MONOGRAPH

OF

THE PARADISEIDÆ,

OR

BIRDS OF PARADISE,

AND

PTILONORHYNCHIDÆ,

OR

BOWER-BIRDS.

BY

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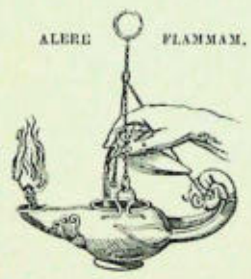

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PREFACE.

The Birds of Paradise have always attracted great attention among lovers of nature, on account of their extraordinary form and beautiful decoration; they have, therefore, been frequently monographed and figured. Since Dr. A. R. Wallace first published his notes on the habits of these beautiful birds in his 'Malay Archipelago,' many new forms have been discovered in the great island of New Guinea, some of them being still more remarkable for their fantastic plumage and curious habits than those which were known to him; and even during the progress of the present work some really startling species have been brought to light, which have obliged the publishers to extend the scope of the work beyond the original limits proposed.

A few of the Plates have been reproduced from Gould's 'Birds of New Guinea,' but a great number of species are here figured for the first time, and in the 'Introduction' I have given a complete list of the genera and species at present known.

I am extremely grateful to the Hon. Walter Rothschild for the loan of many specimens from his Museum at Tring; and I have also to thank Mr. C W. De Vis, the Director of the Queensland Museum, for the opportunity of figuring some of the new species discovered in British New Guinea by Sir William MacGregor. I must also express my obligations to Count Salvadori, Dr. A. B. Meyer, Mr. E. Hartert, and other friends for much kindly advice and assistance; and it is with sincere grief for the loss of my Mentor in ornithology, that I have to acknowledge the help which I received from my old friend Mr. Osbert Salvin, one of whose last actions was to look over the proofs of the 'Introduction' and 'Appendix' to the present work.

With the exception of a few species drawn by Mr. Keulemans from specimens in foreign Museums, the whole of the Plates have been prepared by Mr. W. Hart, so well known for his long and honourable association as artist for Mr. Gould's ornithological works.

R. BOWDLER SHARPE.

Chiswick, June 20, 1898.

INTRODUCTION.

That the Birds of Paradise and the Bower-Birds are closely related, it will be impossible for anyone to deny; and although, at first sight, it may seem easy to separate a typical Bird of Paradise, such as *Paradisea apoda*, from a typical Bower-Bird, such as *Ptilonorhynchus violaceus*, the actual differences between these two apparently diverse forms are hard to define in writing. The problem is apparently solved by Mr. D. G. Elliot and the Hon. Walter Rothschild, who unite the *Paradiseidæ* and *Ptilonorhynchidæ* together as one Family, a conclusion with which, in the present state of our knowledge, no one will be inclined to disagree. On those who differ from them the task is laid of defining the characters which are to separate the Bower-Birds from the true Birds of Paradise, and this will indeed be found difficult enough. That the Bower-builders must be different from the *Paradiseidæ* seems to the eye of the practical ornithologist a foregone conclusion, and yet the characters for the separation of the two groups are hard to find. That they exist I have not the smallest doubt; but that we shall ever discover them can scarcely be expected, for the aim of every ordinary collector in the present day seems to be, not to furnish us with details of the nesting-habits of the Birds of Paradise, but to see how many of these beautiful creatures he can procure for the decoration of the hats of the women of Europe and America. "The gentlemen who represent the German New Guinea Company have shot down all the full-plumaged males of *Paradisea finschi* near the coast of German New Guinea." This is written by a German naturalist of the highest repute concerning a species so rare in museums that we may yet be compelled to study its characters by permission of our wives and daughters, whose hats are decorated with its mutilated bodies. What will be said in the future by the civilized world and its scientific investigators when they find that we *had* the chance of learning the habits and nidification of these extraordinary birds, and allowed them to pass out of existence for the adornment of our women-folk, with scarcely a word of protest?

These remarks, which I am sure will be endorsed by every true naturalist in the world, are occasioned by the dilemma in which I find myself placed—viz., that I cannot draw any line between the *Paradiseidæ* and *Ptilonorhynchidæ*, simply from lack of information as to the habits of many species. For instance, when a wonderful form like *Pteridophora* comes to light, the problem for naturalists to determine is whether it is a Bird of Paradise or a Bower-Bird. To judge by its wonderful train of enamel-tipped feathers, it must belong to the *Paradiseidæ*, but, stripped of these long streamers, *Pteridophora* becomes a very ordinary-looking Bower-Bird, which would be taken for an ally of *Prionodura* or *Cnemophilus*; and yet, in

the present state of our knowledge, no one can say whether *Pteridophora* is a Bower-builder or a true Bird of Paradise. *Xanthomelus*, placed by recent observers on the border-land of the *Paradiseidæ*, may turn out to be actually a Bower-builder; and in this way, in default of anatomical or osteological characters, the last link for separation between the *Paradiseidæ* and *Ptilonorhynchidæ* may be broken down.

