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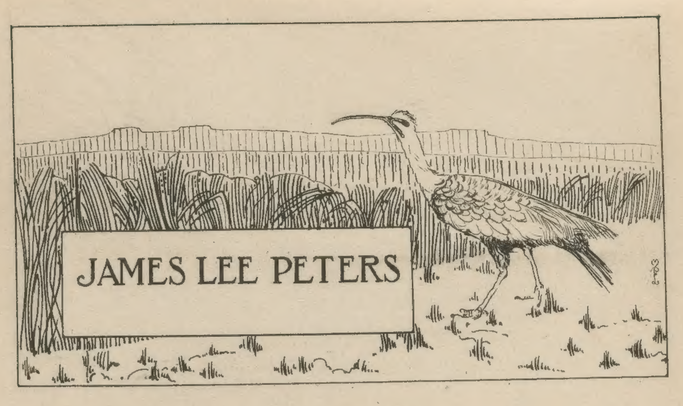

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A

MONOGRAPH OF THE PITTIDÆ,

OR

FAMILY OF ANT-THRUSHES.

BY

DANIEL GIRAUD ELLIOT,

COMMANDER OF THE ROYAL ORDERS OF THE CROWN OF ITALY, OF CHARLES THE THIRD OF SPAIN, AND OF FREDERIC OF WÜRTEMBERG;
KNIGHT OF THE IMPERIAL AND ROYAL ORDERS OF FRANCIS JOSEPH OF AUSTRIA, OF THE DANNEBROG OF DENMARK, OF THE ALBERT ORDER OF SAXONY,
OF ST. MAURICE AND ST. LAZARE OF ITALY, OF ISABELLA THE CATHOLIC OF SPAIN, OF CHRIST OF PORTUGAL, OF PHILIP THE MAGNANIMOUS OF HESSE, ETC. ETC.;
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A FOUNDER AND EX-PRESIDENT OF THE AMERICAN ORNITHOLOGISTS' UNION, A FOUNDER AND LIFE MEMBER OF THE ZOOLOGICAL SOCIETY OF FRANCE;
HONORARY MEMBER OF THE LINNEAN SOCIETY OF NEW YORK AND OF THE NUTTALL ORNITHOLOGICAL CLUB; MEMBER OF THE ACADEMY
OF NATURAL SCIENCES OF PHILADELPHIA, OF THE NEW YORK ACADEMY OF SCIENCES, OF THE BRITISH ORNITHOLOGISTS' UNION,
OF THE SOCIÉTÉ D'ACCLIMATATION OF PARIS, OF THE NEW YORK HISTORICAL SOCIETY, OF THE SOCIETY OF AMERICAN NATURALISTS;
CORRESPONDING MEMBER OF THE ROYAL ACADEMY OF SCIENCES OF LISBON, OF THE NATURAL HISTORY SOCIETY OF BOSTON, ETC. ETC.;

AUTHOR OF

THE NEW AND HERETOFORE UNFIGURED BIRDS OF NORTH AMERICA, OF THE ILLUSTRATED MONOGRAPHS OF THE PITTIDÆ (1863),
TETRAONINÆ, PARADISEIDÆ, PHASIANIDÆ, BUCEROTIDÆ, FELIDÆ, ETC. ETC.

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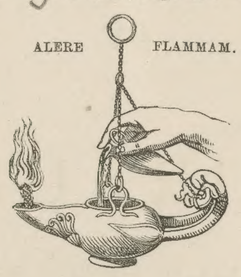

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PREFACE.

In the interval of time which has elapsed since my first Monograph of the Pittidæ was completed, now thirty years ago, not only have many new and beautiful species been discovered, but much information of the economy and habits, even of those birds long known to us, has been obtained, and it seemed that the time had arrived to gather all our knowledge of these attractive creatures into one publication, and exhibit the portraits of the new forms—or, in other words, produce an entirely new Monograph. This is what the present work purports to be. I have discarded the text of the earlier Monograph, and have written this one, beginning with the first records of these birds that were admissible in our science, as if the subject had only now for the first time engaged my attention. A few of the Plates of the first edition have been retained in this one, but the majority are new drawings by Mr. W. Hart of London, made, unless otherwise stated, from specimens in the collection of the British Museum. How well Mr. Hart has accomplished his portion of the task, a glance at the beautiful Plates will readily testify. In the plan of the work the method I have been accustomed to adopt in all of my illustrated Monographs has been followed, and it has been my endeavour to include in the text all the information accessible that could be desired either by the ornithologist or casual reader. Errors may have crept in (they generally do), but especial care has been taken to reduce them to a minimum. We cannot, happily for us, all think alike, but wherever I have differed from my brother naturalists my decision has only been formed after careful study and the reasons for my conclusions clearly given.

It is with pleasure I offer my thanks to those who have assisted me in any way in my work. And first of my friends I desire to name Dr. R. Bowdler Sharpe for kindly

furnishing specimens from the British Museum collection to the artist in order that their portraits might be introduced into this work, and also for his assistance in accelerating its progress. To Dr. Sclater, who has at all times been ready to give every aid in his power, I am greatly indebted; also to Count T. Salvadori, for the loan of the types of *P. loriæ* and *P. cæruleitorques*; and to Prof. Steere, of the University of Michigan, I desire to express my acknowledgments for sending me the type of *P. propinqua* and a specimen of *P. steerii*. To Prof. R. Ridgway I am also under obligations for entrusting me with the only two specimens known of *P. nympha* from Japan in the National Museum, and permitting me to transmit them to London to place in the artist's hands; and, lastly, to my friends Prof. J. A. Allen and Mr. F. M. Chapman my thanks are due for assistance at various times during the publication of my work.

It is not often that one returns to his first love and finds her, after many years, more beautiful than ever, as has been my experience in the present instance; and it is with the natural feeling of sincere regret, as I finish my work, that I resign my pen, conscious that in all probability I shall never return to the subject again, but that this beautiful Family, as it shall be known years hence, must find its new historian in some naturalist of a future generation. I can only hope that my labours may serve to lighten his, and help him onward in his task.

D. G. E.

INTRODUCTION.

FOLLOWING the method adopted in my various Monographs, I commence the Introduction to the Pittidæ with a critical review of the various works containing descriptions of, and references to, any of the species belonging to the Family, beginning with Linnæus's great work, in which these birds are first mentioned, published in 1766. This is followed by a List of the Genera proposed and comments upon them, to which is added a Key to the Genera and Species adopted in this work; succeeded by a Classification of the members of the Pittidæ or their assignment to the place in the Class Aves which they naturally occupy, and concluding with a review of the Geographical Distribution of the Species.

REVIEW OF THE LITERATURE.

1766.—LINNÆUS, Systema Naturæ.

Under the genus *Corvus*, Linnæus gives a short description of the Indian Pitta as C. BRACHYURUS, but in his synonymy confounds it with another species, P. CORONATA (Müll.). Species 1.

1770–86.—BUFFON, Histoire Naturelle des Oiseaux.

In the fourth volume of this great work, commencing on page 131, four species of *Pitta* are given, three belonging to the short-tailed section, and one to the long-tailed, and figured on plates 89, 257, 258, and 355, under the names of *Merle des Philippines*, *Merle des Moluques*, *Merle de Bengale*, and *Merle de la Guiane*.

1776.—P. L. S. MÜLLER, Naturæ Systema, Supplement.

The four species mentioned and figured by Buffon, in this work have Latin names bestowed upon them as follows:—*Merle des Philippines, Turdus* SORDIDUS; *Merle des Moluques, Turdus* MOLUCCENSIS; *Merle de Bengale, Turdus* CORONATUS; and *Merle de la Guiane, Turdus* GUAJANUS. The *Merle de Bengale* of Buffon is not the Indian bird,

described by Linnæus, but a distinct species from the islands of the Eastern Archipelago. Species 5.

1783.—Boddaert, Table des Planches Enluminées d'Histoire Naturelle d'Aubenton.

Turdus GUAJANUS, P. L. S. Müll., is renamed *T. cyanurus*.

1786–89.—Sparrman, in 'Museum Carlsonianum.'

Corvus BRACHYURUS, Linn., is renamed *Turdus triostegus*.

1788.—Gmelin, Systema Naturæ.

Corvus BRACHYURUS, Linn., is given with three varieties:—β. *C. philippensis*= T. SORDIDUS, Müll.; γ. *C. bengalensis*=C. BRACHYURUS, Linn.; δ. *C. madagascariensis* =T. MOLUCCENSIS, Müll.

1791.—Vieillot, Tableau Encyclopédique et Méthodique des trois Règnes de la Nature.

Under *Brève*, genera *Picca*, *Corvus*, Linn., Lath., &c., several species of *Pitta* are described, only three of which have Latin names—one, P. ANGOLENSIS, given for the first time. The others are *P. bengalensis*=P. BRACHYURA (Linn.) and *P. cyanura*=P. GUAIANA (Müll.). Of the others the *Brève de Bengale*, *Brève de Ceylon*, and *Brève de Malacca*= P. BRACHYURA (Linn.), and *Brève des Philippines*=P. SORDIDA (Müll.). Species 6.

1816.—Vieillot, in 'Nouveau Dictionnaire d'Histoire Naturelle.'

A list of Pitta is here given, with numerous errors in identification. *P. cyanura*, Vieill.=P. GUAIANA (Müll.). *La Brève de Bengale*, *La Brève de Ceylon*, *La Brève de la Côte de Malabar*, and *La Brève de Malacca* all=P. BRACHYURA (Linn.); *La Brève de la Chine* =P. NYMPHA, Schleg.?; *La Brève de Madagascar*=P. MOLUCCENSIS (Müll.); *La Brève des Philippines*=P. SORDIDA (Müll.). In his remarks on this last species he repeats Le Vaillant's erroneous statement, without giving his authority, that the specimen which served as a model for plate 89, in the 'Planches Enluminées' of Buffon, is the *Brève de Ceylon*, with its own head replaced by one taken from a male Thrush. This I have mentioned and explained in the text of P. SORDIDA.

1817.—Cuvier, Règne Animal.

Under the genus *Myiothera*, nec Illiger, Cuvier mentions three species of *Pitta*, as les Brèves de Buffon, "*Corvus brachyurus*, Pl. Enl. 257, 258," representing quite distinct species, and the "*Azurin* (*Turdus cyanurus*, Lath. & Gmel., *Corvus cyanurus*, Shaw, Enl. 355)"=P. GUAIANA (Müll.). In a footnote he mentions the *Brève des Philippines*, Enl. 89, which he says is the same as that from Angola (Edw. 324), but with the head of a Thrush. No mention is made of a *P. atricapilla*.

1820–39.—Temminck, Planches Coloriées.

A number of Pitta are here figured and the following described for the first time:— P. STREPITANS, P. ERYTHROGASTRA, P. MACKLOTI, and P. GRANATINA (nec ex Borneo).

The others are *P. gigas*=P. CÆRULEA (Raffles), *P. cyanoptera*=P. MOLUCCENSIS (Müll.), *P. irena*=P. CORONATA (Müll.), and *P. elegans*=E. BOSCHI (Müll. & Schleg.). Species 10.

1823.—RAFFLES, in the 'Transactions of the Linnean Society.'

Pitta CÆRULEA described as *Myiothera cærulea*. Species 11.

1825.—SWAINSON, in the 'Zoological Journal.'

In *January* of this year *P. versicolor*=P. STREPITANS, Temm., was described. It is somewhat doubtful which name has precedence.

1825.—STEPHENS, Continuation of Shaw's General Zoology, or Systematic Natural History.

In Part ii. vol. xii. six species of *Pitta* are given, of which *P. bengalensis*=P. BRACHYURA (Linn.), *P. cyanura*=P. GUAIANA (Müll.), *P. versicolor*=P. STREPITANS, Temm., P. ERYTHROGASTRA, Temm., and *P. gigas*=P. CÆRULEA (Raffles). No new species are described.

1827.—WAGLER, Systema Avium.

Under the genus *Citta* are the following:—*C. abdominalis* and *C. superciliosus*=P. BRACHYURA (Linn.), *C. hippocrepis*=P. MOLUCCENSIS (Müll.), and *C. melanocephala* (nec Müll. & Schleg.)=P. SORDIDA (Müll.).

1829.—CUVIER, Règne Animal.

In this edition Cuvier repeats what he had already written in 1817, but adds some species in a footnote, viz.:—*P. erythrogaster*, Cuv.! Enl. 212! (not a Pitta), *P. gigas*, Temm.=P. CÆRULEA (Raffles), *P. cyanoptera*, Temm.=P. MOLUCCENSIS (Müll.), *P. superciliosa*=E. BOSCHI (Müll. & Schleg.), P. STREPITANS, Leadbeater! He repeats his remarks on *La Brève des Philippines*, Enl. 89 (but corrects Le Vaillant's statement as to its being a fictitious bird), and on the *Azurin*, and includes *Myiothera affinis*, Horsf., and *Pitta thoracica*, Temm. Pl. Col. 76, which are not Pittas. No mention is made of *P. atricapilla*.

1830.—QUOY AND GAIMARD, Voyage de Découverte de l'Astrolabe, Zoologie.

Pitta ATRICAPILLA from new Guinea, described and figured for the first time. Species 12.

1831.—LESSON, Traité d'Ornithologie.

Nine species of *Pitta* are here given; no new ones described. No. 7, *Brève à tête noir*, is called *P. atricapilla*, Cuvier ex Manille (Dussumier), evidently the P. SORDIDA (Müll.), but no indication given of the work in which Cuvier's name was supposed to be published, or whether it was only a MS. name on a specimen in the Paris Museum. Consequently a *nomen nudum*, not admissible even if it had priority.

1837.—HODGSON, in the Journal of the Asiatic Society of Bengal.'

P. NEPALENSIS described as *Paludicola* NEPALENSIS. Species 13.

18—?—GOULD, Birds of Australia, vol. iv. 1848.

P. brachyura, Vigors & Horsfield, 1826 (nec Linn.), renamed P. VIGORSI. Species 14.

1839.—Eyton, in the 'Proceedings of the Zoological Society of London.'

P. granatina, Temm., ex Malacca, nec Borneo, redescribed as *P. coccinea*.

1839-44.—Müller and Schlegel, Verhandelingen over de Natuurlijke Geschiedenis der Nederlandsche oveerzeesche bezittingen, door de Leden der Natuurkundige commissie in Indie, en andere Schrijvers.

In this work a list of the Pittas known to the authors is given, twenty-two in number; and of these *P. gigas*, Temm.=P. cærulea (Raffles), *P. irena*, Temm.=P. coronata (Müll.), *P. cyanoptera*, Temm.=P. moluccensis (Müll.), *P. pulih*, Fraser=P. angolensis, Vieill., *P. melanocephala*, Forst. (nec Wagl.), first described=P. forsteni, Bon., *P. atricapilla*, ex Borneo=P. sordida (Müll.), *P. malaccensis* (nec Scopoli), ex Malacca=P. cucullata, Hartl.; P. atricapilla, Quoy & Gaim., ex New Guinea, is renamed *P. novæguineæ*; *P. philippensis*, Vieill.!=P. sordida, Müll. It is not apparent that Vieillot ever called any Pitta *philippensis*, nor that Cuvier ever gave the name *atricapilla* to any species of the Family. Five plates are published on *Pitta*: Nos. 1, 1, of P. boschi; 2, 2, P. baudi; 3, nest and eggs of P. cyanura=*P. guaiana* (Müll.), and eggs of P. venusta. The new species described are: P. maxima, P. melanocephala (forsteni, Bon.), P. venusta, P. celebensis, P. baudi, and P. boschi. Species 20.

1842.—Gould, in the 'Proceedings of the Zoological Society of London.'

Pitta iris from Australia described. Species 21.

1843.—Blyth, in the 'Journal of the Asiatic Society of Bengal.'

Pitta cyanea first described. Species 22.

1843.—Hartlaub, in the 'Revue de Zoologie.'

Pitta cucullata described. Species 23.

1844.—Hodgson, in Gray's 'Zoological Miscellany.'

In a Catalogue of Birds from Nepal under Turdidæ three *Pitta* are mentioned—*P. cyanoptera*, Temm.=P. moluccensis (Müll.), *P. rodogaster*=P. cucullata, Hartl., and *Heleornis* (*Paludicola*) nepalensis.

1846.—Gray and Mitchell, Genera of Birds.

Thirty-one Pitta are recorded in this work, and one, *P. cyanea*, Blyth, figured. Of those cited eighteen bear the names by which they are recognized at the present time. The remainder are synonyms of those previously given, except P. melanocephala, Müll. & Schleg.

1850.—Bonaparte, Conspectus Generum Avium.

This Author includes in Pittidæ various genera besides those in which the Pitta have been placed, but which are now referred to other Families. The Pitta are divided into two genera—Brachyurus, Thunberg, for the short-tailed species, and Pitta for those with lengthened, graduated tails. In the first genus twenty-five species are given, all of

which are valid, except *P. malaccensis* and *P. maculata*=P. BRACHYURA (Linn.). *P. melanocephala*, Müll. & Schleg. (nec Wagl.), ex Celebes, is renamed P. FORSTENI. Temminck's names, as given in the 'Planches Coloriées,' are generally employed, those of P. L. S. Müller, which antedate some of them, not being known to the Author. In the genus *Pitta*, the three long-tailed species then known are included, but P. BOSCHI, Müll. & Schleg., is changed to *P. elegans*, altogether without sufficient reason, and E. SCHWANERI is first described as *Pitta* SCHWANERI. Species 24.

1850.—TEMMINCK AND SCHLEGEL, Fauna Japonica.

PITTA NYMPHA described and figured. Species 25.

1854.—BONAPARTE, Conspectus Volucrum Anisodactylorum.

This is a repetition of the List by the same Author in the work cited above, but *Brachyurus* is divided into various genera according to the size or coloration of the species. Thus *Gigantipitta* includes all the large species, such as CÆRULEA, CYANEA, NEPALENSIS, and MAXIMA. *Brachyurus* is limited to the birds with buff plumage beneath; *Erythropitta*, red beneath; *Iridipitta* for BAUDI and IRIS; *Melanopitta* for the black-headed species; and *Pitta* is retained for the species with lengthened tails. It is not necessary that any of these terms should be adopted in addition to the two originally employed, but they may serve a useful purpose to indicate subgeneric groups.

1857.—GOULD, in the 'Proceedings of the Zoological Society of London,' *April*.

P. CONCINNA described. Species 26.

1857.—J. VERREAUX, in the 'Revue et Magasin de Zoologie,' *July*.

P. CONCINNA redescribed and figured as *P. mathilde*.

1859.—CABANIS AND HEINE, in the 'Journal für Ornithologie.'

P. RUFIVENTRIS described. Species 27.

1859–60.—CABANIS AND HEINE, Museum Ornithologicum Heineanum.

In this work the Pitta are placed in the family *Hypocnemididæ* of the order *Clamatores*, and are divided into numerous genera. EUCICHLA, Reich., is retained for the long-tailed species, *Coloburis* is proposed for the buff-breasted species, and *Phœnicocichla* for P. GRANATINA. *Hydrornis*, Blyth, includes the larger species, like CÆRULEA. The species given are only those contained in the Heine collection. P. BRACHYURA (Linn.) from Malacca is called *Coloburis malaccensis*. A Pitta from Amboina! is named *Coloburis müllerí*=P. SORDIDA (Müll.), the locality evidently erroneous; and P. SORDIDA (Müll.), from Timor! evidently another erroneous locality, is called *Coloburis brevicauda*. No new species are described.

1860.—G. R. GRAY, in the 'Proceedings of the Zoological Society of London.'

P. CYANONOTA described. Species 28.

1861.—D. G. Elliot, in the 'Proceedings of the Academy of Natural Sciences of Philadelphia.'

P. sordida, juv., described as *P. leucoptera*.

1862.—Wallace, in the 'Proceedings of the Zoological Society of London.'

P. rubrinucha described, and P. coronata (Müll.) renamed *P. crassirostris*, ex Sula. Species 29.

1862.—Blyth, in the 'Journal of the Asiatic Society of Bengal.'

Anthocincla phayrei described. Species 30.

1863.—D. G. Elliot, Monograph of the Pittidæ.

A Monograph of the species as then known, with life-size coloured figures on thirty-two plates.

1863.—Schlegel, Vogels van Nederlandsch Indië, *Pitta*.

Twenty-one species with coloured figures of both sexes, and young when possible, are given of those inhabiting the Dutch Indies. The figures, although small, are well coloured, and render the various species easily recognizable. P. megarhyncha is described. Species 31.

1864.—Cassin, in the 'Proceedings of the Academy of Natural Sciences of Philadelphia.'

A paper upon the Latin names bestowed by P. L. S. Müller on the birds depicted on Buffon's plates, among which were four *Pitta* included in the genus *Turdus*, as already cited under Müller's work.

1864.—Swinhoe, in the 'Ibis.'

P. oreas described. Species 32.

1866.—Schlegel, in 'Nederlandsch Tijdschrift voor de Dierkunde.'

Pitta sordida, ex Sanghir, renamed *P. atricapilla sanghirana*.

1867.—Salvadori, in 'Atti della R. Accademia delle Scienze di Torino.'

Pitta nympha, Schleg., redescribed as *P. bertæ*.

1868.—Gould, in the 'Proceedings of the Zoological Society of London.'

P. strepitans redescribed as *P. simillima*.

1869.—Salvadori, in 'Atti della Società Italiana di Scienze Naturali, Milano.'

P. strepitans redescribed as *P. kreffti*.

1869.—Krefft, in the 'Ibis.'

P. mackloti redescribed as *P. digglesi*.

1870.—D. G. Elliot, in the 'Ibis.'

A review of the Family as known up to date, with critical remarks on the species described since the Monograph of the Pittidæ was completed in 1863. The species

not included in the Monograph were P. OREAS, Swinh., *P. bertæ*, Salv., P. MEGARHYNCHA, Schleg., *P. simillima*, Gould, *P. strenua*, Gould, *P. bankana*, Schleg., and *P. a. sanghirana*, Schleg. Of these *P. bertæ* was doubtfully referred to P. MOLUCCENSIS (Müller); *P. simillima*=P. STREPITANS, Temm.; *P. strenua*=P. MACKLOTI, Temm.; *P. bankana* was kept distinct, but since found to=P. CUCULLATA, Hartl.; *P. a. sanghirana*=P. SORDIDA (Müll.). A list of all the species recognized is given, and three new subgenera proposed—*Leucopitta* for P. CYANEA and P. MAXIMA, *Cervinipitta* for the buff-breasted species, and *Purpureipitta* for P. VENUSTA, Müll. & Schleg. The Family is divided into two genera, BRACHYURUS and PITTA.

1871.—GOULD, in the 'Annals and Magazine of Natural History.'

P. arcuata described. Species 33.

1873.—SCHLEGEL, in 'Nederlandsch Tijdschrift voor de Dierkunde.'

P. ROSENBERGI described. Species 34.

1873.—HUME, in 'Stray Feathers.'

P. OATESI described under the genus *Hydrornis*. Species 35.

1874.—SCHLEGEL, Muséum des Pays-Bas, PITTA.

P. MÉFOORANA described. Species 36.

1874.—OUSTALET, in 'Nouveaux Archives du Muséum de Paris.'

E. ELLIOTI described as *Pitta* ELLIOTI. Species 37.

1875.—HUME, in 'Stray Feathers.'

P. CÆRULEA (Raffles) redescribed as *P. davisoni*, and E. GURNEYI described as *Pitta* GURNEYI. Species 38.

1876.—SHARPE, in 'Nature.'

P. STEERII described. Species 39.

1876.—SALVADORI, in 'Annali del Museo Civico Naturale di Genova.'

P. CÆRULEITORQUES described. Species 40.

1876.—BRÜGGEMANN, in 'Abhandlungen naturwissenschaftlichen Vereine zu Bremen.'

P. KOCKI and P. PALLICEPS described. Species 42.

1877.—SHARPE, in the 'Transactions of the Linnean Society.'

P. PROPINQUA described. Species 43.

1877.—D'ALBERTIS, in 'Annali del Museo Civico di Storia Naturale di Genova.'

P. STREPITANS called *P. assimilis*.

1877.—SHARPE, in the 'Proceedings of the Zoological Society of London.'

P. USSHERI described. Species 44.

1878.—RAMSAY, in the 'Proceedings of the Linnean Society of New South Wales.'

P. MACKLOTI, juv., ex New Ireland, redescribed as *P. novæ-hiberniæ*.

1881.—Wardlaw-Ramsay, in the 'Ibis.'

P. soror described. Species 45.

1881.—Salvadori, Ornitologia della Papuasia e delle Molucche.

In this valuable work is given all the Pitta inhabiting the Moluccan and Papuan islands, with full synonymy and critical remarks. No changes in nomenclature are made.

1883.—Oates, Birds of British Burmah.

Interesting and valuable accounts of the habits and economy of the different species of *Pitta* found within the limits of which the work treats are given.

1884.—Ramsay, in the 'Proceedings of the Linnean Society of New South Wales.'

P. cyanonota, ex S.E. New Guinea, redescribed as *P. finschi*.

1888.—Sclater, Catalogue of Birds in the Collection of the British Museum.

The Pittidæ in this work includes four genera—Anthocincla, Pitta, Eucichla, and *Coracopitta*=Mellopitta, Stejneger. The *Pitta* are separated into two divisions and nine sections. The first is called *Pittæ aberrantes*, containing large birds without scarlet crissum, excepting in two instances, and the second, or *Pittæ typicæ*, moderate-sized birds, save one, with scarlet crissum, except two. The various generic terms proposed by different authors for groups distinguished mainly in coloration are employed as subgenera, and a new one, *Calopitta*, for P. maxima is proposed. While giving fairly copious synonymy for each species, it is not intended as a Monograph, but merely, as its title implies, a Catalogue of the specimens in the British Museum. The various decisions reached by this Author, which have not been accepted, are recorded in the present work, in the text accompanying the different species affected by them, and it is unnecessary to repeat the arguments here. The members of the genus *Coracopitta* (=Mellopitta, Stejneger) are probably not closely enough related to the *Pitta* to be retained in the Family, and will find a more appropriate resting-place elsewhere.

1889–90.—Salvadori, in 'Annali del Museo Civico di Storia Naturale di Genova.'

P. loriæ described. Species 46.

1892.—D. G. Elliot, in the 'Auk.'

P. granatina, auct. nec Temm., ex Borneo, described as P. g. borneensis. Species 47.

1893.—John Whitehead, in the 'Ibis.'

The object of this paper is to give the Author's views on certain species, and to "suggest a more natural arrangement of the members of the Family." The nomenclature is copied from that given in the xivth volume of the Catalogue of Birds. The genera adopted are four in number, viz.:—1. *Hydrornis* for *Pitta* nepalensis and *P. soror*; 2. *Gigantipitta* for P. cærulea; 3. *Pitta*, divided into four groups, *a*, *b*, *c*, *d*—the

first containing *P. cyanoptera* (=P. MOLUCCENSIS, Müll.) and its allies, with buff or greenish-yellow breasts; *b*, P. CUCULLATA and the black-headed species, together with P. IRIS (not especially related to this group), and also P. MAXIMA on what appears as very insufficient reasons; *c*, P. USSHERI, P. VENUSTA, *P. granatina*, nec Temm. (=P. GRANATINA BORNEENSIS), *P. coccinea* (=P. GRANATINA, Temm.), and P. ARCUATA; *d*, P. ERYTHOGASTRA and those species having brown or black throats. The fourth genus EUCICHLA contains those species recognized in this Monograph as belonging to it, with PITTA CYANEA and P. BAUDI added. ANTHOCINCLA PHAYREI and PITTA OREAS are omitted, the latter apparently because it was considered in the 'Catalogue of Birds' to be inseparable from P. NYMPHA. *Pitta bankana* is deemed distinct from P. CUCULLATA, but no reasons given; and P. SORDIDA (called *P. atricapilla*), from Borneo and Sanghir, is recognized as *P. muelleri* and *P. sanghirana*. The arrangement proposed cannot be considered an improvement on those previously attempted, and brings some species together not particularly allied, and separates others that are.

GENERA.

Numerous genera have at various times been proposed for the different species of this Family, the majority of which, however, can only be considered as useful, when employed in a subgeneric sense, to indicate the several sections or groups into which the *Pitta* seem naturally divided. The first genus that was proposed was PITTA, instituted by Vieillot in his 'Analyse,' 1816, p. 42. He defines it as follows:—"*Brève, Pitta, Corvus*, Linn., Gm., Lath. *Bec robuste, un peu épais à la base, droit, convexe en dessus, comprimé, pointu, mandible supérieure échancrée vers le bout; l'inférieure entière égale. Ailes longues. Queue courte. Esp. Brève, Buffon.*" In the 'Auk' for January 1893 I have considered what genera should properly be adopted for the Pittidæ; and as there has been some discussion on this point, it is probably as well to reproduce here the substance of my remarks for the benefit of those who may not be able to refer to the Journal above mentioned. In the definition of his genus PITTA, Vieillot gives no character, except "Queue courte," which might not equally apply to the species in the other division of the Family which in this work are included in the genus EUCICHLA. The expression given above is a relative term, as all the *Pitta* have short tails, although some have them shorter than others; but all the members of EUCICHLA, the so-called long-tailed species, are not equal in this respect, E. ELLIOTI and E. GURNEYI being intermediate between the very short-tailed species, of which P. BRACHYURA (Linn.) may be considered the type, and E. GUAIANA (Müll.), which represents those with long tails. Vieillot cites the *Brèves*

of Buffon as those species he intended should be included in his genus. These are four in number, three only of which belong to the short-tailed group, and one to the long-tailed. They are P. SORDIDA (Müll.), P. MOLUCCENSIS (Müll.), P. CORONATA (Müll.), and E. GUAIANA (Müll.), as recognized in this Monograph. *Pitta*, Vieillot, is therefore a composite genus, and an author, when dividing the Family into different genera, has a perfect right (and this is a principle recognized by all naturalists) to choose the type for his division PITTA from among those species included in Vieillot's genus, when he had selected no especial one as his type, but made them all equal, perceived no generic differences among the species known to him, but placed both long- and short-tailed birds in the same genus.

In my former Monograph I restricted the term *Pitta* to those birds with the lengthened, graduated tails, and adopted the term *Brachyurus* for those with short, nearly square tails. The last genus had been twice previously employed in zoology; and although thirty years ago this was not considered an especial objection, yet, according to the principles adopted at the present day, it cannot be employed again in Ornithology. In 1850, Reichenbach separated the fourth species in Vieillot's genus, P. GUAIANA (Müll.), from the others, and made it the type of a new genus EUCICHLA, thus leaving the short-tailed birds to represent the genus PITTA, the type of which, if we take the first species mentioned by Buffon, would be the "*Merle des Philippines*," P. SORDIDA (Müll.), and not P. BRACHYURA (Linn.), as given by Sclater, the latter species not even being mentioned by Buffon in his work. The following are the terms proposed at various times as genera or subgenera, with the species selected as types:—

	Type.
1816. PITTA, Vieillot, Analyse, p. 42	*P. sordida* (Müll.)
1817. MYIOTHERA, Cuv. Règn. Anim. vol. i. p. 356 (nec Illig. 1811)	*P. brachyura* (Linn.).
1821. BRACHYURUS, Thunb. Vet.-Akad. Handl. p. 370 (nec Latr. 1802, nec Fisch. 1814) . . .	*P. brachyura* (Linn.).
1827. CITTA, Wagl. Syst. Av., *Corvus*, 1827 (nec Boie, 1826)	*P. brachyura* (Linn.).
1837. PALUDICOLA, Hodg. Journ. As. Soc. Beng. vol. vi. p. 103 (nec Wagl. 1830)	*P. nepalensis* (Hodg.).
1843. HYDRORNIS, Blyth, Journ. As. Soc. Beng. vol. xii. p. 960	*P. nepalensis* (Hodg.).
1844. HELEORNIS, Hodg. Gray, Zool. Misc. p. 83 .	*P. nepalensis* (Hodg.).
1850. EUCICHLA, Reich. Syst. Av. pl. . . .	*P. guaiana* (Müll.).
1854. GIGANTIPITTA, Bon. Consp. Voluc. Anisod. p. 7.	*P. cærulea* (Raffles).
1854. ERYTHROPITTA, Bon. Consp. Voluc. Anisod. p. 7.	*P. mackloti*, Temm.
1854. IRIDIPITTA, Bon. Consp. Voluc. Anisod. p. 7 .	*P. baudi*, Müll. & Schleg.

1854. Melanopitta, Bon. Consp. Voluc. Anisod. p. 7.	*P. cucullata*, Hartl.
1859. Phœnicocichla, Cab. & Hein. Mus. Hein. pt. ii. p. 3	*P. granatina*, Temm.
1859. Coloburis, Cab. & Hein. Mus. Hein. pt. ii. p. 5.	*P. strepitans*, Temm.
1862. Anthocincla, Blyth, Journ. Asiat. Soc. Beng. vol. xxxi. p. 343	*A. phayrei*, Blyth.
1870. Leucopitta, Elliot, Ibis, p. 413 . . .	*P. cyanea*, Blyth.
1870. Cervinipitta, Elliot, Ibis, p. 413 . . .	*P. moluccensis* (Müll.).
1870. Purpureipitta, Elliot, Ibis, p. 416 . . .	*P. venusta*, Müll. & Schleg.
1880. Cyanopitta, Gould, Mon. Pitt. pt. 1 . .	*P. steerii*, Sharpe.
1888. Calopitta, Sclat. Cat. B. vol. xiv. p. 414 . .	*P. maxima*, Müll. & Schleg.

It is not necessary to adopt more than three genera for the species of Pittidæ:—Anthocincla for the curious species A. phayrei; Pitta for the very short-tailed birds; and Eucichla for those with lengthened graduated rectrices.

Key to the Genera and Species.

I. "*Bill with imperceptible notch to upper mandible. Rictal vibrissæ absent. Wings rounded. Tail short. Tarsus moderate or somewhat short, toes furnished with straight claws.*" (Blyth.) . . . . . Anthocincla.

A. Feathers of superciliaries elongated . . . . . 1. *A. phayrei.*

II. *Bill rather stout, length moderate, broad at base, with apical portion curved, tip slightly emarginate; frontal plumes projecting to the opening of the nostrils, which are anterior and exposed. Wings reaching nearly to end of tail, the second, third, fourth, and fifth primaries nearly equal and longest. Tail very short, nearly square, or slightly rounded. Tarsi very long, slender, broadly scutellated. Toes long, outer one considerably longer than the inner; hind toe very long. Claws moderate, curved, acute, that of the hind toe longest* . Pitta.

A. Underparts all white, or white barred with blue.

Calopitta.

a. Back black, crissum scarlet . . . . . 1. *P. maxima.*

Leucopitta.

b. Back blue, crissum white . . . . . 2. *P. cyanea.*

B. Underparts buff or yellowish.

a. Crissum buff or whitish.

Gigantipitta.

a'. Back blue . . . . . 3. *P. cærulea*.

Hydrornis.

b'. Back green.

a''. Nape blue.

a'''. Forehead and ear-coverts dark buff . . . 4. *P. nepalensis*.

b'''. Forehead and ear-coverts grey . . . . 5. *P. soror*.

b''. Nape rich brown . . . . . 6. *P. oatesi*.

b. Crissum and middle of belly scarlet.

