. Linn. Soc. xiii. p. 194, "Java" (1822, read 18th of April 1820); Schlegel, Mus. Pays-Bas, *Ralli*, p. 55; Finsch & Hartl. Faun. Centralpolyn. *Aves*, p. 170, pl. xii. f. 2.

Porphyrio smaragdinus, Temm. Pl. Col. 421, "Java" (February 1827).

Hab. Macassar, Menado (*mus. nostr.*); Tondano, 21st of April (*Forsten*); Gorontalo, 18th of April, 24th of May, 26th of June; Ayer-pannas, 11th of August (*Von Rosenberg*); Java (*type*); Ceram, Bouru (*Mus. Lugd.*); Banda (*G. R. Gray*); Sumatra (*Cassin*); Samoa Islands (*Peale*).

The absolute identity of the race of purple Coots inhabiting the islands above cited has yet to be established. To the Ceram race Temminck applied the title of *melanopterus*; that of Samoa has received the designation of *samoënsis*, Peale. It is true that the late Mr. Cassin could detect no difference between the Samoan and the Javan *Porphyrio*; and Messrs. Finsch & Hartlaub (*l. c.*) agree in uniting them. On the other hand, Professor Schlegel has observed slight distinctions between the individuals inhabiting Java, Celebes, and Ceram. I have not been able to compare a sufficient series in full plumage to form a decided opinion. But Celebean birds appear to have the throat, upper breast, and shoulder-coverts of a much richer and deeper blue than what I have found in Javan examples. I am unable to discover sufficient evidence to justify Latham's title of *poliocephalus* (Suppl. Ind. Orn. p. 58) being applied to the Philippine *Porphyrio*, rather than to the one of Continental India (*P. neglectus*, Schlegel). Latham's *Grey-headed Gallinule* (Syn. Suppl. ii. p. 375) was described by him from a drawing by General Davies, of an individual in Exeter Change. The description agrees well enough with the Indian bird, and better than with the Philippine. It is certainly not sufficiently minute to enable us to refer it without doubt to the latter species, *P. pulverulentus*, Temm. (Pl. Col. 405, erroneously given from Africa); while the probabilities are in favour of the type having come to London from India, and not from the Philippines.

HYDRALECTOR, Wagler.

147. HYDRALECTOR GALLINACEUS (Temm.): Pl. Col. 464, "Moluques" (5th of July 1828); Gould, Birds Austr. vi. pl. 75.

Parra cristata, Vieill., Schlegel, Mus. Pays-Bas, *Ralli*, p. 68.

Hab. Menado, Macassar (*mus. nostr.*); Ayer-pannas, adult male, 21st of August,

adult female, 18th of August, male partly moulting, 22nd of August, young female, 21st of August; Limbotto, adult male of small dimensions, 31st of August, female moulted, 29th of August; Gorontalo, adult female, 30th of April; Wawou, very young male, 27th of August (*Von Rosenberg*); Gorontalo, young female, 29th of June (*Forsten*); Port Essington, Eastern Australia (*Gould*); Queensland (*mus. nostr.*).

Temminck (*l. c.*) states that this is a bird of passage at Amboyna. Mr. Gould (*Hand-book, Austr. ii. p. 331*, where an interesting account of its habits is given) mentions that it is a native of New Guinea. No authority is quoted; and I can find no confirmation of the statement. Professor Schlegel confines its range to Celebes and Australia. It breeds in Eastern Australia (*Gould, l. c.*); but unfortunately the month is not stated.

I cannot follow Professor Schlegel (*l. c.*) in referring this species to *P. cristata*, Vieill. (*N. D. xvi. p. 430*, ex Ceylon). Vieillot's title was given to *Le Grand Jacana verd à crête* of Temminck (*Cat. Syst. Cabinet d'Ornith. p. 265. no. 403, 1807*), whose description Vieillot reproduces almost word for word. Temminck's *Jacana*, as has already been shown by Dr. Hartlaub (*Syst. Index, in Jard. Contrib. Ornith. 1849*), is clearly *Parra indica*, Lath. (*Ind. Orn. ii. p. 765, 1790*). Wagler (*Isis, 1832, p. 280*) gives both *P. cristata* and *P. gallinacea* as the types of his genus *Hydralector*. But the generic character, "Ein aufrecht stehender Fleischkamm am Kopfe," evidently indicates *P. gallinacea* as the generic type.

My Macassar example, an adult, only differs from a Menado individual by being much smaller. Wing $4\frac{2}{3}$ against $5\frac{1}{8}$. All the other dimensions proportionally less; it is therefore probably a male. A Queensland example, a young bird, crown and nape rich rufous intermixed with black, only differs in having a much stouter bill.

GALLINULA, Brisson.

148. GALLINULA FRONTATA, Wallace, *P. Z. S. 1863, p. 35*, "Bouru."

Gallinula hamatopus, Temm. *Mus. Lugd.*; Schlegel, *Mus. Pays-Bas, Ralli, p. 44*, "Celebes."

Hab. Menado (*mus. nostr.*); Ayer-pannas, 12th of August, adult male, 17th of August, adult female, 26th of August, female, 19th of August, young, one day old; Panybie, 9th of September, female of the year; Limbotto, 4th of September, female of the year, 31st of August, male and female of the year, 28th of August, female (*Von Rosenberg*); Amboyna (*Mus. Lugd.*); Bouru (*type*).

Professor Schlegel, in his admirable list of the birds of the Leyden Museum, the most perfect and practically useful work of its kind ever published, identifies the Celebean bird with that described by Mr. Wallace from Bouru. Temminck's MS. title of *hamatopus* had never been hitherto used, except by Bonaparte (*Comptes Rend. xliii. p. 600, 1856*), and then only as a synonym of the nearly allied *G. tenebrosa*, Gould (*P. Z. S. 1846, p. 20*). I have therefore retained Mr. Wallace's title for the species.

It must, however, be remembered that no actual comparison appears as yet to have been made between Bouru and Celebean examples.

149. GALLINULA ORIENTALIS, Horsf. Trans. Linn. Soc. xiii. p. 195, "Java" (1822).

Gallinula ardosiaeca, Vieill. Galerie, ii. p. 173, pl. 268, "Java" (1825).

Hab. Java (*Horsfield*); Macassar (*Wallace*).

An example of an adult male Moor-hen, closely resembling the common European species, was collected by Mr. Wallace at Macassar. It differs from *G. chloropus* in its smaller dimensions, and the size and form of the frontal plate. I have been unable to compare it with Javan individuals; but I shall provisionally adopt the title of the race which inhabits Java. Wing $5\frac{7}{8}$, tarsus $1\frac{7}{8}$, bill from anterior side of plate to tip $1\frac{11}{16}$, greatest breadth of frontal plate $\frac{7}{16}$.

ERYTHRA, Reichenbach.

150. ERYTHRA PHENICURA (Forsten): Zool. Ind. p. 19, pl. 9, "Ceylon" (1781).

Hab. Macassar (*Reinwardt*); Gorontalo, adult male, 20th of April, 17th of July, 1st of August—male with some black spots on sides of head, 26th of May; Negrielama, male in first plumage, 20th of September (*Von Rosenberg*); Gorontalo, male in imperfect plumage, October (*Forsten*); Banka, Java, Borneo (*Mus. Lugd.*); China, summer visitant (?), Formosa (*Swinhoe*); throughout India (*Jerdon*); Ceylon (*type*); Zamboanga (Mindanao) (*Von Martens*); Malayan peninsula (*Eyton*).

ORTYGOMETRA, Linnæus.

151. ORTYGOMETRA CINEREA (Vieillot): Nouv. Dict. d'Hist. Nat. xxviii. p. 29 (1819), ex Java; Pucheran, Rev. et Mag. Zool. 1851, p. 563; Schlegel, Mus. Pays-Bas, *Ralli*, p. 32.

Ortygometra quadristrigata (Horsf.), Finsch et Hartl. Fauna Centralpolyn. p. 164.

Hab. Gorontalo, April 21, May 23; Ayer-pannas, August 25, female in first plumage, August 25 (*Von Rosenberg*).

For the geographical distribution of this species and its complete synonymy, exclusive of the title, *conf.* Finsch and Hartl. *l. c.* Those gentlemen seem to have overlooked in this and in one or two other instances Dr. Pucheran's valuable notices of the types contained in the Paris Museum. According to the learned doctor, *Porphyrio cinereus*, Vieill., was collected in Java by Labillardière. This species is included in Mr. Hodgson's Catalogue of the Birds of Nipaul (J. A. S. Bengal, 1855, p. 381. no. 765) under the title of *Zapornia nigrolineata*. Mr. G. R. Gray, Cat. B. Mus. Nepal, 1846, p. 143, identified *Z. nigrolineata*, Hodgs., with *Rallus superciliaris*, Eyton, ex Malacca, and in the 3rd edition of that catalogue (1863) adopted Eyton's specific title. Mr. Blyth (Cat. Calc. Mus. p. 339) includes Nipaul within the range of *R. superciliaris*, Eyton.

Professor Schlegel (*l. c.*) has identified Eyton's species with *P. cinereus*, Vieill.; and Drs. Finsch & Hartlaub (*l. c.*) with *R. quadristrigatus*, Horsf. The species, however, is not included in Dr. Jerdon's work as an inhabitant of India.