It is also not an easy matter to define the distinctive characters between the *Paradiseidæ* and the *Corvidæ*. Taking, for example, the gaudy decorative plumage of the Birds of Paradise as their highest characteristic, which it undoubtedly is on a first acquaintance, one may ask where this feature becomes of value in the dull-coloured genus *Lycocorax*, whose plumage is more sombre than that of many Jays and Magpies belonging to the Family *Corvidæ*. It may be as well, therefore, at once to confess our ignorance on the subject of the division of these groups of Birds and to content ourselves with such characters as are to hand, leaving to the future the discovery of more exact definitions of the Families, when ample material may be available.

Sundevall ('Tentamen,' p. 42) separates the *Corvidæ* from the *Paradiseidæ*. The former belong to his "Phalanx 3, *Altinares*," with 10 primaries, the first decidedly long, reaching for a long distance beyond the coverts; the nostrils placed high; the bill straight from the base; the toes as in most Oscines, the outer toe a little longer than the inner one and not much exceeding the first joint of the middle toe; the hind toe moderate.

For his Phalanx 4, *Idiodactylæ*, Sundevall gives the following characters:—Quills 10, the first elongated. The outer toe a little shorter than the middle one, but the inner toe much longer; the hallux of great size, equal, with its claw, to the middle toe with its claw; the third joint of the outer toe equal to the second joint of the middle toe. Here he places the Birds of Paradise.

The Bower-Birds he places far away from the *Corvidæ* and *Paradiseidæ* in his *Cichlomorphæ* (p. 19). Thus the characters of these three Families are defined by Sundevall as follows:—

Cohors I. Cichlomorphæ. Bill hooked or awl-shaped, with the nostrils placed low down in the bill, nearer to the cutting-edge of the mandible than to the culmen.

The Bower-Birds constitute his Fam. 29, *Ptilonorhynchinæ*. "Birds of the Australian Region, of somewhat large size, with a nearly Corvine aspect; the first quill long, a little shorter than the secondaries. Bill of varying dimensions, generally stout, always somewhat arched. The tail moderate and nearly equal as regards length of feathers, emarginate or well rounded."

According to Sundevall the Crows belong to his Cohors III. Coliomorphæ, with the bill rather strong and of large size for the most part, either not deflected at all or only slightly so; the angle of the chin produced in front of the nostrils. . . . Feet generally powerful and of large size, with the middle claw oblique.

In the third volume of the 'Catalogue of Birds,' I separated the *Paradiseidæ* from the *Corvidæ* on the proportion of the toes (p. 4), as follows:—

Toes normal; the hallux very strong, but, with its claw, not so long as the middle toe and claw . . . . . Corvidæ.

Toes abnormal; outer toe a little shorter than the middle one, longer than the inner one; hallux very large, with its claw equal to or longer than the middle toe with its claw. Paradiseidæ.

The Bower-Birds were placed by me far away from the above-mentioned Families in the sixth volume of the 'Catalogue.' This was undoubtedly a mistake.

Taking, therefore, the typical *Corvidæ*, such as Rooks, Crows, and Ravens, we can separate them from the Birds of Paradise and the Bower-Birds by the characters given below; but the aberrant *Corvidæ*, the Jays and Magpies and their kin, especially the Nutcrackers and Choughs, have many

characters which are intermediate, and a thorough revision of the groups is necessary before one can define their exact limits. Speaking broadly, we may separate the three families as follows:—

a. Chin-angle advanced in front of the nasal aperture.

a'. Hallux moderate, measured from its extreme base to the tip of the claw about equal to the middle toe and claw; the outer and inner toes sub-equal in length; palatines obtusely quadrate near their postero-external extremity. [In typical Crows the first primary is long and extends beyond the tips of the inner secondaries.] . . CORVIDÆ.

Fig. 1.

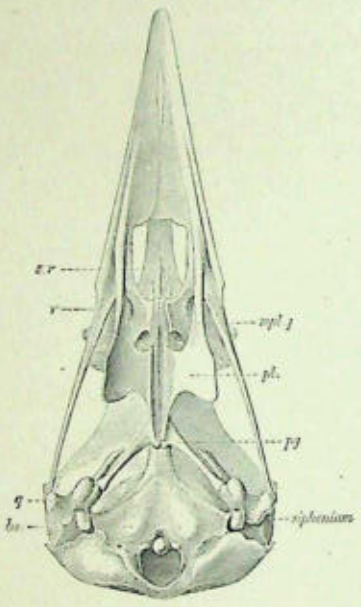

Fig. 2

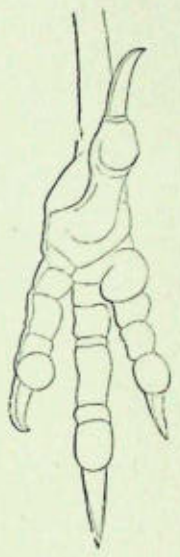

Fig. 1.—Ventral surface of skull of Rook (*Trypanocorax frugilegus*).
Fig. 2.—Plantar surface of foot of Rook, from fresh specimen, to show the proportions of the toes.
[From the Catalogue of the Royal College of Surgeons, Part III. Aves, pp. 4, 5, 1891.]

b'. Hallux very large, measured as above exceeding the length of the middle toe and claw; the outer toe longer than the inner one; palatines with the postero-external angle prolonged; nares impervious; nasal septum much swollen and filling up the space between the palatines; first primary shorter than the inner secondaries . . . PARADISEIDÆ.