Coloburis.

a'. Throat and chin black.

a''. Crown chestnut, with black vertical stripe . . 7. *P. strepitans*.

b''. Crown black.

a'''. Superciliaries uniform pale yellowish brown . 8. *P. coronata*.

b'''. Superciliaries rufous, merging into pale blue . 9. *P. concinna*.

b'. Throat white.

a''. Chin black.

Cervinipitta.

a'''. Top of head chestnut, with narrow vertical black stripe; tail tipped with bluish green . . 10. *P. nympha*.

b'''. Top of head black; tail black tipped with blue . 11. *P. moluccensis*.

b''. Chin white.

a'''. Top of head reddish brown, no vertical stripe . 12. *P. megarhyncha*.

b'''. Top of head brown, with vertical black stripe.

*a*⁴. Axillaries black, with white edge at the shoulder . . . . . 13. *P. brachyura*.

*b*⁴. Axillaries all black . . . . . 14. *P. oreas*.

c'''. Head black . . . . . 15. *P. vigorsi*.

c'. Throat rose-colour . . . . . 16. *P. angolensis*.

C. Underparts scarlet.

a. Head without vertical stripe.

a'. With postocular stripe.

a''. No blue on breast.

a'''. Crown brownish black.

Purpureipitta.

*a*⁴. Upper part purplish brown . . . . 17. *P. venusta*.

*b*⁴. Upper part black, glossed with purple . . 18. *P. ussheri*.

b'''. Crown scarlet.

Phœnicocichla.

*a*⁴. Black frontal band not reaching the eye . . 19. *P. granatina.*

*b*⁴. Black frontal band passing behind the eye . . 20. *P. g. borneensis.*

Monilipitta.

b''. Bright blue pectoral scolopped band . . . 21. *P. arcuata.*

Erythropitta.

b'. Without postocular superciliary stripe.

a''. Blue breast-band without black on lower margin.

a'''. Back dull olive . . . . . 22. *P. kocki.*

b'''. Back green.

*a*⁴. Throat black . . . . . 23. *P. erythrogastra.*

*b*⁴. Throat brown . . . . . 24. *P. rufiventris.*

c'''. Back blue . . . . . 24 bis. *P. inspeculata.*

b''. Blue breast-band with black on lower margin.

a'''. Back blue.

*a*⁴. No green band on back . . . . 25. *P. cyanonota.*

*b*⁴. With green band on back . . . . 26. *P. propinqua.*

b'''. Back green . . . . . 27. *P. cæruleitorques.*

b. Head with traces of, or a distinct vertical blue stripe.

a'. With black margin to blue breast-band.

a''. With red nuchal patch . . . . . 28. *P. rubrinucha.*

b''. Without nuchal patch.

a'''. Black throat-mark extending on to breast.

*a*⁴. Occiput and nape pale reddish brown . . 29. *P. mackloti.*

*b*⁴. Occiput and nape chestnut like the head . . 30. *P. loriæ.*

b'''. Rufous throat terminating in black . . . 31. *P. celebensis.*

b'. Without black margin to blue breast-band, or very slightly indicated . . . . . 32. *P. palliceps.*

Cyanopitta.

D. Underparts silver-blue; throat white . . . . . 33. *P. steerii.*

E. Underparts green, crissum scarlet.

Galeripitta.

a. Sides of crown chestnut . . . . . 34. *P. cucullata.*

Melanopitta.

b. Head and neck all black.

a'. Primaries mostly white with black tips . . . 35. *P. sordida.*

b'. Primaries black without white speculum.

a''. Tail green . . . . . 36. *P. forsteni.*

b''. Tail black, tipped with green . . . . . 37. *P. méfoorana.*

c'. Primaries black with white speculum.

a''. Flanks green . . . . . 38. *P. atricapilla.*

b''. Flanks purple . . . . . 39. *P. rosenbergi.*

Pulchripitta.

F. Underparts black, crissum scarlet . . . . . 40. *P. iris.*

Iridipitta.

G. Underparts and crissum dark purplish blue . . . . 41. *P. baudi.*

III. *Bill moderate, culmen elevated at base, sides compressed at tip, which is curved and emarginate; nostrils lateral and exposed. Wings reaching to middle of tail; third and fourth primaries equal and longest. Tail rather long, rectrices graduated, somewhat acute. Tarsi very long, slender, broadly scutellated. Toes long, claws moderate; hind toe very long* . . . EUCICHLA.

Ornatipitta.

A. Crown black.

a. Underparts yellow, crossed with black bars . . . 1. *E. guaiana.*

b. Abdomen dark purplish blue . . . . . 2. *E. boschi.*

c. Centre of abdomen deep blue . . . . . 3. *E. schwaneri.*

Insignipitta.

B. Crown blue.

a. Breast green . . . . . 4. *E. ellioti.*

b. Breast black . . . . . 5. *E. gurneyi.*

CLASSIFICATION.

PITTA were formerly considered to belong to the Oscines, until Dr. Cabanis in Wiegmann's 'Archiv,' vol. xiii. 1847, pt. i. p. 216, suggested that they should be excluded from this division, but hesitated to indicate their probable true position among the Families of Birds until the structure of the vocal organs could be ascertained. The difficulty was to obtain specimens in the flesh, for, as a rule, Pitta are rather rare birds, and the skins of examples only arrived in Europe; and it was not until 1876 that Garrod (Proc. Zool. Soc. p. 513) succeeded in obtaining three specimens of PITTA GUAIANA and two of PITTA ANGOLENSIS in the flesh, and was able satisfactorily to demonstrate the proper position the *Pitta* should occupy in a Classification of Birds.

In PITTA ANGOLENSIS he found that the "unmodified trachea terminates thoracically in a ring, split behind and deep in front," which, from the fact that it presents irregularly placed fenestræ on its anterior surface, arranged in a somewhat transversely linear manner, appears to have been formed by the fusion of the rings. This terminal segment of the

trachea does not, as in the Oscines and several other Passeres, form a three-way piece, because there is no antero-posterior bar traversing its inferior margin in the middle line. Of this, however, there is an indication in the form of a median backward-directed process, which advances a short distance into the inferior membraniform completion of the tube from its anterior border. The tracheal ring last but one is complete, and has a slight median indentation in its inferior margin behind. The first and second bronchial rings are semi-rings, not modified into the somewhat separate round-margined, slightly oblique semi-circles of fibro-cartilage or bone which, as usual, are found near the lungs, but are like moieties of true tracheal rings, approximate, sharp-edged, and at right angles to the axis of the tube. They present no peculiar processes, and are slightly swollen at their anterior extremities.

There is only a single pair of bronchial muscles continued down from the sides of the wind-pipe, insignificant in size, quite lateral, and terminating by being inserted into the middle of the outer surface of the second bronchial semi-ring.

Pitta guaiana differs only in detail, not in plan of conformation. There are four instead of two syringeal bronchial semi-rings, to the middle of the last of which the single extremely feeble lateral muscle is attached on each side. In it also the last two tracheal rings, and not the last only, are incomplete behind, the last presenting a greater gap than the one above it. In a previous paper on the "Carotid Arteries of Birds," the same writer (Proc. Zool. Soc. 1873, p. 457) has shown that *Pitta* possessed only the left carotid.

According to the evidence given above, the Pitta belong to what Garrod terms the Haploophone division of the Mesomyodian Passeres, and should be placed with those birds which have the muscles of the syrinx joined to the semi-rings in their middles. Forbes (Proc. Zool. Soc. 1880, p. 391), on account of these Mesomyodian groups differing from the Eurylæmidæ in having lost the plantar vinculum, and by having the manubrium sterni strongly forked, has placed them in a separate main division called Eleutherodactyli. The main artery of the leg is the sciatic, not the femoral, and the *Pitta* have the planta bilaminate, in this latter respect agreeing with the Acromyodian Passeres. Other points of their anatomy are the nude oil-gland, the coli cæca being one-eighth and one-tenth of an inch in length, the absence of the ambiens muscle, and the independence of the *flexor longus hallucis* from the *flexor digitorum perforans*. A peculiarity of the skull, at least among Passerine birds, is the extension of the temporal fossæ across the occipital region so as nearly to meet in the centre. The sternum of Pitta guaiana has the sternal notches very deep.

Prof. W. K. Parker, in his memoir on Ægithognathous Birds (Trans. Zool. Soc. vol. ix. 1873, p. 314, pl. 57), has described and figured the palate of *Pitta melanocephala*, ex Borneo (P. sordida, Müll.), and compared it with *Thamnophilus doliatus*, and among other important distinctions states that the "intimate union of the vomer with the nasal capsule" puts *Pitta* into the typical division, and in this respect has complete

ægithognathism of the second variety. The two known species of the genus *Philepitta*, besides having been placed in many other Families, were incorporated by G. R. Gray (Hand-l. B. vol. i. p. 297. no. 1094) as a genus of the Pittidæ. Forbes (Proc. Zool. Soc. 1880, p. 387) was enabled to determine from the dissection of a specimen of *P. castanea* that these birds could not remain in the Pittidæ (whose species have the "bronchial semi-rings much less modified, being nearly entirely simple semi-rings; the lateral muscle, too, is slender and not spread as in *Philepitta*"), but must be placed in a Family by themselves, Philepittidæ. A single species of another genus (*Mellopitta*, Stejneger), *lugubris* (Rosenb.), still occupies a doubtful place in the system, and until its anatomical structure is known it will be impossible to say whether it should be included among the Pittidæ or not. Sclater (Cat. B. xiv. 1888, p. 449) includes it in Pittidæ, under the generic name of *Coracopitta*, although he is doubtful if it is rightfully placed; while Salvadori (Ann. Mus. Civ. Gen. x. p. 147) regards it as Timeliine, and consequently an Acromyodian form (Oscine). Gould (Birds of New Guinea, pt. ii.) suggests that *M. lugubris* may be a connecting-link between *Pitta* and *Philepitta*, and possibly this may eventually prove to be a fact; but in view of the uncertainty existing, and because in the colour and structure of feathers it exhibits a style very different from that presented by the members of *Pittidæ*, I have deemed it best not to consider this species as belonging to the Family.

Nitzsch, in his 'Pterylography,' places *Pitta* in his section Subulirostres seu Canoræ. The species possess an undivided rhombic saddle and a dilatation of the pectoral tract furnished with an outer branch, which is usually more or less separated at the end, rarely truncated; and all the spaces, together with the interval between the contour feathers and the oil-gland, are covered with a dense downy clothing. There are twelve rectrices, and the second, third, fourth, and fifth primaries are nearly equal and longest.

The position the Pittidæ will therefore occupy in a Classification of Birds will be in the Oligomyode section of Mesomyodian Passeres, between Philepittidæ on the one hand and Xemiscidæ on the other, with the rightful position of *Mellopitta* to be left for future determination, whether it should be included in the Pittidæ or possibly be the representative of a separate Family.

GEOGRAPHICAL DISTRIBUTION.

The Geographical Distribution of the Pittidæ is in many cases difficult of explanation by any theory yet advanced. Natives, for the most part, of islands forming the Eastern Archipelago, some of the species are distributed without regard apparently for the ordinary laws which we are led to believe determine to a very great extent the habitats, continuance of life, and persistence in type of the various creatures that are living upon the earth

to-day. That these various island-groups are but the remains of some vast continent, or possibly continents, rearing themselves above the waste of waters that has engulfed all else of the ancient land, is probably a fact; but no terrestrial disturbance, with its accompanying phenomena of rise and fall of ocean-beds, or depression or elevation of vast extent of land-areas, or the splitting a continent into numerous islands of more or less extent and scattering them over immense distances of sea, can in any way satisfactorily account for the frequent extraordinary dispersion and dissimilar habitats which many species of the PITTIDÆ possess, with little or no perceptible variation in the plumage or structure of individuals. The *Pitta* may be considered to-day as essentially a group of the Oriental Region, with outlying connections in neighbouring Regions. The species known to us at the present time are probably but the survivors of what was once a great and brilliantly plumaged group, inhabiting a vast extent of territory. The majority of species have long since become extinct, and those remaining represent the few which have, through what may be termed fortuitous occurrences, been able to keep themselves above water, when the greater portion of their habitats disappeared beneath the waves. In reviewing the geographical distribution of the species known to us, although many changes have since been made, I have, as in my other works, employed the terms first suggested by Wallace and Sclater for the various divisions of the earth they indicate; and I commence with the Ethiopian Region; and on the west coast of Africa, north of the Gulf of Guinea, in Fantee and Ashantee, a single typical species is found, P. ANGOLENSIS. Its nearest relative is probably P. BRACHYURA (Linn.), of the Indian Peninsula and Ceylon in the Oriental Region, from which it is separated by the breadth of a continent and a half, and a great extent of sea and oceanic islands, and nowhere in all this vast portion of the globe between the points named does any species of *Pitta* dwell. This establishes one of the most remarkable facts of geographical distribution known in ornithology.

In the Oriental Region, which, containing as it does by far the largest number of species of this Family, we may consider the home of the PITTA, I commence with the Indian Subregion, consisting of the Indian Peninsula and the island of Ceylon, sometimes designated as the Ceylonese Subregion, and we find *P. brachyura* (Linn.) distributed generally throughout its boundaries. In Nepal are *P. nepalensis*, which passes through Assam to Pegu, and *P. cucullata*, inhabiting the same districts, but ranging through Tenasserim and the Malay Peninsula, appearing again in the island of Bangka, east of the southern end of Sumatra, but not found either on the last-named island nor on any of those intervening between it and the southern end of the Malay Peninsula. In Bhutan the beautiful *P. cyanea* is found, ranging into Siam; while Burmah, besides the species already named, has *P. moluccensis* and *P. megarhyncha* going through the Malay Peninsula, the first also found in Siam, and the latter in Bangka. Pegu contains *P. oatesi*, in addition to those given above, which ranges into Tenasserim, where it is joined by *Anthocincla phayrei*, *P. cærulea*, *P. granatina*, and *E. gurneyi*, not heretofore mentioned. All of these, excepting the first and last named, extend their range through the Malay Peninsula; but *A. phayrei* is restricted to the Karen Hills and Tenasserim, while *E. gurneyi* has not yet been procured beyond the last-named province. In Cambodja and Cochin China, of the Indo-Chinese

Subregion, *E. ellioti* and *P. soror*, the latter at Saigon, have been obtained, and in Formosa, of the same Subregion, *P. oreas* is met with, and this species is also found on the eastern coast of China as far as Shanghai, perhaps migrating into Corea; and in Southern China *P. moluccensis* has been procured at Amoy. Besides the species already given, the Malay Peninsula possesses *E. boschi*, found at Mt. Ophir, Malacca, &c. Of the Indo-Malay islands, Sumatra contains five species—*P. venusta*, peculiar to it, *P. cærulea*, *P. sordida*, *P. moluccensis*, and *E. boschi*; and the island of Bangka, in addition to the two species already mentioned, has *P. sordida*. Java contains but one species, *P. guaiana*, peculiar to itself, and doubtfully *P. moluccensis*, based solely on a specimen procured on that island, as stated by Temminck, and deposited in the Paris Museum. The great island of Borneo is rich in species of this Family. Nine are already known to inhabit it, of which five are not found elsewhere, viz.—*P. arcuata*, *P. baudi*, *P. ussheri*, *P. granatina borneensis*, and *E. schwaneri*. The other four are *P. cærulea*, *P. sordida*, *P. moluccensis*, and *P. nympha*. Doubtless other species of *Pitta* still remain undiscovered in the unexplored regions of this large island.

The Philippine Archipelago contains five species, of which three are peculiar to these islands and one, *P. moluccensis*, is doubtful, a single example having been taken at sea off Luzon. The others are *P. kocki*, *P. propinqua*, *P. steerii*, and *P. sordida*. The first-named is only found on Luzon, the most northern of the islands, which also contains *P. sordida* and *P. erythrogastra*. Palawan, the most westerly island, possesses also the two last-named, and on the small island of Balabac, at the southern end of Palawan, *P. propinqua* is met with. On Samar to the east, *P. steerii* is found; while Negros and Camiguin contain *P. sordida*. The large southern island, Mindanao, has *P. erythrogastra*, *P. sordida*, and *P. steerii*; and Basilan, just south, contains the first two of those last named. It will thus be seen that *P. sordida* is found on all the islands but two of those known to contain Pitta, *P. erythrogastra* on four, *P. steerii* on two, and only Luzon and Balabac possess species not found, so far as is now known, elsewhere in this Archipelago *.

The Australian Region is next to be considered; and in the Austro-Malayan Subregion the first group of islands to claim our attention is the Sula, which has two species—*P. coronata*, obtained on Sula-Mangola and Sula-Bessie, and *P. erythrogastra*, on Bongao and Sibutu. Celebes, which, although it might be considered more appropriately placed in the Oriental Region—it is at best debatable land,—contains but two species of *Pitta*, both of which are peculiar to it, *P. celebensis* and *P. forsteni*. Of the Moluccas, the most northerly, the Sanghirs, have but three species—*P. cæruleitorques* on Petta and Grand Sanghir, the last-named containing also *P. sordida*, while *P. palliceps* is found on Siao. On Halmahera are two species—*P. maxima*, one of the finest of the Family, and *P. rufiventris*, the latter being also a native of Motir, Batchian, Dammar, and Great Obi, lying to the west and south. On Dammar *P. coronata* is also found. Ternate on the west contains *P. coronata* and *P. cyanonota*, while the last is found also in the

* In Kabruang and Salibabu, islands of the Talaut Group lying to the south-east of Mindanao, *Pitta inspeculata* is found. This species has been only recently described—too late, indeed, to occupy its proper position in the text, as the Introduction was printed before the publication advising its discovery was received.

small island of Guebéh on the east, and which properly belongs to the Papuan group. This is a singular fact, as the very distinct species, belonging to the same section of the Family, *P. rufiventris* occupies the intervening island of Halmahera. Bouru contains *P. rubrinucha*, Boano west of Ceram has *P. coronata*, while Ceram itself is not definitely known to have any species of *Pitta* within its limits. Banda, south of Ceram, contains *P. vigorsi*, which is also found on Timor-laut and Dammar to the east; while on Matabello and Grand Key *P. mackloti* is met with. Of the Timor Group, *P. concinna* is found on Lombock, Sumbawa, and Flores, and *P. vigorsi* is said to be a native of Lombock, but this is doubtful, while Timor and Samaow, off the south-west end of Timor, have *P. coronata*.

The Papuan Group of islands next claim our attention; and first, Waigiou has two species, *P. mackloti* and *P. atricapilla*, Quoy & Gaim., and the latter is also found on Gazie, Batanta, Salwatti, Mysol, and at Andai, Dorey, Sorong, and Port Moresby on the island of New Guinea, while *P. mackloti* appears in Salwatti, on New Guinea at Andai, Dorey, Sorong, Port Moresby, Mt. Astrolabe, and on the Fly River, also in New Britain and New Ireland, south-east of New Guinea, as well as on Wokam and Wanumbai and Giabu-lengan of the Aru Group. In the three last-named islands *P. atricapilla* is also found.

In the great Bay of Geelvink, New Guinea, *P. rosenbergi* is met with on the islands of Mysore and Korrido or Sook, and *P. méfoorana* on Méfoor. In British New Guinea at Exton Junction, at a height of 1200 feet, *P. rubrinucha* is found, far removed from its only other habitat the island of Bouru; and on the Astrolabe range *P. cyanonota*, if the determination of the specimen is correct, is met with—both being inexplicable distributions, as the latter is equally far removed from Ternate and Guebéh, its other habitats. On Su-a-u, an island off the south cape, *P. lòriæ* is found.

In Southern New Guinea, on the Fly and Kataw rivers, we find *P. strepitans*, which extends its range among the islands in Flores Straits and into Eastern Australia as far south as the vicinity of Sydney. *P. mackloti* has been procured at Cape York; and in Northern Australia, at Port Essington, *P. iris* is found.

In the Mantchurian Subregion of the eastern Palæarctic Region we have, in the Japanese island of Tsu-sima, in the Straits of Corea, *P. nympha*, far removed from its only other known habitat, the island of Borneo.

GEOGRAPHICAL DISTRIBUTION OF SPECIES.

| | ETHIOPIAN REGION. | ORIENTAL REGION. | | |

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W. Hart del. et lith.

Mintern Bros. imp.

ANTHOCINCLA PHAYREI.

ANTHOCINCLA PHAYREI.

PHAYRE'S PITTA.

Anthocincla phayrei, Blyth, Journ. Asiat. Soc. Beng. vol. xxxi. 1863, p. 343 (Tonghoo).—Id. B. Burm. 1875, p. 100.—Hume, Str. Feath. 1875, vol. iii. p. 109, pl. ii. (Upper Pegu).

Anthocincla phayrii, Hume, Str. Feath. 1879, vol. viii. p. 94.—Bingh. Str. Feath. vol. ix. 1880, pp. 177, 474 (Hporrlai, British Burmah); Oates, B. Brit. Burm. 1883, vol. i. p. 420.—Sclat. Cat. B. vol. xiv. 1888, p. 413 (Tenasserim and Karen Hills).

Habitat.—Upper Pegu, Tenasserim, and Karen Hills.

Male. A central black line on top of the head, reaching and covering the nape. Either side of this line rufescent buff, the feathers margined with black and having a black bar near their base. Lores and sides of face to nape black. Superciliaries, ending in lengthened pointed feathers extending sometimes an inch beyond the occiput, white with black bars. Entire upper part and wings rufescent brown. Primaries and their greater coverts blackish brown, a buff bar at the base of the former. Tail rufescent brown. Chin and middle of throat white; sides of throat, abdomen, and flanks ferruginous brown, with black spots on sides of throat and flanks. Lower tail-coverts pale vermilion. Bill black, mandible reddish brown at gape. Iris deep brown; feet and claws flesh-colour.

Female has breast and sides more densely spotted with black; ear-coverts same colour as the back, pencilled with black; head and occiput also like the back. The lengthened superciliary feathers are shorter and less pure white, and the under tail-coverts paler. In other respects the plumage is like that of the male.

Length 8·82–9 inches, wing 3·9–4·12, tarsus 1·2–1·25, bill 1·4, tail 2·5–2·35. Fine adult male: length 8·82, wing 4·12, tail from vent 2·5, tarsus 1·25, bill from gape 1·4. Weight 3 ounces. (*Hume.*)

This very peculiar Pitta was discovered by Sir Arthur Phayre in the Tonghoo District in British Burmah, and described by Blyth, *l. c.* It is remarkable for the elongated feathers on the side of the head, which project fully an inch behind the occiput, differing in the possession of this style of ornamentation from all the other known members of this family. In its general form, and also in its habits, it bears a very close resemblance to other species of Pitta. Mr. Bingham obtained it on the Meplay river, Thoungyeen Valley, Tenasserim, and he gives us about all the information we possess of this singular species. He states that it is excessively rare, and that on the 5th April, 1879, he saw two of these birds trotting along with sticks in their bills as if intent on building a nest. He failed to discover this, however, and after watching them for quite a long time he shot one of the birds, which proved to be a male. The two individuals were alike in plumage, and he believed that they were male and female.

In April 1881 he again met with the species near the small Karen hamlet of Hporrlai, on the Meplay river. While walking towards evening near some dense evergreen bushes, his attention was attracted by something moving, and presently he saw a Pitta scratching among the leaves on the ground. He shot it, and the report of his gun flushed another individual, of which, however, he only obtained a passing glance. Thinking these two might be of opposite sexes he searched for a nest, and soon discovered a little oven-shaped structure on the ground at the foot of a tree, formed of leaves, roots, and grasses, and

containing four eggs. The entrance to the nest was at the side, with a little platform of twigs leading up to it. The interior was lined with fine black roots; and the eggs were glossy white, spotted with purplish black, mostly on the larger end. They measured $1{\cdot}08 \times 0{\cdot}88$, $1{\cdot}08 \times 0{\cdot}85$, $1{\cdot}09 \times 0{\cdot}85$, and $1{\cdot}10 \times 0{\cdot}86$ inch.

Mr. Davison, who met with this bird in Tenasserim, where it is also very rare, says it seems to be confined to the plains and low hills. It has all the Pitta habits, lives and feeds exclusively on the ground, and dwells in moderately thick jungle. He never heard it utter any note, so far as he was aware.

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Drawn from Nature by D.G. Elliot F.Z.S.

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PITTA MAXIMA.

PITTA MAXIMA.

GREAT PITTA.

Pitta maxima, Müll. & Schleg. Verh. Natuur. Geschied. Ned. overz. Bezitt., Zool. *Pitta*, 1839-44, pp. 14, 20.—Gray, Gen. B. vol. i. 1846, p. 213. no. 2.—Id. Proc. Zool. Soc. 1860, p. 351.—Westerm. Bijd. t. d. Dierk. 1854, *Pitta*, vol. i. p. 45, pl. i.—Schleg. Handl. t. d. Dierk. 1857, vol. i. p. 253, Aves, pl. 2. fig. 21.—Id. Vog. Ned. Ind., *Pitta*, 1863, pp. 4, 30, pl. i. fig. 4.—Id. Mus. P.-Bas, *Pitta*, 1863, p. 2; 1874, p. 4.—Id. Ned. Tijds. Dierk. vol. iii. 1866, p. 189.—Wall. Ibis, 1859, p. 112; 1860, p. 197; 1864, pp. 103, 105, 108.—Jerd. B. Ind. 1862, vol. i. p. 503.—Finsch, Neu-Guin. 1865, p. 167.—Bernst. Nat. Tijds. Dierk. vol. ii. 1865, p. 372.—Salvad. Ann. Mus. Civ. Gen. vol. vii. 1875, p. 77, vol. xvi. 1880, p. 184.—Id. Ornit. Papuas. vol. ii. 1881, p. 378.—Gould, B. N. Guin. vol. iv. pl. 27.—Legge, B. Ceylon, 1879, p. 689.—Meyer, Ibis, 1879, p. 126.—Id. Isis, 1884, p. 43.—Sclat. Cat. B. vol. xiv. 1888, p. 419.

Brachyurus maximus, Bon. Consp. Av. vol. i. 1850, p. 253.

Gigantipitta maxima, Bon. Consp. Vol. Anis. 1854, p. 7. no. 177.

Hydromis maxima, Cab. & Hein. Mus. Hein. pt. ii. 1859, p. 5.

Brachyurus (*Gigantipitta*) *maximus*, Elliot, Mon. Pitt. 1863, pl. xii.

Pitta gigas, Wallace, Mal. Archip. 1869, vol. ii. p. 32.

Leucopitta maxima, Gould, Mon. Pitt. pl. 7.

Habitat.—Halmaheira.

Head, throat, entire upper parts, wings, and tail velvety black. Wing-coverts pale shining blue; secondaries edged on outer webs with grass-green; primaries black, with a white spot in the centre. Underparts pure white, except centre of abdomen and under tail-coverts, which are crimson. Bill black; feet pale yellowish brown. Iris dark. Total length 11 inches, wing 5·5, tail 3, tarsus 2·5.

There is no difference in the plumage of the sexes.

This superb species, the largest of the family and also one of the very handsomest, is only met with on the great island of Halmaheira, where it is quite common. Mr. Wallace procured many specimens, and he says it is found only in the rocky forest of this mountainous island, where it hops among the crags and stones with such activity that it is very difficult to follow. Its large size and strongly contrasting colours of black and white, relieved by its blue shoulders and red abdomen, make it one of the most conspicuous members of the genus. Writing of this species in my 'Monograph' published thirty years ago, I stated that I had no information regarding its economy or habits; and despite the lapse of time and of the many visits paid to Halmaheira by both naturalists and collectors, we still remain without any more knowledge of this beautiful bird than we are able to gather from an inspection of the specimens in different collections. Other species of this family, much less conspicuous both as regards plumage and size, have been more fortunate and their life-history is fairly well known, but that of this lovely bird still remains to be written. The Malay hunters told Mr. Wallace that the cry of this Pitta is a plaintive whistle of three notes, the second lengthened out and quickly succeeding the first.

P. Oudart, Paris. 1859.

Bowen & Co lith & col Philada.

PITTA CYANEA.

MALE.

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W Hart del et lith. Mintern Bros. imp.

PITTA CYANEA.

FEMALE & YOUNG.

PITTA CYANEA.

BLUE PITTA.

Pitta gigas, Blyth (nec Müll. & Schleg.), Journ. Asiat. Soc. Beng. vol. xii. 1843, p. 961 (juv.).

Pitta cyanea, Blyth, Journ. Asiat. Soc. Beng. vol. xii. 1843, p. 1008 (Arrakan).—Id. Cat. B. Mus. Asiat. Soc. Beng. 1849, p. 157. no. 911.—Gray, Gen. B. vol. i. 1846, p. 213, pl. 55.—Horsf. & Moore, Cat. B. Mus. E. Ind. Co. vol. i. 1854, p. 182. no. 246 (Arrakan, Tenasserim).—Wall. Ibis, 1864, p. 108.—Gould, B. Asia, vol. v. pl. 80.—Hume & Davis. Str. Feath. vol. vi. 1878, p. 238 (Tenasserim).—Hume, Str. Feath. vol. viii. 1879, p. 93.—Bingham, Str. Feath. vol. ix. 1880, p. 473 (Kaukarit).—Sclat. Cat. B. vol. xiv. 1888, p. 417 (Bhotan, Burmah, Siam).

Brachyurus cyaneus, Blyth, Journ. Asiat. Soc. Beng. vol. xvi. 1847, p. 153.—Id. B. Burm. 1875, p. 98.—Bonap. Consp. Gen. Av. vol. i. 1850, p. 253.—Elliot, Ibis, 1870, p. 413.—Hume, Str. Feath. vol. iii. 1875, p. 107 (Upper Pegu).

Gigantipitta cyanea, Bonap. Consp. Vol. Anis. 1854, p. 7. no. 175.

Brachyurus (*Gigantipitta*) *cyaneus*, Elliot, Mon. Pitt. 1863, pl. xiii.

Eucichla cyanea, Oates, B. Brit. Burm. vol. i. 1883, p. 419.—Salvad. Ann. Mus. Civ. Gen. ser. 2, vol. v. 1887–88, p. 575 (Tenasserim).—Whitehead, Ibis, 1893, p. 506.

Habitat.—Bhotan, Burmah, Siam; Tenasserim, Kareen Hills, 2000 feet (*Wardlaw Ramsay*).

Male. Narrow stripe from culmen to occiput black; forehead and crown brownish-grey; lores and narrow stripe through the eye to the nape jet-black, beneath pale bluish; feathers of occiput elongated into a crest, reddish-orange; cheeks and ear-coverts pale buff. Entire upper parts bright blue. Primaries pale brown, white on base of inner webs of the first six quills and a narrow white band on outer webs of 2nd to 7th; secondaries broadly margined on outer webs with dark blue; under wing-coverts white. Chin and throat buffy-white, with an elongated black stripe on the sides of the latter, each feather with a white centre; beneath, the flanks and upper parts of abdomen bluish-white, thickly covered with black spots of varying size. Under tail-coverts white. Bill black; iris dark reddish-orange; legs and feet dark fleshy-pink, claws whitish.

Female. "Crest duller and paler; central coronal stripe less well-marked. All the feathers of the back and scapulars are more or less broadly margined with a sort of dull olive-green, which, owing to the overlapping of the feathers, is almost the only colour seen, the blue basal portion of the feathers only peeping through here and there. It is with this dull olive-green, and not with the blue, as in the male, that the secondaries, tertiaries, and coverts generally are suffused. On the lower surface the beautiful lavender-blue tinge is wholly wanting, and in the centre of the breast the somewhat greenish-blue tinge of the male is replaced by fulvous. In other respects the sexes do not differ." (*Hume, Str. Feath.* vol. iii. p. 108.)

Young male resembles the adult, but has black central streaks on the feathers of back and wing-coverts.

This very beautiful bird has long been known to ornithologists, having been described by Blyth nearly fifty years ago. Davison states that it occurs in Tenasserim as far south as Tavoy. Nowhere very numerous, but most so in the north about Pahpoon, and further south about the bases of the south-western spurs of Mooleyit. In the north it frequents bamboo-jungle, and in the south tree-jungle. Its note cannot be distinguished from that of *Pitta oatesi*. It is more a bird of the plains than the hills. Bingham, *l. c.*, found it plentiful at Kaukarit, in British Burmah, when he was there, and he saw two nests with eggs, and four with young. The nest was a globular mass of earth, leaves, twigs, &c., bound together with vegetable fibre, and lined interiorly with roots. One measured

eight inches in diameter, and about the same in height. The entrance-hole in five of them was on the side about halfway up. In one the opening was close to the ground. One nest contained four, another five eggs, glossy white, spotted, scratched, and streaked, especially on the larger end, with purple, and having also obscure purplish cloudy spots. They measured from 1·05 to 1·09 × 0·82 to 0·86 inch, and, according to Hume, resembled very closely the eggs of *Pitta cucullata*.

Oates, in 'Birds of British Burmah,' *l. c.*, says the female differs from the male in having the upper plumage brown instead of blue, and the lower plumage yellowish-brown barred with black.

Some authors have placed this species in the genus *Eucichla*, chiefly because the rectrices are longer than those of typical *Pitta*, and also that the breast-feathers are rather barred than spotted. The tail-feathers are too broad for *Eucichla*, while the style of coloration would not seem to be a sufficient reason to separate it from the genus *Pitta*; and in a general arrangement of the Family it would be better to leave it with the large *Pittæ*, under the subgenus *Leucopitta* proposed in 1870, than to place it in a genus with whose members it cannot be said to be closely allied.

The two Plates represent the species the size of life—one giving a figure of the male, the other those of adult female and immature male.

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PITTA CAERULEA.

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PITTA CERULIA, YOUNG.

PITTA CÆRULEA.

CÆRULEAN PITTA.

Myiothera cærulea, Raffles, Trans. Linn. Soc. vol. xiii. 1822, p. 301.

Pitta gigas, Temm. Plan. Color. 1823, no. 217.—Less. Trait. Ornith. 1831, p. 394. sp. 5.—Id. Compl. Buff. 1838, p. 501.—Müll. & Schleg. Verh. Natuur. Geschied. Neder. overz. Bezitt., Zool. *Pitta*, 1839–44, p. 14.

Pitta cærulea, Vig. Mem. Raff. p. 659.—Gray, Gen. B. vol. i. 1846, p. 213.—Blyth, Cat. B. Mus. Asiat. Soc. Beng. 1849, p. 156. no. 90 (Malayan Peninsula, Sumatra).—Horsf. & Moore, Cat. B. Mus. E. Ind. Co. 1854, p. 181. no. 204.—Moore, Proc. Zool. Soc. 1854, p. 273 (Malacca).—Schleg. Vog. Ned. Ind., *Pitta*, 1863, pp. 2, 29, pl. i. figs. 1, 2, 3.—Id. Mus. Pays-B., *Pitta*, 1863, p. 1 ; 1874, p. 4 (Sumatra).—Wall. Ibis, 1864, p. 108.—Hume & Dav. Str. Feath. vol. vi. 1878, p. 238 (Bankasoon).—Hume, Str. Feath. vol. viii. 1879, p. 94.—Gould, B. Asia, vol. v. pl. 81.—Sharpe, Proc. Zool. Soc. 1881, p. 798 (Borneo).—Nicholson, Ibis, 1883, p. 88 (Borneo).—Sclat. Cat. B. vol. xiv. 1888, p. 416.