HYPOTÆNIDIA, Reichenbach.

152. HYPOTÆNIDIA CELEBENSIS (Quoy et Gaimard), Voy. Astrol. Zool. i. p. 250, "Celebes," pl. 24. f. 2; Schlegel, Mus. Pays-Bas, *Ralli*, p. 22.

Hab. Menado (*Forsten*); Gorontalo, Limbotto (*Von Rosenberg*).

This is a representative form of the Philippine *Rallus torquatus*, Linn. (Schlegel, *l. c.*). Von Pelzeln (Novara, *Aves*, p. 134), with doubt, refers an example of a young Rail from Borneo to the Celebean species.

153. HYPOTÆNIDIA STRIATA (Linn.), Syst. Nat. ed. 12, i. p. 262 (1766), ex Brisson, "Philippines."

Rallus gularis, Horsf. Trans. Linn. Soc. xiii. p. 196, "Java" (1822).

Hab. Philippines (*type*); all India and Ceylon, Burmah (*Jerdon*); Sumatra (*Raffles*); Java (*Horsfield*); Cochin-china (*Diard*); Formosa (*Swinhoe*); China (*Mus. Lugd.*); Menado (*Wallace*); Banjarmassing (*Sclater*).

Mr. Wallace obtained near Menado a female example of a Rail which so well agrees with Brisson's description of the Philippine bird, that I have little hesitation in making the above identification. It must, however, be noted that, in the specimen referred to, the under tail-coverts are distinctly pale rufous and black, and not white and black.

154. HYPOTÆNIDIA PHILIPPENSIS (Linn.), Syst. Nat. ed. 12, i. p. 263 (1766), ex Brisson, Orn. v. p. 163, "Philippines;" Schlegel, Mus. Pays-Bas, *Ralli*, p. 25.

Rallus pectoralis (Cuvier), Lesson, ap. Finsch et Hartl. Faun. Centralpolyn. p. 157, nec Cuv.; conf. Pucheran, Rev. et Mag. Zool. 1851, p. 276.

Hab. Macassar (*mus. nostr.*); Tondano, in September (*Forsten*); Gorontalo, April 17, 24, May; a chick newly hatched, August 4 (*Von Rosenberg*); Australia (*Gould*); New Caledonia (*Verreaux* et *O. des Murs*); Philippines (*type*).

The Celebean bird has the nape rusty as in Australian individuals. In the event of the Philippine species proving distinct, the birds from the other localities above given will require a different title. Messrs. Finsch & Hartlaub (*l. c.*) have adopted Cuvier's title of *pectoralis*, copied by Lesson (Tr. p. 536), for this species, although Dr. Pucheran (*l. c.*) had shown that the type of *R. pectoralis*, Cuv., was *R. lewinii*, Swains. (*conf.* Hartl. J. für Orn. 1855, p. 420).

RALLINA, Reichenbach.

155. RALLINA MINAHASA, Wallace, P. Z. S. 1862, p. 346, "Sula Islands, Minahasa."

Hab. Minahasa (N. Celebes), Sula Islands (*Wallace*).

156. RALLINA ISABELLINA (Temm.), Schlegel, Mus. Pays-Bas, *Ralli*, p. 16 "Celebes" (1865).

Hab. Gorontalo, *type* (*Forsten*); Ayer-pannas, Modelido (*Von Rosenberg*).

157. RALLINA (?) ROSENBERGII, Schlegel, Nederl. Tijdschr. Dierk. 1866, p. 213, "Kema."

Hab. Kema (*Von Rosenberg*).

SCOLOPACIDÆ.

NUMENIUS, Linnæus.

158. NUMENIUS PHÆOPUS (Linn.), Syst. Nat. ed. 12, i. p. 243 (1766); Schlegel, Mus. Pays-Bas, *Scolopaces*, p. 97.

Hab. Bonthain, South Celebes, March 7th (*S. Müller*); Tondano, North Celebes (*Forsten*); The Old World and Australia.

Until the breeding-grounds of the so-called distinct species of Whimbrels are discovered it is useless to attempt discriminating between them. Both the Celebean examples in the Leyden Museum possess the characters whereby Mr. Gould has distinguished his *N. uropygialis*.

159. NUMENIUS MINUTUS, Gould, P. Z. S. 1840, p. 176, "New South Wales;" Schlegel, Nederl. Tijdschr. Dierk. 1866, p. 348.

Numenius minor, S. Müller, Verhandl. p. 110, "Amboyna;" Schlegel, Faun. Japon. *Aves*, p. 111, pl. 67.

Hab. North Celebes, Aru Islands (*Schlegel*); Japan (*Von Siebold*); Amboyna (*S. Müller*); coasts of China (*Swinhoe*); New S. Wales, Port Essington (*Gould*).

ACTITIS, Illiger.

160. ACTITIS GLAREOLA (Gm.), Syst. Nat. ed. 13, i. p. 677 (1788); Schlegel, Mus. Pays-Bas, *Scolopaces*, p. 73.

Hab. Gorontalo, October 9th (*Forsten*); Europe, Africa, Asia and its islands.

161. ACTITIS HYPOLEUCOS (Linn.), Syst. Nat. ed. 12, i. p. 250 (1766); Schlegel, Mus. Pays-Bas, *Scolopaces*, p. 83.

Hab. Gorontalo, in October (*Forsten*); Europe, Africa, Australia, Asia and its islands.

TOTANUS, Bechstein.

162. TOTANUS GLOTTIS (Linn.), Syst. Nat. ed. 12, i. p. 245 (1766); Schlegel, Mus. Pays-Bas, *Scolopaces*, p. 63.

Hab. Celebes, in winter plumage (*Forsten*); Bonthain, South Celebes, in March (*S. Müller*): universal.

163. *TOTANUS CALIDRIS* (Linn.), Syst. Nat. ed. 12, i. p. 245 (1766); Schlegel, Mus. Pays-Bas, *Scolopaces*, p. 67.

Hab. Celebes, winter plumage, November (*Forsten*); Europe, Asia and its islands, Africa.

LIMOSA, Brisson.

164. *LIMOSA UROPYGIALIS*, Gould, P. Z. S. 1848, p. 38, "Australia;" Birds. Austr. vi. pl. 29; Schlegel, Mus. Pays-Bas, *Scolopaces*, p. 25.

Hab. Celebes, in November (*Forsten*); Gilolo (*Bernstein*); Java (*Van Hasselt*); Timor (*Müller*); Japan, New Zealand (*Mus. Lugd.*); Australia (*type*). (*Conf.* Finsch & Hartl. Fauna Centralpolyn. p. 177.)

TRINGA, Linnæus.

165. *TRINGA MINUTA*, Leisler, Nachtr. Bechst. Naturgesch. Deutschlands, Heft i. p. 74 (1811-15); Schlegel, Mus. Pays-Bas, *Scolopaces*, p. 46.

Hab. Celebes, in November, winter plumage (*Forsten*); Europe, Africa, Asia, Malay archipelago, New Guinea, Australia (*Mus. Lugd.*).

166. *TRINGA DAMACENSIS* (Horsf.), Trans. Linn. Soc. xiii. p. 192, "Java" (1822); Swinhoe, P. Z. S. 1863, p. 316; Schlegel, Mus. Pays-Bas, *Scolopaces*, p. 49.

Tringa subminuta, Von Middendorf, Sibir. Reise, Vögel, p. 222, pl. 19. f. 6 (tarsus).

Hab. Tondano, winter plumage; Tondano, male, partly in nuptial plumage, September; Gorontalo, male, winter plumage, October 9th; Celebes, moulting into perfect plumage (*Forsten*); Java (*type*); Borneo (*Schwaner*); China, Formosa (*Swinhoe*); Eastern Siberia (*Von Middendorf*); Amoor river (*Schrenck*).

LOBIPES, Cuvier.

167. *LOBIPES HYPERBOREUS* (Linn.), Syst. Nat. ed. 12, i. p. 249 (1766); Schlegel, Mus. Pays-Bas, *Scolopaces*, p. 59.

Phalaropus australis, Temm. Mus. Lugd.; Bp. Compt. Rend. xlii. p. 421 (1856), "Celebes," *vide* Schlegel, *l. c.*

Hab. Celebes, winter plumage (*Reinwardt*); Amboyna, winter plumage (*Hoedt*); Aru Islands, in winter plumage (*Wallace*); Madras (*Jerdon*); Peninsula of Luichow, April 3rd (*Swinhoe*); high latitudes of northern hemisphere, in summer.

Are the Moluccas the only, or at least the principal, winter residence of this species? Its occurrence has only been once observed in India.

GALLINAGO, Stephens.

168. GALLINAGO MEGALA, Swinhoe, Ibis, 1861, p. 343, "Amoy;" Schlegel, Mus. Pays-Bas, *Scolopaces*, p. 12.

Hab. Gorontalo (*Forsten*); Gilolo, Batchian (*Bernstein*); China, Formosa (*Swinhoe*).

ARDEIDÆ.

ARDEA, Linnæus.

169. ARDEA SUMATRANA, Raffles, Trans. Linn. Soc. xiii. p. 325, "Sumatra" (1822); Jerd. Birds Ind. ii. p. 740; Gould, Birds Austr. ii. p. 296.