Fig. 3.

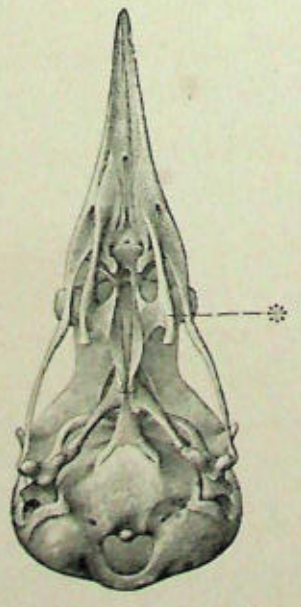

Fig. 4.

Fig. 3.—Ventral surface of skull of *Paradisea apoda* (slightly enlarged).
Fig. 4.—Plantar surface of foot of *P. apoda*, to show the proportions of the toes, from a specimen in spirits in the British Museum. [From the Catalogue of the Royal College of Surgeons, Part III. p. 17, 1891.]

b. Chin-angle not produced in front of the nasal aperture; hallux not exceeding the middle toe and claw, when measured as above; outer toe longer than the inner one; nares pervious; no ossified nasal septum; palatines with the postero-external angle produced; first primary shorter than the inner secondaries . . . . . PTILONORHYNCHIDÆ.

Fig. 5. Fig. 6.

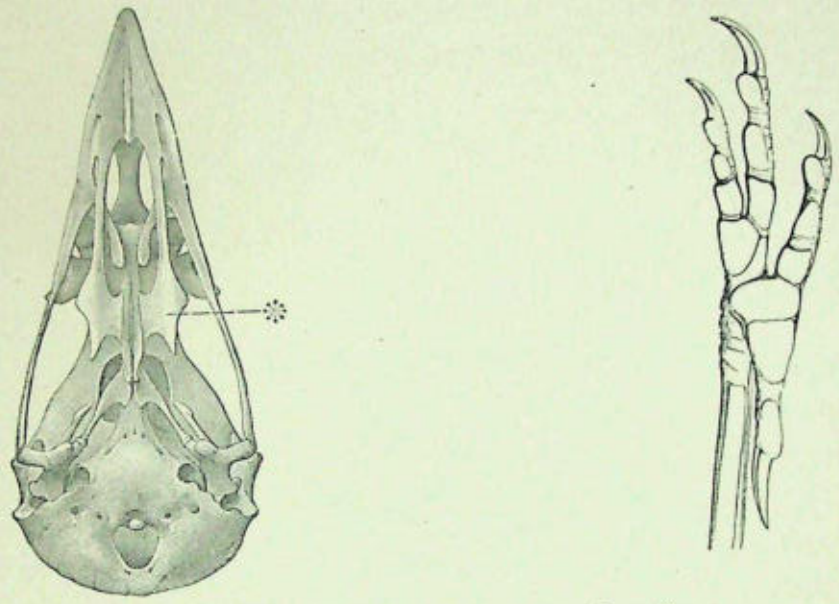

Fig. 5.—Ventral aspect of skull of *Ptilonorhynchus violaceus* (slightly enlarged).
Fig. 6.—Plantar surface of foot of *Ælurædus crassirostris*, from dried specimen, to show the proportions of the toes.
[From specimens in the British Museum.]

The genus *Loria*, which I have placed among the *Ptilonorhynchidæ*, may yet turn out to be a true Bird of Paradise when its osteology is known; but specimens of the single species of the genus are so rare in collections that I have not been able to examine the skull!

All the members of the families *Paradiseidæ* and *Ptilonorhynchidæ* are remarkable for the strength of their feet, and the scutellation of the tarsus seemed at one time to offer a character for the differentiation of certain genera; but I have found this feature in the tarsus to break down utterly. To make sure of the worth of this character, I asked Mr. H. Grönvold, an expert friend, to examine the specimens in the British Museum, so as to check the correctness of my identifications. The result is that we found the tarsus scutellated in front in the genera *Ptilorhis* and *Drepananax*, plain in *Seleucides* and *Drepanornis*. *Epimachus meyeri* has a scutellated tarsus, while *E. speciosus* has a plain tarsus. After this we gave up the scutellation of the tarsus as a character of value in the *Paradiseidæ*!

The shape of the posterior extremities of the palatine bones, as seen in the ventral aspect of the skull, which varies in the families *Corvidæ*, *Paradiseidæ*, and *Ptilonorhynchidæ*, is apparently of some importance.

The following synopsis represents my present conclusions as to the classification of the Birds of Paradise and the Bower-Birds.

Family I. PARADISEIDÆ.

Key to the Sub-families.

A. Bill elongated and slender, the culmen longer than the tarsus . . . . . Epimachinæ.
B. Bill short, more or less stout, the culmen not so long as the tarsus . . . Paradiseinæ.

[*Cf.* Sharpe, Cat. Birds Brit. Mus. iii. p. 153.]

Sub-family I. EPIMACHINÆ.