Brachyurus cæruleus, Blyth, Journ. Asiat. Soc. Beng. vol. xvi. 1849, p. 153.—Bon. Consp. Gen. Av. 1850, vol. i. p. 253. sp. 1.—Elliot, Ibis, 1870, p. 412.

Gigantipitta cærulea, Bon. Consp. Vol. Anis. 1854, p. 7. no. 174.—Oates, B. Brit. Burm. vol. i. 1883, p. 413.

Hydrornis cærulea, Cab. & Hein. Mus. Hein. 1859–60, pt. ii. p. 5 (Sumatra).

Brachyurus (*Gigantipitta*) *cæruleus*, Elliot, Mon. Pitt. 1863, pls. i. & ii.

Brachyurus davisoni, Hume, Str. Feath. vol. iii. 1875, p. 321 (Hills dividing Siam and Tenasserim).

Habitat.—Tenasserim, Malay Peninsula, Sumatra, Borneo.

Male. Forehead, anterior half of crown, and a broad stripe from above and behind the eye to nape greyish brown, with a greenish tinge ; the feathers on forehead and sides of crown tipped with black ; middle of crown, occiput, nape, a broad band from behind the eye down the sides of the neck, and a collar on the upper part of the back half encircling the neck jet-black. Back, wings, and tail cobalt-blue ; primaries black, with a bluish tinge at their tips. Chin and upper part of throat buffy white ; side of neck pale fulvous brown, with an irregular imperfect collar, formed by the black bars of the feathers showing at this place, and giving to this part a scaly appearance. Under surface fulvous, buffy on the vent, and slightly tinged with greenish white on the under tail-coverts. Bill black ; iris hazel ; feet and tarsi dark flesh-colour. Length 11–11·62 inches, wing 6–6·37, tail 2·2–2·75, bill at gape 1·75–1·76, tarsus 2·3–2·45.

Female. Top of head and occiput greyish brown, tinged with rufous and closely barred with black ; stripe behind the eye and collar on back black ; cheeks and sides of head greyish brown ; back and wings chestnut ; lower back greenish blue ; rump, upper tail-coverts, and tail cobalt-blue. Underparts as in the male. Wing 5·9 inches, tail 2·7, tarsus 2·3, bill 1·7.

Young. Head yellowish brown, with a dark brown stripe down the centre. Back and underparts sooty brown ; tertials the same, each feather bordered with yellow ; primaries and secondaries blackish brown, their outer webs dark blue. Abdomen yellowish white. Tail blue. Bill : maxilla pale brown, with a yellow tip ; mandible yellow. Feet and tarsi flesh-colour.

A young male was obtained by Müller and Schlegel at the base of the mountain Singaling, Sumatra, in a dark retired valley, covered with a thick undergrowth. It was sitting on the dead branch of a low tree, and not at all shy. It had not yet attained its first moult, as was indicated by the "mellow reddish mouth, and the peculiar softness of the feathers." These authors give the following description of this example :—

"The deep blue which adorns the older birds of this species was in this specimen entirely wanting, with the exception of a slight indication on the tail. Those portions which in the adults assume the blue livery, were dark yellowish brown, still darker towards the wings, and the lower parts dirty yellow, mixed on the breast with yellowish white and blackish brown. The sides of the head were much clearer, the black line behind the eye plainly perceptible, and the throat had a rose-coloured tint. The bill was horn-colour, almost transparent."

This large and handsome species was first described by Raffles, *l. c.*, and afterwards was figured and described by Temminck, *l. c.*, as *Pitta gigas*. It belongs to the section of this family known as Giant Pittas, remarkable for their large size, though one at least among the other divisions, *P. kocki*, almost rivals in its measurements some of these great Pittas.

In March in the evergreen forests of Bankasoon, Tenasserim, Mr. Davison procured two males of this species—one by means of a trap, the other he shot as it was hopping along the path. The village of Laynah was the most northern point in which he observed it. The species was extremely shy, and as soon as an individual ascertained that it was discovered it would rise, fly low and rapidly, and not alight short of two or three hundred yards, when of course in those dense forests it quickly disappeared. The specimens obtained had fed entirely on black ants. Mr. Davison had never been able to distinguish the note. It is interesting to know that this species is a native of Tenasserim, and Mr. Oates believes it will be found to extend its range all the way up the Malay Peninsula, and also into Siam. The Bornean birds differ in no respect from western specimens. Mr. Hume was inclined to separate the examples procured by Mr. Davison at the base of the hills dividing Siam and Tenasserim, and suggested that they be named *P. davisoni*. There seems to be no reason for considering that there is more than one form of this Pitta, as the birds, no matter from which locality they come, are practically identical in coloration.

One Plate represents the male and female and the other a young bird.

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Mintern Bros. imp.

PITTA NEPALENSIS

FEMALE AND YOUNG

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PITTA NEPALENSIS.

(MALE.)

PITTA NEPALENSIS.

NEPAL PITTA.

Paludicola nepalensis, Hodgs. Journ. Asiat. Soc. Beng. 1837, vol. vi. p. 103.

Pitta nuchalis, Blyth, Journ. Asiat. Soc. Beng. vol. xi. 1842, p. 188; vol. xii. 1843, p. 960.

Heleornis (Paludicola) nepalensis, Hodgs. in Gray's Zool. Misc. 1844, p. 83.

Pitta nepalensis, Gray, Gen. B. vol. i. 1846, p. 214.—Id. Cat. Mamm. & B. Nepal, 1863, p. 40.—Blyth, Cat. B. Mus. Asiat. Soc. Beng. 1849, p. 156 (Darjeeling, Arrakan).—Horsf. & Moore, Cat. B. Mus. E. Ind. Co. vol. i. 1854, p. 182 (Darjeeling, Nepal).—Schleg. Mus. P.-Bas, *Pitta*, 1863, p. 2; 1874, p. 4 (Nepal).—Wall. Ibis, 1864, p. 108.—Gould, B. Asia, vol. v. pl. 79.—Sclat. Cat. B. vol. xiv. 1888, p. 414.

Brachyurus nepalensis, Blyth, Journ. Asiat. Soc. Beng. vol. xvi. 1847, p. 153.—Bonap. Consp. Gen. Av. vol. i. 1850, p. 253.—Elliot, Ibis, 1870, p. 413.

Gigantipitta nepalensis, Bonap. Consp. Vol. Anis. 1854, p. 7. no. 176.

Hydrornis nepalensis, Jerd. B. Ind. vol. i. 1862, p. 502.—Blyth, B. Burm. 1875, p. 97 (Arrakan, Tenasserim).—Oates, Str. Feath. vol. iii. 1875, p. 337 (Arrakan Hills).—Id. B. Brit. Burm. vol. i. 1883, p. 412.—Hume, Str. Feath. vol. viii. 1879, p. 93.

Brachyurus (Gigantipitta) nepalensis, Elliot, Mon. Pitt. 1863, pl. iii.

Pitta (Hydrornis) soror, Wardlaw-Ramsay, Ibis, 1881, p. 496, juv. ?

Habitat.—Nepal, Assam to Pegu.

Male. Front, crown, and ear-coverts dark buff; occiput and nape blue; back and wings green, feathers of latter edged with pale brown; primaries rufous-brown; throat whitish. Underparts dark buff. Tail greenish, margined with pale brown; under-coverts whitish. Bill: maxilla dark brown, mandible reddish. Feet flesh-colour. Length 10 inches, wing $4\frac{2}{3}$, tail $2\frac{1}{2}$, tarsus $2\frac{1}{6}$.

Hodgson states that the males, when in full plumage (by which I suppose he means during the breeding-season), have large buff spots at the end of each feather, but are without these at other periods of the year.

Female like the male, but the occiput and nape are bluish green instead of blue.

Young. Upper parts blackish-brown, with pale brown tear-shaped spots at end of feathers; lighter beneath and covered with large brownish-pink spots. Bill yellow.

This species, one of the large size, or Great Pittas, has been known to ornithologists for many years, as the above long list of synonyms will testify. According to Oates, *l. c.*, the Blue-naped Pitta, as it is sometimes called, occurs in Cachar and other parts of the hill-tracts of Eastern Bengal, and also in the Himalayas from Assam up to Nepal. Its habits are very similar to those of *Pitta oatesi*. Hume found the nest in Sikhim in May; it was composed of a mass of green leaves placed upon the ground at the root of a bush, and contained three white eggs spotted with purple. It has also been procured by Oates on the Arrakan Hills near Nyoungyo, and Sir Arthur Phayre sent it to Blyth from some part of the Arrakan division. These are the only records from British Burmah, and Mr. Oates does not think the species will be found east of the Irrawaddy river. Jerdon, *l. c.*, states that this large Ground-Thrush "is found in the South-east Himalayas, in Nepal, Sikhim, and in Arrakan, and also in the hill-ranges of Assam. It is not very rare in the warm valley about Darjeeling, being generally found near the banks of streams in forests or thick underwood." Hodgson, the describer

of this Pitta, says it never quits the forest, and frequents only thick low brushwood. It perches at night on low bushes, and feeds in swamps and rills, on the hard insects met with in such places. It rarely eats seeds or berries, and sand, which is occasionally met with in their stomachs, is probably taken unintentionally. The tongue and intestines resemble those of true Thrushes, but the intestinal canal is very long, sometimes as much as thirty inches in length. It flies badly, and is so stupid that he had known one to be caught by the hand; this, however, instead of being an evidence of stupidity on the part of the bird, is more probably a proof of its gentle, unsuspicious disposition.

In the 'Ibis,' *l. c.*, Mr. Wardlaw-Ramsay has described a specimen of a Pitta contained in the collection of the late Marquis of Tweeddale, and labelled from "Saigon, Cochin China," as *Pitta soror*. It resembles *P. nepalensis*, and is probably a young bird, differing in being "slightly smaller and more slender in the tarsi; the head above is strongly tinged with bluish green, which shades into dull blue on a fairly well-defined nuchal patch." Some of the dorsal feathers are of a blue colour, and the under surface paler. The locality is possibly inaccurately given, and the specimen may have come from the Malay Peninsula. I have, in view of the impossibility of deciding the specific value of the example, placed it among the synonyms with a doubt.

One Plate represents the male, the other the female and young, this last taken from specimens in the British Museum.

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Mintern Bros. imp

PITTA SOROR.

PITTA SOROR.

SAIGON PITTA.

Pitta (*Hydrornis*) *soror*, Wardlaw Ramsay, Ibis, 1881, p. 496.—Sclat. Cat. B. vol. xiv. 1888, p. 415.

Habitat.—Saigon, Cochin China (*Wardlaw Ramsay*).

Forehead and ear-coverts grey; brown stripe from nostrils to eyes; top of head bluish-green, graduating into dull pale blue on the nape, and edged behind the eye with rufous, forming a slight postocular stripe. Back and tertiaries grass-green. Secondaries and wing-coverts pale brown, edged with light buff near to and on the tips. Rump blue. Tail green. Chin whitish; throat, sides of neck, breast, and flanks reddish-buff. A black spot behind ear-coverts, and black bases of the feathers showing on sides of neck. Abdomen and under tail-coverts white. Bill pale brown, flesh-colour at gape; legs and feet flesh-colour.

This bird, which is smaller and more slender than either *P. nepalensis* or *P. oatesi*, its only allies, was included in the synonymy of the former as probably the young of that species; but as there is a possibility that it may eventually prove to be distinct, it has been considered best to give a portrait of the unique specimen in the collection of the British Museum. It presents recognizable differences from both its near relatives in its grey forehead and ear-coverts and white abdomen (the latter a rather striking character), beside being much less in all its dimensions.

We must wait, however, for more examples and the receipt of further information before it will be possible to determine the bird's rightful position, though at present it appears to have certain claims to distinct specific rank.

Beyond the specimen in the British Museum presented by Wardlaw Ramsay, nothing is known of this Pitta.

W. Hart del. et lith.

Mintern Bros. imp.

PITTA OATESI.

PITTA OATESI.

OATES' PITTA.

Hydrornis oatesi, Hume, Str. Feath. vol. i. 1873, p. 477; vol. viii. 1879, p. 93.—Blyth, B. Burm. 1875, p. 98.—Hume & Dav. Str. Feath. vol. vi. 1878, p. 237.—Oates, Str. Feath. vol. x. 1882, p. 204. no. 187 (Pegu).—Id. B. Brit. Burm. vol. i. 1883, p. 411.—Salvad. Ann. Mus. Civ. Gen. ser. 2, vol. v. 1887–88, p. 574.—Sclat. Cat. B. vol. xiv. 1888, p. 416.

Habitat.—Pegu and Tenasserim.

Male. "Upper part of head, nape, and mantle rich reddish brown; cheeks, ear-coverts, and the entire lower plumage pale reddish brown, clearest on the throat; a black spot on either side the neck, behind the ear-coverts, not always visible; across the breast a band of feathers having their bases black, and showing more or less in different specimens; back, rump, upper tail-coverts, and central tail-feathers dull green, tinged with blue on the rump and tail; lateral tail-feathers greenish brown; wings rusty, with a tinge of green on the secondaries and tertiaries; upper wing-coverts greenish rusty, some of the feathers tipped with fulvous. Upper mandible brown, the tips and edges salmon-colour; lower mandible brown, gape salmon-colour; inside of mouth flesh-colour; iris rich brown; eyelids plumbeous; legs and claws pinkish flesh-colour. Length 10 inches, tail 2·6, wing 4·8, tarsus 2·1, bill from gape 1·4.

"The *female* is scarcely distinguishable from the male; the back is a trifle less green and the tinge of blue on the rump is wanting." (*Oates.*)

This near ally of *P. nepalensis* was described by Mr. Hume, *l. c.*, and named after its discoverer, Mr. Oates, who found it in the eastern Pegu Hills. It differs from the Nepal Pitta in having the front, top, and back of head rich rufous, and in not having the nuchal patch (blue in the male and green in the female) possessed by its ally. The sexes of the present species are alike in plumage, the male being only a little lighter on the back and rump.

According to Mr. Oates, this Pitta is common in the evergreen forests between Tonghoo and Thayetmyo, and not at all shy. It has a call like a double whistle, which is frequently heard at night and also in the evening when it comes to drink. It resorts to the gloomiest ravines, where the sun rarely penetrates even at mid-day, and feeds upon worms and insects, and seldom leaves the ground, except to mount on a fallen trunk or low branch. The eye is large and soft.

Mr. Davison afterwards met with Oates' Pitta in Tenasserim, in thin tree-jungle at the base of the south-western spurs of Mooleyit up to 5000 feet elevation. He never saw it light on any tree or bush, but when disturbed it flies for a short distance and then drops upon the ground.

It is very industrious, turning over dry leaves in search of food, which, he says, consists of insects, grubs, slugs, small shells, and ants. According to Oates, this bird is likely to be found throughout Pegu and Tenasserim, wherever there are damp evergreen forests, and probably extends its range into Siam.

P. Oudart. Paris, 1859. Bowen & Co. Lith & col. Philad.

PITTA STREPITANS.

PITTA STREPITANS.

NOISY PITTA.

Pitta strepitans, Temm. Plan. Col. 1825, no. 333, 56th livr.—Jard. & Selby, Ill. Orn. 1825-39, vol. i. pl. 77.—Less. Trait. Orn. 1831, p. 395. sp. 8.—Müll. & Schleg. Verh. Natuur. Geschied. Ned. overz. Bezitt., Zool. *Pitta*, 1831-44, p. 16.—Gray, Gen. B. vol. i. 1846, p. 213.—Id. Proc. Zool. Soc. 1858, p. 191.—Id. Cat. B. N. Guin. 1859, p. 56.—Gould, B. Austr. vol. iv. 1848, pl. i.—Id. Handb. B. Austr. vol. i. 1865, p. 430.—Blyth, Cat. B. Mus. Asiat. Soc. Beng. 1849, p. 156.—Schleg. Mus. Pays-B., *Pitta*, 1863, p. 10; 1874, p. 13.—Wallace, Ibis, 1864, p. 106.—Krefft, Proc. Zool. Soc. 1867, p. 319.—Ramsay, Ibis, 1867, p. 416 (nest & eggs).—Id. Proc. Linn. Soc. N. S. Wales, vol. ii. 1877-78, p. 187. no. 295.—Masters, Proc. Linn. Soc. N. S. Wales, vol. i. 1877, p. 54. sp. 53 (Palm Island).—Id. vol. ii. 1878, p. 187.—Sclat. Cat. B. vol. xiv. 1888, p. 428.—Whitehead, Ibis, 1893, p. 497.

Pitta versicolor, Swains. Zool. Journ. vol. i., Jan. 1825, p. 468.—Steph. Shaw's Gen. Zool. vol. xiii. pt. 2, 1825, p. 183. sp. 3.

Brachyurus strepitans, Bonap. Consp. Gen. Av. vol. i. 1850, p. 254. sp. 5.—Id. Consp. Voluc. Anisod. 1854, p. 7.—Elliot, Mon. Pitt. 1863, pl. ix.—Id. Ibis, 1870, p. 415.

Colubris strepitans, Cab. & Hein. Mus. Hein. pt. ii. 1859-60, p. 3. sp. 3.

Pitta simillima, Gould, Proc. Zool. Soc. 1868, p. 76.—Elliot, Ibis, 1870, p. 409.—Schleg. Mus. Pays-B., *Pitta*, 1874, p. 13.—Masters, Proc. Linn. Soc. N. S. Wales, vol. i. 1877, p. 54. no. 54 (Bet Island).—Ramsay, Proc. Linn. Soc. N. S. Wales, vol. ii. 1878, p. 187. no. 296.—D'Alb. & Salvad. Ann. Mus. Civ. Gen. vol xiv. 1879, p. 83 (Fly River, New Guinea).—Salvad. Ann. Mus. Civ. Gen. xvi. 1880, p. 184.—Id. Orn. Papuas. vol. ii. 1881, p. 389.

Pitta krefti, Salvad. Att. Sc. It. vol. xii. 1869, p. 551.—Id. Ibis, 1870, p. 296.

Pitta strepitans, var. *simillima*, Ramsay, Proc. Zool. Soc. 1875, p. 591.

Pitta assimilis, D'Alb. Ann. Mus. Civ. Gen. vol. x. 1877, p. 12.—Id. Ibis, 1877, p. 368 (Kataw River, New Guinea).

Habitat.—Eastern Australia; Islands of Torres Straits.—Southern New Guinea.

Top of head and nape rich dark chestnut; vertical stripe, lores, sides of head, back of neck, and throat, extending to a point on the breast, jet-black. Back, margin of secondaries, and greater coverts bright deep green; lesser wing-coverts and band across lower part of rump pale shining blue. Primaries black, with a white spot in centre, and tipped with pale brown. Tail black, tipped with dark green. Beneath fawn-colour or light buff, with a large black patch in centre of abdomen; lower part of belly and under tail-coverts scarlet. Bill black; feet and tarsi flesh-colour; iris chestnut. Total length 8½ inches, wing 5, tail 2, tarsus 1⅞, bill at gape 1½.

Sexes alike in plumage.

In Australia, Gould says that this species is tolerably abundant on the east coast between the Macquarie river and Moreton Bay, and according to Ramsay it is found plentifully in the dense brushes of the Clarence and Richmond rivers, which is its nearest approach to Sydney; while it extends its range northward to the Albert river, and perhaps farther on the coast wherever suitable localities for it are found. Ramsay in the Ibis, *l. c.*, has given the most complete account of the habits and economy of this species, and according to him it frequents thickets and dense portions of the scrubs, its loud liquid call alone betraying its presence to its pursuer. It is extremely graceful in its movements and trips over leaves and logs, or threads its way through the vegetation, with ease

and elegance. By imitating the note it can readily be called within a few feet of the sportsman. As it approaches its concealed pursuer it runs for a few yards, then stops and calls, and seems much excited at not finding its mate. The note resembles the words "want a wat(ch)," and is easily imitated by whistling. This Pitta is rarely seen away from the ground, although occasionally one may perch ten or twenty feet high on some limb, and when alarmed it does not take wing but runs noiselessly with all speed and is soon hidden from view.

It feeds upon various species of *Helix*, and is accustomed to break the shells by striking them against a stone, and is then able to draw out and swallow their contents. Stones are not very common in the brush, and when the noisy Pitta has found one, he makes use of it as much as possible, seizing upon some *Helix* and running with it to the stone, and with a few sharp raps breaks the shell into pieces. Portions of these from a number of species, some as large as *H. fraseri*, have been found near the stones used by this Pitta, and a very good idea of the different forms occurring in the vicinity can be derived from an investigation of the fragments found in such localities, and several new and rare species have been discovered by means of the "after dinner" fragments left by this Pitta. It lives well in confinement, and one was kept by a Mr. MacGillivray in a cage for some time. At first he broke the snail-shells he gave it, but on furnishing the bird with a stone and a supply of Helices, it required no further assistance to get at the contents.

Specimens of this Pitta from Cape York and Northern Australia are smaller in size, though exactly the same in colour of plumage, in the note, nidification, and colour of eggs. The size also varies greatly among individuals, which fact caused Sclater to remark, on examining the specimens in the British Museum, that examples "in the series, of different dimensions, are difficult to assign to either form without knowing the locality."

Ramsay mentions a distinction (Ibis, 1867, p. 416), which he thought might be a character, viz. a variation in the extent of the white patch on the primaries, which he says extends over two feathers only in the northern bird, but on the fourth, fifth, and sixth of the larger form. In the type of *P. simillima* this white mark is confined to a small round spot on the outer web of the fourth primary, and is not wanting, but, on the contrary, is very conspicuous on the fifth and sixth primaries, as in the larger race. It does not seem to be necessary to recognize two forms, even of subspecific value, as it is apparently impossible to assign any geographical limits to either the large or small birds. They seem to mingle together about Moreton Bay.

The nest as described by Ramsay is a dome-shaped structure with a large opening on the side, outwardly formed of roots, twigs, and moss, and lined with fine roots, moss, and a few feathers. It is placed upon the ground, or a few inches above it in the stems of trees. The eggs, four in number, are white or bluish-white, marked with irregularly shaped brown or blackish-brown spots, dispersed evenly over the surface, with obsolete bluish-grey spots, usually largest at the thickest end. Length 1·2 to 1·3 inch by ·9 to 1 inch in

breadth. A variety of the egg is more elongated, and has all of the thick end freckled with bluish-grey dots, with an occasional small blackish dot.

In 1825 Temminck described this species, *l. c.*, as *P. strepitans*, but in what month of that year the 26th livraison of his book appeared is not stated. In *January* of the same year Swainson also described the species, *l. c.*, as *P. versicolor*. It has always borne the name Temminck gave it, but if it has any priority over that of Swainson's it can only be by a few days at most.

The figures in the Plate represent the adult and young.

W. Hart & Co. del. et lith.

Mintern Bros. imp.

PITTA CORONATA.

PITTA CORONATA.

IRENE PITTA.

Le Merle verd des Moluques, Briss. Orn. 1760, vol. ii. p. 316, pl. 32. fig. 1.

Corvus brachyurus, Linn. Syst. Nat. 1766, vol. i. p. 158. sp. 15 (partim).

Merle de Bengale, Buff. Plan. Enlum. no. 258.

Turdus coronatus, P. L. S. Müller, Syst. Nat. 1766, Suppl. p. 144.—Cass. Proc. Acad. Nat. Scien. Phil. 1864, p. 250.

Short-tailed Crow, Lath. Gen. Hist. B. vol. i. p. 398.

Merula (*Corvus*) *brachyurus*, Bodd. Tab. Plan. Enlum. 1783, p. 16.

Pitta irena, Temm. Plan. Col. 1836, no. 591.—Id. Tab. Méth. 1838, p. 16.—Müll. & Schleg. Verh. Natuur. Geschied. Neder. overz. Bezitt., Zool. *Pitta*, 1839-44, pp. 12, 17.—Gray, Gen. B. vol. i. 1846, p. 213.—Wall. Ibis, 1861, p. 350; 1864, p. 106.—Id. Proc. Zool. Soc. 1863, p. 485 (Timor).—Salvad. Ann. Mus. Civ. Gen. vol. xvi. 1880, p. 185.—Id. Ornit. Papuas. vol. ii. 1881, p. 390.—Sclat. Cat. B. vol. xiv. 1888, p. 427.

Pitta elegans, Temm. Plan. Col. vol. v. 1836, text.

Brachyurus irena, Bonap. Consp. Gen. Av. vol. i. 1850, p. 254.—Id. Consp. Voluc. Anis. 1854, p. 7. no. 179.—Elliot, Mon. Pitt. 1863, pl. xi.—Id. Ibis, 1870, p. 416.

Pitta brachyura, Gray, Gen. B. vol. i. 1846, p. 213.—Schleg. Ned. Tijdsch. vol. iii. 1866, p. 189.—Id. Vog. Ned. Ind., *Pitta*, 1863, pp. 13, 32, pl. 3. figs. 2, 3 (Timor, Ternate).—Id. Mus. Pays-B., *Pitta*, 1863, p. 11; 1874, p. 14 (Boano, Sula Mangola, Sula Bessie).—Meyer, Isis, 1884, p. 43 (Dammar).

Pitta crassirostris, Wall. Proc. Zool. Soc. 1862, pp. 188, 339 (Sula).—Id. Ibis, 1864, p. 106.—Finsch, Neu-Guin. 1865, p. 167.—Sclat. Cat. B. vol. xiv. 1888, p. 427.

Brachyurus crassirostris, Elliot, Mon. Pitt. 1863, text.—Id. Ibis, 1870, p. 416.

Pitta magnirostris, Schleg. Ned. Tijdsch. vol. iii. 1866, p. 188 (Boano).

Habitat.—Timor, Samaow (*S. Müller*); Ternate (*Bernstein*); Boano (*Hoedt*); Sula Mangola, Sula Bessie (*Hoedt, Wallace*).

Adult. Head, nape, throat, and centre of fore neck jet-black; line from front over the eye to occiput yellowish brown, base of feathers orange; back and wings dark green; lesser wing-coverts and apical portion of upper tail-coverts shining blue. Primaries black, with a white spot on 4th and 5th. Under wing-coverts black. Tail black, tipped with green. Underparts fawn-colour; centre of abdomen and under tail-coverts scarlet. Bill black; feet flesh-colour. Length 6·5 inches, wing 4·3, tail 1·5.

Examples from the Sula Islands, named *P. crassirostris* by Wallace, are slightly longer and have a little thicker bill.

This is the species usually recognized by authors as *Pitta irena*, Temminck; but this is not the name it should properly bear, as it is antedated by that of *coronata* of P. L. S. Müller. This author bestowed the name last given upon the bird figured by Buffon, *l. c.*, as the *Merle de Bengale*. Misled by the French appellation, this figure has been generally attributed by ornithologists to the Bengal Pitta, *Corvus brachyurus*, Linn.; but that species has a white throat, and is altogether differently marked upon the head. Buffon's description of his *Merle de Bengale* at once proves that it cannot be the Indian species, but applies to the Irene Pitta. He says "la tête et le cou enveloppés d'un coqueluchon noir, mais sur lequel se dessinent deux grands sourcils orangés." As mentioned in my description, the base of the feathers of the superciliary stripe are deep buff almost orange in hue, and in fresh specimens this hue would

probably prevail to a great degree and give the stripe an "orangé" appearance. The "head and neck enveloped in a hood" could also only apply to this species or *P. concinna*, but other discrepancies in the description would not permit his plate to be considered as representing that species. Brisson's *Merle verd des Moluques*, which is placed by Linnæus among his synonyms of *Corvus brachyurus*, is not that species, but the present one, as in his description Brisson says, "La tête et la gorge sont noires," which together with the fulvous longitudinal bands on each side of the head above, also described, agrees with *P. coronata* but not with *P. brachyura*, which has a white throat. I therefore agree with Salvadori, Ornit. Papuas., *l. c.*, that *P. coronata*, Müller, is the same as *P. irena*, Temminck, and not the *Corvus brachyurus*, Linn., to which heretofore the name of *coronatus* has been erroneously applied.

Müller and Schlegel, *l. c.*, give about all the information we possess of this species. They state that it was discovered by them in the year 1829 on Timor, and the specimen sent to the Leyden Museum and described by Temminck in his work, 'Planches Coloriées,' then in course of publication. This Pitta was first seen in the woods, and also in tracts covered with shrubbery, near the town of Amarassie, in the western end of Timor, a few hundred feet above the level of the sea, in a hilly region. Later, in the island of Samaow, they saw this species several times near the sea-shore not far from the woods of Koepang, in lonely wild places covered with timber. It was not very shy, went often in pairs, yet occasionally individuals were seen alone, and its habits resembled those of *P. cyanura* (*Eucichla guaiana*). In size and in colour of plumage no especial difference exists between the sexes. In the stomachs of those killed small caterpillars and other insects, principally of the orders of Coleoptera and Diptera, were found.

Mr. Wallace has separated the bird from the Sula Islands as a distinct species under the name of *crassirostris*. In my monograph I kept this form apart, although I did not give a figure of it, for I was not satisfied that it was entitled to be deemed specifically distinct from the birds from Timor and the other islands; but not having seen Mr. Wallace's specimens, I was unable to arrive at a definite decision. In 1870, however, when writing my review of this family, published in the 'Ibis' of that year, I had Mr. Wallace's specimen before me, and I then stated that in my opinion it presented no characters which would entitle it to specific separation. It did not resemble *P. vigorsi* or *P. concinna*, with which Mr. Wallace compared it, being much too large, and otherwise different in colour of plumage; and from typical *P. coronata* it varies only in having a rather lighter bill, not perceptibly longer, and in the black of the throat not extending quite so far on the breast. This last may well be an individual variation. The bird in question cannot even be entitled to a subspecific rank, and since my remarks were written, now over twenty years ago, I am not aware that any additional claims have been advanced in favour of the specific distinctness of the Sula birds.

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Drawn from Nature by D G Elliot F Z.S.

Bowen & Co Lith. & col Philada.

PITTA CONCINNA.

PITTA CONCINNA.

ELEGANT PITTA.

Pitta concinna, Gould, Proc. Zool. Soc. 1857, p. 65, April (Lombock).—Id. B. New Guin. vol. iv. pl. 31.—Schleg. Vog. Nederl. Ind., *Pitta*, 1863, pp. 12, 32, pl. 3. fig. 1.—Id. Mus. Pays-B., *Pitta*, 1863, p. 10 (Sumbawa); 1874, p. 14.—Wall. Proc. Zool. Soc. 1863, p. 485 (Lombock, Flores).—Id. Ibis, 1864, pp. 102, 106.—Sclat. Cat. B. 1888, vol. xiv. p. 426 (Lombock, Flores).

Pitta mathilda, Verr. Rev. Zool. 1857, p. 303, pl. xi., July (Lumbang!, Philippines!).

Brachyurus concinnus, Elliot, Mon. Pitt. 1863, pl. x.—Id. Ibis, 1870, p. 416.

Brachyurus vigorsi, Bonap. Consp. Gen. Av. vol. i. 1850, p. 255 (nec Gould).

Habitat.—Lombock; Boima on Sumbawa—type of *B. vigorsi*, Bonap. (nec Gould) (Schleg. Voy. Forsten); Flores.

Adult. Front, and broad line over the eye, rufous, narrowing and becoming pale bluish behind the eye; rest of head and nape jet-black; back and wings dark green. Primaries black, with a white spot on 3rd, 4th, 5th, and 6th; lesser wing-coverts and rump shining blue. Tail black at base, remainder green. Under wing-coverts black. Throat and centre of neck in front black. Underparts fawn-colour, centre of abdomen black; vent and under tail-coverts scarlet. Bill black; feet and tarsi pale yellowish horn-colour; iris dark. Length 6½ inches, wing 4, tail 1¼.

This pretty species was almost simultaneously described by Messrs. Gould and J. Verreaux, but Mr. Gould's name has priority by about two months. It is a native of Lombock and Flores, and also of the island of Sumbawa, where, as stated by Schlegel, the example called by Bonaparte *B. vigorsi*, l. c., was procured by Forsten. Bonaparte mistook it for the bird named by Gould after Mr. Vigors, which, however, is quite a different species and has a white throat.

The type of this Pitta was obtained by Mr. Wallace in the island of Lombock and sent to London, when it came into the possession of Mr. Gould. It is one of the small species of the Family, and with its relative *P. coronata* (*P. irena*, auct.) can be distinguished from the other buff-breasted Pittas by the black of the throat extending into a point on the breast.

Mr. Wallace states that this species in Lombock was rather plentiful in a level sandy tract densely overgrown with low trees and shrubs, and intersected with numerous pathways. The bird's presence would be made known by its pattering tread among the dry leaves, a glimpse would be obtained as it passed lightly under the thickest of the covert, and the least motion to secure another view of the Pitta would be followed by a slight flutter and flash as it flew noiselessly away.

"A dead Pitta, as it lies when just shot," he continues, "is exceedingly beautiful. You do not find it lying on its side, or all in a heap, like other birds, but invariably flat on its back, the feet up in the air, the plumage beautifully puffy, and the crimson patch on the belly displayed to the best advantage. This peculiarity of the dead bird is perhaps owing to the short tail and wings and the roundness and plumpness of the body; but it produces an effect which I was never weary of admiring, and gave a crowning charm to the excitement and pleasure of Pitta-shooting."

W. Hart 1892.

W. Hart del. et lith. Mintern Bros. imp

PITTA NYMPHA.

PITTA NYMPHA.

FAIRY PITTA.

Pitta nympha, Temm. & Schleg. Faun. Jap., Aves, Suppl. 1850, t. A.—Wallace, Ibis, 1864, p. 105.—Sclat. Cat. B. vol. xiv. 1888, p. 425 (partim).—Seebohm, Ibis, 1892, pp. 87, 94 (Tsu-sima).—Whitehead, Ibis, 1893, p. 495.

Brachyurus nympha, Bonap. Consp. Gen. Av. vol. i. 1850, p. 254.—Id. Consp. Voluc. Anisod. 1854, p. 7.—Elliot, Mon. Pitt. 1863, pl. viii.—Id. Ibis, 1870, p. 415.

Pitta bertæ, Salvad. Atti Accad. Sc. Tor. vol. iii. 1863, p. 527.—Id. Ibis, 1871, p. 248.—Id. Ucc. Born. 1874, p. 237, pl. iii.—Elliot, Ibis, 1870, p. 409.—Sclat. Cat. B. vol. xiv. 1888, p. 425.—Sharpe, Ibis, 1889, p. 441.—Everett, Journ. Str. Br. Roy. Asiat. Soc. no. 20, 1889, p. 147.

Pitta oreas, Sharpe, Ibis, 1879, p. 263 (Borneo).

Habitat.—Tsu-sima Island, Japan (*Jouy*).—Borneo (*Doria, Beccari*).