Ardea typhon, Temm. Pl. Col. 475, "river Gambia" (*errore*), (Sept. 5, 1829); Schlegel, Mus. Pays-Bas, *Ardea*, p. 3.

— *rectirostris*, Gould, P. Z. S. 1842, p. 22, "New South Wales."

— *fusca*, Blyth, Ann. Nat. Hist. xiii. p. 176, "Arracan" (1844).

— *insignis*, Hodgs., Gray's Zool. Misc. p. 86.

Typhon robusta (S. Müll.), Bp. Consp. ii. p. 110, "Timor."

Ardea goliath, Temm., Bp. l. c., "Celebes."

Ardeomega nobilis, "Blyth," Bp. l. c., *nec* Blyth. (*Conf.* Blyth, Ibis, 1865, p. 36.)

Hab. Celebes (*Reinw.*); "Inde continentale," type of *A. typhon*, Temm. (*Schlegel*); Morty Island, Batchian, Toloforo (Gilolo) (*Bernstein*); Sumatra (*Raffles*); Coburg Peninsula (*Gould*); Clarence river (Australia) (*Schlegel*); Arracan (*Blyth*); N.-E. Bengal, Nepaul, Sikim, Terai, Assam (*Jerdon*); Sindh (*drawing, Sir A. Burnes*); Flores (*Wallace*).

ARDEOLA, Boie.

170. ARDEOLA SPECIOSA (Horsf.), Trans. Linn. Soc. xiii. p. 188, "Java" (1822); Zool. Res. pl. —.

Hab. Java (*type*); Celebes (*Wallace*).

I include the Javan form of *A. leucoptera*, Bodd., = *A. malaccensis*, Gm., on the authority of Mr. Wallace.

There appear to be four closely allied Asiatic species of *Ardeola*; but they yet require to be brought together and closely compared.

1. *A. leucoptera*, Bodd, ex Pl. Enl. 911, = *A. malaccensis*, Gm., ex Pl. Enl. 911, "Malacca," av. juv. *Buphus bacchus*, Bp., having been described from a Malaccan individual, becomes a synonym of the type species.

2. *A. grayi*, Sykes, "India," = *A. leucoptera*, Bodd., ap. Jerdon (B. of Ind.).

3. *A. speciosa*, Horsf., "Java." Most probably the same as the Malaccan form. Stated by Professor Schlegel to also occur in Sumbawa and Borneo.

4. *A. prasinoseles*, Swinhoe, "China."

Not recognizing the fact that Boddaert and Gmelin founded their titles on the same

plate, Mr. Blyth (Ibis, 1865, p. 38) called the Indian bird *leucoptera*, Bodd., and that of the Malayan peninsula and Sumatra *malaccensis*, Gm.

HERODIAS, BOIE.

171. HERODIAS NIGRIPES (Temm.), Man. d'Orn. 2nd edit. part iv. p. 376, "L'Archipel des Indes" (1840); Schlegel, Mus. Pays-Bas, *Ardeæ*, p. 14, "Lac de Gorontalo, Celebes."

Not possessing a sufficient number of examples of *H. garzetta* (Linn.) and its allies to attempt an elucidation of its races, their habitats, and synonymy, I have followed Temminck, and given to the Celebean bird the title by which the Dutch zoologist distinguished the little Egret of India, of the Malay archipelago, and of New Guinea, from the European, North Asiatic, and Japanese bird. Professor Schlegel (*l. c.*) does not admit their specific distinction, and includes all under *A. garzetta*, Linn. To him we owe the important fact that Temminck founded his *A. nigripes* on examples from Java, Borneo, and Celebes now in the Leyden Museum. We are thus provided with a clue to the maze of confusion into which Prince Bonaparte (Consp. ii.) has thrown the synonymy of the White Egrets (*conf.* Schlegel, *op. cit.* p. 19).

172. HERODIAS EGRETTEA (Gm.), Syst. Nat. ed. 13, i. p. 629 (1788), ex Buff. Hist. Nat. Ois. vii. p. 377, "America;" Schlegel, Mus. Pays-Bas, *Ardeæ*, p. 17.

Hab. Gorontalo (*Forsten*).

I adopt Professor Schlegel's determination with reserve, its correctness depending on the identity of the Asiatic with the American bird. The Celebean example is probably the *H. alba* (L.), ap. Jerd. (Birds of India), = *A. modesta*, Gray & Hardw., *A. alba* vera being restricted by Professor Schlegel to Southern Europe, Northern Africa, and Western Asia. The history of the Egrets has yet to be written.

ARDETTA, G. R. Gray.

173. ARDETTA SINENSIS (Gm.), Syst. Nat. ed. 13, i. p. 642 (1788), ex Lath., "China."
Ardea melanoptera, Cuvier, Mus. Paris. Puch.; Rev. Mag. Zool. 1851, p. 575.
 — *melanophis*, Cuv., ap. Less. Tr. p. 573, *errore*.
 — *lepida*, Horsf. Trans. Linn. Soc. xiii. p. 190, "Java."
 — *melanotis*, Cuv., ap. G. R. Gray, Genera, iii. Append. p. 25, *errore*.

Hab. Menado (*mus. nostr.*); all India (*Jerdon*); Java (*Horsf.*); Ceylon, Arracan (*Blyth*); China, from Canton to Tientsin, Formosa, in summer (*Swinhoe*); Borneo, Philippines (*Mus. Lugd.*); Ladrone or Marian Isles (?) (*G. R. Gray*).

I cannot concur with Mr. Blyth nor with Dr. Jerdon in regarding *Ardea nebulosa*, Horsf. (*l. c.*), as belonging to this species. Horsfield's diagnosis applies far better to *Ardetta cinnamomea* (Gm.). The expression "*cauda remigibusque badiis*" appears to me conclusive.

DEMIEGRETTA, Blyth.

174. DEMIEGRETTA SACRA (Gm.), Syst. Nat. ed. 13, i. p. 640, ex Latham.

Hab. Menado (*mus. nostr.*).

Two examples of an Ashy Egret were received from Menado in the dark ashy phase, but wanting the crest, dorsal trains, and pectoral plumes of the breeding-plumage. Both have a narrow median white line commencing at the chin and descending, with broken intervals, down the throat. No other part of the plumage is white. The wing measures $10\frac{1}{4}$ inches; the bill, from the forehead, 3 inches; the tarsus $2\frac{3}{4}$ inches; middle toe, without the nail, $1\frac{3}{4}$ inch. The dimensions of the bill, tarsus, and middle toe are much less than those given by Dr. Jerdon of the Indian bird, *D. asha* (Sykes).

Dr. O. Finsch (Centralpolyn. p. 201) has united all the titles given to the numerous named local races of this species under Gmelin's title of *sacra*, bestowed by him on the Sacred Heron of Latham, brought by Sir J. Banks from Otaheite. A want of a sufficient number of examples prevents me from questioning the correctness of this deduction, and I therefore provisionally adopt Gmelin's title. For an elaborate essay on the species, *conf.* Finsch & Hartl. *l. c.*

NYCTICORAX, Stephens.

175. NYCTICORAX GRISEUS (Linn.), Syst. Nat. ed. 12, i. p. 239 (1766); Schlegel, Mus. Pays-Bas, *Ardeæ*, p. 58.

Hab. Gorontalo (*Forsten*); Europe, Africa, Asia, America (*Ardea gardeni*, Gm.).

176. NYCTICORAX CALEDONICUS (Gm.), Syst. Nat. ed. 13, i. p. 626, "Nova Caledonia" (1788), ex Lath. Syn. iii. p. 55; Schlegel, Mus. Pays-Bas, *Ardeæ*, p. 59.

Ardea maculata, Lath. Ind. Orn. Supp. p. lxiv (1801), "New Holland," *fide* Strickl. Ann. Nat. Hist. xi. p. 338, *av. juv.*

Hab. Macassar (*S. Müller*); Tondano (*Forsten*); Timor, Gilolo, Morty Island, Amboyna (*Mus. Lugd.*); New Caledonia (*type*); Australia (*Gould*); Cape York (*mus. nostr.*).

Ardea caledonica, Forster, *apud* Meyen (N. Act. Ac. C. L. C. xvi. Suppl. prim. p. 103), seems to be *Nycticorax manilensis*, Vigors; and I have therefore omitted the Philippines from the range of Gmelin's species.

BUTORIDES, Blyth.

177. BUTORIDES JAVANICA (Horsf.), Trans. Linn. Soc. xiii. p. 190, "Java" (1822); Schlegel, Mus. Pays-Bas, *Ardeæ*, p. 44.

Hab. Gorontalo (*Forsten*); Menado (*mus. nostr.*).

The range of this Heron cannot be accurately stated until its conspecies have been studied and defined. *Conf.* Finsch & Hartl. Faun. Centralpolynes. p. 207, by whom, however, no specific differences are admitted to exist. My Menado example is in full

breeding-plumage, and conspicuously differs from Indian and Cingalese examples in having the crown and crest dark green, almost black, instead of a much lighter shade of green. Other differences are to be detected, which may not prove constant. For instance, in a Ceylon example, all the wing-coverts, and the four secondary quills nearest the body, are bordered with bright ochreous yellow, and not with white as in the Menado individual. If the Menado bird agrees with the Javan, Mr. Hodgson appears to have been justified in separating the continental form under the title of *chloriceps*.