Key to the Genera.

a. Tail square or graduated, the centre feathers never so elongated as to be equal to the length of the body.
  a'. Tail square, the centre feathers metallic, but not elongated; a triangular or rounded metallic shield of green on the throat or chest.
    a''. With no erectile shield on the back of the neck.
      a^3. Flank-feathers rounded, with metallic or glossy tips . . . . . 1. Ptilorhis.
      b^3. Flank-feathers elongated into silky plumes with hair-like ends.
        a^4. Metallic shield on the chest triangular; culmen not much longer than the tarsus . . . . . 2. Craspedophora.
        b^4. Metallic shield on chest rounded; bill longer, the culmen conspicuously longer than the tarsus . . . . . 3. Heteroptilorhis.
    b''. With an erectile shield on the back of the neck . . . . . 4. Paryphephorus.
  b'. Tail square, the two centre feathers metallic and produced beyond the others; no metallic-green shield on the fore neck; flank-plumes dense as in *Craspedophora*, with silky ends . . . . . 5. Ianthothorax.
  c'. Tail square; flank-feathers dense and produced, yellowish like the breast, the shafts elongated into twelve wire-like threads; a velvety breast-shield with a metallic fringe . . . . . 6. Seleucides.
  d'. Tail graduated; bill strongly curved and sickle-shaped; a fan-like lateral shield on each side of the fore-neck, composed of metallic-tipped feathers.
    c''. Flank-plumes ample, forming a large ornamental bunch of metallic-tipped plumes; no metallic plumes along the side of the breast . . . . 7. Drepanornis.
    d''. No tuft of ornamental flank-plumes; a row of metallic plumes on the side of the breast; an ornamental fan-like shield on each side of the fore-neck . 8. Drepananax.
b. Tail enormously developed and glossed with metallic purple or steel-blue or green; length of tail far exceeding that of the body . . . . . 9. Epimachus.

1. PTILORHIS.

Type.

Ptilorhis, Swainson, Zool. Journ. i. p. 481 (1825) . . . . . *P. paradisea.*

Range. Confined to Australia.

Key to the Species.

a. Larger: chest purple; gular shield metallic-green; breast and abdomen olive rifle-green; chin and sides of throat black, with scarcely any purple gloss. *Female* buff beneath, with distinct sub-marginal bands of black . . . . . 1. *paradisea*.

b. Smaller: chin and sides of throat with a reflection of burnished copper; gular shield somewhat smaller, the purple colour extending over the fore-neck, chest, and upper breast; remainder of under surface more of an olivaceous green. *Female* fawn-colour below, with dusky spots . . . . . 2. *victoriæ*.

II. CRASPEDOPHORA. Type. *C. magnifica.*

Craspedophora, Gray, List Gen. B. 1841, p. 15 . . . . . *C. magnifica.*

Range. New Guinea and N.E. Australia.

Key to the Species.

a. Base of culmen bare, not covered by the frontal plumes.

a'. Breast reddish-purple below the double pectoral band. *Female* with the head rufous like the back . . . . . 1. *magnifica*.

b'. Breast oily green below the pectoral collar. *Female* with the head ashy brown, the back olivaceous brown . . . . . 2. *alberti*.

b. Base of culmen hidden by the frontal plumes; bill shorter than in the preceding species. *Female* similar to that of *C. magnifica* . . . . . 3. *intercedens*.

III. HETEROPTILORHIS, gen. nov. Type. *H. mantoni.*

Range. New Guinea.

IV. PARYPHEPHORUS. Type. *P. duivenbodii.*

Paryphephorus, Meyer, Ibis, 1890, p. 420 . . . . . *P. duivenbodii.*

Range. New Guinea.

V. IANTHOTHORAX. Type. *I. bensbachi.*

Ianthothorax, Büttik. Notes Leyden Mus. xvi. p. 163 (1894) . . . . . *I. bensbachi.*

Range. N.W. New Guinea.

VI. SELEUCIDES. Type. *S. nigricans.*

Seleucides, Less. Hist. Nat. Ois. Parad. Syn. p. 29 (1835) . . . . . *S. nigricans.*

Nematophora, Gray, List Gen. B. 1840, p. 12

Range. New Guinea, Salawati.

VII. DREPANORNIS. Type. *D. albertisi.*

Drepanophorus (nec Egerton), Sclater, Nature, 1873, p. 192 . . . . . *D. albertisi.*

Drepanornis, Sclater, P. Z. S. 1873, p. 560 (nom. emend.)

Range. New Guinea.

Key to the Species.

a. Tail cinnamon-rufous; back dark reddish-brown, uniform . . . . . 1. *albertisi*. 2. *geisleri*.

b. Tail pale fawn-colour, like the upper tail-coverts; back light brown, with indistinct mesial ovate spots of buff . . . . . 3. *cervinicauda*.

VIII. DREPANANAX.

Type.

Drepananax, Sharpe, Bull. Brit. Orn. Club, iv. p. xv (1894) . . . . . *D. kreijni.*

Range. New Guinea.

IX. EPIMACHUS.

Type.

Epimachus, Cuvier, Règne Anim. i. p. 407 (1817) . . . . . *E. speciosus.*

Cinnamolegus, Less. Hist. Nat. Ois. Parad. Syn. p. 32 (1833) . . . . . *E. speciosus.*

Range. New Guinea.