Top of head chestnut; narrow vertical stripe from culmen to nape, lores, and sides of head beneath the eyes, and neck behind, jet-black. Superciliaries from nostril to nape pale yellowish-buff, tinged with green on the nape. Back and greater wing-coverts shining grass-green. Lesser wing-coverts, rump, and upper tail-coverts glittering silvery-blue. Secondaries black, margined on outer webs near the tips with bluish-green; the tertials green for nearly one third their apical portion. Axillaries black; white spot on inner web of 1st and 2nd primaries, and on both webs of 3rd, 4th, 5th, and 6th. Tail black, tipped with dark bluish-green. Chin black. Throat and sides of neck white, with a yellowish tinge. Underparts yellowish-white, with a strong tinge of green, darkest and most conspicuous on sides of breast and flanks. Middle of lower part of breast, abdomen, and under tail-coverts, blood-red. Bill horn-colour; feet and tarsi flesh-colour. Total length $6\frac{1}{2}$ inches, wing 5, tail $1\frac{7}{8}$, tarsus $1\frac{3}{4}$.

Description and Plate taken from Jouy's specimen from Tsu-sima Island, No. 114634 in the National Museum, Washington.

For very many years this Pitta has only been known from a Japanese drawing reproduced by Schlegel and others. The author just named called it *P. nympha* in his 'Fauna Japonica,' *l. c.* In 1864 Swinhoe described a Pitta from Formosa as *P. oreas*, similar to *P. nympha* but with a *white* chin; and in 1873, *l. c.*, he called the same bird from Chefoo *P. nympha*, although he remarks that the chin is *white* in his bird instead of *black* as in *P. nympha*. In 1874 Salvadori described a Pitta from Borneo as *P. bertæ* and gave a figure of it in his book 'Uccelli di Borneo.' Judging from his description, and also from his plate (although the figure is badly drawn and coloured), in spite of the difficulty raised by the question of geographical distribution, *P. bertæ* appears to be the same as *P. nympha* from Japan. It possesses the black chin and the same general coloration. Unfortunately the type is lost, and it will be impossible to decide the question by a comparison with it and Japanese specimens.

There is a single specimen of Pitta in the British Museum collected by Sir W. Low at Lumbidan, Borneo, which Sharpe, *l. c.*, has referred to *P. oreas*, Swinhoe. This example has a black chin, which is one of the characters that distinguishes *P. nympha* from its near allies; and the Lumbidan bird cannot therefore be the same as *P. oreas*, but, on the contrary, is probably *P. nympha*. Mr. Everett, *l. c.*, thinks that *P. bertæ* and *P. nympha* are probably

the same species, and supposes that the examples found in Borneo have migrated from China. We have no proof, however, that *P. nympha* is found in China, although it may possibly occur in Corea. In the article on *P. moluccensis*, I say that "*P. nympha* does not yet appear to be represented by any specimen, unless possibly the one described by Salvadori as *P. bertæ* may be that species;" but since that was written Mr. Jouy procured two specimens of *P. nympha* in Tsu-sima Island, Japan, and these specimens from the National Museum, Washington, where the Jouy collection now is, have been kindly placed in my hands by my friend Prof. R. Ridgway and are represented in the Plate, and from one of them my description is taken. They are male and female, in perfect plumage, and agree with the figure published by Schlegel, *l. c.* Both have the black chin, and the blood-red of the abdomen is carried forward on to the breast, as is seen also in Salvadori's figure of *P. bertæ*. The colouring of the head is quite different from that of *P. oreas*, and the two appear to represent distinct species. How we may explain its appearance in such widely separated islands as Borneo and Tsu-sima is difficult to say; but the geographical distribution of the Pittidæ is in many instances so erratic and impossible of solution by any hypothesis yet advanced, that no surprise need exist at *P. nympha* being an inhabitant of islands removed from each other by so great an interval of land and sea.

The background in the Plate is from a Japanese drawing of the Island of Inosima, with the snow-capped peak of the sacred mountain Fusi-Yama in the distance.

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PITTA MOLUCCENSIS.

Bowen & Co lith.& col Philada.

PITTA MOLUCCENSIS.

BLUE-WINGED PITTA.

Merle des Moluques, Buff. Plan. Enlum. no. 257.

Turdus moluccensis, P. L. S. Müller, Natursyst. Suppl. 1776, p. 144.—Cass. Proc. Acad. Nat. Scien. Phil. 1864, p. 250.

Turdus macrourus fasciatus, Bodd. Tabl. des Pl. Enlum. 1783, p. 16.

Corvus brachyurus, var. *δ. madagascariensis*, Gmel. Syst. Nat. vol. i. 1788, p. 376.

La Brève de Madagascar, Vieill. Ency. Méth. vol. ii. 1791, p. 686.

Myiothera brachyura, Raffles, Trans. Linn. Soc. vol. xiii. 1822, p. 300.

Pitta cyanoptera, Temm. Pl. Col. 1823, no. 218 (Java).—Vig. Append. Mem. Raffles, 1830, p. 659.—Less. Trait. Ornith. 1831, p. 394. sp. 4.—Müll. & Schleg. Verh. Natuur. Geschied. overz. Bezitt., Zool. *Pitta*, 1839–44, pp. 7, 17, 20.—Hodg. Gray's Zool. Misc. 1844, p. 83.—Gray, Gen. B. vol. i. 1846, p. 213.—Low, Sarawak, 1848, p. 410.—Blyth, Cat. B. Mus. Asiat. Soc. Beng. 1849, p. 157. no. 907.—Moore, Proc. Zool. Soc. 1854, p. 274.—Horsf. & Moore, Cat. B. Mus. E. Ind. Co. 1854, vol. i. p. 183. no. 248.—Motl. & Dillw. Contr. Nat. Hist. Labuan, 1855, p. 22.—Schleg. Vog. Ned. Ind., *Pitta*, 1863, pp. 9, 32, pl. iv. fig. 1.—Id. Mus. P.-Bas, *Pitta*, 1863, p. 9; 1874, p. 15 (Sumatra, Malacca).—Wall. Ibis, 1864, pp. 105, 110 (Sumatra, Borneo).—Wald. Proc. Zool. Soc. 1866, p. 545 (Tenasserim).—Beav. Ibis, 1870, p. 322 (Moulmein).—Salvad. Ibis, 1871, p. 248.—Id. Atti Real. Accad. Tor. 1874, vol. ix. p. 631 (near Luzon, Philippines).—Id. Ucc. Born. 1874, p. 235.—Id. Ornit. Papuas. 1881, vol. ii. p. 404.—Sharpe, Ibis, 1879, p. 262 (Borneo).—Oates, Str. Feath. vol. x. 1882, p. 205. no. 189 (Pegu).—Nicholson, Ibis, 1883, p. 88 (Borneo).—Sclat. Cat. B. vol. xiv. 1888, p. 420.—Sharpe, Ibis, 1889, p. 442; 1890, p. 281.

Citta hippocrepis, Wagler, Syst. Av., *Corvus*, 1827, no. 16 (spec. obscur.).

Pitta malaccensis, Blyth, Journ. Asiat. Soc. Beng. vol. xii. 1843, p. 960 (*nec* Müll. & Schleg.).

Pitta velata, Gray, Gen. B. vol. i. 1846, p. 213.

Brachyurus cyanopterus, Blyth, Journ. Asiat. Soc. Beng. vol. xvi. 1847, p. 153.—Bon. Consp. Av. vol. i. 1850, p. 254. sp. 7.—Id. Consp. Vol. Anis. 1854, p. 7. no. 180.—Elliot, Mon. Pitt. 1863, pl. iv.

Brachyurus malaccensis, Bon. Consp. Av. vol. i. 1850, p. 254.

Coloburis cyanoptera, Cab. & Hein. Mus. Hein. pt. ii. 1859, p. 4.

Coloburis malaccensis, Cab. & Hein. Mus. Hein. pt. ii. 1859, p. 4.

Pitta nympha, Swinh. Ibis, 1861, pp. 412, 414.—Id. Proc. Zool. Soc. 1863, p. 277 (Amoy) (*nec* Schleg.).

Brachyurus moluccensis, Elliot, Ibis, 1870, p. 413.—Hume, Str. Feath. vol. iii. 1875, p. 106 (Rangoon, Tenasserim, Malacca).—Blyth, B. Burm. 1875, p. 98.—Sharpe, Ibis, 1877, p. 10 (Borneo).

Pitta moluccensis, Swinh. Proc. Zool. Soc. 1871, p. 374.—Oates, Str. Feath. vol. v. 1877, p. 149 (eggs).—Id. B. Brit. Burm. 1883, vol. i. p. 415.—Dav. & Oust. Ois. Chine, 1877, p. 144.—Hume & Dav. Str. Feath. vol. vi. 1878, p. 240.—Hume, Str. Feath. vol. viii. 1879, p. 94.—Kelham, Ibis, 1881, p. 509.

HABITAT.—Burmah, Siam, Malay Peninsula, Java?, Sumatra, Borneo, Southern China, Philippines? (*Salvadori*).

Top and sides of head, nape, and chin black; front and broad line over the eyes uniting at nape rufous brown, lighter on lower edge; back dark green; lesser wing-coverts and outer edges of secondaries bright blue; inner secondaries black on inner webs, green on outer and on tips; primaries black at base, remaining portion white, except the first four, which have black tips, most extensive on the first, growing less on the others. Rump and upper tail-coverts shining blue. Tail black, tipped with greenish blue. Throat white; underparts buff, varying in depth among individuals; centre of abdomen and under tail-coverts crimson. Bill black; feet and tarsi flesh-colour. Iris dark brown; skin behind the eye lead-colour. Total length 7·3 inches, wing 4·6, tail 1·5, tarsus 1·5.

In some specimens the entire chin is black, while in others it is apparent only in the extreme upper portion; and the colour of the superciliary stripes varies much in different individuals from a pale brown with a bluish or greenish hue to almost a chestnut.

The young, according to Walden, is "sordid in all its plumage, and has the first quill entirely black, the second with only a white spot."

"The gape and tip of the bill are crimson-red, and the legs flesh-coloured" (*Beavan*).

This Pitta was figured by Buffon, *l. c.*, who gave a very recognizable representation of the bird and called it the Merle des Moluques. To this plate, P. L. S. Müller gave the name, as shown by Cassin, *l. c.*, of *Turdus moluccensis*, thus antedating all appellations bestowed upon the species, and his name therefore, by the laws of priority, is the one that must be adopted. It has been objected that, as the species is not found in the Moluccas (as yet), Müller's name should not be accepted. This reasoning, however, is entirely contrary to the present custom of a very large number of ornithologists, and against the rules of the published codes, which regulate the methods of dealing with just such questions as this. A name is only something by means of which a species becomes recognizable, and it is perfectly admissible, even if it may wrongly describe the habitat of a species; and although we may regret that a more appropriate one was not given by the author, as in the present instance, yet we have no right to reject it and select another that appears to us as more suitable. If such a procedure was permissible, chaos would soon reign in ornithological literature.

The Blue-winged Pitta has a wide distribution, and is met with from Burmah, through the Malay Peninsula, Sumatra, Borneo, and in Southern China. The single specimen obtained by Mr. Swinhoe at Amoy was first supposed by him to be *Pitta nympha*, Schlegel, and described under that name in the 'Ibis,' *l. c.*; but later, in the 'Proceedings of the Zoological Society,' *l. c.*, although still retained under the same name, he remarks that it is uncommonly close to *P. cyanoptera* (*moluccensis*) from Siam. *Pitta nympha* does not yet appear to be represented by any specimen, unless possibly the one described by Salvadori as *P. bertæ* may be that species.

The example which Temminck figured in his plate is stated by him to have come from Java, and was in the Paris Museum. It is not yet definitely ascertained that this species is a native of that island. Mr. Davison, who obtained this Pitta in Burmah, states that in April after showers of rain it suddenly appeared in great numbers in the gardens and plantations in and about Tavoy. He imagined it to be a coast-loving species, and suspected that it remained all the year in the mangrove-swamps of the southern extremity of the province, as he met with it from January to July. It is fond of perching on trees, and is continually to be seen on the upper branches, calling loudly. It is not shy, and feeds on ants and their larvæ, insects, grubs, &c., and land-shells. Like its ally *P. megarhyncha*, it mostly frequents thin tree-jungle and mangrove-swamps. The note is clear and double, and is constantly heard in the morning and evening. The Blue-winged Pitta is a noisy bird and often calls all day, and even during a great part of the night when the moon is shining. Lieut. Beavan obtained this species on an island in the Salween River above Moulmein in Burmah, and it seems to be fairly common in various parts of India and in the Malay Peninsula. He

states that while stationed at Kwala Kangsar (Malacca) many specimens of this Pitta were brought to him by the natives, who caught them in snares. He kept some alive for several months, and they throve well, being fed on rice, but never became tame. One day, when shooting Snipe on the banks of the Perak River, he caught a glimpse of a brilliant bird in the bushes, and fired, when he found he had killed a specimen of this beautiful species. In Tenasserim Mr. Hume says it is a "common seasonal visitant to the whole province." He had compared specimens from Upper Pegu and found them identical with those from Rangoon, Tenasserim, and Malacca. Mr. Oates says that this bird appears suddenly in Upper Pegu, during a gale from the south-west in May, which brings them in by the dozen, but they disappear in a day or two afterwards. This species is also found in Arrakan. In Sumatra, Messrs. Müller and Schlegel state they only met this bird in the lowlands, in the wooded base of the mountain range, in moist places beneath the undergrowth. In Borneo, Messrs. Motley and Dillwyn did not find this Pitta very common in Labuan. They only occasionally were seen in pairs about dead felled wood, and it moved about with a short low flight. They state it cries loudly before rain, and from this fact the Malays call it "Ujan Ujan" ("rain rain"). One shot in a mangrove-swamp had its stomach full of small shrimps.

Salvadori in Att. R. S. Tor. *l. c.*, states that Count Lovera de Maria gave to the Turin Museum an example of this Pitta taken aboard his vessel about 20 miles from the coast of Luzon. Where did it come from, unless it is also an inhabitant of the Philippine Islands? Luzon is too far away from any of the known habitats of this species to enable the bird in question to travel to within its vicinity either before a gale of wind or by any other means, unless it was taken in a cage, from which it may have escaped. It is, however, on this specimen in the Turin Museum that I have given the Philippines as a possible habitat of the species. In the fifth volume of 'Stray Feathers,' *l c.*, Mr. Davison gives an account of the nest and eggs of this Pitta found by him at Amherst in Burmah. The nest was placed on the ground at the root of a small tree in thin jungle close to the footpath and was quite exposed. It measured 8 inches in diameter, 5·5 in height, entrance 3·5 in diameter; egg-cavity 5·5 wide anteriorly and 3·5 high. It was composed of dry twigs and leaves and lined with fibres, and resembled the nest of *Pitta cucullata*, though smaller and less roughly put together, the roof, sides, and foundation much thinner, and without a platform. The eggs were nearly uniformly spotted and streaked with narrow red and purplish-black markings on a white ground, round ovals in shape, and glossy.

W. Hart del. et lith. Mintern Bros. imp.

PITTA MEGARHYNCHA.

PITTA MEGARHYNCHA.

LARGE BLUE-WINGED PITTA.

Pitta megarhyncha, Schleg. Vog. Ned. Ind., *Pitta*, 1863, p. 11, pl. 4. fig. 2 (Bangka).—Id. Mus. Pays-B. 1863, p. 9; 1874, p. 16 (Bangka).—Elliot, Ibis, 1870, p. 409.—Hume & Dav. Str. Feath. vol. vi. 1878, p. 242 (Tenasserim).—Hume, Str. Feath. vol. viii. 1879, p. 94.—Oates, Str. Feath. vol. x. 1882, p. 205. no. 190 (Pegu).—Id. B. Brit. Burm. vol. i. 1883, p. 416.—Gould, B. Asia, vol. v. pl. 70.—Sclat. Cat. B. vol. xiv. 1888, p. 421.

Brachyurus megarhynchus, Elliot, Ibis, 1870, p. 414. no. 6, pl. xii. (ex type).—Hume, Str. Feath. vol. ii. 1874, p. 475 (Tenasserim).—Blyth, B. Burm. 1875, p. 98.

Habitat.—Pegu, Tenasserim, and Malay Peninsula; Island of Bangka (*Vosmaer*).

Top of head and nape reddish brown, bordered beneath with a narrow black band on the nape; a broad black band from nostrils, through the eye, to nape, beneath the reddish brown; back and wings dark green; lower rump and upper tail-coverts shining blue. Tail black, tipped with green. Lesser and median wing-coverts shining blue; primaries black, crossed by a broad white bar covering both webs of all but the 1st, and reaching to the tip on the 7th and 8th. Throat white, sides of neck fulvous; beneath deep buff, shaded with green on sides of breast; centre of abdomen and lower tail-coverts crimson. Bill very long, culmen straight, black; feet dark fleshy; iris deep brown. Length 9·12 inches, wing 4·75, tarsus 1·62; bill from gape 1·62, at front 1·5. Weight 4 ounces. (*Davison*, from a fresh specimen.)

This Pitta has been confounded with *P. moluccensis*, and it was not until Schlegel described it, *l. c.*, that it obtained recognition as a distinct form. Mr. Davison procured it in Tenasserim, having shot it at Tavoy, Amherst, and south of Mergui, and he saw a specimen in Lieut. Raikes's collection, obtained in the Delta of the Irrawaddy, and also in Mr. A. L. Hough's collection in Malewoon. Mr. Oates believes that it is doubtless distributed over the whole of Burmah, but it is rare in comparison with *P. moluccensis*. He procured two specimens at Pahpoon in the Irrawaddy Delta, and Mr. Blyth mentions having received a large-billed variety of *P. moluccensis* from Arrakan. In the 'Birds of Burmah' he states that this specimen has the bill fully as large as in *P. megarhyncha*, Schlegel, from the island of Bangka, and it undoubtedly was an individual of this species. In its habits and the localities it frequents this Pitta resembles its near relative above mentioned. Although probably migratory in a great portion of Burmah, according to Oates, it may, however, be a resident in the extreme south of Tenasserim, as his men shot a specimen at Malewoon on the 12th January.

In appearance this species greatly resembles *P. moluccensis*, but differs in the large black bill; and the top of the head, occiput, and nape are reddish brown, without the central black bar so conspicuous in its ally, and the black on the side of the head is narrower. It is also a larger bird generally.

Some specimens measured by Davison in the flesh gave the following dimensions:—

Total length 9–9·12 inches, bill from gape 1·62, bill at front 1·5, tail from vent 1·5–1·82, wing 4·75, tarsus 1·50–1·62.

The type is in the Leyden Museum, and was sent to me in London for comparison, and is represented in the plate published with my paper in the 'Ibis' for 1870. Mr. Gould imagined the large bill was used to break the shells of the mollusks on which the bird feeds.

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J. Gould del. et lith. Mintern Bros. imp.

PITTA BRACHYURA.

PITTA BRACHYURA.

INDIAN PITTA.

The Short-tailed Pye, Edw. Glean. vol. iii. 1764, p. 242, t. 324.

Corvus brachyurus, Linn. Syst. Nat. vol. i. 1766, p. 158 (partim).—Lath. Ind. Orn. vol. i. 1780, p. 166. sp. 43 (partim).

Corvus brachyurus bengalensis, Gmel. Syst. Nat. vol. i. 1778, p. 376. sp. 15, var. γ.

La Brève de Malacca, Sonn. Voy. Ind. Orient. vol. ii. 1782, p. 190, t. 110.

Turdus malaccensis, Scopoli, Del. Faun. Flor. Insubr. vol. ii. 1786, p. 95.

Turdus triostegus, Sparrm. Mus. Carls. 1788, pl. 84.

Pitta bengalensis, Vieill. Ency. Méth. vol. ii. 1791, p. 685.—Steph. Gen. Zool. vol. xiii. 1825, pt. ii. p. 183.—Horsf. & Moore, Cat. B. E. Ind. Co. vol. i. 1854, p. 184. sp. 249.—Jerd. B. Ind. vol. i. 1862, p. 503.—Id. Ibis, 1872, p. 133.—Gray, Cat. Mamm. & B. Nepal, 1863, p. 40.—Wall. Ibis, 1864, p. 105.—Sclat. Proc. Zool. Soc. 1867, p. 696.—Lloyd, Ibis, 1873, p. 410.—Schleg. Mus. Pays-B. 1874, p. 15.—Gould, B. Asia, vol. v. pl. 64.—Id. Mon. Pitt. 1880, pl. 1.

Myiothera brachyura, Cuv. Règn. Anim. vol. i. 1817, p. 356.

Pitta brachyura, Frankl. Proc. Zool. Soc. 1830–31, p. 117.—Gould, Cent. Himal. B. 1832, pl. 23.—Gray, Ill. Ind. Zool. vol. ii. 1832, pl. 55. fig. 2.—Royle, Ill. Bot. Himal. 1839, p. lxxvii, pl. 7. fig. 3.—Jerd. Madr. Journ. 1839, p. 251.—Eyton, Proc. Zool. Soc. 1839, p. 104 (Malacca).—Müll. & Schleg. Verh. Natuur. Geschied. Neder. overz. Bezitt., Zool. *Pitta*, 1839–44, p. 17.—Gray, Gen. B. vol. i. 1846, p. 213. sp. 14.—Kelaart, Prodr. Faun. Zeyl. 1852, p. 12.—Layard, Ann. & Mag. Nat. Hist. ser. 2, vol. xii. 1853, p. 269 (Ceylon).—Holdsw. Proc. Zool. Soc. 1872, p. 445 (Ceylon).—Legge, Ibis, 1874, p. 18 (Ceylon).—Ball, Str. Feath. vol. vii. 1878, p. 213. no. 158 (Godavery).—Dav. & Wend. Str. Feath. vol. vii. 1878, p. 82. no. 345.—Hume, Str. Feath. vol. viii. 1879, p. 94. no. 345.—Vidal, Str. Feath. vol. ix. 1880, p. 61 (South Konkan).—Davison, Str. Feath. vol. x. 1882, pp. 304, 373. no. 345 (Dhulia, Western Kandesh; Ootacamund and in the Wynaad).—Sclat. Cat. B. vol. xiv. 1888, p. 423.—Stejn. Auk, 1893, p. 182.—Whitehead, Ibis, 1893, p. 495.

Citta brachyura, Wagl. Syst. Av. 1827 (*Corvus*), sp. obsc. no. 13.

Citta abdominalis, Wagl. Syst. Av. 1827 (*Corvus*), sp. obsc. no. 15.

Citta superciliaris, Wagl. Syst. Av. 1827 (*Corvus*), sp. obsc. no. 17.

Pitta malaccensis, Gray, Gen. B. vol. i. 1846, p. 215. sp. 17.—Schleg. Mus. Pays-B. 1863, p. 12.

Pitta abdominalis, Gray, Gen. B. vol. i. 1846, p. 213. sp. 16.

Pitta triostegus, Blyth, Cat. B. Mus. Asiat. Soc. Beng. 1849, p. 157. no. 908.

Brachyurus malaccensis, Bonap. Consp. Gen. Av. vol. i. 1850, p. 254. sp. 8.

Brachyurus bengalensis, Bonap. Consp. Gen. Av. vol. i. 1850, p. 254. sp. 9.—Id. Consp. Voluc. Anisod. 1854, p. 7.—Elliot, Mon. Pitt. 1863, pl. vi.

Coloburis malaccensis, Cab. & Hein. Mus. Hein. pt. ii. 1859–60, p. 4. sp. 5.

Coloburis brachyura, Cab. & Hein. Mus. Hein. pt. ii. 1859–60, p. 4. sp. 6.

Brachyurus coronatus, Elliot (nec Müll.), Ibis, 1870, p. 414.

Pitta coronata (nec Müll.), Hume, Nests & Eggs Ind. B. 1873, p. 224.—Ball, Str. Feath. vol. ii. 1874, p. 406 (Chota Nagpur).—Id. ibid. vol. v. 1877, p. 416. no. 345 (Central India).—Hume, Str. Feath. vol. iii. 1875, p. 198.—Butler & Hume, Str. Feath. vol. iii. 1875, p. 470. sp. 345 (Mt. Aboo).—Fairb. Str. Feath. vol. iv. 1876, p. 257 (Khandala).—Legge, B. Ceylon, vol. ii. 1880, p. 687.

Pitta brachycerca, Legge, Ibis, 1875, p. 290 (Ceylon).

Habitat.—Indian Peninsula and Ceylon.

A broad stripe on centre of head, sides of face, and nape jet-black; superciliaries buffy-white, becoming bluish-white on the nape; front and top of head between superciliaries and black central stripe yellowish-brown. Back yellowish-green; greater tail-coverts yellowish-green like the back; lesser coverts and rump light blue; secondaries black, with a portion of outer web near the tip green, edged with bluish, this colour covering more of the web towards the innermost secondaries, where it includes

both webs near the tips. Primaries black, with a white spot in their centres and with greyish-white tips. Under wing-coverts black, with a white edging at the shoulder. Tail black, tipped with blue. Throat and sides of head beneath the black pure white. Underparts fawn-colour. Abdomen and under tail-coverts scarlet. Bill brown; feet and tarsi flesh-colour. Total length 7 inches, wing 4, tail $1\frac{1}{2}$.

There is apparently no difference in the plumage of the sexes.

Occasionally specimens are met with which have a black central stripe on the feathers of the back and wings. This peculiarity has been observed also in *Pitta oreas*. It is supposed to be an indication of the nuptial plumage, though it cannot be said that satisfactory evidence of this has yet been obtained.

The Indian or Bengal Pitta was first described by Linnæus (*l. c.*), but he included in his synonymy the *Merula viridis malaccensis* of Brisson, which is quite another species with a black throat, the *Pitta coronata* of the present Monograph. Cassin, in the 'Proceedings of the Academy of Natural Sciences of Philadelphia' for 1864, p. 250, gave P. L. S. Müller's name of *coronatus* to this species, and not having access at the time to Müller's rare work, I followed Cassin's determination in the 'Ibis,' 1870. But on farther investigation it would appear that it is the *Pitta irena* of Temminck which should bear Müller's designation, and not the present species, and I have therefore restored the name given by Linnæus.

This Pitta is very common in India, being found, according to Jerdon, from the sub-Himalayan range to Cape Comorin, but never to the eastward of the Bay of Bengal.

In the Carnatic it occurs in the hot weather when the western land-winds begin to blow, and the birds being of feeble flight are unable to contend against the blast and are blown from the eastern ghats. At such times they take refuge wherever they can find shelter, and the first one Jerdon saw had esconced itself in the General Hospital at Madras, and under similar circumstances he captured many alive at Nellore. Hume, writing on the migratory habits of the species, states that they arrive at Bareilly at the beginning of the rains, and are very common in the Dhoon. In the hot weather a few may here be residents. To the Berars and forests about Hoshungabad it is a regular migrant and straggles even into the semi-desert country of Kattiawar, Northern Guzerat, and the Sambhur Lake. In Oudh and Beher it comes in numbers into their northern districts, and a specimen was caught in Jerdon's house at Chowringhee, Calcutta. During April, May, and June, from the extreme south to all suitable northern localities, it moves throughout the length and breadth of the country, west of the Brahmapootra, great numbers reaching the base of the Himalayas or sub-Himalayan ranges.

At Mount Aboo, in Northern Guzerat, this species is very rare, according to Butler, and he obtained only a pair. Mr. Hume states that Dr. King also got several specimens on the slopes of Aboo, but that he had seen none from any other portion of the whole region, though Capt. Hayes Lloyd believes he saw it in Kattiawar, and Mr. Adams heard of a specimen taken near Sambhur. In Khandala, 18° 40′ N. lat., about forty miles in a straight line south by east of Bombay, Dr. Fairbanks says there were none of this species in April, but before the end of May there were plenty in the valley west of the "Duke's Nose." In the South Konkan Mr. Vidal says that this Pitta is not common, but "solitary

individuals are always to be seen in the cold weather on the rocky cliffs by the sea-side and on the stony hills inland." Mount Aboo specimens have a greenish tinge on the superciliaries and on the sides of the breast.

In the Central Provinces Mr. Blewitt states that it breeds in July and August in the neighbourhood of Raipur, and, according to Hume, in the Dhoon and northern parts of Rohilcund. The nest is a huge globular structure, nine inches in diameter by six inches high and four inches inside diameter, composed externally of dry leaves held in place by fine roots or twigs, and externally of twigs of the tamarisk and grass-roots. It is placed in brushwood or scrub-jungle or on low bushes.

Mr. Ball found this Pitta in Chota Nagpur. When uttering its note "*whēēt-pe-ŭ*," he says it puts back its head as far as possible and jerks it forward again as it concludes with "*pe-ŭ*." He saw it mostly perched on trees, and met with it in valleys and well-wooded districts, and it did not seem to care for the vicinity of water. It was extremely shy. Subsequently he discovered that it had a very sweet Thrush-like song, resembling that of the Shama.

In Ceylon this Pitta is a migrant, arriving in the month of October, according to Legge, in vast numbers, spreading all over the low country and throughout the jungles of the Central Provinces up to the Nuwara-Eliya plateau, where, however, it is not so numerous. However, it is probably resident there, as Mr. Holdsworth (*l. c.*) says he has seen them in August. Individuals used to visit the Suriya trees near his house at Aripo every evening and utter a cry like "*a-vitch-i-a*," which is followed frequently by a low hissing scream. When alarmed they flew to the hedge and hid in its thickest part. A common attitude was standing on a branch, with the body and head perpendicular, legs straight, and tail turned upwards. Mr. Bligh, writing to Legge, says they rarely come up so high as Haputale (4500 feet), though he has seen them at over 5000 feet elevation, but he never heard one call at such a height, although 1500 feet below their cry was sounding on all sides at roosting-time. Throughout the northern forest-tract and near Trincomalie they are abundant, even to the sea-beach where the shore is lined with scrub, and their cry is heard everywhere. In the Western Provinces it is numerous, but not so abundant in the south-western wooded districts, where there is much humid timber-forest, which it seems to avoid.

In the 'Birds of Ceylon' Legge has given a very full account of the habits of this Pitta as observed by him. He says it is known to the Singhalese as the "Avitchia," and lives in the thick cover, rarely showing itself in the open. It loves thick woods and the secondary jungle which has grown up after the forests have been cleared. It goes in pairs, but the individuals are rarely in close proximity. The cry is uttered in the morning and again towards sundown when seeking their roosting-places. For such purposes they are fond of resorting to bushy trees like the lime and orange, and will travel some distance to reach them. Their flight is performed quickly but irregularly, and the bird is very adroit in darting around the trunks of trees.

Though very shy and wary, it is at the same time inquisitive, and will approach quite close to scrutinize anyone, but darts away into cover on the least motion of the person it is investigating. In cold stormy days it is frequently caught in the bungalows on the coffee-plantations. The Indian Pitta feeds entirely on the ground, on ants, beetles, and other insects, which it procures in the earth or under dead leaves. The eggs, which measure from 0·96 to 1·07 inch in length by 0·81 to 0·9 inch in breadth, are broad ovals, and, as described by Hume, are very glossy; the ground-colour china-white, tinged with pink, and speckled and spotted with fine lines of deep maroon, dark and sometimes brownish-purple as primary markings and pale inky purple as secondary ones: the first are scattered more or less thickly over the entire surface, densest towards one of the ends, to which in some eggs they are confined, and then at such places the secondary markings are conspicuous and often form a kind of nimbus round all the spots and lines, filling up the interstices and producing an irregular mottled cap.

Several legends are related in connection with this species as given by Legge. The Singhalese say that in former times Buddha changed some spotted Thrushes, *Turdus spiloptera*, into Pittas, and they believe that these are the progeny of the Thrushes, asserting that in the nest of the latter the young of both species are found. In the North-west Province the natives say that this Pitta once possessed the Peacock's plumes, but one day, when bathing, the Peacock stole its dress, and ever since it has gone about the jungle, calling, "Ayittam, Ayittam!" (my dress, my dress!). Another legend is that this Pitta was a Prince deeply enamoured of a beautiful Princess. His father sent him to travel for several years, and on his return the Princess was dead, and disconsolate he wandered about calling her by name, "Ayitta, Ayitta!" In compassion the gods transformed him into this bird. The near relatives of this Pitta are *P. nympha*, *P. oreas*, and *P. vigorsi*, which at first sight closely resemble it, but in the general colour and markings of plumage have nevertheless very distinct and characteristic differences that enable them all readily to be recognized from each other.

In the xivth volume of the 'Catalogue of Birds,' Mr. Sclater extends the range of this species into Assam, Arrakan, and Tenasserim—one of his specimens from Mr. Gould being accredited to Assam. I do not find any record of this species having been procured east of the Bay of Bengal, and am inclined to think that there is an error in the locality of Gould's specimen. So far as I am aware, no writer on the birds of the countries lying to the east of the Bay of Bengal mentions this species as found in their limits.

The Plate represents the adult and young—the former drawn from specimens taken at Kandahar in Ceylon, and the latter from a specimen procured at Simla, and all are in the British Museum collection.

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PITTA ORIAS.

PITTA OREAS.

SWINHOE'S PITTA.

Pitta oreas, Swinh. Ibis, 1864, p. 428 (Formosa).—Id. Proc. Zool. Soc. 1865, p. 678 (Takow); 1871, p. 375.—Elliot, Ibis, 1870, p. 408.—Gould, B. Asia, vol. v. pl. 65.—Dav. & Oust. Ois. Chine, texte, 1877, p. 145.

Brachyurus oreas, Elliot, Ibis, 1870, p. 415, pl. xiii. fig. 1 (ex type).

Pitta nympha (nec Schleg.), Swinh. Proc. Zool. Soc. 1873, p. 730 (Province of Chefoo).—Sclat. Cat. B. vol. xiv. 1888, p. 425 (partim).—Styan, Ibis, 1891, pp. 324, 359 (Tungsha Lightship, Shanghai)?

Habitat.—Formosa, Eastern China (*Swinhoe*).—Shanghai? (*Styan*).

Centre of crown and broad stripe from base of bill, covering sides of head to nape, black; sides of crown dull reddish-brown; superciliary stripe yellowish-buff; back and scapulars green, with black arrow-shaped markings; lesser wing- and upper tail-coverts verditer-blue; greater wing-coverts and tertials green, with a bluish tinge, black on inner webs; primaries black, with a white speculum, extending over first seven feathers; axillaries black. Tail black, tipped with greyish-green. Chin and throat white. Underparts deep buff, washed with green on the flanks. Centre of belly and under tail-coverts carmine. Bill brownish-black; feet and tarsi flesh-colour. Length 8 inches, wing 5, tail $1\frac{2}{3}$, culmen 1, tarsus $1\frac{1}{2}$. (Description ex type.)

Mr. Swinhoe first obtained this species from the mountains of Formosa, and stated it was allied to *P. cyanoptera* (*P. moluccensis*, Müll.) and to *P. nympha*, but distinguished from the former by its reddish crown, and from the latter by the colour of the crown and black chin. Mr. Swinhoe kindly loaned the type to me, and in my review of the Family in the 'Ibis,' 1870, I stated that I considered it to be a distinct species, most nearly allied to *P. brachyura* (Linn.) of the present Monograph (miscalled *B. coronatus*, Müll., in the review); but differed from that bird in the colour of the crown and in its entirely black axillaries, and from *P. nympha* in the characters mentioned above.