CICONIIDÆ.

MELANOPELARGUS, Reichenbach.

178. MELANOPELARGUS EPISCOPUS (Bodd.), Tabl. Pl. Enl. (1783), ex Daubent. Pl. Enl. 906. *Ardea leucocephala*, Gm. Syst. Nat. ed. 13, i. p. 642, "Coromandel" (1788), ex Buffon, Hist. Nat. Ois. vii. p. 370; Schlegel, Mus. Pays-Bas, *Ciconiæ*, p. 11.

Hab. Saoussou, in June (*Rosenberg*); Ceylon (*mus. nostr.*); all India, Burma (*Jerdon*); Java, Borneo (*Mus. Lugd.*); Tropical Africa (*Schlegel*). *Conf.* O. Finsch & Hartl. Vög. Ost-Afr. pp. 722, 723.

TANTALIDÆ.

FALCINELLUS, Bechstein.

179. FALCINELLUS IGNEUS (S. G. Gmelin), Nov. Comm. Ac. Scient. Imp. Petropol. xv. p. 460, pl. 18¹ (1771).

Numenius viridis, S. G. Gmelin, *op. cit.* p. 462, pl. 19.

Tantalus castaneus, P. L. S. Müller, Syst. Nat. Suppl. p. 112 (1776), ex Marsigli.

Falcinellus peregrinus (S. Müller), Mus. Lugd., Bp. Consp. ii. p. 159, "Celebes, Java" (1857).

Ibis falcinellus, Vieill., Schlegel, Mus. Pays-Bas, *Ibis*, p. 2.

Tantalus falcinellus, Linn. S. N. ed. 12, i. p. 241 (1766).

Hab. Gorontalo, female, moulted, 30th September—male, in almost perfect plumage, 1st October—female in almost perfect plumage, September—male, moulted 30th September; Northern Celebes, male in perfect plumage; Celebes, examples in first plumage (*Forsten*); Macassar, female, moulted, March (*S. Müller*).

I do not venture on the general distribution of the Glossy Ibis, as it is still an open question whether the European, Asiatic, American, African, and Australian races are identical (*conf.* Bp. *l. c.*). S. Müller's specimen of *Inocotis papillosa* (Temm.), stated by Prince Bonaparte (*op. cit.* ii. p. 154) to have been collected in Celebes, came from Borneo (*conf.* Schlegel, *op. cit.* p. 10).

¹ J. F. Gmelin (S. N. p. 649) quotes the thirteenth plate, thus copying a misprint in S. G. Gmelin's text. The thirteenth plate represents *Caccabis rufa* (Linn.).

ANSERES.

ANATIDÆ.

QUERQUEDULA, Stephens.

180. QUERQUEDULA CIRCIA (Linn.), Syst. Nat. ed. 12, i. p. 204.

Anas querquedula, L., Schlegel, Mus. Pays-Bas, *Anseres*, p. 49.

Hab. Limbotto, 8th January, male in imperfect plumage—6th and 13th January, females (*Von Rosenberg*); Europe, Northern Africa, Asia to Island of Formosa.

Q. humeralis, Müller (Verhandl. p. 159), described from examples obtained on the north shores of Java, is not admitted to be distinct by Professor Schlegel.

MARECA, Stephens.

181. MARECA GIBBERIFRONS, S. Müller, Verhandl. p. 159, "Celebes;" Schlegel, Mus. Pays-Bas, *Anseres*, p. 58.

Anas gracilis, Buller, Ibis, 1869, p. 41, "New Zealand."

Hab. Gorontalo, young bird and an adult male; Menado, adult male; Tondano, male; Pegoiat, female, in November (*Forsten*); Ayer-pannas, 18th August, male, 13th August, female; Panybie, 13th September, female (*Von Rosenberg*); Macassar, female (*Müller*); Timor (*Müller*); near Port Essington (*Mus. Lugd*); Australia (*Verreaux*); near Melbourne, S. Australia (*Ferd. Müller*); New Caledonia (*Verreaux*); Flores (*Wallace*); New Zealand (*Buller*).

Professor Schlegel (*l. c.*) remarks that Celebean examples are smaller than those from other localities. It is probably this species that Mr. Gould alludes to (B. Austr. 8vo, ii. p. 366) as one of the races of *M. punctata* (Cuvier) found in Australia.

DENDROCYGNA, Swainson.

182. DENDROCYGNA GUTTATA (Forsten), Mus. Lugd.; Schlegel, Mus. Pays-Bas, *Anseres*, p. 85, "Celebes."

Dendrocygna guttulata, Temm.; Wallace, P. Z. S. 1863, p. 36.

— —, Müller; Sclater, P. Z. S. 1864, p. 300.

Hab. Limbotto, 1st September, adult male; Panybie, 12th September, adult female; Kema, 24th August, adult male and female (*Von Rosenberg*); Ternate, Gilolo (*Bernstein*); island of Kelang, Amboyna (*Hoedt*); Bouru, Ceram (*Wallace*); Goram, Aru, Little Key (*Von Rosenberg*).

183. DENDROCYGNA VAGANS, Eyton, MS.; Fraser, Zool. Typica, pl. 68, "Manilla" (1849); Schlegel, Mus. Pays-Bas, *Anseres*, p. 88; Sclater, P. Z. S. 1864, p. 300.

Hab. Tondano, December, adult female (*Forsten*); Limbotto, 9th January, adult

male; Gorontalo, 27th May and 20th July, male and female; Ayer-pannas, 11th, 15th, 17th August, males and females; Limbotto, 13th September, female; Pagouat 29th July, a nestling (*Von Rosenberg*); Macassar, E. Timor (*Wallace*); Philippines (*Cuming*); Java (*Diard*); New Caledonia (*Verreaux*). *Conf.* Hartl. & Finsch, Centralpolyn. p. 212.

According to Mr. Sclater (*l. c.*) there appear to be three races of this Tree-Duck—the Philippine, which is the type, the Australian (*D. gouldi*, Bp.), and the one inhabiting Celebes and Timor. It is true that at a later date (P. Z. S. 1866, p. 149) Mr. Sclater maintained that the three races are not separable. Professor Schlegel mentions that this species only occurs accidentally in Java.

LARIDÆ.

STERNINÆ.

HYDROCHELIDON, Boie.

184. HYDROCHELIDON NIGRA (Linn.), Syst. Nat. ed. 12, i. p. 227 (1766); Schlegel, Mus. Pays-Bas, *Sternæ*, p. 31.

Hab. Northern Celebes (*Forsten*, fide *Schlegel*); Northern Africa; Southern Europe; Northern and Eastern Asia.

I include this species on Professor Schlegel's authority. It has not been recorded from any other island of the Malay archipelago, although found throughout China (*Swinhoe*). Its occurrence in India rests on the evidence of specimens collected by Dr. L. Stewart (*Jerd. B. of India*, iv. App. p. 875); in what part of India, is not mentioned.

185. HYDROCHELIDON LEUCOPAREIA (Natterer), Temm. Man. d'Orn. 2nd ed. ii. p. 746 (1820), "Hungary;" Verner, Atlas, pl.

Sterna grisea, Horsf. Trans. Linn. Soc. xiii. p. 199, "Java" (1822).

— *hybrida*, Pallas, Zoog. Rosso-Asiatica, ii. p. 338 (1831), "Volga;" Schlegel, Mus. Pays-Bas, *Sternæ*, p. 32.

Viralva indica, Stephens, Shaw, Gen. Zool. *Aves*, xiii. p. 169, "India" (1825), ex Lath. Gen. Hist. x. p. 103. no. 5.

Sterna delamotta, Vieill. Ency. Méth. Orn. Add. i. p. 350, "Europe" (1823).

— *similis*, J. E. Gray, Illust. Ind. Zool. i. pl. 70. f. 2, ex India (1832).

Hydrochelidon fluviatilis, Gould, P. Z. S. 1842, p. 140, "interior of New South Wales."

— *delalandii*, Bp. Compt. Rend. xlii. p. 773, "Cap. B. Spei" (1856).

Hab. Lake of Gorontalo, 8th of October, female passing into winter plumage (*Forsten*) Pontianac, in Borneo (*Diard*); abundant in India (*Jerdon*); Ceylon (*mus. nostr.*); S.-W. Formosa (*Swinhoe*); interior of Australia (*Gould*); Cape York (*mus. nostr.*); Java (*Horsfield*); South and South eastern Europe; Northern and Western Africa.

ONYCHOPRION, Wagler.

186. ONYCHOPRION MELANAUCHEN (Temm.), Pl. Col. 427, "Celebes" (April 25, 1827); Schlegel, Mus. Pays-Bas, *Sternæ*, p. 28; Finsch & Hartl. Centralpolyn. p. 224; S. Müller, Verhandl. Land- en Volkenk. p. 125.

Sterna sumatrana, Raffles, Trans. Linn. Soc. xiii. p. 329, "Sumatra" (1822).

Hab. Celebes (*Reinwardt*); Ternate, Morty, Raou (*Bernstein*); west coast of New Guinea (*S. Müller*); common in the straits and bays of the Lobo district (*S. Müller*); Bay of Bengal (*Jerdon*); Nicobars (*Blyth*); Andamans (*Walden*); New Caledonia (*Verr.*); Loyalty Islands (*G. R. Gray*); Viti-Levu, Ovalu, Stewart Islands (*Finsch & Hartl.*); Cape York (*Macgillivray*); Sumatra (*Raffles*).