Key to the Species.

a. Tail with a steel-blue or steel-green gloss; back spangled with metallic-green or steel-blue.

a'. Elongated flank-plumes black; under surface of body black, with an oily-olive gloss, slightly inclining to purplish . . . . . 1. *speciosus.*

b'. Elongated flank-plumes brown; under surface of body brown, with a distinct olive shade or purplish gloss . . . . . 2. *meyeri.*

c'. Elongated flank-plumes green, like the abdomen, contrasting with the emerald-green chest; throat black, followed by a coppery-red thorax . . . . . 3. *astrapioides.*

b. Tail and wings with a violet-purple gloss; spangles on back reddish-purple . . . 4. *ellioti.*

Sub-family II. PARADISEINÆ.

Key to the Genera.

a. No fleshy-yellow wattle round the eye.

a'. Tail of extreme length and graduated, the central feathers broad like the others, exceeding the length of the body of the bird, and not reduced to narrow plumes or wire-like shafts.

a''. Tail twice the length of the body; round the hind-neck a metallic frill . . . . . 10. Astrapia.

b''. Tail four times the length of the body of the bird; no metallic frill round the hind-neck . . . . . 11. Astrarchia.

c''. Tail shorter, scarcely exceeding the length of the body of the bird; no metallic frill round the hind-neck . . . . . 12. Calastrapia.

b'. Tail square or slightly rounded, with the two central feathers enormously elongated and reduced to shaft-like plumes, either very narrow and slightly spatulate at the ends (*Paradisornis*) or like wire (*Paradisea*) or whalebone (*Uranornis*), with the webs of the long flank-feathers disconnected near their tips and without radii.

d''. Flank-plumes very long, full, and ornamental, reaching beyond the tail by more than the wing's length . . . . . 13. Paradisea.

e''. Flank-plumes ornamental, but not reaching beyond the tail by as much as the wing's length.

a[3]. Centre tail-feathers as in *Paradisea*, but the flank-plumes not so dense and having thread-like ends like a spider's web; on the throat a metallic-green shield . . . . . 14. Trichoparadisea.

b[3]. Centre tail-feathers reduced to horny shafts like whalebone, with no barbs or web of any kind; flank-plumes red, with thread-like ends; a metallic-green shield on the throat . . . . 15. Uranornis.

c^3. Centre tail-feathers long and narrow, velvety black, with a slightly developed spatule at the end, the whole feather webbed throughout its entire length; no metallic shield on the throat; flank-feathers blue, and with thread-like ends . . . . . 16. Paradisornis.

c'. Tail square or with the two centre feathers elongated, but without a train of ornamental flank-plumes.

f''. Tail square, with the two centre feathers elongated, metallic-green; round the hind-neck a frill of elongated feathers . . . . . 17. Lamprothorax.

g''. Tail square, with the two centre feathers elongated and wire-like, very narrow and recurved at the ends.

d^3. With no dorsal shield, the upper surface uniform crimson; on each side of the breast a tuft of plumes spread like a fan; two centre feathers thread-like and ending in a racket . . . . . 18. Cicinnurus.

e^3. With a distinct dorsal shield of orange or golden.

a^4. Head covered with dense close-set plumes.

a^5. With a fan-shaped tuft of feathers springing from each side of the breast . . . . . 19. Rhipidornis.

b^5. With no fan-shaped tuft of pectoral feathers, but a large shield of green on the breast . . . . . 20. Diphyllodes.

b^4. Head bare, blue in life, with a few transverse tracts of feathers . 21. Schlegelia.

d'. Tail square, the centre feathers not elongated.

h''. With two long streamers from the head, composed of enamelled flag-like appendages to a wire-like shaft . . . . . 22. Pteridophora.

i''. Without ornamental streamers on the head.

f^3. With a large metallic triangular shield of green on the breast; two white elongated plumes on the wing . . . . . 23. Semioptera.

g^3. Without a pectoral shield.

c^4. Nostrils covered with dense plumes; plumage metallic.

c^5. Centre tail-feathers simple in structure, like the rest of the tail, which is "hen"-shaped; plumage glossy and metallic, with a pointed tuft of feathers on each side of the crown . . . 24. Phonygama.

d^5. Tail not markedly "hen"-shaped, but simple in structure, the centre feathers not recurved; feathers of the neck and chest crinkled . . . . . 25. Manucodia.

e^5. Centre tail-feathers crinkled and recurved; feathers on the sides of the crown raised into a dense line of velvety plumes . . 26. Eucorax.

d^4. Nostrils exposed and not approached by frontal plumes; plumage plain and non-metallic . . . . . 27. Lycocorax.

b. With an erect yellow lappet at the base of the bill; plumage black; wings longer than the tail, the latter pointed, with the two centre feathers produced beyond the others . . . . . 28. Paradigalla.

X. ASTRAPIA.

Type.
A. nigra.

Astrapia, Vieill. N. Dict. d'Hist. Nat. iii. p. 36 (1816) . . . . . .

Range. N.W. New Guinea.

XI. ASTRARCHIA.

Type.
A. stephaniæ.

Astrarchia, Meyer, Zeitschr. ges. Orn. ii. p. 378 (1885) . . . . . .

Range. S.E. New Guinea.

XII. CALASTRAPIA, gen. nov.

Type.
C. splendidissimo.