From the Province of Chefoo, China, Mr. Swinhoe subsequently obtained another specimen, which he mistook for *P. nympha*. He states that on the 13th August, 1873, a live Pitta was brought to him in a cage, said to have been taken in the Province of Chefoo, and which had evidently been long a captive, as the mandible had outgrown the maxilla, and the bird had all the appearance of a prisoner. It answered well to Schlegel's description in the 'Fauna Japonica' of *Pitta nympha*, except its chin was as white as the crescentic throat-band. It also lacked the white crescent on its black axillaries, and seemed to "have its nearest ally in *P. oreas* of Formosa." It fed greedily on grasshoppers, and had a wailing cry like that of a puppy in distress.

From its white chin and black axillaries, this was doubtless only a specimen of *P. oreas*.

Of the Formosan example, Mr. Swinhoe remarks, as published in Gould's 'Birds of Asia,' *l. c.*, that the type was from the mountains of Tamsui in the north-western part of the island, and the back and wing-coverts were "sprinkled with arrow-shaped markings of black." This bird was shot in May, and he imagined these black spots indicated the

nuptial plumage. The other example came from the mountains of Taiwan-foo. It was without markings on the back, otherwise it resembled the first specimen. Both were received by him in skin, and he could not ascertain the sex.

Mr. Styan, *l. c.*, says a specimen in the Shanghai Museum, which he refers to *P. nympha*, with *P. moluccensis*! as a synonym, was taken on the Tungsha lightship outside Shanghai. Another in his collection was taken at Shanghai during the autumn migration, and a third at the same place in October. He gives no description of these examples, but they were probably *P. oreas*, and the species may in its annual migration visit the eastern coast of China from Formosa to Corea.

As will have been noticed, this species has been confused with both *P. nympha* and *P. brachyura*. It is, however, most nearly related to the latter; *P. nympha*, with its black chin, yellowish-white underparts, and other characters, being easily recognized from both the present species and *P. brachyura*.

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PITTA VIGORSI

PITTA VIGORSI.

VIGORS' PITTA.

Pitta brachyura (nec Linn.), Vig. & Horsf. Trans. Linn. Soc. vol. xv. 1826, p. 218.—Meyer, Isis, 1884, p. 43 (Dammar).

Pitta vigorsi, Gould, B. Austr. vol. iv. pl. 2.—Id. Int. B. Austr. p. l.—Id. Handb. B. Austr. vol. ii. 1865, p. 527.—Müll. & Schleg. Verh. Natuur. Geschied. Ned. overz. Bezitt., Zool. *Pitta*, 1839-44, p. 17.—Gray, Gen. B. vol. i. 1846, p. 213.—Wall. Proc. Zool. Soc. 1862, p. 188 (Banda).—Id. Ibis, 1864, pp. 104, 106.—Schleg. Vog. Ned. Ind., *Pitta*, 1863, pp. 14, 33, pl. 3. fig. 4.—Id. Mus. Pays-B., *Pitta*, 1863, p. 11; 1874, p. 15 (Grand Banda, Paulo-Aï).—Finsch, Neu-Guin. 1865, p. 167.—Salv. Ann. Mus. Civ. Gen. vol. xvi. 1880, p. 185.—Id. Orn. Papuas. vol. ii. 1881, p. 392 (Timor-Laut).—Id. Proc. Zool. Soc. 1884, p. 579 (Dammar and Timor-Laut).—Meyer, Zeitschr. ges. Orn. 1884, p. 210 (Timor-Laut).—Sclat. Cat. B. vol. xiv. 1888, p. 426 (Banda and Timor-Laut).—Whitehead, Ibis, 1893, p. 496.

Coloburis vigorsi, Cab. & Hein. Mus. Hein. pt. ii. 1859, p. 4 (Lombock).

Brachyurus vigorsi, Bonap. Consp. Voluc. Anisod. 1854, p. 7. no. 185.—Elliot, Mon. Pitt. 1863, pl. vii.—Id. Ibis, 1870, p. 415.

Habitat.—Grand Banda, Paulo-Aï (*Hoedt*); Timor-Laut, Dammar, Lombock (*Cabanis & Heine*).

Head black with pale yellowish stripe, tinged with blue, from nostrils over the eye to nape; back and wings yellowish-green; lesser wing-coverts and bar on rump light blue; primaries black, with a white central spot on 3rd, 4th, 5th, and 6th. Throat white; underparts ochreous; centre of abdomen and lower tail-coverts scarlet, mixed with black on former. Tail black, tipped with green. Bill black; feet pale yellowish horn-colour; iris dark brown. Length $6\frac{1}{2}$ inches, wing $4\frac{1}{3}$, tail $1\frac{1}{2}$.

This species, described by Mr. Gould, *l. c.*, was supposed by him to be a native of Australia, but in his 'Introduction' he says he believes New Guinea to be its habitat. Mr. Wallace, however, obtained it on the Island of Banda, and it has since been found on other islands of the Archipelago, but never in Australia. It is very like *P. brachyura*, Linn., and was indeed supposed by Vigors and Horsfield to be the same as that species. It differs, however, in having the head black instead of brown; the superciliary stripes nearly meet at the occiput, and the tail is tipped with green instead of blue. Sclater says, *l. c.*, that the tail is tipped with blue; but this is an error.

Cabanis and Heine, *l. c.*, give Lombock as the habitat of the single specimen in the Heine collection. I think this locality must be an error, as I have not seen this island mentioned by any other writer as one on which this species has been met with.

We have no knowledge of the habits and economy of this Pitta, but doubtless in this respect it resembles its relative *P. brachyura*.

Maubert pinxt Paris, 1860.

Bowen & Co lith & col. Philada

PITTA ANGOLENSIS.

PITTA ANGOLENSIS.

AFRICAN PITTA.

Pitta angolensis, Vieill. Ency. Méth. 1791, p. 685.—Id. Nouv. Dict. Hist. Nat. vol. iv. 1816, p. 356.—Gray, Gen. B. vol. i. 1846, p. 213.—Hartl. Ornith. West-Afr. 1857, p. 74. no. 223.—Des Murs, Icon. Ornith. pl. 46.—Schleg. Mus. P.-Bas, *Pitta*, 1863, p. 12 ; 1874, p. 15.—Wall. Ibis, 1864, p. 105.—Sharpe, Ibis, 1869, p. 187 (Fantee).—Ussh. Ibis, 1874, p. 56 (Gold Coast).—Sclat. Cat. B. vol. xiv. 1888, p. 422.

Pitta pulih, Fraser, Proc. Zool. Soc. 1842, p. 190.—Allen & Thom. Niger Exp. vol. ii. p. 495.—Müll. & Schleg. Verh. Natuur. Geschied. Ned. Ind. overz. Bezitt., Zool. *Pitta*, 1839–44, p. 18.

Brachyurus angolensis, Bon. Consp. Gen. Av. vol. i. 1850, p. 255. sp. 13.—Id. Consp. Voluc. Anis. 1854, p. 7. no. 186.—Elliot, Mon. Pitt. 1863, pl. v.—Id. Ibis, 1870, p. 414.

Habitat.—Tropical Africa, West Coast.

Adult. Top, sides of head, and nape black ; a rufous line from the nostrils runs over each eye, and nearly meets on the occiput. Back and wings green ; lesser wing- and upper tail-coverts light blue ; primaries black, tips greyish, and a white spot in the centre of 3rd, 4th, 5th, and 6th. Throat rose-colour ; breast and flanks buff, with a slight greenish shade ; abdomen and under tail-coverts bright red. Tail black, tipped with light blue. Bill horn-colour, black on the cutting-edge of the maxilla and mandible. Feet and tarsi flesh-colour. Length 7·5 inches, wing 4·3, tail 1·7.

Described by Vieillot, *l. c.*, the African Pitta, the only representative of this family inhabiting that continent, has always remained a rather scarce bird in collections, and very little has been recorded about it. It is a remarkable fact in the geographical distribution of the species of Pitta, that one should be found upon the African continent, as all the other members are natives of the Oriental or Australian regions, and it is difficult to account for the existence of this solitary form in a region possessing such a different zoological fauna from those in which the rest of the species dwell.

It is quite distinct from all other Pittas, and although exhibiting a general resemblance to the members of the buff-breasted group to which it belongs, it nevertheless possesses various characters that easily distinguish it from them all.

Mr. Ussher, who obtained this species on the Gold Coast, states that it was difficult to learn its habits, as the birds were rather scarce. It is found in grassy and rocky jungle, and seldom rises on the wing. He never had an opportunity to obtain a clear view of any individual, but once caught a glimpse of one as it ran into some thick cover with its head down like a Quail. The natives trap the birds, but by this method specimens are badly disfigured and the legs broken. The majority of the examples brought to him came from Denkera.

Drawn from Nature by D. G. Elliot F. Z. S.

Bowen & Co lith & col Philada

PITTA VENUSTA.

PITTA VENUSTA.

GRACEFUL PITTA.

Pitta venusta, Müll. Tijdsch. Nat. Gesch. vol. ii. 1835, pl. 9. fig. 4.—Temm. Plan. Col. 1836, no. 590.—Müll. & Schleg. Verh. Natuur. Geschied. Ned. overz. Bezitt., Zool. *Pitta*, 1839-44, pp. 6, 15, 20.—Gray, Gen. B. vol. i. 1846, p. 213.—Schleg. Vog. Nederl. Ind., *Pitta*, 1863, pp. 21, 36, pl. v. figs. 4, 5.—Id. Mus. P.-Bas, *Pitta*, 1863, p. 13; 1874, p. 17.—Wall. Ibis, 1864, pp. 104, 107.—Nicholson, Ibis, 1883, p. 254 (Sumatra).—Sclat. Cat. B. vol. xiv. 1888, p. 429 (Sumatra, Borneo).

Brachyurus venustus, Bon. Consp. Gen. Av. vol. i. 1850, p. 255.—Elliot, Ibis, 1870, p. 416.

Erythropitta venusta, Bon. Consp. Vol. Anis. 1854, p. 7. no. 190.

Brachyurus (Erythropitta) venustus, Elliot, Mon. Pitt. 1863, pl. xiv.

Habitat.—Sumatra.

Head, neck, upper parts, tail, throat, and breast purplish brown; a narrow blue stripe from behind the eye to the occiput; greater wing-coverts margined with blue; rest of underparts dull red. Bill black; iris brown; feet and tarsi pale blue. Total length 6·5 inches, wing 3·5, tail 2.

There seems to be little or no difference in the plumage of the sexes, the female possibly having the colour less bright.

In my Monograph of this Family published in 1863, I gave the history of this species as it was then known, derived from the volume of Müller and Schlegel, *l. c.* During the time that has passed since my work was finished, no information of any consequence regarding the economy and habits of this Pitta, in addition to that related by the authors above mentioned, has been obtained. They state that in Sumatra they met with but few individuals, and these in the elevated forests which cover with an almost impenetrable wilderness the south-eastern slope of the volcanic mountains Singaling and Tendike as well as the widespread valley through which the river Anee flows. It lives for the most part on the ground and feeds upon various kinds of small beetles, worms, &c., which it finds among the dry leaves and moss. It was only found in thickets, but was occasionally seen sitting on decayed trunks of trees. A nest containing two eggs was discovered between the leaves of an orchid that was growing upon a trunk of a fallen tree, a few feet above the ground, and was constructed of dry leaves, fine roots, moss, decayed fibres, bamboos, and other delicate plants placed loosely together. The interior was lined principally with dry leaves. The eggs were pure white without spots. Mr. Nicholson obtained this Pitta in the forest at about 3000 feet elevation, at the foot of the volcano of Kaba. He states that it feeds on small mollusca and seeds, and that the legs and feet are a beautiful shade of pale blue. Iris dark brown.

These authors also state that the young is distinguished by its light colour; the red on the lower part of the belly is very pale, with dark feathers showing through at intervals. There is no trace of blue on the wings, and the postocular stripe is mixed with brown and is scarcely descernible. Their description was taken from a young female. A number of immature specimens are in the collection of the Academy of Natural Sciences of Philadelphia, some of which answer to the description given above by Müller and

Schlegel, and one is figured in my Plate, and this specimen I formerly considered an adult female. I am inclined now to regard it as not having altogether assumed its complete plumage, and although it might not attain the brighter dress of the male, yet I rather imagine, when arrayed in its full seasonal attire, that there would not be so great a contrast between the sexes as is here exhibited.

Mr. Sclater, *l. c.*, gives Borneo as one of the habitats of this species, but on what authority is not stated. The Bornean ally of this Pitta is a much more brilliantly plumaged bird, and seems to represent a separate species. Should both forms be found in Borneo, it would rather cast a doubt upon the value of their specific distinctness.

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PITTA USHERI.

PITTA USSHERI.

USSHER'S PITTA.

Pitta ussheri, Sharpe, Proc. Zool. Soc. 1877, p. 94 ; 1881, p. 798 (Borneo).—Id. Ibis, 1879, p. 263 ; 1889, p. 442 ; 1890, p. 281 (Borneo).—Nicholson, Ibis, 1883, p. 88.—Gould, B. Asia, vol. v. pl. 75.—Sclat. Cat. B. vol. xiv. 1888, p. 430. sp. 19.

Pitta venusta, Salvad. Ucc. Born. 1874, p. 241 (nec Müll.).—Elliot, Auk, 1890, p. 356 (Borneo).

Habitat.—Borneo.

Front, top, and back of head jet-black, with a slight purplish gloss in some lights ; a narrow post-superciliary pale blue stripe ; a metallic reddish-purple collar on back of neck ; back black, with a purple metallic gloss. Wings black, the coverts broadly margined with pale metallic blue. Throat brownish black ; breast dark purplish maroon ; rest of underparts scarlet. Tail black, margined with blue on outer web of feathers. Bill black. Legs slaty blue. Iris brownish black. Length 5·5 inches, wing 3·5, tail 1·5.

The specimen above described was procured by Mr. C. F. Adams on the Sualamba river in Borneo. Dr. Sharpe states that his type specimen had the throat black. In the above example, which is in full adult plumage, the throat is brownish black, of quite a different hue from the top of the head.

This species was described by Sharpe, *l. c.*, as distinct from the well-known *P. venusta*, to which it bears a general resemblance, but is much more brilliant in coloration. Mr. Whitehead, in the notes on Bornean birds collected by him, published by Sharpe in the 'Ibis,' *l. c.*, says that Ussher's Pitta is a local species, but common in parts of Northern Borneo. In spite of its bright colour, it is a difficult bird to distinguish in the forest, its scarlet breast harmonizing closely with the scarlet fruits and bright red leaves common in the localities it frequents ; and when alarmed it keeps its back turned towards its pursuer, rendering it difficult to be observed in its dimly-lighted retreats. The note is a prolonged whistle, ceasing suddenly when it has attained its greatest volume. He adds that Pittas are good ventriloquists, and one was frequently found close to him when its note would seem to indicate that the bird was a good distance away.

Mr. Adams, who also obtained this species in Borneo, says it is usually observed on the ground, but sometimes perches on a twig of a fallen branch. The flight is low, and occasionally it was seen sitting on a log with the bill elevated, softly whistling a very mellow and musical strain.

W Hart del. et lith.

Mintern Bros. imp.

PITTA GRANATINA-MALACCENSIS.

PITTA GRANATINA.

PURPLE PITTA.

Pitta granatina, Temm. Plan. Col. 1830, pl. 506 (nec Borneo).—Less. Trait. Ornith. 1831, p. 395.—Blyth, Cat. B. Mus. Asiat. Soc. Beng. 1849, p. 157 (specim. ex Malacca).—Moore, Proc. Zool. Soc. 1854, p. 274 (Malacca).—Horsf. & Moore, Cat. B. Mus. E. Ind. Co. p. 184 (Malacca).—Kelham, Ibis, 1881, p. 509 (Malacca).—Sharpe, Proc. Zool. Soc. 1887, p. 432 (Larut Hills, Perak, Straits Settlements).—Elliot, Auk, 1892, p. 218.

Pitta coccinea, Eyton, Proc. Zool. Soc. 1839, p. 104 (Malaya).—Blyth, Journ. Asiat. Soc. Beng. vol. xii. 1843, p. 961, vol. xvi. 1847, p. 153.—Hume & Davis. Str. Feath. vol. vi. 1878, p. 511, App. 1 (Johore, Tenasserim).—Hume, Str. Feath. vol. viii. 1879, p. 94.—Oates, B. Brit. Burm. vol. i. 1883, p. 417.—Gould, B. Asia, vol. v. pl. 68.—Sclat. Cat. B. vol. xiv. 1888, p. 431.—Whitehead, Ibis, 1893, p. 503 (Tenasserim, Malay Peninsula).

Brachyurus granatinus, Bonap. Consp. Gen. Av. vol. i. 1850, p. 255.—Elliot, Ibis, 1870, p. 417, fig. 4 (partim).

Erythropitta granatina, Bonap. Consp. Vol. Anis. 1854, p. 7. no. 191.

Phœnicocichla granatina, Cab. & Heine, Mus. Hein. 1859–60, pt. ii. p. 5 (partim).

Brachyurus (*Erythropitta*) *granatinus*, Elliot, Mon. Pitt. pl. xv. (partim).

Habitat.—Tenasserim, Malay Peninsula.

Front, line over the eyes, lores, and sides of the head black; crown, occiput, and nape crimson; a narrow stripe from behind the eye to nape light blue; back and wings black, the feathers margined with glossy purple. Throat brownish-black, with a slight purplish gloss; breast and sides of neck dark purple; rest of underparts and under tail-coverts bright red. Tail black; feathers margined with purplish-blue. Bill black; feet bluish-black. Length 6 inches, wing $3\frac{1}{3}$, tail $1\frac{1}{2}$. There does not seem to be any difference in the plumage of the sexes.

Young. Davison, *l. c.*, describes the young as having the lower parts dusky, with the feathers edged with dull orange-crimson, no occipital stripe, and the bright edges of wing-coverts absent. The crimson of the head is confined to a spot on the occiput; forehead and crown dusky brown, with a slight red tinge on margin of feathers. Interscapulary region dull black, and scapulars, tips of secondaries, tertials, rump, and tail washed with blue. Bill black; gape and spot at point of bill orange-vermilion; legs, feet, and claws pale lavender.

In my paper published in the 'Auk,' *l. c.*, entitled "*Pitta granatina*, Temminck et auctores," I have discussed the nomenclature and specific value of this species and its relative from Borneo, and there showed that Temminck never described nor figured the Bornean bird, although he stated that his species came from that island, but, on the contrary, his text describes and his plate represents the species from Malacca, afterwards called by Eyton, *l. c.*, *Pitta coccinea*. It is rather remarkable that for over sixty years this fact should have escaped the notice of ornithologists, although the species has, at various times, been the subject of considerable discussion. It would seem that all have been misled by Temminck's assertion that his specimens (there were two adult females, according to his statement) came from Pontianak, Borneo. That he did not figure either of these is proved by Schlegel, who, in 'De Vogels van Nederlandsch Indië,' *l. c.*, figures the true Bornean bird, presumably from Temminck's specimens, as, neither in this work nor in the 'Muséum des Pays-Bas,' *l. c.*, does he make any mention of the Malaccan

species, of which there were evidently no representatives in the Leyden Museum. The plate in the 'Planches Coloriées' was drawn by Huet, a French artist, and the specimen represented in the drawing undoubtedly came from Malacca, and was probably in the Paris Museum. Temminck must have written his description from this drawing and not from his Bornean specimens, otherwise it would not have agreed with it so completely as it does, the reference to the distribution of the black on the head describing exactly the Malaccan bird and not the Bornean. Of this he says in his text, "*du noir profond couvre le front, entoure le bec et l'orbite des yeux, et forme au-dessus de cet organe, un large sourcil.*" This, as will be readily observed by a glance at the plate of the Bornean bird, is not one of its characters, as it has no superciliary stripe, the entire top of the head between the eyes being black, while, on the contrary, the Malaccan species does possess this stripe as described by Temminck and shown in his figure.

This fact being established, Temminck's name must be applied to the bird from Malacca, and that of *coccinea* bestowed by Eyton, and by which it has generally been called, must become a synonym. Although known for so many years, and apparently not uncommon in the localities it frequents, but little has been recorded of its economy or habits.

The figures in the Plate represent two adult birds.

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PITTA GRANATINA-BORNEENSIS.

PITTA GRANATINA BORNEENSIS.

BORNEAN PURPLE PITTA.

Pitta granatina (nec Temm.), Müll. & Schleg. Verh. Natuur. Geschied. Neder., Zool. *Pitta*, 1839–44, pp. 10, 15, 20 (Borneo).—Gray, Gen. B. vol. i. 1846, p. 213.—Low, Sarawak, 1848, p. 410.—Schleg. Handl. Dierk. vol. i. 1857, p. 253.—Id. Vog. Ned. Ind., *Pitta*, 1863, pp. 20, 35, pl. v. fig. 3 (Pontianak, Banjermassing, Borneo).—Id. Mus. P.-Bas, *Pitta*, 1863, p. 5; 1874, p. 9 (Borneo).—Wall. Ibis, 1864, p. 107 (partim).—Salvad. Ucc. Born. 1874, p. 242.—Gould, B. Asia, vol. v. pl. 67.—Sclat. Cat. B. vol. xiv. 1888, p. 430 (Borneo).—Everett, Journ. Str. B. Roy. Asiat. Soc. no. 20, 1889, p. 148.—Whitehead, Ibis, 1893, p. 502.

Phœnicocichla granatina, Cab. & Hein. Mus. Hein. pt. ii. 1859, p. 5 (partim).

Brachyurus granatinus, Elliot, Ibis, 1870, p. 417, fig. 3 (partim).—Sharpe, Ibis, 1877, p. 10 (Bintulu, Borneo).

Erythropitta granatina (nec Temm.), Wald. Ibis, 1872, p. 374.

Pitta granatina borneensis, Elliot, Auk, 1892, p. 218.

Habitat.—Borneo.

Front and crown, to a line behind the eyes, and sides of head jet-black; remainder of crown, occiput, and nape scarlet; narrow line behind the eye silvery-blue; back and wings glossy purple; coverts and secondaries margined with silvery-blue, much lighter than in *Pitta granatina* from Malacca. Throat very dark purplish-brown; breast and under tail-coverts dull red. Tail purplish-blue. Bill black; legs and feet leaden-blue; iris brown. Length 6 inches, wing $3\frac{1}{3}$, tail $1\frac{1}{2}$.

The bill of the Bornean bird seems to be somewhat shorter and generally smaller than those of Malaccan examples.

This subspecific form of *Pitta granatina* is restricted to the great island of Borneo. In my article on the species from Malacca I have explained why Temminck's name, always heretofore applied to this bird, can no longer be given to it; and as it had received no other name, I was obliged, if it was to be kept separate from *P. granatina*, to christen it anew. It resembles its relative very closely, but is a somewhat darker and richer plumaged bird, with the blue markings of a paler tint and the black on the crown more extended. Mr. Everett, who procured it in Borneo, says he shot it in swampy old jungle close to the shore. Nothing is known of its economy or habits. The sexes do not differ in plumage.

The Plate represents two adult birds.

W Hart del et lith

Mintern Bros imp

PITTA ARCUATA.

PITTA ARCUATA.

NECKLACED PITTA.

Pitta (Phœnicocichla) arquata, Gould, Ann. Mag. Nat. Hist. ser. 4, vol. vii. 1871, p. 340.
Phœnicocichla arquata, Gould, Mon. Pitt. part i. pl. 9.
Pitta arquata, Gould, B. Asia, vol. v. p. 69.
Pitta arcuata, Salvad. Ucc. Born. 1874, p. 241.—Sharpe, Ibis, 1879, p. 263 ; 1889, p. 441 ; 1890, pp. 281, 288, 289 (Borneo).—Everett, Proc. Zool. Soc. 1887, p. 503 (Kina Balu).

Habitat.—Borneo.

"Forehead, lores, and throat reddish buff ; crown, nape, and breast rich rusty red ; over (but posteriorly to) the eye a lovely stripe of blue, as in *P. granatina* ; a broken tooth-like bar of the same beautiful hue across the breast, separating the rich rusty red of the chest from the deep scarlet of the abdomen ; upper surface of the body and scapularies brownish olive-green ; primaries and secondaries brown, tinged with green ; the secondaries are also tipped with splendid blue, but not so conspicuously as in *P. granatina* ; tail blue, tinged with olive ; legs and bill black. Length 6 inches, bill 1, wing $3\frac{1}{4}$, tail $1\frac{1}{4}$, tarsi $\frac{1}{2}$." (*Gould.*)

This beautiful species, in its postocular blue stripe, resembles *P. granatina*, from the Malay Peninsula, and *P. g. borneensis* from Borneo, as stated by Mr. Gould in his description given above ; but this character is also possessed by *P. venusta* from Sumatra and *P. ussheri* from Borneo. However, with the exception of having the abdomen deep scarlet, it bears no other resemblance to any of these species, but stands quite by itself in its peculiar coloration. Mr. Gould procured the type from a dealer in London, and presumed that it was a female, which is probably an error, as there does not seem to be any differences in the colour of the plumage between the sexes ; it is more probable, from its brilliant hues and well-developed necklace, that his specimen represents the male bird. It is very rare in collections, but few specimens having been obtained. Mr. Whitehead, who, so far as I am aware, is the only European who has seen and procured this Pitta in its native haunts, met with it on Kina Balu, a mountain in Northern Borneo, at a height of from 2000 to 4000 feet, where it frequents thick bamboo-jungle. According to this collector, the bill is dark brown, greyish at base of mandible ; iris black, and legs slaty grey. Dr. Sharpe, who determined Mr. Whitehead's specimens, states that there is no difference in the colouring of the sexes, but the female has scarcely such a finely-developed necklace.

As will be observed from the above account, we know but very little as yet concerning this bird, and specimens are among the desiderata of our collections.

The Plate represents an adult male and female, and a young bird from Dulit Mountain, 4000 feet.

ELLIOT'S ILLUSTRATIONS.

PITTA KOCKI.

PITTA KOCKI.

KOCK'S PITTA.

Pitta kocki, Brüggem. Abhandl. nat. Ver. Bremen, vol. v. 1877, p. 65, pl. iii. fig. 6 (Luzon).—Oust. Bull. Soc. Philom. sér. 7, vol. vi. p. 256, desc. juv.—Gould, B. Asia, vol. v. pl. 71.—Sclat. Cat. B. vol. xiv. 1888, p. 433.

Erythropitta kocki, Tweed. Proc. Zool. Soc. 1878, p. 430, pl. xxvi.—Wardlaw-Ramsay, Mem. Tweedd. Append. 1881, p. 657.

Habitat.—Luzon, Philippines (*Oothberg*, *Marché*).

Forehead, crown, lores, and ear-coverts dark olive-brown; occiput and nape pale red; a rather broad ashy-brown stripe from gape extends beneath ear-coverts and nearly to the nape; back olive-brown. Primaries blackish-brown, greyish at their tips, 2nd, 3rd, and 4th with a large white central spot; secondaries and greater coverts pale blue on outer webs, olive-brown on inner; under wing-coverts black; upper tail-coverts lilac-grey. Tail blue; centre of throat rufous-brown, sides blackish-brown; a broad pale blue band across upper part of breast; flanks olive-brown; abdomen scarlet, the centre olive-brown; under tail-coverts also scarlet, the longer ones edged and tipped with lilac-blue. Bill black; feet and tarsi flesh-colour. Length $7\frac{3}{4}$ inches, wing $4\frac{1}{2}$, tail $2\frac{1}{6}$, culmen $1\frac{1}{6}$, tarsus 2.

The young bird has been minutely described by Dr. Oustalet, *l. c.*, as follows:—The young *Pitta kocki* differs notably from the adult. The head is varied with light and dark brown, each feather wood-colour bordered with vandyke brown, giving a scaly appearance to this part; the brown turns to red near the nape; above the ears and around the eyes the feathers are crossed with red and brown; the reddish bar on sides of neck in the adult is indicated by a series of small buff feathers edged with light brown; the chin, throat, and upper part of breast are covered with white and red feathers bordered with very dark brown, but on the breast already appears ashy-blue feathers, the first vestige of the blue bar in the adult; flanks olive; some red feathers are visible on the abdomen near the legs and on the under tail-coverts; mantle reddish-olive; primaries dark brown, with a large white spot on the inner web of the 3rd and 4th and a smaller one on the 2nd. Tail black, glossed above with blue, beneath ashy. Bill horn-brown, with some yellowish on mandible. Feet brown, nails whitish. Length 215 mm., wing 115, bill at culmen 23, tarsus 49. The description was taken from a specimen killed by M. Marché in Luzon, and now in the Paris Museum.

Kock's Pitta is nearly equal in size to *Pitta nepalensis*, and is altogether the largest of the species belonging to the red-breasted group of this Family. The type, which came from Luzon, was described by Dr. Brüggemann, and named in honour of Dr. Kock, the Director of the Darmstadt Museum, in which institution it is now deposited. It is the second species known to inhabit the island of Luzon, the other being *Pitta erythrogastra*, also belonging to the red-breasted group. The type and the young bird described by Dr. Oustalet are the only specimens that have been obtained, so far as I am aware, up to the present time. It must, however, be a conspicuous object in its native haunts from its large size and bright colours, and would not be likely to escape the pursuit of an energetic collector. Nothing is known of its economy or habits.

Drawn from Nature by D. G. Elliot F. Z. S

PITTA ERYTHROGASTRA.

Bowen & Co Lith & col Philada

PITTA ERYTHROGASTRA.

RED-BREASTED PITTA.

Pitta erythrogastra, Temm. Plan. Col. 1823, no. 212.—Steph. Shaw's Gen. Zool. vol. xiii. 1825, p. 185. sp. 15.—Less. Trait. Ornith. 1831, p. 394. sp. 6.—Müll. & Schleg. Verh. Natuur. Geschied. Neder. overz. Bezitt., Zool. *Pitta*, 1839-44, p. 18.—Gray, Gen. B. vol. i. 1846, p. 213. sp. 22.—Blyth, Cat. B. Mus. Asiat. Soc. Beng. 1849, p. 157. sp. 909.—Schleg. Mus. Pays-B., *Pitta*, 1863, p. 8; 1874, p. 12.—Wallace, Ibis, 1864, p. 106.—Everett, Proc. Zool. Soc. 1878, p. 948 (Zamboanga).—Wardl.-Ramsay, Ibis, 1884, p. 334 (Manilla).—Sclat. Cat. B. vol. xiv. 1888, p. 432.—Sharpe, Ibis, 1888, p. 200 (Palawan).—Blas. Ornis, vol. iv. 1888, pp. 601, 602, 646.—Id. Ibis, 1888, pp. 373, 375.—Id. Journ. für Ornit. 1890, p. 139 (Sooloo Islands).—Everett, Journ. Str. B. Roy. Asiat. Soc. 1889, no. 20, p. 148.—Whitehead, Ibis, 1890, p. 50; 1893, p. 504 (Palawan).—Hartert, Journ. für Ornit. 1891, p. 295 (Mindoro).

Brachyurus erythrogaster, Bonap. Consp. Gen. Av. vol. i. 1850, p. 255.—Elliot, Ibis, 1870, p. 417.

Erythropitta erythrogastra, Bonap. Consp. Voluc. Anisod. 1854, p. 7.—Wald. Trans. Zool. Soc. vol. ix. 1873, p. 187.—Id. Proc. Zool. Soc. 1877, p. 546 (Pesananca); 1878, p. 948; 1879, p. 71 (Basilan).—Wardl.-Ramsay, Tweed. Mem. Append. 1881, p. 657 (Mindanao and Basilan).

Coloburis erythrogaster, Cab. & Hein. Mus. Hein. pt. ii. 1859-60, p. 5. sp. 10.

Brachyurus (*Erythropitta*) *erythrogastra*, Elliot, Mon. Pitt. 1863, pl. xvi.

Habitat.—Philippine Islands.

Head pale chestnut, lightest on sides of face. From each nostril a black line extends to above the eye. A broad band at base of neck, rump, and upper tail-coverts bright blue. Secondaries and greater coverts black, edged with blue; primaries black, brownish at tips, with a white spot in the centre on 3rd and 4th and in some specimens also on 5th, size of spots varying among individuals. A white spot also on shoulders at bend of wing. Upper part of back green. Upper part of throat pale rufous brown, grading into brownish-black on lower part, and becoming jet-black on the breast. Band across breast cobalt-blue in the centre, green on the sides. In some specimens an indication of a black bar mixed with green beneath the breast-band. Rest of under surface bright red. Tail black, apical portion dull blue. Maxilla black, tip horn-colour, mandible dark horn-colour; iris hazel; feet and tarsi slate-blue. Total length $6\frac{1}{2}$ inches, wing 4, tail $1\frac{1}{2}$, culmen $\frac{3}{4}$, tarsus $1\frac{1}{2}$.

The young are quite different from the adults, and are above dark brown; breast pinkish-brown, graduating into pale pink on the abdomen; the feathers on the neck and upper part of breast margined with brown; tail slate-blue; bill black, with orange-red base and tip.

In the plumage of the sexes there does not appear to be any very appreciable difference in colour, but the female is somewhat less bright.

The Red-breasted Pitta, described by Temminck seventy years ago, is a native of various islands in the Philippine Archipelago, and although it has been so long known to ornithologists, and many specimens have been obtained from time to time, little or nothing has been recorded of its economy or habits, and I am unable to add anything of consequence to the account I formerly wrote of the species.

Mr. Whitehead obtained it in Palawan, and found it fairly common on the mountains inland up to 2000 feet. The Sulu name for it is "*Wou-wā*," which, when whistled, resembles the note uttered by the bird. Specimens from the different islands do not seem to vary, although, as will be noticed from the description given above, the plumage changes greatly as the bird advances from youth to maturity.

Drawn from Nature by D.G. Elliot, F.Z.S. Bowen & Co. lith & col. Philada

PITTA RUFIVENTRIS.

PITTA RUFIVENTRIS.

RED-BELLIED PITTA.

Coloburis rufiventris, Cab. & Hein. Journ. f. Ornith. 1859, p. 406.—Sclat. Proc. Zool. Soc. 1860, p. 350 (note).
Pitta inornata, G. R. Gray, Proc. Zool. Soc. 1860, p. 350 (Batchian and Gilolo).
Brachyurus rufiventris, Elliot, Mon. Pitt. 1863, pl. xix.—Id. Ibis, 1870, p. 418.
Pitta rufiventris, Schleg. Vog. Neder. Ind., *Pitta*, 1863, pp. 17, 34.—Id. Mus. Pays-B., *Pitta*, 1863, p. 7 ; 1874, p. 12 (Dammar, Obi, Major, and Motir).—Wall. Ibis, 1864, pp. 105, 106.—Finsch, Neu-Guin. 1865, p. 167.—Salv. Ann. Mus. Civ. Gen. vol. vii. 1875, p. 777 ; vol. xvi. 1880, p. 185. no. 10.—Id. Orn. Papuas. vol. ii. 1881, p. 401.—Sclat. Cat. B. vol. xiv. 1888, p. 434.
Pitta rubriventris, Schleg. Ned. Tijdsch. vol. iii. 1866, p. 188.
Erythropitta rufiventris, Gray, Hand-l. vol. i. p. 296.

Habitat.—Batchian, Halmaheira, Dammar, Obi, Major, and Motir (*Bernstein*).