An Andaman and a New-Guinea example in my collection are identical.

There can be little doubt that this is the *S. sumatrana*, Raffles. A title, most inappropriate, but which has priority.

187. ONYCHOPRION ANÆSTHETUS (Scopoli), Del. Fl. Faun. Insub. ii. p. 92. no. 72 (1786), ex Sonnerat, Voy. Nouv. Guin. pl. 84.

Sterna panayensis, Gm. Syst. Nat. ed. 13, i. p. 607 (1788), ex Sonnerat, *l. c.*

— *panaya*, Gm.; Finsch & Hartl. Orn. Centralpolyn. p. 228; Vögel Ost-Afr. p. 833.

Hab. (Salayer) Celebes (*Wallace*).

An example of this species, in young plumage, was obtained by Mr. Wallace at Salayer.

For complete synonymy and distribution *conf.* O. Finsch & Hartl. (*l. c.*).

PELECANOPUS, Wagler.

188. PELECANOPUS MEDIUS (Horsf.), Trans. Linn. Soc. p. 199, "Java" (1822).

Sterna affinis (Cretzsch.), Rüpp. Reise, p. 23, pl. 14, "coasts of the Red Sea" (1826); Schlegel, Mus. Pays-Bas, *Sternæ*, p. 6.

— *bengalensis*, Cuv. Mus. Paris; Less. Tr. p. 621. no. 9, "côtes de l'Inde" (1831); Pucheran, Rev. et Mag. Zool. 1850, p. 512; *conf.* Jerd. Birds Ind. iii. p. 843; Blyth, Ibis, 1865, p. 39; *op. cit.* (1867) p. 177.

Thalasseus torresi, Gould, P. Z. S. 1842, p. 140, "Port Essington."

Hab. Macassar, March (*S. Müller*); North Celebes (*Forsten*).

If Mr. Blyth's identifications of the North-African and South-Asiatic species be correct, the range of this Tern extends from Sicily to Madagascar, the coasts of India, of Northern Australia, and the islands of the Malay archipelago, at least as far as Celebes. It must be remembered, however, that Dr. Pucheran (*l. c.*) has stated that the Abyssinian and Bengal species differs "par plus de noir dans les rémiges et par son bec moins courbé, et par cela même plus droit." (*Conf.* Finsch & Hartl. Vögel Ost-Afrika's, p. 830.)

189. PELECANOPUS CRISTATUS (Stephens), Shaw, Gen. Zool. contin. *Aves*, xiii. p. 146,
 "China, many of the south-eastern islands of Asia" (1825).

Sterna pelecanoides, King, Surv. Intertrop. Austr. ii. App. *Aves*, p. 422 (1827); Schlegel, Mus. Pays-Bas, *Sternæ*, p. 9.

— *velox*, Rüpp.; S. Müller, Verhandl. Land- en Volkenk. p. 125.

— *bergii*, Lichtenst.; Finsch & Hartl. Centralpolyn. p. 216, part.

Hab. Celebes, female, winter plumage (*Forsten*); Batchian, Gilolo, Morty, Oby (*Berstein*); Ceram (*Forsten*); Timor, west coast of New Guinea (*S. Müller*); Flores (*Semmelink*); coast of W. Australia, Port Essington, Torres Straits (*Gould*); Mysol (*Wallace*); Java (*S. Müller*); mouth of the Hoogly, Madras, Malabar coast (*Jerdon*); Southern China, Formosa (*Swinhoe*).

A race of this species, probably belonging to the Asiatic form, inhabits many of the islands still more to the eastward. Messrs. Finsch & Hartlaub (*l. c.*) have united the large Sea-Terns of Eastern Africa (*S. velox*, Rüpp.) and of South Australia and Van Dieman's Land (*Thalasseus poliocercus*, Gould) with the Asiatic and North-Australian species, under the title of *S. bergii*, Lichtenstein, bestowed on a Cape-of-Good-Hope individual. Professor Schlegel, in his masterly catalogue (*l. c.*), keeps these representative forms separate, but with much reluctance. With the exception of *T. poliocercus*, the facts known favour the opinion that the species are severally permanent residents in the localities they frequent. Dr. S. Müller, who identified the New-Guinea bird with the Red-Sea *S. velox*, Rüpp., states (*l. c.*) that it is known to the inhabitants of the straits and bays of the Lobo district by the name of *Ressa*. At a subsequent date he appears to have regarded it as a distinct species; for Professor Schlegel cites *Sterna ressa*, S. Müller, as a synonym.

PODOCIPIDÆ.

PODICEPS, Latham.

190. PODICEPS MINOR (Gm.), S. N. ed. 13, i. p. 591 (1788); Schlegel, Mus. Pays-Bas, *Urinatores*, p. 45.

Hab. Panybie (*Von Rosenberg*).

According to Professor Schlegel the Little Grebe of Java and Celebes is identical with that of Europe; and provisionally I refer the Celebean bird to the European species. But judging from the few South-Asiatic examples I have been able to compare with European individuals, I am not prepared to admit their identification as absolute. For instance, the Javan Little Grebe has an exceedingly stout bill which measures seven eighths of an inch in length, the wing being four inches and a quarter. The cheeks, chin, and throat are black; and a dark ferruginous line starts from behind each eye, and extends down each side of throat. Thus the Javan bird closely resembles the Australian *P. gularis*, Gould—a species, however, which Professor Schlegel does not admit.

PELECANIDÆ.

DYSPORUS, Illiger.

191. *DYSPORUS SULA* (Linn.), Syst. Nat. ed. 12, i. p. 218, "Pelago indico" (1766).

Sula fiber, G. R. Gray; Schlegel, Mus. Pays-Bas, *Pelecani*, p. 41.

Hab. Celebes (*Mus. Lugd.*). On the general distribution of this species, *conf.* Finsch & Hartl. Faun. Centralpolyn. p. 261.

PHALACROCORAX, Brisson.

192. *PHALACROCORAX MELANOLEUCUS* (Vieill.), Nouv. Dict. d'Hist. Nat. vol. viii. p. 88, New Holland (1817); Gould, Birds Austr. vii. pl. 70; Schlegel, Mus. Pays-Bas, *Pelecani*, p. 15.

Hab. Celebes, nuptial plumage (*mus. nostr.*); Gorontalo, imperfect plumage (*Forsten*); Gilolo, Timor (*Mus. Lugd.*); Tasmania, every part of Australia (*Gould*); Salwati (*mus. nostr.*).

PLOTUS, Linnæus.

193. *PLOTUS MELANOGASTER* (Forster), Zool. Ind. p. 22, pl. xii. "Java, Ceylon" (1781).

Hab. Menado (*mus. nostr.*); all India, Ceylon, Burma (*Jerdon*); Java (*Mus. Lugd.*); Australia (*Schlegel*).

A single example of a *Plotus* in adult male plumage is in my possession, collected near Menado. It does not appear to differ from Indian examples. *P. novæ-hollandiæ*, Gould, P. Z. S. 1847, p. 34, is not admitted as distinct from *P. melanogaster* by Professor Schlegel. Mr. Gould relies on its shorter scapularies and larger size.

List of species stated by various authors to occur in Celebes for which there is not sufficient authority:—

Urospiza torquata (Cuv.), Hand-list Birds Brit. Mus. no. 327.

Scops mantis, J. Müller, op. cit. no. 477.

Halcyon diops, Temm., op. cit. no. 1107.

Halcyon funebris, Forsten, op. cit. no. 1126.

*Philemon moluccensis*¹ (Gm.), op. cit. no. 2074.

Philemon inornatus, G. R. Gray, op. cit. no. 2077.

Philemon? collaris, Reichenbach, op. cit. no. 2083. The genus *Philemon* is unknown in Celebes.

Climacteris leucophæa (Lath.), op. cit. no. 2521. The genus *Climacteris* is unknown in Celebes.

Dicrurus bimaënsis, Temm. op. cit. no. 4212.

Dicrurus atroceruleus, G. R. Gray, op. cit. no. 4220.

¹ This species is a *Mimeta* (*conf.* Wallace, P. Z. S. 1863, p. 26).

Drymophila alecto, Temm. op. cit. no. 4794. The genus *Drymophila* is unknown in Celebes.

Lalage aurea, Temm. op. cit. no. 5114.

Calornis metallica, Temm. op. cit. no. 6376.

Munia pallida, Wallace, op. cit. no. 6756.

Eos cochinsinensis (Lath.), op. cit. no. 8202. The genus *Eos* is unknown in Celebes.

Psittacus cyanicollis, S. Müller and Schl. op. cit. no. 8275.

Ptilinopus flavicollis, G. R. Gray, op. cit. no. 9125.

Ptilinopus xanthogaster (Wagler), op. cit. no. 9136.

Ptilinopus hyogaster (Reinw.), op. cit. no. 9144.

Macropygia leptogrammica (Temm.), op. cit. no. 9305.

Reinwardtæna reinwardti (Temm.), op. cit. no. 9310. The genus *Reinwardtæna* is unknown in Celebes.