Range. N.W. New Guinea.

XIII. PARADISEA.

Type.
P. apoda.

Paradisea, Linn. Syst. Nat. i. p. 166 (1766) . . . . . .

Range. New Guinea, Salawati, Jobi, Misori, Mysol, Waigiou, Ghemien, Batanta, Aru Islands.

Key to the Species.

a. Yellow of head confined to the crown and nape; the back maroon from the nape to the tail.

a'. Ornamental flank-plumes yellow; no yellow collar below the green throat; breast and abdomen not contrasting strongly with the velvety brown of the chest, which is only a little darker . . . . . 1. *apoda.* 2. *novæ-guineæ.*

b'. Ornamental flank-plumes crimson; a distinct yellow collar below the green throat; a distinct patch of velvety brown on the chest, in contrast to the vinaceous chestnut of the breast and abdomen . . . . . 3. *raggiana.*

b. Yellow of head continued over the mantle and back.

c'. Yellow extending over the whole back to the upper tail-coverts.

a''. Green of forehead extending to the line of the eyes, and forming a broad frontal band; a narrow yellow collar below the green throat; underparts of the same tint, the chest not velvety in contrast to the breast; flank-feathers yellow, washed with reddish-brown, white at the ends . . . 4. *mariæ.*

b''. Green of forehead confined to a narrow basal line; a yellow collar below the green throat.

*a*³. Chest velvety black, in contrast to the light vinous-brown breast. . . . . 5. *augustæ-victoriæ.*

*a*⁴. Flank-feathers golden orange . . . . . 6. *intermedia.*

*b*⁴. Flank-feathers crimson . . . . . .

*b*³. Chest delicate lilac-grey like the breast; flank-plumes crimson, with a patch of silky black plumes near the base on each side of the abdomen . . . . . 7. *decora.*

d'. Yellow of back restricted to the interscapulary region, the lower back and rump chestnut; flank-plumes yellow . . . . . 8. *minor* and allies.

XIV. TRICHOPARADISEA.

Type.
T. gulielmi.

Trichoparadisea, Meyer, Abhandl. k. zool. Mus. Dresden, 1892–93, p. 20 (1893) . . . . .

Range. German New Guinea.

XV. URANORNIS.

Type.
U. rubra.

Uranornis, Salvad. Ann. Mus. Civic. Genov. ix. p. 191 (1876) . . . . . .

Range. Islands of Waigiou, Ghemien, and Batanta.

XVI. PARADISORNIS.

Type.
P. rudolphi.

Paradisornis, Meyer, Zeitschr. ges. Orn. ii. p. 385 (1885) . . . . . .

Range. S.E. New Guinea.

XVII. LAMPROTHORAX.

Type.
L. wilhelminæ.

Lamprothorax, Meyer, Abhandl. k. zool. Mus. Dresden, 1894–95, no. 2, p. 3 (1896) . . . .

Range. N.W. New Guinea.

Key to the Species.

a. Outer aspect of wings more or less purple.
  a'. Under surface of body metallic steel-green or purple; feathers of the crown and throat steel-blue or metallic green.
    a''. Head not in strong contrast to the back.
      *a*³. Head dark steel-blue like the back . . . . . 1. *keraudreni*.
      *b*³. Head metallic green, slightly contrasting with the steel-blue of the back. 2. *jamesi*, imm.
    b''. Head steel-blue; back purple like the wings . . . . . *jamesi*, ad. (*purpureo-violacea*).
  b'. Under surface of body black, with scarcely any metallic gloss; feathers of head and throat metallic oily-green . . . . . 3. *hunsteini*.
b. Outer aspect of quills always green and not purplish; general colour above and below metallic green . . . . . 4. *gouldi*.

XXV. MANUCODIA.

Type. *M. chalybeata*.

Manucodia, Bodd. Tabl. Pl. Enl. p. 39 (1788) . . . . . .

Range. New Guinea, Salawati, Jobi, Mysol, Waigiou, Ghemien, Batanta, Aru Islands.

Key to the Species.

a. Interscapulary region rich purple, crinkled with transverse bands of velvety black . . . . . 1. *chalybeata* and allies.
b. Interscapulary region metallic steel-green with purple reflections, but without recurved velvety margins to the feathers . . . . . 2. *atra*.

XXVI. EUCORAX.

Type. *E. comrii*.

Eucorax, Sharpe, Bull. Brit. Orn. Club, iv. p. xv (1894) . . . . . .

Range. D'Entrecasteaux Islands.

XXVII. LYCOCORAX.

Type. *L. pyrrhopterus*.

Lycocorax, Bp. Comptes Rendus, xxxvii. p. 829 (1853) . . . . . .

Range. Batchian, Halmahéra, Morotai, Raou, Obi Islands.

Key to the Species.

a. Primaries ashy brown below, somewhat paler, but not white, at the base of the inner web.
  a'. General colour black, slightly washed with green; secondaries brown . . . 1. *pyrrhopterus*.
  b'. General colour dark rifle-green; secondaries black, washed with green . . . 2. *obiensis*.
b. Primaries white for the basal half of the inner web . . . . . 3. *morotensis*.

XXVIII. PARADIGALLA.

Type. *P. carunculata*.