Top of head and front dull reddish brown ; occiput and nape bright rufous brown ; sides of head dull brown, with a rufous tinge ; back and wings dull greenish ; secondaries edged with blue ; primaries black, with a white spot in centre of 3rd and 4th. Upper tail-coverts pale blue ; rectrices black, edged with blue. Chin and throat pale brown, whitish in some examples ; a broad blue band across the breast narrowly margined beneath with black ; rest of underparts scarlet. Bill dark horn-colour, base of mandible reddish beneath ; feet and tarsi pale lead-colour. Length 7 inches, wing 3·5, tail 1·5. No difference in the plumage of the sexes.

Although described for over forty years, nothing is known of the habits of this Pitta. Belonging to the red-breasted section, it is readily distinguished from the others by its reddish-brown head and paler throat, green back, and the absence of the black marginal line beneath the blue on the breast. It is distributed throughout a number of the islands in the Eastern Archipelago, and does not seem to be rare in the districts it inhabits.

W Hart del. et lith. Mintern Bros. imp.

PITTA INSPECULATA.

PITTA INSPECULATA.

TALAUT PITTA.

Pitta inspeculata, Meyer & Wiglesw. Journ. für Ornit. 1894, p. 245.—Rothsch. Bull. Brit. Ornith. Club, no. xix., 30th June, 1894.—Id. Ibis, 1894, p. 547.

Habitat.—Kabruang and Salibabu, Talaut Islands.

Front and crown blackish-brown, grading into rufous on the occiput and hind neck, bordered by a narrow semi-collar of light blue. Back, wings, rump, upper tail-coverts, and tail sky-blue, lightest on the rump. Primaries black; no white speculum in the adult, but a trace of it is observed in the immature bird. Chin and sides of face light rufous. Middle and lower part of throat black. A broad pale blue band crosses upper part of breast, and the entire lower parts bright red. Bill black. Feet and legs lead-colour. Total length 94–100, tail c. 35, bill 15·5–16 (juv. 13·5), tarsus 36 millim. (*Meyer & Wiglesw.*)

When the Introduction to this work had nearly passed through the press, Messrs. Meyer and Wiglesworth described a Pitta from two islands of the Talaut Group, which apparently represents a new species. These islands lie to the north-eastward of the Sanghirs, and the specimens of this new Pitta were received in a small collection of birds procured on Kabruang and Salibabu. The Talaut Pitta has its nearest ally in *P. cyanonota* from Ternate and Guebéh; but is easily distinguished from that species by the greater extent of black upon the throat, by the presence of a semi-light-blue collar, and the absence of the black margin beneath the blue breast-band. In the adult there is no white speculum on the primaries, although the describers state there is a vestige of this observable on the primaries of the young. From the other species, which do not have a black lower margin to the breast-band, such as *P. rufiventris*, *P. erythrogastra*, &c., it is at once recognizable by its blue back, in this respect resembling *P. cyanonota* and *P. propinqua*. The native name of *P. inspeculata* is "*Angkaruii*." Nothing is related as to the habits and economy of this Pitta.

The discovery of this new form shows how local many of the members of this Family are in their habitats, and that not infrequently contiguous islands possess their own distinct species, although the waters that separate them are of no considerable width. We must expect, therefore, as the various incompletely explored islands in the Eastern Archipelago become better known, that perhaps many new and attractive members of this brilliantly plumaged Family will be made known to naturalists. The discovery of the Talaut Pitta is of such recent occurrence that it could not be inserted in the various places of my Introduction where it should properly appear; but I have fortunately been able to introduce it in the Analytical Table, and thus exhibit the position it should rightfully occupy in the arrangement of the Family.

The drawing is made from a specimen in the collection of the Hon. Walter Rothschild, who kindly permitted it to be figured for this work, and to whom I desire to express my thanks.

W Hart del et lith

Mintern Bros. imp

PITTA CYANONOTA.

PITTA CYANONOTA.

GRAY'S PITTA.

Pitta cyanonota, G. R. Gray, Proc. Zool. Soc. 1860, p. 351 (Ternate).—Schleg. Vog. Neder. Ind., *Pitta*, 1863, pp. 18, 35 (Ternate).—Id. Mus. Pays-B., *Pitta*, 1863, p. 8; 1874, p. 13 (Ternate, Guebéh).—Id. Ned. Tijdschr. Dierk. vol. iii. 1866, p. 188; vol. iv. 1871, p. 15.—Wall. Ibis, 1864, pp. 105, 106.—Finsch, Neu-Guin. 1865, p. 165.—Bernst. Ned. Tijdschr. Dierk. vol. ii. 1865, p. 374.—Rosenb. Reist. naar Geelv. 1875, p. 7.—Id. Malay. Archip. 1879, p. 406.—Legge, B. Ceylon, 1879, p. 689.—Gould, B. N. Guin. vol. iv. pl. 29.—Salvad. Ann. Mus. Civ. Gen. vol. xvi. 1880, p. 185. no. 11.—Id. Orn. Papuas. vol. ii. 1881, p. 402 (Ternate).—Sclat. Cat. B. vol. xiv. 1888, p. 435 (Ternate, Guebéh).—Whitehead, Ibis, 1893, p. 505.

Brachyurus cyanonotus, Elliot, Mon. Pitt. 1863, pl. xx.—Id. Ibis, 1870, p. 418.

Pitta finschi, Ramsay, Proc. Linn. Soc. N. S. Wales, vol. ix. 1884, p. 864 (Astrolabe Range).—Salvad. Ann. Mus. Civ. Stor. Nat. Gen. ser. 2, vol. ix. 1889–90, p. 579.

Habitat.—Ternate and Guebéh (*Schlegel*).—Astrolabe Range, New Guinea (*Ramsay*).

Top and back of head and hind neck reddish-brown; sides of head and throat lighter brown, streaked with brownish-black; back, wings, and tail blue; primaries black, with white central spot, and white spot on shoulder of wing; throat blackish-brown; a broad blue band across upper part of breast, bordered above and beneath with black. Flanks blue; entire rest of underparts crimson. Bill black; feet and tarsi greyish-blue.

Young. Top of head and hind neck reddish-brown, graduating into pale olive-brown on the back and rump. Wings dark olive-brown. A few whitish spots on the forehead. Throat whitish, streaked with dark brown, bordered beneath with a whitish band. Underparts rufous-brown, with central white streaks on the feathers. Under tail-coverts pale red. Tail dull blue. Bill black, with tip and basal part yellow; feet flesh-colour.

This red-breasted Pitta was discovered by Mr. Wallace in Ternate, and described by Gray, *l. c.* Bernstein and von Rosenberg afterwards procured a large series, and it was supposed to be confined to Ternate, until Bernstein obtained it in Guebéh. In the first-named island it was found throughout the year, and in May von Rosenberg took two nestlings, but it does not appear that he discovered either nest or eggs.

I place among the synonyms of this species *Pitta finschi*, Ramsay, stated to have been obtained in the Astrolabe Range, as I cannot perceive from his description that it is in any way different from *Pitta cyanonota*. Specimens with the sides of the chest and interscapular region oil-green, coming from the same locality, and which Dr. Ramsay thought were females, were determined by Dr. Finsch to be *Pitta mackloti*.

This species gives another example of the singular geographical distribution witnessed among the members of this Family; as it inhabits Ternate on the west and Guebéh on the east of Halmaheira, while in the last-named island the red-breasted species is *Pitta rufiventris*; and if my determination of Ramsay's specimen is correct, we have it along with *Pitta mackloti* dwelling in the Astrolabe Range. Such eccentricities of habitats are difficult to explain, but they present themselves for our consideration very frequently among the *Pittæ*.

Although the various species of the red-breasted Pittas possess nearly the same coloration, yet the hues are so differently distributed that each species can be readily distinguished from all the others.

Nothing as yet has been recorded of the nesting or habits of this Pitta.

Ramsay's description of *P. finschi* is as follows :—

" Whole of head, nape, neck, and chin of a dark reddish chocolate-brown, tinged with reddish in certain lights ; throat black ; across the chest a broad band of blue, bounded below by a narrow band of black, all the feathers of the black band tipped with crimson ; the remainder of the under surface very deep rich crimson ; outer series of the under tail-coverts tipped with blackish-blue. The whole of the upper surface, lower portion of hind neck, wings, and tail deep blue, of the same tint as that of the chest ; inner webs of the quills above and all their under surface black. A small white spot on the shoulder-coverts, and an oval white spot on the 3rd and 4th, and in some on the 5th, primary quills. Bill black ; legs and feet blackish-brown. Length 6–7 in., wing 4, tail 2, tarsus 1·6, bill from forehead 1·15, from nostril 1·8."

European ornithologists have had no opportunity of comparing the specimen described by Dr. Ramsay, and an effort was made, but without success, to have it sent to London, where its specific standing could easily have been determined, and if distinct a portrait of the bird be given in this work. We shall have to await the arrival of specimens at some of the great museums before deciding whether my reference of the bird to *P. cyanonota* is an error or not.

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PITTA PROPINQUA.

PITTA PROPINQUA.

ALLIED PITTA.

Brachyurus propinquus, Sharpe, Trans. Linn. Soc. ser. 2, Zool. vol. i. 1877, p. 330 (Balabac, Mindanao, Philippines).

Melanopitta propinqua, Wardlaw-Ramsay, Mem. Tweed. Append. 1881, p. 657.—Whitehead, Ibis, 1893, p. 505.

Pitta propinqua, Sclater, Cat. B. vol. xiv. 1888, p. 433.—Blas. Ornis, vol. iv. 1888, p. 314 (Balabac, Mindanao).

Habitat.—Balabac, Philippines (*Steere*).

Head chestnut, with a blackish-brown line over each eye, grading into chestnut; tips of ear-coverts faintly tinged with blue; back, scapulars, and a line below the nape, rump, and upper tail-coverts cobalt-blue; band across back green. Upper part of throat brownish-black, becoming jet-black on the lower part of throat and fore neck. Breast bright blue, sides greenish. Under wing-coverts dull blue. White spot on shoulder. Primaries black, central white spot on 3rd and 4th. Abdomen and under tail-coverts crimson. Maxilla black; mandible horn-colour at base, tip black; feet and legs brown. Total length $6\frac{1}{4}$ inches, wing $3\frac{5}{8}$, tail $1\frac{7}{8}$, tarsus $1\frac{1}{4}$. (Ex type.)

This species closely resembles *P. erythrogastra*, but differs from that bird in the deep chestnut colour of the head and the much blacker throat. The blue of the breast is slightly darker in hue. In regard to the habitat of this Pitta, Prof. Steere writes me that it is not found on Mindanao, but is a native of Balabac, and he thinks the specimen of a young bird in the British Museum, which is said to have come from Mindanao, belongs either to some other species, or that an error has been made in the locality, and that it is really from Balabac.

This Pitta is one of the discoveries made by Prof. Steere in his first expedition to the Philippines, and was described with other of Prof. Steere's new species by Sharpe, *l. c.* The type, shot by its discoverer on Balabac, was kindly forwarded to me by Prof. Steere, and from this specimen my description was taken, and it is represented by the figure in the Plate.

Nothing is known of its economy or habits.

Mr. Everett, in the 'Journal of the Straits Branch of the Royal Asiatic Society,' *l. c.*, has placed this species as a synonym of *P. erythrogastra*, Temm., for the reason that he considered it merely a richly coloured individual of the Philippine bird. The specimen in the British Museum, which enabled Mr. Everett to arrive at his opinion of its specific value, is not the type of the species, but a young bird, and is hardly sufficient evidence on which to found such a decision. I have carefully compared the type with a series of *P. erythrogastra*, and it seems to possess characters of sufficient specific value to preclude it from being united with the species just named.

The figures in the accompanying Plate, drawn from the type specimen and the young

bird in the British Museum, exhibit very clearly the differences existing between this species and *P. erythrogastra*.

My thanks are due to Prof. Steere for kindly lending me the type, now the property of the University of Michigan, and to Dr. Sharpe, of the British Museum, for the specimen of the young, in order that the portraits of the birds in the two stages of plumage could be introduced into this work.

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PITTA CZERULEITORQUES.

PITTA CÆRULEITORQUES.

BLUE-COLLARED PITTA.

Pitta cæruleitorques, Salvad. Ann. Mus. Civ. Gen. vol. ix. 1876, p. 53 (Petta).—Id. Atti Accad. Tor. vol. xiii. 1877–78, p. 1187.—Meyer in Rowl. Orn. Misc. vol. ii. 1877, p. 324, pl. lxiv. (Tabukan).—Id. Isis, 1884, p. 6.—Gould, B. N. Guin. vol. iv. pl. 32.—Sclat. Cat. B. vol. xiv. 1888, p. 433 (Petta, Sanghir Islands).—Blas. Ornis, vol. iv. 1888, pp. 532, 534, 601, 637, 646.—Whitehead, Ibis, 1893, p. 505.

Habitat.—Petta, Sanghir Islands (*Salvad.*); Tabukan, Sanghir (*Meyer*).

Top of head and hind neck red, brightest on the latter; sides of head and throat reddish-brown, with a black patch on lower part of throat; back green; secondaries dark blue; primaries black, with a white spot in centre and a white spot near bend of wing. A broad band around hind neck and one across breast pale blue, the latter margined beneath with black; upper tail-coverts and tail bluish lead-grey; flanks green; rest of under surface bright red, with the tips of long under tail-coverts blue. Bill black; feet and tarsi lead-colour. Length 6 inches, wing 4, tail $1\frac{1}{2}$, tarsus $\frac{5}{8}$, culmen 1.

This Pitta is a member of the red-breasted group, and was described by Count Salvadori from a specimen obtained at Petta, one of the Sanghir Islands. As stated by its describer, the present species differs from *Pitta erythrogastra* in the more uniform red colour of the head and the brighter neck, by the absence of the two dull bands on the sides of the crown, by the reddish-brown colour of the sides of the head and throat, by the blue of the breast being more extended and separated from the red of the abdomen by a well-marked black band, and also by a somewhat larger size. This species and the one with which the above comparison is made, together with *Pitta propinqua*, are distinguished also from the other members of the red-breasted group by having a blue half-collar on the lower part of the hind neck.

Pitta cæruleitorques, according to Meyer, *l. c.*, inhabits the largest islands of the Sanghir group, and presents a good example of the peculiar geographical distribution occasionally met with among members of the Pittidæ, as it is more closely allied to *Pitta erythrogastra* from the Philippines on the north than it is to the two species from the islands lying immediately to the south, viz. *Pitta palliceps* from Siao, and *Pitta celebensis* from Celebes.

It is a species not often represented in collections as yet, and nothing is known of its economy or habits. It is, however, one of the most beautiful members of the group to which it belongs, as a glance at the accompanying Plate will demonstrate.

The figures are drawn from the type specimen, kindly brought to London at my request by Count T. Salvadori for the purpose of being introduced into this work, and I take this opportunity of returning my thanks to my friend for the service he has rendered both to myself as well as to the possessors of this volume.

1893

A. Wenz del et lith. Lantern Bros. imp.

PITTA RUBRINUCHA.

PITTA RUBRINUCHA.

RED-NAPED PITTA.

Pitta rubrinucha, Wall. Proc. Zool. Soc. 1862, p. 187; 1863, p. 25 (Bouru).—Id. Ibis, 1864, p. 106.—Schleg. Ned. Tijdsch. Dierk. vol. iii. 1866, p. 188 (Ceram).—Id. Mus. Pays-B., *Pitta*, 1874, p. 12 (Ceram).—Gould, B. N. Guin. vol. iv. pl. 35.—Salvad. Ann. Mus. Civ. Gen. vol. viii. 1876, p. 375; vol. xvi. 1880, p. 185.—Id. Ornit. Papuas. vol. ii. 1881, p. 393.—Sclat. Cat. B. vol. xiv. 1888, p. 435 (Bouru).—De Vis, Ibis, 1891, p. 35 (Exton Junction, Brit. New Guinea, 1200 feet).

Brachyurus rubrinucha, Elliot, Mon. Pitt. 1863, pl. xviii.—Id. Ibis, 1870, p. 418.

Pitta, spec. nov., Wallace, Malay Arch. vol. ii. 1869, p. 78.

Habitat.—Island of Bouru (*Wallace*); Ceram (*von Rosenberg*); British New Guinae (*De Vis*).

Head and throat reddish-brown, greyish on the ear-coverts, and passing into blackish-brown on the fore neck; a blue stripe on crown running to a square scarlet patch on the nape; upper parts dull olive-green. Primaries black, with a white spot on 3rd and 4th, and a white spot on the bend of the wing; lesser coverts edged with blue. Tail blue; breast greyish-blue, margined beneath with a narrow line of black; rest of underparts bright red. Bill blackish horn-colour; feet light bluish lead-colour; iris light olive-brown. Length 7 inches, wing $3\frac{2}{3}$, tail $1\frac{1}{2}$.

This handsome species is another member of the Pittidæ for whose discovery we are indebted to the efforts of Mr. A. R. Wallace, who obtained it in the island of Bouru, one of the Moluccas. It is perhaps nearest allied to *Pitta celebensis*, but can readily be distinguished from that species, and also from all other red-bellied Pittas, by the square red patch on the occiput. It seems to be fairly plentiful in Bouru, which, with New Guinea, thus far is the only island it is known to inhabit, unless it is also a native of Ceram, where, as stated by Schlegel, it was procured by von Rosenberg, and the specimen deposited in the Museum at Leyden. I am not aware that any other example has ever been taken in that island, and it might perhaps be imagined that some error may have been made in regard to the locality of Schlegel's specimen, although von Rosenberg was not one likely to err in such a matter. Until the contrary is proved, we shall have to give Ceram as a possible habitat for the species.

Mr. Wallace describes the capture of the type of this Pitta in Bouru as follows:—"Soon after we had arrived at Waypoti, Ali had seen a beautiful little bird of the genus *Pitta* which I was very anxious to obtain, as in almost every island the species are different, and none were yet known from Bouru. He, and my other hunters, continued to see it two or three times a week, and to hear its peculiar note much oftener, but could never get a specimen, owing to its always frequenting the most dense thorny thickets, where only hasty glimpses of it could be obtained, and at so short a distance that it would be difficult to avoid blowing the bird to pieces. Ali was very much annoyed that he could not get a specimen of this bird, in going after which he had already severely wounded his feet with thorns, and when he had only two days

more to stay, he went off of his own accord one evening to sleep in a little hut in the forest some miles off, in order to have a last try for it at daybreak, when many birds come out to feed, and are very intent on their morning meal. The next evening he brought me home two specimens, one with its head blown completely off, and otherwise too much injured to preserve, the other in very good order, and which I at once saw to be a new species, very like the *Pitta celebensis*, but ornamented with a square patch of bright red on the nape of the neck."

This is the bird represented in the Plate.

De Vis, *l. c.*, procured this species at Exton Junction, British New Guinea, at a height of 1200 feet. The distribution, therefore, is a very extraordinary one, as the distance from Bouru to this portion of New Guinea is great, with many islands lying between. A satisfactory explanation is difficult to find of this dispersion.

Nothing is known of the economy or habits of this species.

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PITTA MACKLOTI.

PITTA MACKLOTI.

MACKLOT'S PITTA.

Pitta mackloti, Temm. Planch. Color. 1834, no. 547 (Bay of Lobo, New Guinea).—Müll. & Schleg. Verh. Natuur. Geschied. Ned. overz. Bezitt., Zool. *Pitta,* 1839–44, pp. 12, 18.—Gray, Gen. B. vol. i. 1846, p. 213.—Id. Cat. B. N. Guin. 1859, p. 26.—Sclat. Proc. Linn. Soc. vol. ii. 1858, p. 158. sp. 40.—Id. Proc. Zool. Soc. 1877, p. 99 (New Britain).—Schleg. Vog. Ned. Ind., *Pitta,* 1863, pp. 15, 33, pl. 4. fig. 3.—Id. Mus. Pays-B., *Pitta,* 1863, p. 7 (Bay of Lobo, New Guinea); 1874, p. 10 (Wokam, Wanumbai, Aru Islands).—Id. Ned. Tijdsch. vol. iii. 1866, pp. 188, 189; vol. iv. 1871, p. 15.—Wallace, Ibis, 1864, pp. 102, 105, 106.—Finsch, Neu-Guin. 1865, p. 167.—Krefft, Proc. Zool. Soc. 1867, p. 319 (Cape York).—Ramsay, Ibis, 1867, p. 416 (note, Cape York).—Id. Proc. Linn. Soc. N. S. Wales, vol. ii. 1877, p. 187. no. 297; vol. iii. 1879, p. 277; vol. iv. 1880, p. 98. no. 99 (note, Cape York); vol. ix. 1884, p. 864.—Newton, Ibis, 1868, p. 348; 1870, p. 119.—Gould, Suppl. B. Austr. 1869, pl. 29.—Salvad. Ann. Mus. Civ. Gen. vol. vii. 1875, p. 778; vol. x. 1877, p. 128; vol. xiv. 1879, p. 656; vol. xvi. 1880, p. 185. no. 9.—Id. Ibis, 1879, p. 324.—Id. Orn. Papuas. vol. ii. 1881, p. 395.—D'Alb. Ann. Mus. Civ. Gen. vol. x. 1877, pp. 11, 19.—Id. Ibis, 1877, p. 368 (Fly River).—D'Alb. & Salvad. Ann. Mus. Civ. Gen. vol. xiv. 1879, p. 88.—Rosenb. Malay. Arch. 1879, pp. 365, 395, 554.—Ramsay, Proc. Linn. Soc. N. S. Wales, vol. ix. 1884, p. 864 (Astrolabe Range).—Guillemard, Proc. Zool. Soc. 1885, p. 643 (Waigiou, Salwatti, Mysol).—Nehrkorn, Journ. für Ornith. 1885, p. 33 (eggs).—Sclat. Cat. B. vol. xiv. 1888, p. 436.—Whitehead, Ibis, 1893, p. 505.

Brachyurus mackloti, Bonap. Consp. Gen. Av. vol. i. 1850, p. 255.—Wallace, Ann. Mag. Nat. Hist. ser. 2, vol. xx. 1857, p. 477.—Rosenb. Nat. Tijdsch. vol. xxv. 1863, p. 232. no. 97.—Id. Journ. für Ornith. 1864, p. 119.—Elliot, Ibis, 1870, p. 418.

Erythropitta mackloti, Bonap. Consp. Voluc. Anisod. 1854, p. 7.

Brachyurus (Erythropitta) mackloti, Elliot, Mon. Pitt. 1863, pl. xxi.

Pitta digglesi, Krefft, Ibis, 1869, p. 350 (Cape York).—Salvad. Ann. Soc. Ital. Scien. Nat. vol. xii. 1869, p. 553.—Elliot, Ibis, 1870, p. 411.

Pitta strenua, Gould, MS., Elliot, Ibis, 1870, p. 410 (New Guinea).

Pitta novæ-hiberniæ, Ramsay, Proc. Linn. Soc. N. S. Wales, vol. iii. 1878, p. 73, juv. (New Ireland).

Habitat.—New Guinea: Lobo (*S. Müller*); at Dorey, Andai, Sorong, Hattam (*von Rosenberg*); Port Moresby (*Broadbent, Goldie*); Astrolabe Range (*Ramsay*); Fly River (*D'Albertis*); Waigiou (*Bernstein, Beccari*); Salwatti (*Bruijn, Hoedt*); Mysol (*Hoedt*); Jobi (*Bruijn*); Matabello, Grand Key (*von Rosenberg*); Wokam (*Hoedt*); Wanumbai (*von Rosenberg*); Aru Islands. New Britain (*Brown, Finsch*); New Ireland (*Ramsay*); Cape York, Australia (*Ramsay, Krefft*).

Male. Front and top of head black in some specimens, rich rufous-brown in others; occiput and nape pale rusty-brown, sides of head brownish-black with a bluish lustre. (Some New Guinea specimens and also one from New Ireland have a vertical greyish-blue stripe on the head, and this is more or less appreciable in examples from other localities.) Back dark green; rump and tail dark blue. Greater wing-coverts dark blue; primaries and secondaries black, the latter edged with blue, and the former with a white speculum on the third, fourth, and fifth; a white spot also on shoulder. Chin rufous; lower part of throat and a patch extending on to the breast jet-black. Upper part of breast greyish-blue, bordered beneath by a black band. Edge of flanks dark green like the back. Entire rest of underparts deep scarlet. Bill black; feet and tarsi greyish-blue. Total length 7 inches, wing 4, tail $1\frac{1}{2}$.

A specimen in the American Museum of Natural History, New York, obtained from Verreaux and labelled "female ex Halmahera!" differs from the above described male from Waigiou, also in the same collection, by having the sides of the head and throat pale brown, and top of head rufous-brown. The line beneath the blue on the breast is very narrow and greenish-black, while the scarlet of the underparts is much paler. The locality given is probably an error.

Young. Top of head and nape dark rufous-brown, feathers margined with blackish-brown; sides of head

and throat pale brown streaked with dark brown, black on lower throat. Back green. Wing-coverts pale brown margined with blue; secondaries green margined with blue; primaries black, with white speculum. Upper tail-coverts and tail blue. Entire underparts pale yellowish-brown, with some blue and black feathers on the breast, and red ones scattered over the flanks; middle of abdomen and crissum pale red. Bill black, tip and basal portion yellow. Feet and tarsi flesh-colour.

The white on the basal portion of the throat-feathers varies in individuals from different localities, sometimes in those from the same habitats, and reduces the black on the apical part as it increases in extent. This is shown in a specimen from Wokam, Aru Islands, as mentioned by Salvadori, Ornit. Papuas. *l. c.*, which has the throat-feathers for the most part white basally. This would seem to be, however, more of an individual character, and can have no specific importance. The Aru Island birds appear to be smaller than those from New Guinea, and the occiput is of a less bright rusty-brown, and the flanks quite olive-brown, instead of part olive-brown and part greyish-blue as in New Guinea specimens, but Waigiou birds also have olive-brown flanks. The young from Kei have longer tarsi even than those of the adults.

This beautiful species was described by Temminck, *l. c.*, from an example, stated to be a female, obtained in Bay of Lobo, New Guinea, by Müller and Schlegel. These authors say they first met with this Pitta on the western coast of New Guinea, in the large and sombre forests in the rear of Oeroe Langeroe, towards the mountain Lamantsjiere, on moist ground covered with rice and fallen leaves. They obtained three examples, two males and a female, in whose stomachs were the remains of Coleoptera. Its habits differ in no way from those of *Pitta cyanura* (*E. guaiana*, Müll.), and the above authors state that there is no difference in the plumage of the sexes. In the Aru Islands Wallace says that this Pitta quite baffled his Malay hunters, but the Papuan boys, creeping stealthily through the thick jungle, shot them with blunt prong-headed arrows, and thus procured many fine specimens.

In Australia a number of examples of this Pitta have been obtained at Cape York, but they cannot be separated specifically from those procured in New Guinea. Although bearing a general resemblance to the other species in the red-breasted section of the Pittidæ, *P. mackloti* has many characters to separate it from them all. Some individuals have traces of the blue vertical stripe so conspicuous in *P. celebensis*; but this varies greatly among examples, and, as remarked by Sclater, "curiously enough this feature is most apparent in specimens from the extreme end of the range, Mysol and New Britain." Mr. Ramsay described the young bird from New Ireland as distinct, and called it *P. novæ-hiberniæ*, and Salvadori states that he has seen a specimen from New Britain which was not to be distinguished from those obtained in New Guinea. *Pitta mackloti* has quite an extensive dispersion, and is found on the island of Jobi in the Bay of Geelvink, but not on Misore or Méfoor; also pretty generally in the north-western portion of New Guinea, also at Port Moresby, and in the Astrolabe Range, and on the Fly River in the south-eastern portion. The specimens from the Astrolabe Range were considered by Ramsay as females of his *P. finschi*, but were determined by Dr. Finsch to be *P. mackloti*.

It also occurs in Cape York, Australia.

The figures in the Plate were drawn from specimens in the British Museum, and represent the adult and young.

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W. Hart del. et lith.

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PITTA LORIÆ.

PITTA LORIÆ.

LORIA'S PITTA.

Pitta loriæ, Salvad. Ann. Mus. Civ. Stor. Nat. Gen. ser. 2, vol. ix. 1889–90, p. 579 (Su-a-u Island).—Sclat. Ibis, 1891, p. 137.

Habitat.—Su-a-u Island, near South Cape, New Guinea (*Loria*).

Whole head chestnut, with rather indistinct black superciliaries; back green; wing-coverts and outer webs of secondaries pale blue; primaries blackish-brown, paler at the tips; speculum and spot on shoulders white; lower back and tail blue. Throat and neck in front extending onto the breast jet-black. Sides of breast and flanks green. A broad pale blue band across the upper part of breast, bordered beneath with a jet-black bar. Rest of underparts crimson. Bill black. Tarsi and feet lead-colour. Total length $7\frac{1}{4}$ inches, wing $4\frac{1}{4}$, tail $1\frac{1}{2}$, tarsus $1\frac{3}{4}$, culmen $\frac{7}{8}$.

This beautiful Pitta was described by Count Salvadori as above stated. Only the type is known, and this was brought to London by Salvadori in order that its portrait might adorn my work, and the figures in the Plate were drawn from this example. My thanks are due to my friend for the loan of this unique specimen.

Loria's Pitta is allied to *P. mackloti*, but can readily be distinguished from that species by the chestnut head and the absence of the pale reddish-brown occiput and hind neck so conspicuous in *P. mackloti*.

Nothing has been recorded of its habits or economy, and the species has only been found on Su-a-u, a small island lying off the south-eastern end of New Guinea.

Drawn from Nature by D. G. Elliot F.Z.S.

Bowen & Co. Lith. & col. Philada.

PITTA CELEBENSIS.

PITTA CELEBENSIS.

CELEBES PITTA.

Pitta celebensis, Müll. & Schleg. Verh. Natuur. Geschied. Ned. overz. Bezitt., Zool. *Pitta*, 1839–44, pp. 18, 20.—Gray, Gen. B. vol. i. 1846, p. 213.—Westerm. Bijdr. t. d. Dierk. vol. i. 1854, *Pitta*, p. 46, pl. 3.—Wall. Ibis, 1860, p. 142; 1864, p. 106.—Schleg. Vog. Ned. Ind. 1863, *Pitta*, pp. 17, 34, pl. 4. fig. 4 (Tondano, Celebes).—Id. Mus. P.-Bas, *Pitta*, 1863, p. 6; 1874, p. 10 (partim).—Salvad. Ann. Mus. Civ. Gen. vol. vii. 1875, p. 663.—Brügg. Abh. nat. Ver. Brem. vol. v. 1877, p. 64 (Celebes).—Gould, B. New Guin. vol. iv. pl. 34.—Guillem. Proc. Zool. Soc. 1885, p. 552 (Celebes).—Sclat. Cat. B. vol. xiv. 1888, p. 436.—Blas. Ornis, vol. iv. 1888, pp. 602, 638, 646.

Brachyurus celebensis, Bonap. Consp. Gen. Av. vol. i. 1850, p. 255.—Elliot, Ibis, 1870, p. 418.

Erythropitta celebensis, Bonap. Consp. Vol. Anis. 1854, p. 7. no. 188.—Meyer, Ibis, 1879, p. 126.

Brachyurus (*Erythropitta*) *celebensis*, Elliot, Mon. Pitt. 1863, pl. xvii.

Habitat.—Celebes, Menado, January to July; Togian Islands, August; near Segeri, S. Celebes, September (*Meyer*).

Head reddish-brown, lighter on the sides, with a blue stripe on the crown; back green; wings, rump, and tail dark blue; primaries black, with a white central spot. Throat rufous above, terminating below in black; a broad blue band across the breast, bordered on the sides with green and with a broad black band beneath; abdomen and lower tail-coverts red. Bill brownish-black; iris greyish-brown; feet greyish-black. Length 7 inches, wing 4, tail 1½.

This red-bellied Pitta has only been found upon the large island of Celebes, where it does not appear to be uncommon in certain parts. It, together with *P. rubrinucha*, is distinguished from the other members of the subgeneric group to which it belongs by having a conspicuous blue stripe on the crown. Dr. Meyer, who has had opportunities of observing this species in its native country, states that, although not so difficult to obtain as *P. forsteni*, it is very quiet by day and seldom calls except at morning and evening. Its note is like "*tüüüüü tchui*." In the evening it has a cry like "*oppo*," which is uttered by both sexes to call each other, and the natives say that a child which was once lost in the forest was changed into this bird, and now always calls for its "grandfather," which is the meaning of "*oppo*." It is a very shy and watchful species, glides noiselessly through the leaves, which assimilate with its green back and make it difficult to be detected. Its pursuer must creep through the thickest bushes, and without imitating its call its capture is impossible. A good imitation of its cry will draw the bird close to the hunter. During the day it is usually solitary, but keeps in pairs in the evening. A hole is dug in the slope of a river-bank, in which the nest is built of twigs and leaves, and lined with cotton or hairy plant materials. The female lays two eggs, and while she is sitting the male watches near by and takes her place when she seeks food. This Pitta feeds on beetles, small caterpillars, &c. The colours of the young bird are pale, and the plumage of the female is not so brilliant as that of the male.

W. Hart del et lith.

Mintern Bros. imp.

PITTA PALLICEPS.

PITTA PALLICEPS.

PALE-HEADED PITTA.

Pitta celebensis, Schleg. Mus. Pays-Bas, *Pitta*, 1874, p. 10 (partim, ex Siao).

Pitta palliceps, Brügg. Abh. nat. Ver. Brem. vol. v. 1877, p. 64, pl. iii. figs. 7, 8 (head and bill) (Sanghir).—Meyer, in Rowl. Orn. Misc. vol. ii. 1877, p. 327.—Id. Sitz. u. Abh. Ges. Isis, 1884, Abh. i. pp. 6, 18.—Blas. Ornis, vol. iv. 1888, pp. 602, 637, 641, 646.—Sclat. Cat. B. vol. xiv. 1888, p. 436 (Siao).—Whitehead, Ibis, 1893, p. 505.

Habitat.—Siao, Sanghir Islands.

Head and nape bright rusty brown, with blue stripe on sides of crown; a blue band at base of hind neck; back and greater wing-coverts grass-green; secondaries green, edged with blue; primaries black; rump, upper tail-coverts, and tail bright blue. Chin and upper part of throat washed with purple; lower part of throat bright rusty brown, bordered beneath with a jet-black band. Breast pale purplish-blue, bordered on the sides with grass-green, and with some black-tipped feathers on the lower edge. Entire underparts bright red. Bill black; feet and tarsi yellowish.

Young. Head, sides of neck, and nape pale yellowish-brown, streaked with dark brown, and dark brown stripes on either side of crown. Back and wings green, the secondaries margined with blue. Primaries black. Rump and tail blue. Throat pale yellowish-brown, streaked with dark brown, and some black markings at bottom of throat. Underparts pale brown, with margin of feathers dark brown, and a few blue feathers on the breast and red ones on flanks. Middle of abdomen and crissum pale red. Bill black, yellow at base; feet and tarsi pinkish.

This bird was separated by Brüggemann, *l. c.*, from the Celebes species. Schlegel, in the 'Muséum des Pays-Bas,' *l. c.*, speaks of his specimens of *P. celebensis*, as he considers them, from Siao (he had five), as having the red on the head paler than Celebes examples, and that this colour often takes the place of the black on the crown. While noting the differences between the birds from the two localities, he failed to separate them specifically. Nothing is known of the habits or economy of this species.