Most of the erroneous habitats enumerated in the above list are transcribed from the older authors. In nearly every instance they have been corrected by more recent writers, especially by S. Müller, Schlegel, Wallace, and O. Finsch.

DESCRIPTION OF THE PLATES.

PLATE III.

Outline Map of Celebes and the adjoining islands, p. 23.

PLATE IV.

Trichoglossus meyeri, p. 32. From a specimen in Lord Walden's collection.

PLATE V.

Buceros exaratus, 1 ♂, 2 ♀, p. 47. From specimens in Lord Walden's collection.

PLATE VI.

Fig. 1. *Artamus monachus*, p. 67. From a specimen in Lord Walden's collection.

Fig. 2. *Geocichla erythronota*, p. 61. From the typical specimen in Mr. A. R. Wallace's collection.

PLATE VII.

Fig. 1. *Myiaclestes helianthea*, p. 66. }
 Fig. 2. *Hypothymis puella*, p. 66. } From specimens in Mr. A. R. Wallace's collection.
 Fig. 3. *Cyornis rufigula*, p. 66. }

PLATE VIII.

- Fig. 1. *Volvocivora morio*, p. 69. }
 Fig. 2. *Lalage leucopygialis*, p. 69. } From specimens in Lord Walden's collection.

PLATE IX.

- Fig. 1. *Munia brunneiceps*, p. 73. }
 Fig. 2. *Zosterops intermedia*, p. 72. } From specimens in Mr. A. R. Wallace's collection.
 Fig. 3. *Zosterops atrifrons*, p. 72. }

PLATE X.

- Fig. 1. *Acridotheres cinereus*, p. 77. From a specimen in Lord Walden's collection.
 Fig. 2. *Ægialites peronii*, p. 90. From a specimen in Mr. A. R. Wallace's collection.



J Smit lith

M & N Hanhart imp.

TRICHOGLOSSUS MEYERI



J Smitlth

M & N Hanhart imp.

BUCEROS EXARATUS 1 ♂ 2 ♀



J. Sm. del.

1 ARTAMUS MONACHUS
2 GEOCICHLA ERYTHRONOTA

M & N Hamb. art. 1109



J Smat lith

M & N Hanhart imp

- 1 MYIALESTES HELIANTHEA.
- 2 HYPOTHYMIS PUELLA
- 3 CYORNIS RUFIGULA



1

2

J Smit del.

M & N Heath imp.

1. VOLVOCIVORA MORIO
2. LALAGE LEUCOPYGIALIS



J.C. mt lith.

M & N Hanhart 1877

1. MUNIA BRUNNEICEPS.
2. ZOSTEROPS INTERMEDIA
3. ZOSTEROPS ATRIFRONS.



1

2

J Smit. lith.

1. ACRIDOTHERES CINEREUS
2. ÆGIALITES PERONII

M & N Hartn. del. 1856

III. *Appendix to a List of Birds known to inhabit the Island of Celebes.* By ARTHUR, VISCOUNT WALDEN, F.R.S., *President of the Society.*

Read May 7th, 1872.

[PLATES XI. to XIII.]

I. *Additional Observations on the Birds included in the previous List.*

WHILE the List of Celebean Birds contained in the preceding pages was passing through the press the island of Celebes was being visited and its zoology investigated by a most indefatigable collector and naturalist, Dr. Bernhard Meyer. With the greatest liberality Dr. Meyer has permitted me to examine all the birds collected by him in Celebes; and I avail myself of this opportunity to thank him for his courtesy. The additional materials thus placed at my disposal have enabled me to add to the list several species which had not previously been known to inhabit Celebes, as well as a few more which were altogether new to science. The considerable number of examples, representing the rarer species, collected by Dr. Meyer, has also rendered it possible and desirable to add some supplementary observations. The greater part of the collection was made in North Celebes, and consequently on old ground; yet Dr. Meyer has added twelve species new to the island, and at least four of which were previously undescribed. In the Togian islands a small collection was likewise made, showing that these islands, as we might have naturally supposed, possess a generally Celebean ornis; yet, among the small number of species thus obtained, two¹ were new to science, and have not as yet been discovered on the mainland of Celebes.

TERASPIZA RHODOGASTRA, *antea*, p. 33. (Plate XI.)

Three stages of immature plumage, hitherto undescribed, are represented by three individuals obtained in North Celebes.

One, a male (Pl. XI.), has the head dark brown, mixed with rufous. The back, wings, and tail are bright rufous. The nuchal and dorsal feathers are centred with dark brown. The wing-coverts have each a black subterminal drop. The secondary quills are crossed by five distinct black bands. The basal halves of the primaries are banded with brown and pale rufous alternating; the terminal halves are light brown, obscurely banded with dark brown, rufous replacing the light brown on the outer webs. On the under surface of the quills the dark brown bands are better defined and more conspicuous. The five middle pairs of rectrices have four broad black bands, besides

¹ *Loriculus quadricolor*, Walden, Ann. & Mag. N. Hist. ser. 4, vol. ix. p. 398; and *Criniger aureus*, Walden, l. c. p. 400.

an obscure brown band at the root of the feathers. The outer pair have seven bands. The plumage of the under surface of the body is fulvous, each feather with a bold brown longitudinal central stripe. The under tail- and shoulder-coverts are unspotted fulvous. The middle toe is very long; and the tail is conspicuously forked.

The second example is of a young female, much resembling the male above described, but having bold brown drops on the under shoulder-coverts and axillaries, and the general colouring of the upper surface not quite so bright a chestnut. In it also the tail is not forked, and the outer pair of rectrices are shorter than the middle.

The third example is of a young female passing from the chestnut plumage of no. 2 into that of the adult. The nuchal feathers are ashy; and a few similar plumes are interspersed on the throat and upper part of the breast. The breast-feathers and a few on the flanks are pure vinous red. A few of the upper tail-coverts are dark ashy; and one of the long wing-coverts has come in ash-coloured, and with two pure white spots on the inner web. The chestnut colouring of the remainder of the plumage is very dingy and faded. The tail is not forked.

Dimensions.

| Wing. | Rectrices. | | Tarsus. | Toes. | | | | |
|-----------------|-----------------|-----------------|-----------------|---------------|---------------|--------------|--------------|---|
| | Middle. | Outer. | | Outer. | Middle. | Inner. | Hallux. | |
| inches. 7·50 | inches. 6·75 | inches. 6·63 | inches. 2·25 | inch. 1·13 | inch. 1·62 | inch. ·75 | inch. ·75 | ♀. Changing into adult plumage. ♀. Immature. ♂. Immature. |
| 7·50 | 6·50 | 6·12 | 2·13 | 1·12 | 1·50 | ·75 | ·75 | |
| 6 | 5·12 | 5·50 | 1·87 | ·81 | 1·13 | ·50 | ·50 | |

The toes are measured without the nails. The nails of the inner toe and hallux are very large, strong, and equal. Those of the middle and outer toes are slender and short.

TACHYSPIZA SOLOËNSIS (Horsf.), *antèa*, p. 34.

This species also inhabits China, extending at least as far north as Peking (Swinhoe, (P. Z. S. 1871, p. 342).

LIMNAËTUS LANCEOLATUS, Bp., *antèa*, p. 34.

Four examples from North Celebes have reached me—two (male and female) fully adult, and two (male and female) in the immature plumage already described (*l. s. c.*). The adult pair do not differ; and the example of the immature female only differs from that of the male by having the two pairs of middle rectrices more frequently banded and in a different manner. In the adult birds of both sexes the middle rectrices have a broad, terminal, dark brown band; then, above, a broader band of pale greyish brown, and then three narrow dark brown bands separated by broad pale bands. This is also

the character of the banding on the middle rectrices of the immature male. But in the immature female there is no terminal dark brown band, and the middle rectrices are almost evenly divided by seven pale and seven dark-brown bands. Yet in all other respects the immature pair are identical in plumage.

PERNIS CELEBENSIS.

Pernis ptilorhyncha (Temm.), *antea*, p. 36.

An examination of several examples of the Celebean Honey-Buzzard has convinced me that it is distinct from the Indian and Javan species. In this view I am only concurring with both Messrs. Gurney and Wallace, and therefore propose the above title for it. The remarkable resemblance of this species to *Limnaëtus lanceolatus*, in adult plumage, has been commented on by Mr. Wallace and Professor Schlegel.

Upper surface brown. Chin, throat, and cheeks white, each feather broadly centred with dark brown. Breast pale rufous, some of the feathers with brown central stripes. Abdominal and ventral region, flanks, under wing- and tail-coverts, and the thigh-coverts white, with two, three, or four broad transverse bands. Tail crossed by three broad dark-brown bands, one being terminal; between the terminal band and the next a broad, light greyish-brown band of irregular shading and marking; between the second dark-brown band and the third a paler brown band.

YUNGIPICUS TEMMINCKII (Malherbe), *antea*, p. 41.

Dr. Meyer has sent a male as well as several females of this rare species. The male, hitherto unknown, is peculiar in having the sides of the neck blood-red instead of a narrow stripe behind the eyes. In other respects it exactly resembles the female. Notwithstanding Bonaparte's remark (*Consp.* i. p. 137, no. 20), this species in no way resembles *Y. kisuki*. It is an isolated form, readily distinguished by its olive-brown plumage, spotted on the wings with yellowish-white dots, by its fulvous upper tail-coverts and rump, and by all its rectrices being barred rufous and brown.