Paradigalla, Less. Ois. Parad. 1835, p. 242 . . . . . .

Range. New Guinea.

Family II. PTILONORHYNCHIDÆ.

a. Plumage black, with orange-buff primaries, tipped with black; round the eye a large orange-yellow lappet . . . . . 1. Macgregoria.

b. With no yellow lappet round the eye.

a'. Nasal aperture entirely concealed by feathers or an overhanging wattle.

a''. With a metallic-green or golden shield on the breast or fore-neck.

*a*³. Head ornamented with six thread-like plumes ending in a racket; a large gular shield of metallic golden; no dorsal shield of feathers; flank-plumes greatly developed . . . . . 2. Parotia.

*b*³. Head without the thread-like plumes; a very distinct dorsal shield of velvety black plumes . . . . . 3. Lophorhina.

b''. With no metallic shield on the throat or chest.

*c*⁵. Nostrils shut in by a horny lobe like a shield . . . . . 4. Loboparadisea.

*d*⁵. Nostrils covered in by feathers.

*a*⁴. Feet very strong, when outstretched reaching to the end of the tail.

*a*⁵. Loral plumes metallic; tail graduated; plumage velvety black, with a bare wattle along the gape and below the eye . . . 5. Loria.

*b*⁵. Loral plumes not metallic; tail square . . . . . 6. Ptilonorhynchus.

*a*⁶. Crown with a long crest of orange or golden plumes; remainder of upper surface brown . . . . . 7. Amblyornis.

*b*⁶. Upper surface glossy golden, with a tuft of elongated plumes on the forehead . . . . . 8. Cnemophilus.

*b*⁴. Feet much weaker, not reaching, when outstretched, beyond half the tail . . . . . 9. Prionodura.

b'. Nasal aperture not entirely covered with feathers.

c''. With an erectile mantle-shield of fiery orange; wings long, reaching nearly to the tail . . . . . 10. Xanthomelus.

d''. With no ornamental shield.

. Bill slender, as high as it is broad at base; plumage of head compressed and dense . . . . . 11. Sericulus.

*f*³. Bill stouter, higher than broad at base.

*c*⁴. With a lateral sub-terminal notch on the upper mandible.

*c*⁵. Nostrils oval, with a posterior membrane, on which the frontal feathers encroach; bill longer and thinner, its depth at the nostrils much less than the inner toe; general colour brown, with an ornamental nuchal patch in the male . . . . . 12. Chlamydodera.

*d*⁵. Nostrils overhung by scanty plumes, but not concealed; bill very stout, its depth at the nostrils being equal to the length of the inner toe without claw . . . . . 13. Ælurœdus.

*d*⁴. With a distinct festoon on the upper mandible, formed by two notches on its cutting-edge . . . . . 14. Scenopœetes.

I. MACGREGORIA.

Type.

. . . . . *M. pulchra*.

Macgregoria, De Vis, Ibis, 1897, p. 291 . . . . . .

Range. S.E. New Guinea.

II. PAROTIA.

Type.

Parotia, Vieill. Nouv. Dict. d'Hist. Nat. xxxi. p. 160 (1819) . . . . . *P. sexpennis.*
Otostylus, Gloger, Handb. Naturg. p. 344 (1842) . . . . . *P. sexpennis.*

Range. New Guinea.

Key to the Species.

a. Flank-plumes black.
  a'. On the forehead a patch of silvery white.
    a''. Pectoral shield mostly metallic green, glittering with bronze and golden; metallic bar on nape purplish-blue, with emerald-green in the centre . . . . . 1. *sexpennis.*
    b''. Pectoral shield fiery metallic golden; metallic bar on nape steely-blue . . . 2. *lawesi.*
  b'. No white on the forehead . . . . . 3. *helenæ.*
b. Flank-plumes white.
  c'. Cheeks and throat light ochreous or golden . . . . . 4. *carolæ.*
  d'. Cheeks and throat blackish, with a reddish-brown gloss . . . . . 5. *berlepschi.*

III. LOPHORHINA.

Type.

Lophorhina, Vieill. Nouv. Dict. d'Hist. Nat. xviii. p. 184 (1817) . . . . . *L. superba.*

Range. New Guinea.

Key to the Species.

a. Larger: neck-shield rounded, with pointed lateral feathers; pectoral shield forked and pointed at the ends. *Female* with the outer aspect of the quills dark chestnut; tail rufous-brown; no white line behind the eye round the hind-neck . . . . . 1. *superba.*
b. Smaller: neck-shield forked, the lateral feathers rounded; pectoral shield more square on the lower margin. *Female* with the outer aspect of the quills pale rufous; tail olive-brown; a line of white, black-spotted feathers from behind the eye round the hind-neck . 2. *minor.*

IV. LOBOPARADISEA.

Type.

Loboparadisea, Rothsch. Bull. Brit. Orn. Club, vi. p. xv (1896) . . . . . *L. sericea.*

Range. New Guinea.

V. LORIA.

Type.

Loria, Salvad. Ann. Mus. Civic. Genov. (2) xiv. p. 151 (1894) . . . . . *L. loriæ.*

Range. S.E. New Guinea.

VI. PTILONORHYNCHUS.

Type.