The figures in the Plate of adult and young, which are life-size, were drawn from specimens in the Museum at Leyden, Holland.

W. Hart del et lith.

Mintern Bros. imp.

PITTA STEERII.

PITTA STEERII.

STEERE'S PITTA.

Brachyurus steerii, Sharpe, Nature, vol. xiv. 1876, p. 297.—Id. Trans. Linn. Soc. ser. 2, Zool. vol. i. p. 329, pl. xlix. (Dumalon, Mindanao).

Melanopitta steerii, Tweedd. Proc. Zool. Soc. 1878, p. 949 (Zamboanga).—Wardlaw-Ramsay, App. Mem. Tweedd. 1881, p. 657.

Pitta steerii, Gould, B. Asia, vol. v. pl. 74.—Sclat. Cat. B. vol. xiv. 1888, p. 442 (Philippines).

Cyanopitta steerii, Gould, Mon. Pitt. pl. 8.

Habitat.—Zamboanga (*Everett*); Samar. Dumalon, Mindanao (*Steere*).

Head and nape jet-black; back and wings dark glossy green; shoulders and upper tail-coverts silvery blue; greater coverts black on inner, blue on outer webs, and edged with silvery blue; primaries black, with a white central spot on 3rd, 4th, 5th, and 6th. Axillaries black. Tail black. Throat white. Underparts pale blue, with a greenish tinge in certain lights. Centre of abdomen velvety black; under tail-coverts scarlet. Bill black; feet and tarsi flesh-colour; eyes black. Length $7\frac{1}{2}$ inches, wing $4\frac{3}{4}$, tail $1\frac{1}{2}$, culmen 1, tarsus $1\frac{1}{2}$.

This truly fine species, nearly equal in size to the largest member of the family, was discovered by Prof. J. B. Steere at Dumalon, Mindanao, one of the Philippine Islands, and described by Dr. Sharpe, *l. c.*, in whose hands Prof. Steere placed his large collection of birds on his arrival in London from the expedition to the East Indies, and permitted him to describe the novelties it contained. There is no species with which this beautiful Pitta can be compared, as it differs entirely from all others known. Its pale blue breast and white throat distinguish it from all the black-headed members of the genus. An apparently young bird was also obtained in the same locality, which differs in having the belly a pale scarlet, only black in certain parts. At first Prof. Steere did not think it was very rare in the neighbourhood of the village of Dumalon, as he procured some other examples which were unfortunately destroyed. This opinion, however, he seems to have changed afterwards, for in a letter to myself he writes that *Pitta steerii* must be a very rare form, as during our last expedition (the second one he made to the Philippines) we procured but two, one from Zamboanga, the other from Samar, so that it must have a pretty wide distribution. He continues by stating that he procured many specimens of *P. erythrogastra* and *P. sordida*. In Samar this species appears also to be rare, as five or six hunters only obtained one specimen in a stay of four weeks. Its large size and peculiar coloration would be likely to make it a rather conspicuous object in the places it frequents, and if it was in any way abundant, more examples would have found their way into collections than are at present seen, so Prof. Steere's opinion as to its rarity is probably correct. It is not to be imagined, however, that we as yet are acquainted with its distribution, and probably other localities, which may be regarded more as the true habitat of the species, may be discovered, and where it will be found comparatively abundant.

The figures in the Plate represent the adult bird, and the immature example mentioned by Dr. Sharpe with the pale scarlet on the belly and now in the British Museum. Both specimens were obtained by Prof. Steere in his expedition to the East Indies.

Drawn from Nature by D G Elliot, F.Z.S. Bowen & Co lith & col Phila^a.

PITTA CUCULLATA.

PITTA CUCULLATA.

HOODED PITTA.

Pitta cucullata, Hartl. Rev. Zool. 1843, p. 65 (Malacca).—Blyth, Cat. B. Mus. Asiat. Soc. Beng. 1849, p. 157.—Strickl. Ann. Nat. Hist. vol. xiii. 1844, p. 410 (Malacca).—Gray, Gen. B. vol. i. 1846, p. 213.—Id. Cat. Mamm. & Birds Nepal, 1863, p. 40.—Moore, Proc. Zool. Soc. 1850, p. 274 (Malacca).—Cass. U. S. Expl. Exped. ed. 2, 1858, p. 437, Ornith. (Singapore).—Schleg. Mus. Pays-B. 1863, p. 4; 1874, p. 5 (Malacca and Bangka).—Jerd. B. Ind. vol. i. 1862, p. 504.—Wall. Ibis, 1864, p. 106.—Dav. Str. Feath. vol. v. 1877, p. 457 (Amherst; nest and eggs).—Hume & Dav. Str. Feath. vol. vi. 1878, p. 243 (Tenasserim).—Hume, Str. Feath. vol. viii. 1879, p. 94.—Kelh. Ibis, 1881, p. 509 (Perak).—Oates, Str. Feath. vol. x. 1882, p. 205 (Pegu).—Id. B. Brit. Burm. vol. i. 1883, p. 414.—Gould, B. Asia, vol. v. pl. 12.—Salvad. Ann. Mus. Civ. Gen. ser. 2, vol. iv. p. 597 (Bhamo).—Sclat. Cat. B. vol. xiv. 1888, p. 442.

Pitta malaccensis, Müll. & Schleg. Verh. Natuur. Geschied. Ned. overz. Bezitt., Zool. *Pitta*, 1839–44, p. 19.

Pitta nigricollis, Blyth, Journ. Asiat. Soc. Beng. vol. xii. 1843, p. 960.—Id. Ibis, 1866, p. 374.

Pitta rodogaster, Blyth, Journ. Asiat. Soc. Beng. vol. xii. 1843, p. 961.—Hodg. Gray, Zool. Misc. 1844, p. 83.

Pitta coronata, Peale (nec Müll.), U. S. Expl. Exped. ed. i. 1848, Ornith. p. 89 (Singapore).

Brachyurus cucullatus, Bon. Consp. Gen. Av. vol. i. 1850, p. 255.—Elliot, Ibis, 1870, p. 420.—Hume, Str. Feath. vol. iii. 1875, p. 109 (Upper Pegu).—Blyth, B. Burm. 1875, p. 98.

Melanopitta cucullata, Bon. Consp. Vol. Anis. 1854, p. 7. no. 194.

Coloburis cucullata, Cab. & Hein. Mus. Hein. part ii. 1859–60, p. 4 (Malacca).

Brachyurus (*Melanopitta*) *cucullatus*, Elliot, Mon. Pitt. 1863, pl. xxviii.

Pitta bangkana, Schleg. Vog. Ned. Ind. 1863, pp. 8, 31, pl. 2. fig. 5.—Id. Mus. Pays-B., *Pitta*, 1863, p. 3.—Wall. Ibis, 1864, p. 106 (Bangka).

Pitta bankana, Elliot, Ibis, 1870, p. 411.

Brachyurus bankana, Elliot, Ibis, 1870, p. 420, pl. xii. fig. 2.

Habitat.—Eastern Bengal, Assam, Sikhim, Nepal, Malay Peninsula, Island of Bangka.

Entire top of head and nape chestnut; sides of head, throat, and a narrow line beneath the chestnut nape black. Back, scapulars, large wing-coverts, tertiaries, and rump bright green; lesser wing-coverts and upper tail-coverts silvery blue; secondaries black, with terminal half of outer webs green; primaries black, with a large white patch on each feather. Breast and flanks greenish blue; a large black spot on the abdomen; rest of abdomen and lower tail-coverts crimson. Tail black, tipped with blue, in some specimens the blue has a greenish gloss. Bill black, iris brown; feet and tarsi flesh-colour. Length 6·5 inches, tail 1·6, wing 4·5, tarsus 1·7.

This is the only one of the green Pittas which possesses any other colour to relieve the jet-black which covers as with a hood the head and also the neck. I was inclined, when I first saw the type of Schlegel's *P. bangkana*, to consider it as a distinct species, and in my review kept it separate from *P. cucullata*; but it is now deemed to be the same, Schlegel himself having placed it among the synonyms of the *P. cucullata* in his article on Pitta published in 1874. The type of *P. bangkana* has the feathers on the forehead and crown tipped with dark chestnut, the full change to the chestnut crown not having yet taken place.

In Tenasserim, Davison states that this Pitta is a seasonal visitor to the southern and central portions of the Province. It is rarer and more of a forest-bird than *P. moluccensis*. Its call is similar to the note of that species, but is not so often heard. It sits about in

trees, and is merely a migrant in the Province, as he has only shot specimens from April to July. He has never seen it in mangrove-swamps, and it appears to keep to the coast. He found a nest at Amherst, in a rather thick tree-jungle, placed on the ground at the root of a tree and partly hidden by grass. It was composed of dry twigs and leaves lined with fibres, and had a thick foundation of dead leaves. The structure was globular in shape, and had a circular opening about midway on one side, the roof projecting over and forming a canopy. The diameter was 10 inches, and 9·5 in height, the diameter of the entrance 3·5, and the nest was loosely constructed. At its base was a platform, about four inches wide, made of twigs, sloping gradually to the level of the ground, the top being on about a level with the bottom of the egg-cavity. It contained four eggs, of an oval form, glossy, and spotted and streaked with purple, lilac, or chocolate, most dense at the larger end, on a pure white ground. They measured 1·04 to 1·1 inch in length, and from 0·82 to 0·86 in breadth.

Mr. Oates says the species is common in Pegu, and distributed in suitable localities over the whole Province.

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PITTA SORDIDA.

PITTA SORDIDA.

BLACK-HEADED PITTA.

Merula viridis atricapilla moluccensis, Briss. Orn. vol. ii. 1760, p. 319, fig. 2.

Merle des Philippines, Buff. Plan. Enlum. no. 89.

Brève des Philippines, Buff. Nat. Hist. Ois. 1770–86, vol. iii. p. 412.—Vieill. Ency. Méth. vol. ii. 1791, p. 686.—Le Vaill. Ois. Parad. vol. i. 1806, p. 106.—Cuv. Règn. Anim. 1829, p. 373 (note).

Turdus sordidus, P. L. S. Müller, Natursyst. Suppl. 1776, p. 143. no. 51.—Cass. Proc. Acad. Nat. Sci. Phil. 1864, p. 250.

Turdus brevicauda, Bodd. Tab. Plan. Enlum. 1783, p. 6.

Corvus brachyurus, var. *philippensis*, Gmel. Syst. Nat. 1788, vol. ii. p. 375.

Citta melanocephala, Wagl. Syst. Av., *Corvus*, 1827, no. 14.

Pitta atricapilla, Less. Trait. Ornith. 1831, p. 394. sp. 7.—Id. Compl. Buff. vol. ii. 1838, p. 501.—Temm. Plan. Col. Tab. Méth. 1832, p. 16.—Müll. & Schleg. Verh. Natuur. Geschied. Ned. Ind. overz. Bezitt., Zool. *Pitta*, 1839–44, pp. 8, 19, 20 (Borneo).—Gray, Gen. B. vol. i. 1846, p. 214.—Low, Sarawak, 1848, p. 410.—Horsf. & Moore, Cat. B. Mus. E. Ind. Co. vol. i. 1854, p. 399 (Borneo).—Schleg. Handl. Dierk. vol. i. 1857, p. 254.—Id. Vog. Ned. Ind., *Pitta*, 1863, pp. 6, 31, pl. ii. figs. 2, 3 (Borneo).—Id. Mus. Pays-B., *Pitta*, 1863, p. 3; 1874, p. 5 (Borneo).—Pelz. Nov. Reis., Vög. 1865, pp. 70, 161.—Gould, B. Asia, vol. v. pl. 76.—Sclat. Cat. B. 1888, vol. xiv. p. 438 (Philippines).

Pitta macrorhyncha, Gray, Zool. Misc. 1831, p. 3.

Pitta philippensis, Müll. & Schleg. Verh. Natuur. Geschied. Ned. Ind. overz. Bezitt., Zool. 1839–44, *Pitta*, p. 19. no. 22.—Schleg. Mus. Pays-B., *Pitta*, 1863, p. 2 (Philippines); 1874, p. 5 (Borneo, Grand Sanghir).

Pitta brevicauda, Gray, Gen. B. 1846, vol. i. p. 214.

Brachyurus atricapillus, Bon. Consp. Gen. Av. vol. i. 1850, p. 256. sp. 25 (Philippines).

Brachyurus mülleri, Bon. Consp. Gen. Av. vol. i. 1850, p. 256. sp. 23 (Celebes).

Melanopitta mülleri, Bon. Consp. Vol. Anis. 1854, p. 7. no. 196.

Melanopitta atricapilla, Bon. Consp. Vol. Anis. 1854, p. 7. no. 198.

Coloburis muelleri, Cab. & Hein. Mus. Hein. pt. ii. 1859–60, p. 4 (Amboina?).

Coloburis brevicauda, Cab. & Hein. Mus. Hein. pt. ii. 1859–60, p. 5 (Timor?).

Pitta leucoptera, Elliot, Proc. Acad. Nat. Sci. Phil. 1861, p. 153, juv.

Pitta muelleri, Sclat. Proc. Zool. Soc. 1863, p. 215.—Wall. Ibis, 1864, p. 106.—Sharpe, Ibis, 1879, p. 263.—Id. Proc. Zool. Soc. 1879, p. 346 (Labuan); 1881, p. 798 (Borneo).—Id. Ibis, 1889, p. 443 (Borneo); 1890, p. 281.—Salvad. Ornit. Papuas. 1881, vol. ii. p. 403.—Nicholson, Ibis, 1882, p. 63 (Sumatra); 1883, p. 88 (Borneo).—Guillem. Proc. Zool. Soc. 1885, p. 413 (Silam, Borneo).—Sclat. Cat. B. vol. xiv. 1888, p. 439 (Borneo, Sumatra, and Banka).

Brachyurus (Melanopitta) atricapillus, Elliot, Mon. Pitt. 1863, pl. xxv. (Philippines).

Brachyurus (Melanopitta) mülleri, Elliot, Mon. Pitt. 1863, pl. xxvi. (Borneo).

Pitta atricapilla sanghirana, Schleg. Ned. Tijdsch. vol. iii. 1866, p. 190 (Sanghir).

Brachyurus sordidus, Elliot, Ibis, 1870, p. 419.—Sharpe, Trans. Linn. Soc. ser. 2, Zool. vol. i. 1877, p. 331 (Palawan and Basilan).

Pitta sanghirana, Elliot, Ibis, 1870, p. 411.—Wald. Trans. Zool. Soc. vol. ix. 1873, p. 188.—Salvad. Ann. Mus. Civ. Gen. vol. ix. 1876, p. 54.—Meyer, in Rowl. Ornith. Misc. vol. ii. 1877, p. 329, pl. lxv. (Sanghir).—Id. Isis, 1884, p. 6.—Sclat. Cat. B. vol. xiv. 1888, p. 440 (Sanghir Islands).—Blas. Ornis, vol. iv. 1888, p. 596.

Pitta mülleri, Wald. Trans. Zool. Soc. vol. viii. 1871, p. 62.—Salvad. Ucc. Born. 1874, p. 240.—Blas. Ornis, vol. iv. 1888, p. 599.

Melanopitta muelleri, Wald. Ibis, 1872, p. 374 (Northern Borneo).

Brachyurus muelleri, Sharpe, Proc. Zool. Soc. 1875, p. 104 (Labuan).—Id. Ibis, 1877, p. 10 (Borneo).

Melanopitta sordida, Tweedd. Proc. Zool. Soc. 1878, p. 949 (Zamboanga).—Id. Trans. Zool. Soc. vol. ix. 1873, pp. 187, 250 (Philippines).—Wardl. Ramsay, Tweedd. Mem. Append. 1888, p. 657.

Pitta sordida, Meyer, in Rowl. Ornith. Misc. vol. ii. 1877, p. 330 (Luzon, Negros).—Sharpe, Ibis, 1884, p. 321 (Palawan).—Blas. Ornis, vol. iv. 1888, pp. 314, 598 (Palawan).—Whitehead, Ibis, 1890, p. 49 (Palawan).—Elliot, Auk, 1890, p. 357 (Borneo).

Habitat.—Sumatra, Banka, Borneo, Sanghir, and Philippine Islands.

Male. Head and neck all around jet-black; back and wings dark green; lesser wing-coverts and upper tail-coverts shining blue; under wing-coverts black. Primaries white, tipped with black. Tail black, edged with blue. Underparts light green, with a black spot on the abdomen mixed with red; belly and under tail-coverts scarlet. Bill black; feet cloudy blue; legs pale; iris dark brown. Length 6·5 inches, wing 4·5, tail 1·4.

Female is like the adult male above described, except that there is much less extent of white on the primaries.

Young differs considerably from the adults. "Above dull brownish green; rump light blue; head rusty brown; cheeks, nape, and sides of head rusty black, forming a distinct ring round the back of the head; throat dusky black, with broad white bands stretching across to the sides of the neck; chest rusty brown; abdomen and under tail-coverts pale pink. Wings as in the adult, but without the bright shoulder-patch, which is greenish blue, with the outermost feathers centred with white, forming a distinct band." (*Whitehead*; specimen from Palawan.)

This species was described by P. L. S. Müller, *l. c.*, from Buffon's plate of the Brève des Philippines, and named *Turdus sordidus*, and this name antedates all others. Brisson, who was the first ornithologist to notice this species, *l. c.*, states that his specimen was sent to the Abbé Aubrey from the Moluccas. This was apparently the same example which Buffon afterwards figured, giving the Philippines as its habitat. Levaillant, who is not noted for extreme accuracy, asserted in the Ois. Par. *l. c.*, that this specimen was the Brève de Ceylon (*P. brachyura*, Linn.), on the body of which the head of a Common Blackbird had been placed; and this statement was repeated by Cuvier on Levaillant's authority, and also by Vieillot without giving any authority. Wagler, *l. c.*, however, showed Levaillant was in error, and Cuvier, *l. c.*, also corrected this mistake. Buffon states that the bird he described and figured is the same as Brisson's "57th Grive." Lord Walden in the 'Transactions of the Zoological Society,' vol. ix. p. 188, has fully demonstrated and cleared up the confused state of affairs above mentioned. He adds that Buffon's bird was "undoubtedly a Philippine example."

The bird from Borneo has been generally kept distinct as *P. mülleri*, Bonaparte, mainly for the reason that it had more white on the primaries; and Dr. Sharpe in the 'Transactions of the Linnean Society,' 1877, *l. c.*, also states that the Bornean bird "almost entirely wants the black patch on the belly, and has the thighs blackish instead of ochraceous brown."

It has been clearly proven by sexed examples procured by Mr. Everett and by Dr. Meyer, that the extent of white is a sexual character, the females possessing much less than the males. Of nine males and five females dissected by Mr. Everett, the

fact that this character was purely sexual was completely established. Dr. Meyer ascertained the same fact from specimens from Luzon and Negros, and Mr. Everett found that the Bornean examples obtained by him confirmed this determination. From specimens examined by me from Borneo and the Philippines I find that the black spot on the abdomen is equally as large on those from the first island as is seen on those from the latter, and in this respect do not confirm Dr. Sharpe's statement; the thighs of the Bornean birds are, however, somewhat darker, but the colour seems to vary among individuals, and I should not deem it of any specific importance. As, therefore, there does not appear to be any character to separate these birds from the different islands named, I have reduced *P. mülleri* (Bonaparte) to a synonym of *P. sordida* (Müller).

The only remaining form necessary to be noticed is the bird from the island of Sanghir, described by Schlegel, *l. c.* I have had opportunities of examining specimens from this island, and I stated in the 'Ibis,' 1870, p. 412, that I did not consider that this form could be specifically separated from *P. sordida*, and from a late investigation of Sanghir examples I see no reason to change the opinion expressed twenty years ago. I may add that Prof. Schlegel in his review of the Pittas published in 1874, Mus. Pays-Bas, p. 5, gave up the species himself, and made it a synonym of *P. atricapilla* (*P. sordida*). Lord Walden states, Proc. Zool. Soc. 1878, p. 949, that in "two Zamboanga skins the green of the breast and flanks is assuming the blue tint so prominent in the large representative form *M. steerii*." Dr. Steere, who obtained this species in Palawan and Basilan of the Philippines, says that it is common on both. "It alights on low stumps and logs in the woods and emits a curious shrill note at intervals of about a minute. On being disturbed it flies off rapidly and disappears in the jungle, but very soon returns to the same spot, and commences whistling again directly the danger appears to have passed. It is said by the natives to raise a large heap of leaves, and nest on the top of the mound." The nest, however, according to Sharpe (Proc. Zool. Soc. 1875, p. 105), "is a rude structure, apparently taken off the ground, and composed of fine roots and slender twigs, with a few dead leaves and dry moss. The four eggs sent are white, with scribblings of dark grey or chocolate-brown fairly distributed all over the surface, but nowhere so thick as to obscure to any extent the white ground of the egg." Mr. Sclater gives the island of Banka as one of the habitats of this Pitta—I presume because a specimen in Gould's collection was so labelled. I am not aware that any other specimen has been procured on that island.

Drawn from Nature by D G Elliot, F.Z S

Bowen & Co lith & col Philada

PITTA FORSTENI.

PITTA FORSTENI.

FORSTEN'S PITTA.

Pitta melanocephala (nec Wagler), Müll. & Schleg. Verh. Natuur. Geschied. Ned. overz. Bezitt., Zool. *Pitta*, 1839–44, p. 19 (Celebes).—Gray, Gen. B. vol. i. 1846, p. 214.—Westerm. Bijdr. t. d. Dierk. vol. i. 1854, *Pitta*, p. 46, pl. 2.—Schleg. Vog. Neder. Ind., *Pitta*, 1863, p. 30, pl. 2. fig. 1 (Celebes).—Id. Mus. Pays-B., *Pitta*, 1863, p. 4 ; 1874, p. 9 (Celebes).—Wall. Ibis, 1864, p. 106.

Brachyurus forsteni, Bonap. Consp. Gen. Av. vol. i. 1850, p. 256.—Elliot, Ibis, 1870, p. 419.

Melanopitta forsteni, Bonap. Consp. Vol. Anisod. 1854, p. 7. no. 195.—Meyer, Ibis, 1879, p. 126.

Brachyurus (*Melanopitta*) *forsteni*, Elliot, Mon. Pitt. 1863, pl. xxiv.

Pitta forsteni, Gould, B. New Guin. vol. iv. pl. 30.—Sclat. Cat. B. vol. xiv. 1888, p. 442 (Celebes).—Whitehead, Ibis, 1893, p. 499.

Habitat.—Celebes.

Head, neck, and throat black ; back and wings dark green ; lesser wing- and upper tail-coverts pale blue ; primaries all black, axillaries black ; underparts green, paler than the back ; abdomen with a black median patch ; lower abdomen and under tail-coverts scarlet. Tail green. Bill black ; feet and tarsi pale brown. Length $7\frac{1}{2}$ inches, wing $4\frac{1}{2}$, tail $1\frac{2}{3}$.

Forsten first obtained this species in the Island of Celebes, and Müller and Schlegel, *l. c.*, called it *Pitta melanocephala*. As this was a synonym already of *Pitta sordida*, it could not be adopted, and Bonaparte, *l. c.*, renamed the species *forsteni*, after its discoverer. It is distinguished from nearly all the black-headed Pittas by having the primaries all black, without a white speculum—the only other Pittas resembling it in this respect being *Pitta méfoorana*, and examples of *P. atricapilla*, Quoy & Gaim., from Wanumbai, which also appear to be without a speculum ; but these two species could not easily be confounded with their relatives, as the metallic hues on their breasts readily distinguish them.

Dr. Meyer also obtained this bird in Celebes, and in a communication to Mr. Gould, published in the ' Birds of New Guinea,' he states that " all Pittas are said to be rare birds everywhere, and are only met with singly or a pair at a time. I met with but one Pitta that was plentiful, viz. *P. rosenbergi*, on the Island of Mysore in the north of Geelvink Bay. Besides the black-headed Pittas are still rarer than the red-bellied Pittas. In the northern parts of Celebes I did not procure a single specimen of *P. forsteni* so far as I remember, and also am not aware that specimens collected by any one else have reached Europe from there, whereas *P. celebensis* appeared to be less rare than in the northern parts. Here I got specimens of *P. forsteni* in the Minahassa and in the district of Gorontalo. Pittas are shy birds, but their flute-like cry once heard, the specimen can always be got with patience and quietness ; imitating its voice, the bird can be called up till it is close to the hunter's gun. The rareness of the Black-headed Pitta on Celebes is proved by the fact that its colours shelter it even less than the colours of *P. celebensis* shelter that species ; as the bright blue shoulder-patch of *P. forsteni* always glitters on the ground, which it never quits. The colour of the iris is dark, the feet dusky, bill black. It feeds on insects of all kinds. Its name in the Minahassa is ' Mopo idin,' or ' Green Mopo.' "

W. Hart del. et lith.

Mintern Bros. imp.

PITTA MÉFOORANA.

PITTA MÉFOORANA.

MÉFOOR ISLAND PITTA.

Pitta novæ-guineæ méfoorana, Schleg. Mus. Pays-Bas, *Pitta*, 1874, p. 8 (Méfoor Island, Baie de Geelvink).—Meyer in Rowl. Orn. Misc. vol. ii. 1877, p. 268.

Pitta mafoerana, Beccari, Ann. Mus. Civ. Gen. vol. vii. 1875, p. 709.

Pitta maforeana, Beccari, Ibis, 1876, p. 248.

Pitta mayforeana, Legge, B. Ceylon, 1879, p. 689.

Pitta mafoorana, Salvad. Ann. Mus. Civ. Gen. vol. xvi. 1880, p. 184. sp. 3.—Id. Ornit. Papuas. vol. ii. 1881, p. 386.—Sclat. Cat. B. vol. xiv. 1888, p. 441.—Whitehead, Ibis, 1893, p. 500.

Pitta maforensis, Gould, B. N. Guin. vol. iv. pl. 33.

Habitat.—Méfoor Island, Bay of Geelvink, New Guinea.

Head and neck all round black, narrowly bordered on lower edge with pale glistening green; back and wings dark green; lesser wing-coverts and a bar across the rump metallic greenish-white. Primaries black, brownish at the tips. Large upper tail-coverts black, edged with blue; smaller ones metallic greenish-white. Tail black tipped with grass-green; breast glistening yellowish-green, graduating into deep blue on the flanks. Centre of abdomen and under tail-coverts deep red. Length 6 inches, wing $5\frac{1}{4}$, tail $1\frac{1}{8}$, tarsus $1\frac{3}{4}$.

This bird was first described by Schlegel, *l. c.*, from specimens received from Von Rosenberg, who procured them on the island of Méfoor, in the Bay of Geelvink, New Guinea. Its nearest ally is *Pitta atricapilla*, Quoy and Gaimard, but it differs from that species in having an apical bluish-green band on the rectrices, in the long upper tail-coverts being black edged with blue, the smaller ones metallic greenish-white, and in having the blue on the abdomen much darker. The quills also are without any white spots.

It is a rare bird in collections, and we have no knowledge of its economy or habits.

The island in the Bay of Geelvink from which this species takes its name is spelt in Stieler's Atlas "Méfoor" and "Mafoor," as though either was correct. Schlegel adopted the first and called the bird *P. n.-g. méfoorana*; and as this is the way the name is spelt on Stieler's larger map, I have followed Schlegel. It will be seen, by a glance at the list of synonyms, what liberties have been taken by different authors in the orthography of this island's name.

Among the characters given by Schlegel for this species is, the black primaries without any white speculum. Salvadori, Ornit. Papuas. *l. c.*, takes exception to this, because two individuals in his possession had a slight trace of white on the fourth and fifth quills near the shaft. This doubtless is individual variation, or possibly due to age, Salvadori's specimen not being so old as the type, just as is witnessed in some specimens of *P. atricapilla*, Quoy & Gaim., from Wanumbai, which have no white speculum, while examples of the same species from other localities exhibit it. The type of *P. méfoorana* had all black primaries, and it cannot be said that this is not a character of the species until it is shown that the majority of specimens possess a white speculum, any more than we can say that the same mark is not a character of *P. atricapilla*, Quoy & Gaim., because we find examples without it.

W. Hart del. et lith. Mintern Bros. imp.

PITTA ATRICAPILLA.

PITTA ATRICAPILLA.

NEW-GUINEA PITTA.

Pitta atricapilla (nec auct.), Quoy & Gaim. Voy. Astr., Zool. vol. i. 1830, p. 258; Atlas, 1833, pl. 8. fig. 3.
Pitta novæ-guineæ, Müll. & Schleg. Verh. Natuur. Geschied. Neder. overz. Bezitt., Zool. *Pitta*, 1839-44, p. 19.—Gray, Gen. B. vol. i. 1846, p. 214.—Id. Proc. Zool. Soc. 1858, p. 175 (Aru); 1859, p. 156; 1861, p. 434 (Mysol).—Id. Cat. B. New Guin. 1859, p. 26 (Aru).—Sclat. Proc. Linn. Soc. vol. ii. 1858, p. 158. sp. 39.—Schleg. Vog. Ned. Ind., *Pitta*, 1863, pp. 7, 31, pl. 2. fig. 4.—Id. Mus. Pays-B., *Pitta*, 1863, p. 4; 1874, p. 6 (Gagie, Mysol, Wokam, Wonumbai).—Id. Ned. Tijdsch. vol. iii. 1866, p. 189; vol. iv. 1871, pp. 15, 16.—Wallace, Ibis, 1864, pp. 102, 105, 106.—Finsch, Neu-Guin. 1865, p. 167.—Bernst. Tijdsch. Dierk. vol. ii. 1865, p. 367.—D'Alb. Proc. Zool. Soc. 1875, p. 531.—Rosenb. Reist. naar Geelv. 1875, p. 114.—D'Alb. Ann. Mus. Civ. Gen. vol. vii. 1875, p. 798; vol. x. 1877, p. 11.—Salv. Ann. Mus. Civ. Gen. vol. vii. 1875, p. 777; vol. viii. 1876, p. 398; vol. x. 1877, p. 128; vol. xvi. 1880, p. 184.—Id. Orn. Papuas. vol. ii. 1881, p. 380.—Salv. & D'Alb. Ann. Mus. Civ. Gen. vol. xiv. 1879, p. 84.—Ramsay, Proc. Linn. Soc. N. S. Wales, vol. iii. 1878, pp. 109, 277 (Hall Sound, Ethel River, New Guinea); vol. iv. 1880, p. 98 (Port Moresby).—Sharpe, Journ. Linn. Soc., Zool. vol. xiii. 1877, p. 315; vol. xiv. 1879, p. 687 (Mysol, Salwatti, Batanta).—Gould, B. N. Guin. vol. iv. 1877, pl. 36.—Rosenb. Malay. Arch. 1879, pp. 395, 554.—Sclat. Cat. B. vol. xiv. 1888, p. 440.
Brachyurus novæ-guineæ, Bonap. Consp. Gen. Av. vol. i. 1850, p. 256.—Wallace, Ann. Mag. Nat. Hist. ser. 2, vol. xx. 1857, p. 477 (Aru).—Rosenb. Nat. Tijdsch. Ned. Ind. vol. xxv. 1863, p. 232.—Id. Journ. für Ornith. 1864, p. 119 (Salwatti, Batanta).—Elliot, Ibis, 1870, p. 420.
Melanopitta novæ-guineæ, Bonap. Consp. Voluc. Anisod. 1854, p. 7. no. 197.
Brachyurus (*Melanopitta*) *novæ-guineæ*, Elliot, Mon. Pitt. 1863, pl. xxvii.

Habitat.—Andai, Dorey (*v. Rosenberg*); Sorong, Saleh (*Bernstein*); Port Moresby (*Ramsay*); Fly River (*D'Albert.*); New Guinea. Waigiou (*Bernstein*); Batanta, Salwatti (*Rosenberg*); Mysol (*Hoedt*); Gagie (*Bernstein*); Wokam (*Hoedt*); Wonumbai (*v. Rosenberg*); Giabu-lengan (*Bruijn*); Aru Islands. Naiabui, Yule Island (*D'Albertis*).

Head and neck all round black; back, wings, and tail dark green; lesser wing-coverts and narrow band on rump (wanting in some specimens) silver-blue; primaries brownish-black, with a central white spot on 4th and 5th, sometimes also on 6th; upper part of breast pale green, with metallic reflections; flanks dark green; centre of breast and abdomen blue, terminating in a black patch; lower abdomen and under tail-coverts deep red. Bill black; feet and tarsi pale brown. Length 6½ inches, wing 4, tail 1½.

The type, as described by Quoy and Gaimard, had the rump a dirty green, without any blue. The white spot on the primaries varies in size in specimens from different islands; those from Salwatti have it well pronounced, while those from the Aru Group have it much less conspicuous, examples from Wonumbai being without it altogether. Very young individuals described by Salvadori from Mansinam, New Guinea (Ornit. Papuas. l. c.), have the crown and nape black; sides of head blackish; throat variegated with black and dirty grey; back and wings dark olive; the silvery blue bars at the base of upper tail-coverts very conspicuous. Tail olive; breast and flanks brownish fawn-colour; abdomen and under tail-coverts rosy-tinted. Bill black, tip whitish.

This species was first described and figured by Quoy and Gaimard, *l. c.*, as *Pitta atricapilla*. Lesson (Trait. Ornith. 1831, p. 394), a year after the species was made known to naturalists, attributed the name *atricapilla* to Cuvier, as having been bestowed by him on the Philippine bird (*P. sordida*, Müll.), but neither gave any description, nor stated where Cuvier's *atricapilla* was published. I have not been able to ascertain that Cuvier ever called any Pitta *atricapilla*; but if he did, it is probably a MS. name attached to some

specimen in the Paris Museum, and consequently a *nomen nudum*. Müller and Schlegel, *l. c.*, without any defensible reason, renamed the species *P. novæ-guineæ*. Subsequent writers, either not knowing these facts, or else regardless of Quoy and Gaimard's prior claim, adopted the name attributed to Cuvier, which they applied to a species Cuvier never described, but which, on the contrary, in the 1817 edition of the 'Règne Animal,' he stated was a made-up specimen and no species at all; this he corrected in 1829. The law of priority is very clear in regard to the treatment of such cases, but some naturalists object to have it enforced on the ground of expediency, and because it would be apt to create confusion. Doubtless such would be the temporary result in this and all similar instances when errors are corrected which have been continued by writers who have simply followed each other without making independent investigations; but the confusion is originally caused by those who commit errors, not by him who corrects them. The duty of one who attempts to write a monograph of any family is to point out mistakes whenever he may be able, and his work would lose its value if for fear of a temporary confusion he should continue the transmission of errors known to him to be such, and so assist in depriving some author of the credit justly his due. It may be inconvenient for those who have become familiar with any especial group to have their ideas of its nomenclature disturbed, by showing that errors have been committed and then knowingly continued; but that would be a most indefensible reason to advance why these should not be corrected, but on the contrary must be continued.