MEROPOGON FORSTENI (Temm.), *antea*, p. 42.

This species has the first primary half the length of the second, which is a little shorter than the third. The third and fourth are longest, and equal. The fifth is somewhat shorter than the third and fourth, but longer than the second. In the structure of the wing, therefore, it differs from both *Merops* and *Melittophagus*¹, but agrees with *Nyctiornis*. The grooved culmen of *Nyctiornis* is not present; but a shallow channel extends from the base of the maxilla, on both sides of the culmen, for two

¹ Prince Bonaparte says (*Consp.* i. p. 164), "*alæ Melittophagi*;" but in *Melittophagus*, *M. minutus* being the type, the third quill is the longest. The African species which most resembles *M. forsteni* in the graduation of the quills and the form of the rectrices, the middle pair excepted, is *M. bullockoides*, Smith.

thirds of its length. This character is not possessed by either *Nyctiornis*, *Merops*, or *Melittophagus*. The rectrices are truncated, as in *Nyctiornis*; but the middle pair are elongated, as in *Merops*, and closely resemble in form and proportion those of *M. philippensis*. The feet are those of the family. The elongated pectoral plumes resemble in character the same feathers in *Nyctiornis*. Altogether *M. forsteni* may be regarded as a link uniting *Nyctiornis* to *Merops*, but most nearly allied to *Nyctiornis*.

CEYCOPSIS FALLAX (Schlegel), *anteà*, p. 45.

Several examples were obtained in North Celebes by Dr. Meyer.

Tanysiptera riedelii was not obtained in Celebes (*conf.* P. Z. S. 1872, p. 1); and as yet there is no evidence that the genus occurs in the island.

LYNCORNIS MACROPTERUS, Bp., *anteà*, p. 47.

This species, *L. macrotis*, Vigors, and *L. temmincki*, Gould, are representative forms, closely resembling each other in plumage, but differing in size, the Celebean species being a little smaller than the Philippine. *L. cerviniceps*, Gould, the giant of the genus, differs considerably in colouring and markings.

EUDYNAMIS MELANORHYNCHA, Müll., *anteà*, p. 53.

This species also passes through a rufous phase of plumage. The entire upper surface, in one individual, is deep bay, each feather being traversed by broad and perfectly regular black bands. The chin, throat, and cheeks darker bay, with longitudinal black central streaks. A broad white stripe from the rictus to the neck. Lower plumage fulvous, with narrow, crooked, transverse markings. Edge of shoulder white.

CENTROCOCYX AFFINIS (Horsf.), *anteà*, p. 56.

CENTROCOCYX JAVANENSIS (Dumont), *anteà*, p. 60.

I have had an opportunity of examining a large Celebean series of both these species, and find that they do not differ from Javan individuals.

BRODERIPUS CELEBENSIS.

Broderipus coronatus (Swains.), *anteà*, p. 60.

Of fourteen examples of the Celebean *Broderipus* collected by Dr. Meyer, seven have the black coronal ring complete, and seven incomplete. One of the latter exhibits faint traces of yellow at the tips of the lesser wing-coverts. The remaining thirteen specimens are without any indication of a wing-spot. None have the middle pair of rectrices completely black, although in one example they are nearly so; and yet it shows no wing-spot. The series illustrates the progress of the coronal ring before uniting. In one individual the black loreal mark of *Oriolus galbula* extends behind the eye somewhat

that the grey cap is paler than in Malaccan examples. The greenish tinge on the throat is common to individuals from both localities. I can find no difference between the amount of lilac on the neck (*conf.* Wallace, *Ibis*, 1863, p. 320). Mr. Maingay obtained the male and female of *O. bicincta* at Malacca.

CHALCOPHAPS STEPHANI, Jacq. & Puch. *anteà*, p. 85.

A single example of this rare and well-marked species has been sent from North Celebes by Dr. Meyer. It is in full plumage, and in every respect agrees with the plate and description (*l. s. c.*). If then the New-Guinea species differs, the origin of the type must have been Celebes, and not New Guinea (west coast) as stated by M. Pucheran (*l. c.*).

CHALCOPHAPS INDICA (Linn.), *anteà*, p. 86.

Examples from North Celebes in no way differ from Ceylon, Indian, Burman, Malaccan, and Javan individuals. Judging from the number of specimens obtained by Dr. Meyer, this species cannot be so rare in Celebes as stated by Professor Schlegel (*l. s. c.*).

NYCTICORAX CALEDONICUS (Gm.), *anteà*, p. 100.

It may be inferred that this species breeds in Celebes, an example in spotted immature plumage having been obtained in the northern part of the island by Dr. Meyer.

II. *List of Species to be added to the Celebean Avifauna.*

Genus CAPRIMULGUS, Linn.

1. CAPRIMULGUS AFFINIS, Horsf. Trans. Linn. Soc. xiii. p. 142, "Java" (1820).

Caprimulgus europæus, L. ap. Raffles, op. cit. p. 315, in part. "Sumatra."

Hab. Java (*type*); Sumatra (*Raffles*); East Timor, Lombock (*Wallace*); Celebes (*Meyer*).

Dr. Meyer has sent from Celebes a single example of a *Caprimulgus* which appears to belong to the species cited above. I have been unable to compare it with a Javan individual; but it perfectly agrees with Lombock and East-Timor specimens. Four pairs of rectrices are missing; and it is otherwise in indifferent order; I therefore add a short description of the species, taken from a Lombock individual—Horsfield's account, the only one published, being very meagre.

Above, the general aspect of the plumage is iron-grey, somewhat mixed with brown, caused by the feathers being finely dotted or sprinkled with black and grey, here and there with fulvous. In some of the crown-feathers black prevails; but there are no regular stripes on the head. On the sides of the throat are two white spots. The lower breast-feathers are fulvous, with several well-defined brown transverse bars. The

ventral region and the under tail-coverts are fulvous, without any markings. The major wing-coverts are distinctly banded with alternate rufous and brown. A large white spot on each of the first four primaries. The chin, throat, and upper breast are clothed with feathers finely marked with fulvous-grey points on a brown ground. Many of the upper breast-feathers with bold rufo-fulvous tips. The middle rectrices have the general colouring and marking of the upper plumage, and are traversed by eight or nine more or less distinct irregular black bands. The two outer pairs are pure white throughout their entire length. The wing in six examples averages 6·25 inches, and the tail 4·25.

This species, as has been well observed by Mr. Blyth (Cat. Calc. Mus. p. 84, note), is as diminutive as *C. monticola*, Frankl.

2. CAPRIMULGUS, sp. ?

A large dark-coloured *Caprimulgus* is among the novelties obtained in Celebes by Dr. Meyer. The example is unfortunately in such indifferent order that the inherent difficulties which attend the discrimination of many species of the family are very much increased. Above, this Celebean Goat-Sucker closely resembles Javan examples of *C. macrourus*, Horsf. Underneath, it is darker in colour, and the transverse barring of the abdominal plumage is less regular and well defined. The principal points in which it differs from a considerable series of *C. macrourus* are:—the great length of the rectal bristles, which measure a full inch; the greater length of the bill; the smallness of the terminal white spots on the two outer pairs of rectrices; and the peculiar markings on the under surface of all the rectrices except the middle pair. In true *C. macrourus* the white terminal spot on the outer pair of rectrices measures about two inches; in this individual it measures only seven eighths of an inch. In the Javan bird the under surface of the rectrices is more or less uniform brown, without markings; this Celebean bird has some eleven or twelve distinct narrow rufous bars crossing the rectrices. Its first primary has no white spot, while on each of the three next it is much smaller than in *C. macrourus*, which has a large white spot on all four primaries. The length of wing is equal to the average length observable in the Javan bird, seven and a quarter inches; nor do the dimensions of the tail (six inches) differ.

As there are two Bornean species, *C. arundinaceus*, Jacq. & Puch., and *C. binotatus*, Bp., which have yet to be satisfactorily identified, I refrain from conferring a distinct title on this Celebean Nightjar.

CUCULUS, Linn.

3. CUCULUS CANORUS, Linn. S. N. i. p. 168 (1766).

A single specimen obtained by Dr. Meyer in North Celebes is not to be distinguished from a British-killed example of the adult Common Cuckoo. The wing alone is shorter, 7·50 against 8·31; the tail is equal. Two other specimens, with the upper

plumage changing to the adult stage, the transverse, pectoral, and abdominal bands rather broader, and with immaculate buff under tail-coverts, seem to belong to the same species; and a fourth, in bright chestnut and brown plumage, must be referred to it. Without the example in full plumage it would have been difficult to say whether the other three did not belong to *C. canoroides*, Müller. If *C. canoroides* is equal to *C. saturatus*, Hodgs., = *C. himalayanus*, ap. Jerd., it is a very distinct form; but I have never met with an Archipelagic Cuckoo in the dark adult plumage of Himalayan *C. saturatus*. Timor and Amboyna examples of so-called *C. canoroides* only differ from those of *C. canorus* by having a shorter wing. But individuals of *C. canorus* from different parts of the Old World (that is, individuals identical in plumage) vary extremely in the length of wing, as the following table shows:—

| | | |
|-------------------|------|--|
| England | 8·31 | } These measurements are taken from examples in fully adult plumage, and almost identical in colouring and marking. |
| Abyssinia..... | 9·00 | |
| Menado | 7·50 | |
| Deyra Doon | 8·00 | |
| ” ” | 8·75 | |
| India | 9·50 | |
| Philippines | 9·25 | |
| Simla | 8·50 | |

HIEROCOCCYX, S. Müller.