Conservatism is an excellent principle when it serves as a bulwark against the commission of abuses, but is a most baleful principle when it is exerted against the correction of errors. I have therefore restored the name *atricapilla* of Quoy and Gaimard to this species, upon which it was first bestowed, and which should never have been transferred to another. The type was obtained by Quoy and Gaimard at Triton Bay, New Guinea, and they state it was also procured at the Bay of Dorey, where, however, it was very rare. It cannot well be confounded with any other of the black-headed Pittas, the one nearest to it being perhaps *P. méfoorana*, from which it differs mainly in having the tail dark green, black only near the base (the rectrices of *P. méfoorana* are black, with the tips bluish green), and in having also a white spot on the fourth, fifth, and sometimes on the sixth primaries.

The New-Guinea Pitta has a wide distribution, being found in North-western New Guinea, also near Port Moresby and on the Fly River, as well as on various islands to the west of New Guinea, as far south as the Aru Group. It has not been discovered as yet upon any of the islands in the Bay of Geelvink, where some of its near relatives have their habitats. Specimens from different localities, as might be expected, vary somewhat from the typical style, especially in the white spot on the primaries, and Schlegel mentions a specimen from Waigiou which has the primaries of the left wing black, and on those of the right there is a small white speculum; while in the Aru Islands this speculum is very narrow in specimens from Wokam and Wonumbai, three males from the latter island, indeed, being without it altogether.

Rosenberg states that in the Aru Islands they frequently saw, in the deep recesses of the forests far from the paths made by the natives, two Pittas, *P. mackloti* and *P. novæ-guineæ* (*atricapilla*, Q. & G.), peculiar to New Guinea, and which are called by the natives *Kabèrber*. They were in the habit of elevating and depressing the tail, when the beautiful red colour of the belly could be seen from quite a distance. At Wonumbai both species were numerous: there the nest and eggs were found. The nest was composed of straws and grass, with moss and leaves &c., and contained three or four white eggs, with red or greyish-ash spots. Specimens from the Aru Islands are somewhat smaller in dimensions than those from other localities. This seems to be also the fact with examples of *P. mackloti*, as mentioned in the text on that species.

The variations in size, or the disappearance in certain instances of the white spot on the primaries, may possibly be caused by the sex or the age of the individual. We know in the case of *P. sordida* that the extent of white on the quills is a sexual character, as I have shown in my article on that species, and it may be the same cause that affects the presence or absence of this mark in other of the black-headed species that possess it at all, although in some instances it seems to be only an individual variation. Doubtless in time we shall be able to determine this; at present our knowledge is not sufficient to enable us to arrive at a definite decision. In New Guinea, according to Dr. Ramsay, this Pitta appears to be fairly abundant, and is distributed over the whole of the south-east coast and adjacent islands. At Port Moresby all his specimens were obtained from the hill-sides, in the scrub and jungle of the ravines and water-courses. In 1877–8 no Pittas were found in the district on account of the great drought that prevailed, but in March and April 1878 they appeared in considerable numbers.

W. Hart del. et lith

Mintern Bros. imp.

PITTA ROSENBERGII.

PITTA ROSENBERGI.

VON ROSENBERG'S PITTA.

Pitta rosenbergi, Schleg. Neder. Tijdschr. vol. iv. 1873, p. 16.—Id. Mus. P.-Bas, 1874, p. 8.—Rosenb. Reist. naar de Geelv. 1875, p. 138.—Becc. Ann. Mus. Civ. Gen. vol. viii. 1875, p. 709.—Id. Ibis, 1876, p. 247.—Gould, B. New Guin. vol. iv. pl. 37.—Meyer, in Rowl. Orn. Misc. vol. ii. 1877, p. 264, pl. lxii.—Rosenb. Malay Arch. 1879, pp. 554, 585.—Legge, B. Ceylon, 1879, p. 689.—Meyer, Ibis, 1879, p. 126.—Salvad. Ann. Mus. Civ. Gen. vol. xvi. 1880, p. 184.—Id. Ornit. Papuas. vol. ii. 1881, p. 387.—Sclat. Cat. B. vol. xiv. 1888, p. 441.

Habitat.—Island of Mysore.

Head and neck jet-black. Upper surface and wings olive-green. Chest brownish olive-green, passing into deep blue on the flanks. Centre of abdomen and under tail-coverts scarlet. Primaries black, with a central white spot. Lesser wing-coverts and rump silvery green. Upper tail-coverts and tail black, the latter edged with green. Bill black; feet and tarsi greyish rose-colour. Iris brown. Length 7 inches, wing $4\frac{1}{4}$, tail $1\frac{1}{2}$, tarsus 2, bill $1\frac{1}{8}$.

Sexes alike in plumage.

This bird has its closest ally in *Pitta novæ-guineæ*, Müll. & Schleg., but differs to such an extent that it may be deemed specifically distinct. Its distinguishing characteristics are:—absence of the metallic colouring on the breast, the central portion being red; the blue of the flanks being much more pronounced; the greater upper tail-coverts and tail black, tipped with green on the rectrices; and the absence of a black spot on the abdomen.

Dr. Meyer, in Rowley's 'Ornithological Miscellany,' *l. c.*, states that this Pitta is one of the commonest birds on the island of Mysore, and he obtained a good series in April in the neighbourhood of Kordo. Its cry, which is flute-like, is not often heard; but when it does utter its note, by imitating it the bird can be attracted close to the hunter. It is very shy, feeds upon the ground, and dwells in the deeper parts of the tropical forests. The sexes are alike in plumage. In the stomachs of those killed a few small insects were found.

Iris brown. Feet and claws of a greyish rose-colour in life.

Rosenberg's Pitta may be considered as the handsomest of the species belonging to the black-headed group of this family, the bright red of the underparts extending far upon the centre of the breast, together with the rich blue of the flanks, making it very conspicuous among its allies.

The figures in the illustration are drawn from specimens in the British Museum, from Kordo, Mysore; and the Bay of Geelvink, New Guinea.

W. Hart del et lith. Mintern Bros. imp.

PITTA IRIS.

PITTA IRIS.

RAINBOW PITTA.

Pitta iris, Gould, Proc. Zool. Soc. 1842, p. 17 (Coburg Peninsula).—Id. B. Austr. vol. iv. pl. 3.—Id. Intr. B. Austr. p. 51.—Id. Handb. B. Austr. vol. i. 1865, p. 432.—Müll. & Schleg. Verh. Geschied. Natuur. Ned. overz. Bezitt., Zool. *Pitta*, 1839–44, p. 14.—Schleg. Mus. Pays-B., *Pitta*, 1863, p. 6; 1874, p. 16 (Port Essington).—Gray, Gen. B. vol. i. 1846, p. 213.—Wall. Ibis, 1864, p. 108.—Sclat. Cat. B. vol. xiv. 1888, p. 444 (Port Essington).

Brachyurus iris, Bon. Consp. Gen. Av. vol. i. 1850, p. 255.—Elliot, Ibis, 1870, p. 419.

Iridipitta iris, Bon. Consp. Vol. Anis. 1854, p. 7. no. 193.

Brachyurus (*Iridipitta*) *iris*, Elliot, Mon. Pitt. 1863, pl. xxiii.

Habitat.—North Australia.

Head, neck, breast, abdomen, and flanks jet-black. A broad chestnut stripe runs over each eye and joins at the nape; back and wings bright green; lesser wing-coverts silver-blue, tipped with purple. Primaries black, with a white spot in the centre of 3rd, 4th, 5th, and 6th. Band of silver-green crosses the rump. Tail black, tipped with green; lower part of belly and under tail-coverts scarlet. Bill black; feet flesh-colour. Length 6 inches, wing 4, tail 1·4.

Very little has been recorded about this species. It inhabits the thick cane-brakes near the coast, through which it runs with great facility. According to Gould it is not uncommon in the Coburg Peninsula. Its range has not yet been ascertained, but it may possibly be found to inhabit a great portion of the north coast. Its nest and eggs have not been discovered.

The Rainbow Pitta is the only member of the Family which has the underparts jet-black, and from this fact is most readily distinguished from all the other species, and has no near allies.

W Hart del. et lith. Mintern Bros. imp.

PITTA BAUDI.

PITTA BAUDI.

BAUD'S PITTA.

Pitta baudii, Müll. & Schleg. Verh. Natuur. Geschied. Ned. overz. Bezitt., Zool. *Pitta*, 1839–44, pp. 10, 15, 20, pl. 2.—Gray, Gen. B. vol. i. 1846, p. 213.—Low, Sarawak, 1848, p. 410.—Schleg. Handl. Dierk. vol. i. 1857, p. 253.—Id. Vog. Neder. Ind., *Pitta*, 1863, pp. 18, 35, pl. 5. figs. 1, 2 (Borneo).—Id. Mus. P.-Bas, *Pitta*, 1863, p. 5; 1874, p. 9 (Borneo).—Salvad. Ucc. Born. 1874, p. 243.—Gould, B. Asia, vol. v. pl. 72.—Guillem. Proc. Zool. Soc. 1885, p. 414 (Silam, Borneo).

Pitta baudi, Wall. Ibis, 1864, p. 107.—Sharpe, Proc. Zool. Soc. 1881, p. 798; 1890, p. 281.—Nicholson, Ibis, 1883, p. 88.—Sclat. Cat. B. vol. xiv. 1888, p. 444.—Everett, Journ. Str. B. Roy. Asiat. Soc. no. 20, 1889, p. 149.—Elliot, Auk, 1890, p. 356.

Brachyurus baudi, Bonap. Consp. Gen. Av. vol. i. 1850, p. 255.

Iridipitta baudi, Bonap. Consp. Vol. Anis. 1854, p. 7. no. 192.

Brachyurus (*Iridipitta*) *baudii*, Elliot, Mon. Pitt. 1863, pl. xxii.

Brachyurus baudi, Elliot, Ibis, 1870, p. 419.

Eucichla baudi, Whitehead, Ibis, 1893, p. 507.

Habitat.—Sarawak (*Everett*); N.W. Borneo (*Low*); Benkoka (*Whitehead*); Sandakan (*Preyer*); Silam (*Guillemard*); Sapagaya River, N.E. Borneo (*Adams*); Borneo.

Male. Top of head and nuchal crest pale blue, with a greenish tinge on the forehead, and purplish on the occiput; lores, sides of head, and nape black, the latter in some specimens edged with dark shining purple; back crimson; wings brownish-black; greater coverts and some of the secondaries edged with pure white, forming bars across the wings. Primaries brownish-black, under wing-coverts black. Upper tail-coverts purple, shading into pale blue. Tail blue. Throat and sides of neck, beneath the black of the cheeks, pure white; breast black; rest of underparts dark Prussian blue, glossed with rich shining purple; thighs brownish-black edged with white. Beneath the red feathers on the rump is a bunch of brownish-black feathers with the apical half white, this hue showing on either side of the upper tail-coverts as a white bar, possibly, in some examples, extending across the rump. Bill black; feet and tarsi flesh-colour. Length 6 inches, wing $3\frac{1}{2}$, tail $1\frac{1}{3}$.

Female. Top of head rufous, darkest on the forehead, and gradually merging into the dull crimson of the back and rump. Lores and circle around the eye black. Wings brownish-black; coverts and some of the secondaries edged with white. Tail blue. Throat rosy white; entire underparts rufous buff. Bill black; feet and legs flesh-colour.

Young. "In the young bird the chin and upper throat are whiter than in the adult male, and the rest of the under surface rufescent, darker on the breast, and with some dark blue feathers on the median line and on the flanks; above, the head and nape are light brown, and the uropygium dark grey. The feathers of the back and scapulars are umber-brown, with the base grey. A few red feathers of the new moult are seen appearing irregularly here and there, especially in the scapular region." (*Guillemard, l. c.*)

This species, in the vividness and depth of its strongly contrasted colours, must be regarded as one of the most striking and beautiful of the Pittidæ. It is a native of Borneo, that great island whence come so many unusual and lovely ornithological forms. At one time, especially when I was engaged upon a Monograph of this Family, completed in 1863, Baud's Pitta was one of the very rarest members of the group, and although now specimens are to be seen in the more important of the great Museums, both in Europe and America, yet it cannot be considered as in any way common. At that period the

female was unknown, but Mr. Hugh Low obtained a bird of this sex on the Mengalong river, opposite the island of Labuan, and I am now enabled to give a representation of the female from a specimen in the collection of the British Museum. In the 'Birds of Asia,' Mr. Gould calls attention to the white exhibited on the rump of the figures in my plate of the male, and says his specimens have none of it. This white, as I have pointed out in my description, comes from the tips of the feathers situated under the red ones, which show beyond these last. It is very conspicuous in a specimen before me collected by Mr. Adams on the Sapagaya river, but shows more on either side than as a bar across the rump. The specimen, however, from which the figures in my original plate were drawn, and which I have lately examined in the Academy of Natural Sciences in Philadelphia, exhibits these white tips in a bar across the rump as depicted.

It is to be regretted that we are unable to give any account of the habits of this beautiful bird, the few occasions when it has been seen in its haunts affording no opportunity for careful observation of its mode of life.

The two figures on the Plate represent the adult male and female, drawn from specimens in the British Museum.

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Drawn from Nature by D. G. Elliot, F. Z. S.

Bowen & Co. Lith. & Col. Philada.

EUCICHLA GUAIANA.

EUCICHLA GUAIANA.

BLUE-TAILED PITTA.

Merle de la Guiane, Buff. Plan. Enlum. 355.

Turdus guajanus, P. L. S. Müller, Nat. Syst. Suppl. 1766, p. 146.—Cass. Proc. Acad. Nat. Scien. 1864, p. 250.

Turdus cyanurus, Bodd. Tabl. Plan. Enlum. 1783, p. 21. no. 355.—Gmel. Syst. Nat. vol. i. 1788, p. 828. no. 99.—Lath. Ind. Ornith. vol. i. 1790, p. 361.

Pitta cyanura, Vieill. Encycl. Méth. tom. ii. 1791, p. 685.—Id. Nouv. Dict. Hist. Nat. tom. iv. 1816, p. 356.—Id. Gal. Ois. tom. i. 1834, p. 246, pl. 153.—Less. Trait. Ornith. 1831, p. 394.—Müll. & Schleg. Verh. Natuur. Geschied. Ned. overz. Bezitt., Zool. *Pitta*, 1839–44, p. 3.—Vig. Mem. Raffles, p. 659.—Strickl. Proc. Zool. Soc. 1846, p. 100, juv. (Malacca).—Gray, Gen. B. vol. i. 1846, p. 213.—Blyth, Cat. B. Mus. Asiat. Soc. Beng. 1849, p. 157.—Bonap. Consp. Gen. Av. vol. i. 1850, p. 256.—Id. Consp. Vol. Anis. 1854, p. 7. no. 199.—Horsf. & Moore, Cat. B. Mus. E. Ind. Co. vol. i. 1854, p. 183.—Schleg. Vog. Ned. Ind. 1863, pp. 22, 36, pl. 6. figs. 1, 2, 3 (Java).—Id. Mus. P.-Bas, *Pitta*, 1863, p. 13; 1874, p. 16 (Java).—Elliot, Mon. Pitt. 1863, pl. xxix.—Wall. Ibis, 1864, p. 107.—Pelz. Nov. Reis. 1865, p. 70.—Nicholson, Ibis, 1881, p. 154 (eggs) (Java).—Gould, B. Asia, vol. v. pl. 77.—Sharpe, Ibis, 1889, p. 440 (Java, *Whitehead*).—Stejn. Auk, 1893, p. 182.

Myiothera cyanura, Cuv. Règn. Anim. vol. i. 1817, p. 357.

Eucichla cyanura, Cab. & Heine, Mus. Hein. pt. ii. 1859–60, p. 3. sp. 2.—Sclat. Cat. B. vol. xiv. 1888, p. 445.

Pitta guaiana, Elliot, Ibis, 1870, p. 420.—Id. Auk, 1893, pp. 51, 187.

Habitat.—Java.

Male. Head black; a broad stripe from nostril to nape golden-yellow; back reddish-brown; wings brownish-black, greater coverts and outer secondaries edged with pure white; primaries brownish-black, bases white; tail purplish-blue. Chin and throat pure white, passing into golden-yellow on sides of neck and lower part of throat. A broad blue band on upper part of breast; underparts yellow, crossed with narrow black bars, having a deep blue lustre especially observable on upper part of breast and flanks. Under tail-coverts deep purple-blue. Bill black; feet and tarsi pale brown, possibly flesh-colour. Length 7½ inches, wing 4, tail 2½.

Female. Top of head reddish-brown; sides of head, nape, back, and wings rufous; a broad black stripe on sides of head. Throat pure white; sides of neck tinged with buff. A narrow black bar beneath the throat. Underparts white, tinged with yellow and narrowly barred with black.

Young. Back and wings dull brown; head darker brown, with the centre of each feather yellowish-white; a broad stripe on sides of head to the nape dull brown. Throat white, indistinctly spotted with black; breast dark brown, each feather with a light brown centre; abdomen yellowish-white. Tail blue. Maxilla horn-colour; mandible dull white; feet and tarsi flesh-colour.

This beautiful species was first described by P. L. S. Müller, *l. c.*, from Buffon's plate, who gave to it the name of *Turdus guajanus*. It is unfortunate that, misled by Buffon's appellation, he should have called it after a country of which it is not a native; but, as in the case of *Pitta moluccensis*, we are not at liberty to reject the name for such a reason, and must accept it as the one by which the species is to be known.

The Blue-tailed Pitta is only found in the island of Java, the references made to a *Pitta cyanura*, ex Malacca, by authors, belonging in all probability to its relative *E. boschi*. Messrs. Müller and Schlegel have given the fullest account we possess of the habits and economy of this species, and according to them it is known to the

Sundanese in the western part of Java as *Manok Paok*; while Horsfield states that in the eastern section of the island the natives call it *Punglor*. The name given by the authors first cited is derived from the note which the male utters frequently during the morning hours. This Pitta is a mountain-loving bird, often seen in old coffee-plantations at from 600 to 3000 feet above sea-level, and in places overgrown with shrubbery and reeds; and it frequents the gloomiest spots, remaining on or near the ground; it is seldom met with in level or forest regions. It runs fast, and after each forward movement stops suddenly, lowers its head as if seeking something on the ground, or else raises it to look around. It is often met with in pairs, but also singly. When five or six are seen together, they always constitute one family; the young having lately left the nest, but still remaining with their parents. Old males often fight together, the usual time for such battles being just before the breeding-season, which occurs from January to May. Four nests discovered at various times (one on Mount Parang and one on Mount Pangerango) contained four eggs in two of them and five in the others. The nest is built from six to eight feet above the ground, and is usually placed amid the branches of an orchideous bush, growing as a parasite upon some old trunk. These plants are frequently damp and mouldy, and occasionally the nest becomes soaked through from beneath. It is constructed of dry leaves and roots, sometimes interwoven with straws and dried reeds. It is bell-shaped, and measures "one palm and four to six inches" in diameter. The eggs are oval, sometimes rounded, dull white, with reddish-brown and black spots, mostly on the larger end, with irregular lines of a brighter hue between the spots. Among Indian birds, the eggs of *Eurylaimus nasutus* and *Edolius longus* resemble most nearly those of this species. *E. guaiana* is not a shy bird, although occasionally one is found difficult of approach. When pursued it flies for some distance with a strong and free movement, and alights upon some stump or projecting branch near the ground. When seeking food, this bird will sometimes scratch with its feet in the manner of a chicken, and examine the scattered leaves and exposed ground with the bill. Its food consists of earthworms, beetles, and various other insects and their larvæ.

Forbes, as stated by Nicholson, *l. c.*, obtained the eggs of this Pitta at Genteng. They were round, with a few scattered dots of reddish or purplish brown, having a tendency to form a zone round the thick end, interspersed with some large spots of blackish brown. The diameter was ·85 inch, axis 1 inch.

According to Whitehead, who procured this bird in Java, this Pitta frequents the coffee-plantations; and he thinks the females separate from the males at certain seasons, as in one forest he collected a number of males and did not see a single female, while in another forest he obtained only females. The note is a two or three-syllabled whistle, like "Quop-quop."

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W. Hart del. et lith. Mintern Bros. imp.

EUCICHLA BOSCHI.

EUCICHLA BOSCHI.

VAN DER BOSCH'S PITTA.

Pitta superciliosa, Cuv. Règn. Anim. vol. i. 1829, p. 373 (note, desc. nulla).— Guérin, Iconog. Règn. Anim., Ois. 1840, p. 11, pl. ii. fig. 1, ♀.

Pitta irena, Temm. Plan. Col. 1836, text opposite pl. 591.—Less. Voy. Bonite, Zool. Ois. vol. i. 1841, p. 78, Atl. t. 3.

Pitta boschi, Müll. & Schleg. Verh. Natuur. Geschied. Neder. overz. Bezitt., Zool. *Pitta*, 1839-44, pp. 16, 20, t. i.—Gray, Gen. B. vol. i. 1846, p. 213.—Horsf. & Moore, Cat. B. Mus. E. Ind. Co. vol. i. 1854, p. 398 (Malacca, Sumatra).—Moore, Proc. Zool. Soc. 1854, p. 273 (Malacca).—Elliot, Mon. Pitt. 1863, pl. xxxi.—Id. Ibis, 1870, p. 421.—Tweedd. Ibis, 1877, p. 309 (Lamprong, S.E. Sumatra).—Kelham, Ibis, 1881, p. 510 (Perak).—Nicholson, Ibis, 1882, p. 63 (Sumatra).—Gould, B. Asia, vol. v. pl. 83.

Pitta radiata, Less. Voy. Bonite, Zool. Ois. vol. i. 1841, p. 81,

Eucichla boschi, Cab. & Hein. Mus. Hein. 1859-60, pt. ii. p. 3.—Gould, Mon. Pitt. pt. i. pl. 3.—Sclat. Cat. B. vol. xiv. 1888, p. 447 (Sumatra, Malacca).—Whitehead, Ibis, 1893, p. 508.

Pitta elegans, Bonap. Consp. Gen. Av. vol. i. 1850, p. 256.—Id. Consp. Voluc. Anis. 1854, p. 7. no. 201.—Schleg. Vog. Ned. Ind., *Pitta*, 1863, pp. 26, 37, pl. 6. fig. 5 (Sumatra).—Id. Mus. Pays-Bas, *Pitta*, 1863, p. 14; 1874, p. 17 (Sumatra).—Wallace, Ibis, 1864, p. 107.

Pitta cyanura, Beavan, Proc. Zool. Soc. 1866, p. 4 (Moulmein)?

Habitat.—Malacca and Sumatra.

Male. Top of head and broad stripe from forehead on either side, uniting at nape, black; superciliary stripe from nostrils golden-yellow, terminating in bright orange on the occiput; upper parts reddish-brown. Wings brownish-black; greater coverts tipped largely with white, and outer secondaries also edged with white; inner secondaries margined with reddish-brown; under wing-coverts black with white edges; primaries brownish-black, with a white bar at base of inner webs of 1st and 2nd. Throat white, passing into a rich yellow on sides of neck; a narrow black bar beneath the white throat; rest of underparts dark purplish-blue, crossed on upper part of breast with narrow black bars, and the feathers on the sides tipped with reddish-orange. Tail rich blue with a purple gloss. Bill black; feet and tarsi dirty blue in front, behind pale straw-colour (*Forbes*). Length 8 inches, wing $3\frac{3}{4}$, tail $2\frac{1}{2}$.

Female. Differs in having the superciliary stripe pale yellow instead of golden yellow, and the underparts yellowish-brown, reddish on the flanks, crossed by narrow black lines.

"*Young* in first plumage is similar to the adult female, but without any yellow or orange on the superciliary stripe, which is yellowish-brown, the feathers slightly edged with black; the throat is pale whitish-brown, the feathers being edged with black on the sides of the neck; the white on the wing-coverts is less, and the tail is of a lighter blue; the bill has been tipped with some lighter colour, probably yellow" (*Whitehead*). In some individuals, as the one represented on the Plate, the rich orange of the occiput in the adult is indicated by a broad fringe of yellow and orange feathers with white centres. The underparts are a paler yellow than that exhibited by the female.

This lovely bird was discovered by Müller and Schlegel during their visit to Sumatra in 1833, and named by them in honour of the then Governor-General of the island, Baron van der Bosch. Only one specimen was obtained, shot in the south-eastern part of Sumatra, and deposited in the Museum of Leyden. It was probably killed by one of their hunters, as the authors state they had no opportunity to examine a freshly killed specimen, and therefore did not know the sex of the one they procured, nor could they give any account of the colour of its feet or eyes. We now know, however, that their example was a male, the female, as my Plate shows, having a plumage of a somewhat different coloration.

Bonaparte in his 'Conspectus,' *l. c.*, for reasons not at all admissible, changed the name of *boschi*, given by Müller and Schlegel, to *elegans*; and although some authors have followed him, the only result has been to increase the synonymy of the species.

Temminck, in his text facing plate 591, under the name of *Pitta irena* describes this species, but has made an error in the coloration of the underparts. He says, "*depuis le bec jusqu'aux couvertures inférieures de la queue sont d'un bleu de roi éclatant et lustré.*" The blue of the underparts commences at the lower margin of the white throat and not at the bill; otherwise his description is sufficiently recognizable.

Beavan, *l. c.*, says that at the base of Zwagaben, a limestone rock 2000 feet high, at Moulmein, a Pitta inhabits the bamboo-jungles. The specimen obtained was much spotted on the breast, probably a young bird, and he referred it to *P. cyanura* (*P. guaiana*). It is more likely, if a *Eucichla* at all, to be *E. boschi*, and I have placed it among the synonyms with a query.

Cuvier in his edition of the 'Règne Animal,' 1829, *l. c.*, cited a *Pitta superciliosa*, but gave no description nor any indication what the species was nor whence it came. It was merely a MS. name given to a specimen in the Paris Museum. In Guérin's 'Iconographie du Règne Animal,' Cuvier's name is repeated and a figure given of a female *P. boschi*; nothing is said, however, about the collection in which the specimen was, but Java is given as its habitat, in which island *P. boschi* is not found, it being the native place of the allied species *P. guaiana*. Lesson, in 1841, *l. c.*, refers to this bird figured by Guérin, and remarks that the drawing was probably made from a specimen in the Paris Museum, obtained by M. Diard in Java! The locality is evidently incorrect. As Cuvier never described the species, his name is a *nomen nudum*, as is the *Pitta atricapilla* attributed to him, but which never seems even to have been printed until Lesson put it into his list, after another species had been already described and figured by Quoy and Gaimard under the same name.

It is a question whether a name published with a recognizable coloured figure of the species but without a description should not stand if it has priority. But in this instance of Guérin and his *Myothera superciliosa*, I cannot ascertain if it was published before the description of Müller and Schlegel, and so prefer to give them the benefit of the doubt, and retain the name by which the bird has been always known.

The Plates represent the adult male, female, and young.

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Drawn by D.G.Elliot, F.Z.S

Bowen & Co lith. & col., Philada.

EUCICHLA SCHWANERI.

EUCICHLA SCHWANERI.

SCHWANER'S PITTA.

Pitta schwaneri, Bon. Consp. Gen. Av. vol. i. 1850, p. 256. sp. 2.—Id. Consp. Vol. Anis. 1854, p. 7. no. 200.—Schleg. Handl. Dierk. 1859, vol. i. p. 254.—Id. Vog. Ned. Ind., *Pitta*, 1863, pp. 25, 37, pl. 6. fig. 4.—Id. Mus. P.-Bas, *Pitta*, 1863, p. 14; 1874, p. 17.—Elliot, Mon. Pitt. 1863, pl. xxx.—Id. Ibis, 1870, p. 421.—Sclat. Proc. Zool. Soc. 1863, p. 215.—Wall. Ibis, 1864, p. 107.—Salv. Ucc. Born. 1874, p. 243.—Sharpe, Ibis, 1879, p. 263; 1889, p. 442; 1890, pp. 281, 291, 292.—Nicholson, Ibis, 1883, p. 88 (Borneo).—Gould, B. Asia, vol. v. pl. 78.—Guillem. Proc. Zool. Soc. 1855, p. 414 (Borneo).

Eucichla schwaneri, Gould, Mon. Pitt. pt. i. pl. 4.—Sclat. Cat. B. 1888, vol. xiv. p. 446.

Habitat.—Borneo.

Male. Head black; broad line from nostril over the eye to nape, and sides of throat golden yellow; back and wings reddish brown; greater wing-coverts and a few of the secondaries broadly edged with white; under wing-coverts black, tipped with white. Upper part of throat white; breast and belly golden yellow, transversely barred with narrow black lines; centre of belly and under tail-coverts rich deep blue. Tail black, edged with rich deep blue. Bill black; feet and tarsi flesh-colour. Length 7 inches, wing 4, tail 2·5.

Female. Crown brown; entire underparts reddish brown, transversely barred with narrow black lines; no blue on the abdomen; otherwise resembles the male.

This lovely bird is a native of Borneo, and was described by Bonaparte, *l. c.*, from a specimen in the Leyden Museum. Although it has been known to ornithologists for more than forty years, nothing has been recorded of its economy or habits, and its life-history still remains to be written.

W. Hart del et lith.

Mintern Bros. imp.

EUCICHLA ELLIOTI.

EUCICHLA ELLIOTI.

ELLIOT'S PITTA.

Pitta ellioti, Oust. Nouv. Archiv. d. Mus. tom. x. Bull. p. 101, pl. ii. (Intérieur de la Chine).—Id. Bull. Soc. Philom. 1878, p. 206 (♀ desc.).—Gould, B. Asia, vol. v. pl. 66.

Eucichla ellioti, Gould, Mon. Pitt. pl. 6.

Habitat.—Cochin China; Cambodja.

Male. Top of head and occipital crest emerald-blue, brightest on the forehead. A broad black band goes from the nostrils through the eye to the nape. Back and upper tail-coverts ultramarine-blue, glossed with green and brown, the feathers being brown at the base, blue in the middle, and edged with green. Primaries dark purplish brown; outer webs of secondaries ashy brown. Tail deep ultramarine-blue on outer webs, the inner glossed with green. Throat pale blue, passing into whitish; breast greenish ash; rest of underparts golden yellow, barred transversely with narrow black bands; middle of abdomen very dark violet-blue; lower tail-coverts black at base, passing into ultramarine-blue or green at their tips. Bill dark rufous brown; feet and tarsi flesh-colour. Length $6\frac{3}{4}$ inches, wing 4, tail $1\frac{1}{2}$, bill $\frac{3}{4}$, tarsus $1\frac{1}{4}$.

Female. Differs from the male in having the top of head and nape rufous, with a pale brown superciliary stripe from the nostril to the nape. Throat yellowish white, becoming reddish brown on lower throat and sides of the neck. Back and wings greenish.

This beautiful species was described by M. le Dr. Oustalet, aide-naturaliste of the Paris Museum, *l. c.*, from a specimen of a male brought from the interior of Cochin China by Capt. Boussignon. Although in fine plumage Dr. Oustalet did not think that it had acquired its perfect dress, as some of the brown and green hues, which he considers indicate the livery of the immature bird, were still retained. While belonging to the section of long-tailed Pittas, separated from the rest of the family under the generic term *Eucichla*, it is very different from them all, and represents a thoroughly distinct species. It resembles somewhat *E. schwaneri* in its barred flanks on golden-yellow ground, and in the purplish spot in the centre of the abdomen, but in every other character is quite different. Nothing is known of its economy or habits.

ELLIOT'S ILLUSTRATIONS.

W. Hart del. et lith.

Mintern Bros. imp.

EUCICHLA GURNEYI.

EUCICHLA GURNEYI.

GURNEY'S PITTA.

Pitta gurneyi, Hume, Str. Feath. vol. iii. 1875, p. 296, pl. iii. (South Tenasserim); vol. viii. 1879, p. 94.—Hume & Dav. Str. Feath. vol. vi. 1878, p. 244.—Gould, B. Asia, vol. v. p. 73.

Brachyurus gurneyi, Hume, Str. Feath. vol. iii. 1875, p. 321 (Tenasserim).

Eucichla gurneyi, Gould, Mon. Pitt. pt. i. pl. 5.—Oates, B. Brit. Burm. 1883, vol. i. p. 418.—Sclat. Cat. B. vol. xiv. 1888, p. 448.

Habitat.—Tenasserim.

Male. Forehead, sides of head and nape, breast, abdomen, and lower tail-coverts jet-black; some feathers among the last-named tipped with blue. Feathers on top of head and occiput lazuline-blue, terminating in a lengthened crest. Back and wings rufescent brown, the inner secondaries slightly edged with grey. Under wing-coverts black, spotted with white; on the inner web of the primaries at the base is a small white spot. Upper tail-coverts blue; tail black, broadly margined with blue. Chin and upper half of throat white; lower half, sides of neck, and flanks golden yellow, with narrow black cross-bars on the flanks. Thighs greyish white, obscurely barred with light brown. Bill black; legs, feet, and claws fleshy white. Iris very dark brown. Total length 8 inches, wing 4, tail 2·1.

Female. Top of head and nape orange-brown; cheeks and ear-coverts black, the feathers of the latter having orange-brown shafts. Back and wings rufescent brown, less bright than in the male. Tail blue. Chin and throat brownish white; underparts brownish white, tinged with yellow and regularly crossed with narrow black bars. Under tail-coverts dingy black, some feathers tipped with dull blue. Bill black; iris very dark brown; eyelids black. Legs, feet, and claws dingy fleshy white.

This very beautiful Pitta was procured by Mr. Davison in Tenasserim, and described by Mr. Hume, *l. c.*, who named it after the late Mr. J. H. Gurney, so well known as the greatest authority on Raptorial birds. It is totally different from all the other members of this family, although it does possess some of the coloration observed in certain species of the same restricted genus in which it is placed.

Apparently only a migrant in Tenasserim, it probably breeds in Siam, or in the hills dividing the latter country from Tenasserim. It was observed by Mr. Davison between Laynah, the most northern locality, and Kenong, within the estuary of Pakehan on the Siamese side, the most southern.

About the 10th of February a few individuals appear, according to Davison, round Malewoon and Bankasoon, but are scarce until after the first two weeks in April, when they become more and more numerous until the monsoon rains set in, when they rapidly disappear. The birds remain in the evergreen forests, rarely appearing in open ground, are shy, and on the first indication of danger hop rapidly away.

The species was in no place common, and a series of specimens was only obtained by persistent hunting. In its habits, Gurney's Pitta resembles others of the family, keeps to the ground, feeds on snails, worms, slugs, and insects of all kinds, and when disturbed, unless closely pressed, hops rapidly away and takes refuge in some tangled canebrake. Favourite resorts are narrow valleys between hills where there is little or no undergrowth.

The figures in the illustration are drawn from specimens in the British Museum.

The note of this Pitta differs at times from those uttered by other species of the group, and when alarmed, says Davison, it resembles a rolling *kir-r-r*. One peculiar habit of this bird is to jerk its tail and drop its wings slightly as it hops along. The note is uttered morning and evening, and individuals answer each other at such times in all directions. Though generally solitary, occasionally two are seen together.

While almost exclusively a ground dweller, Davison once shot one high up in a tree, his attention having been drawn to it by a peculiar short double note it was uttering, entirely unlike its usual call, and with each note it flopped its wings and jerked up its tail.

The discovery of so beautiful and such a strongly marked species as Gurney's Pitta shows how easily even a very conspicuous bird may be overlooked, and how probable it is that even now, amid the forest recesses of various lands, members of this family, with equally brilliant plumage, may remain yet to be discovered and reward the labours of some persevering naturalist.