4. *HIEROCOCCYX CRASSIROSTRIS*, Walden, Ann. & Mag. Nat. Hist. ser. 4, vol. ix. p. 305, “North Celebes” (1st April 1872). (Plate XIII.)

This species, in mature plumage, most nearly resembles *C. micropterus*, Gould.

5. ?*CACOMANTIS SEPULCRALIS* (Müller), Verhandl. p. 177, not., sp. 2, “Java, Sumatra.”

For the present I refer three examples of a *Cacomantis* obtained by Dr. Meyer in North Celebes to the Javan species, rather than create a new title; for without a large series of individuals inhabiting all parts of the archipelago it is impossible to discriminate the species belonging to this perplexing group.

One of the three Celebean examples is in fully mature plumage, and has the chin, cheeks, and throat pale grey, the head iron-grey, the upper plumage deep bronze-green, the breast, abdominal region, flanks, under tail-, and shoulder-coverts deep rufous; the middle pair of rectrices are black, the outer one black-brown tipped with white, and with one or two small white shallow triangular marks on the edge of the inner webs; the quills are traversed by the usual white band. Wing 4·25 inches, tail 5·75.

These Celebean individuals differ from all examples of the Javan *C. sepulcralis* known to me in the much deeper bronze-green of the upper plumage, the much deeper rufous of the under, and in their shorter wings and tail.

6. *CISTICOLA GRAYI*, Walden, Ann. & Mag. Nat. Hist. ser. 4, vol. ix. p. 400, "North Celebes" (1st May 1872).

CORYDALLA, Vigors.

7. *CORYDALLA GUSTAVI* (Swinh.), P. Z. S. 1863, p. 90, "China;" op. cit. 1871, p. 366.

Pipastes batchianensis, G. R. Gray, H.-list, i. p. 251. no. 3642, "Batchian" (1869).

Anthus arboreus, var., G. R. Gray, P. Z. S. 1860, p. 350, "Batchian."

Hab. Amoy, China (*Swinhoe*); Batchian (*Wallace*); North Celebes (*Meyer*).

A single individual from North Celebes agrees well with the Batchian example contained in the British Museum, and there identified by Mr. Swinhoe.

8. *CYORNIS BANYUMAS* (Horsf.), Trans. Linn. Soc. xiii. p. 146, "Java" (1820); Zool. Res. in Java, pl. —.

Muscicapa cantatrix, Temm. Pl. Col. 226, ♂, ♀ (1823).

? *Muscicapa rufigastra*, Raffles, Trans. Linn. Soc. xiii. p. 312, "Sumatra."

Hab. Java (*type*); Sumatra? (*Raffles*); Banjarmassing (*mus. nostr.*); North Celebes (*Meyer*).

Undistinguishable from Javan examples.

HYLOTERPE, Cabanis.

9. *HYLOTERPE SULFURIVENTRA*, Walden, Ann. & Mag. Nat. Hist. ser. 4, vol. ix. p. 399, "North Celebes" (1st May 1872).

Hab. North Celebes (*Meyer*).

MYZOMELA, Vigors & Horsfield.

10. *MYZOMELA CHLOROPTERA*, Walden, Ann. & Mag. Nat. Hist. ser. 4, vol. ix. p. 399, "Celebes" (1st May 1872).

The discovery of this species adds another Papuan genus to the Celebean fauna.

GLAREOLIDÆ.

GLAREOLA, Brisson.

11. *GLAREOLA GRALLARIA*, Temm. Man. d'Ornith. vol. ii. p. 503, "Austral-Asie" (October 1820); Gould, B. of Austr. vol. vi. pl. 22.

Hab. Moreton Bay (*Gould*); west Coast of New Guinea (*Müller*); Obi-major (*Bernstein*); Flores (*Semmelink*); Borneo (*Schwaner*); Java (*Kuhl* and *V. Hasselt*); Celebes (*Meyer*).

Several examples in mature and immature plumage were obtained in Celebes by Dr. Meyer.

STERNULA, Boie.

12. STERNULA MINUTA (Linn.), S. N. vol. i. p. 228 (1766).

Several examples from North Celebes have been sent by Dr. Meyer. They are all in full plumage. Tail pure white.

These twelve additional species thus raise the number of authentically recorded Celebean birds to two hundred and five.

DESCRIPTION OF THE PLATES.

PLATE XI.

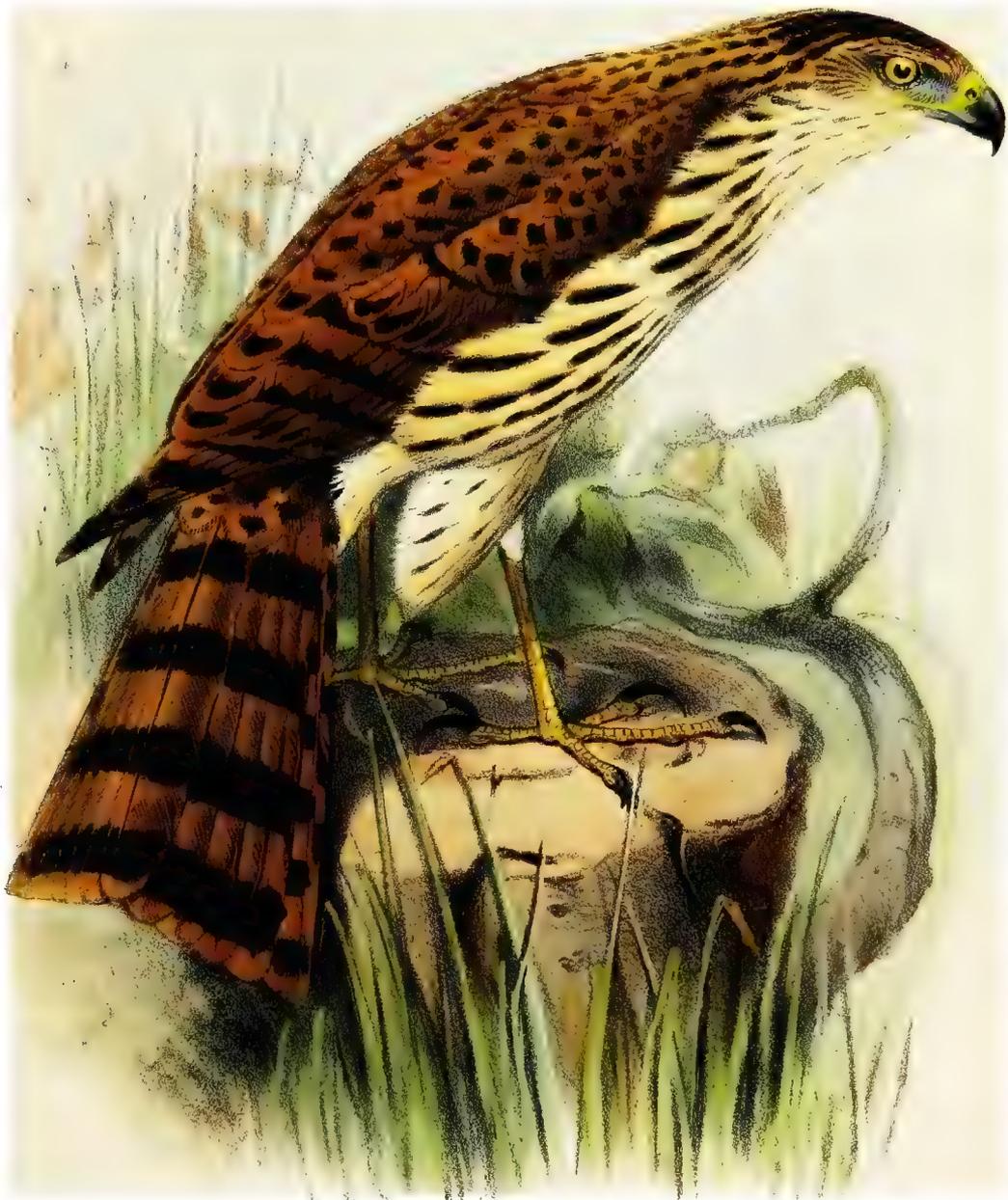
Teraspiza rhodogastra, p. 109. From a specimen in Lord Walden's collection.

PLATE XII.

Graucalus temminckii, p. 113. From a specimen in Lord Walden's collection.

PLATE XIII.

Hierococcyx crassirostris, p. 116. From specimens in Lord Walden's collection.



$\frac{3}{4}$

J. Smit. lith.

M&N Hanhart imp

TRASPIZA RHODOGASTER ♂ jr



$\frac{3}{4}$

J. Sm. lith.

M. & N. Harhart imp.

GRAUCALUS TEMMINCKI.



J. Smith del.

$\frac{1}{2}$

HIEROCCOCYX CRASSIROSTRIS 1 adult (♂) 2. Hepatic phase.

M & N Hazhant imp