Ptilonorhynchus, Kuhl, Beitr. Zool. p. 150 (1820) . . . . . *P. violaceus.*

Range. Australia.

VII. AMBLYORNIS.

Type.

Amblyornis, Elliot, Ibis, 1872, p. 114 . . . . . *A. inornata.*
Xanthochlamys, Sharpe, Bull. Brit. Orn. Club, iv. p. xv (1894) . . . . . *A. subalaris.*

Range. New Guinea.

Key to the Species.

a. Forehead yellow, like the elongated crest . . . . . 1. *flavifrons.*
b. Forehead brown; crown yellow or orange, ending in a long crest.
a'. Crest very long and reaching to the mantle; throat uniform, with scarcely any pale streaks . . . . . 2. *inornata.*
b'. Crest rounded, not reaching beyond the hind-neck; throat streaked with pale buff . 3. *subalaris.*

VIII. CNEMOPHILUS.

Type.
C. macgregori.

Cnemophilus, De Vis, Ann. Rep. Brit. New Guinea, p. 61 (1890) . . . . . .

Range. S.E. New Guinea.

IX. PRIONODURA.

Type.
P. newtoniana.

Prionodura, De Vis, Proc. Linn. Soc. N. S. Wales, vii. p. 562 (1883) . . . . . .

Range. N.E. Australia.

X. XANTHOMELUS.

Type.
X. aureus.

Xanthomelus, Bp. Ann. Sci. Nat., Zool. (4) i. p. 122 (1854) . . . . . .

Range. New Guinea.

Key to the Species.

a. Head, neck, and mantle golden orange . . . . . 1. *aureus.*
b. Head, neck, and mantle fiery red . . . . . 2. *ardens.*

XI. SERICULUS.

Type.
S. melinus.

Sericulus, Swains. Zool. Journ. i. p. 476 (1825) . . . . . .

Range. Australia.

XII. CHLAMYDODERA.

Type.
C. maculata.

Calodera (nec Naum.), Gould, P. Z. S. 1836, pp. 106, 145 . . . . . *C. maculata.*
Chlamydera, Gould, B. Austr. part i. (cancelled, 1837) . . . . . .
Calidera, Agassiz, Nomencl. Zool. Ind. Univ. p. 58 (1846, nom. emend.).
Chlamydodera, Agassiz, t. c. p. 82 (1846, nom. emend.).

Range. Australia, New Guinea.

Key to the Species.

a. Breast and abdomen not yellow; crown of head not orange.
a'. Sexes alike; no nuchal band of bright lilac; under tail-coverts fawn-coloured like the breast; throat pale, longitudinally streaked with dusky; head and hind-neck uniform; back minutely spotted and streaked with white . . . . . 1. *cerviniventris.*
b'. Sexes different; a nuchal band of bright lilac in the males.
a''. Upper surface mottled all over with reddish spots and bars at the end of the feathers; throat and sides of body with spots or bars of dusky brown . . 2. *maculata.*
*a*³. Head rufous-brown, varied with blackish edgings and spots; throat light reddish, with a few dusky margins to the feathers . . . . . 3. *occipitalis.*
*b*³. Head silvery brown, with slightly indicated rufous bars, the bases of the feathers black; throat and chest fulvescent, mottled with dusky blackish centres and margins to the feathers . . . . . 4. *guttata.*

b''. Upper surface mottled with ashy whitish or white tips or bars at the end of the feathers; throat and sides of body perfectly uniform.

*c*³. Head uniform; the whitish tips to the inner secondaries not very strongly pronounced . . . . . 5. *nuchalis.*

*d*³. Head mottled with silvery whitish tips to the feathers; the whitish tips to the wing-coverts and secondaries very strongly pronounced . . . . . 6. *orientalis.*

b. Crown of head golden orange; under surface of body chrome-yellow . . . . . 7. *lauterbachi.*

XIII. ÆLURŒDUS. Type.

Ailuræ̈dus, Cab. Mus. Hein. Th. i. p. 213 (1850) . . . . . *Æ. viridis.*

Range. Australia, New Guinea, Salawati, Jobi, Waigiou, Batanta, Aru Islands.

Key to the Species.

a. Crown of head mottled; ear-coverts black; tail-feathers tipped with white.

a'. With large ovate spots of sandy buff or fawn-colour extending over the hind-neck and upper mantle.

a''. Under surface of body scaly, the feathers edged and spotted at the tip with dark green.

*a*³. Nape spotted like the head . . . . . 1. *melanotis.* / 2. *jobiensis.*

*b*³. Nape black . . . . . 3. *arfakianus.*

b''. Under surface of body more uniform, not margined with dark green . . . 4. *melanocephalus.*

b'. Hind-neck and upper mantle mottled with greyish centres to the feathers, with dusky blackish edges . . . . . 5. *maculosus.*

b. Crown of head uniform green; ear-coverts green, mottled with dusky black; tail-feathers tipped with white . . . . . 6. *viridis.*

c. Crown of head uniform brown or ochreous-brown, not green.

c'. Spots on the under surface large; throat white, distinctly spotted with black.

c''. Crown of head olive-brown . . . . . 7. *buccoides.*

d''. Crown of head ochreous-brown . . . . . 8. *geislerorum.*

d'. Spots on the under surface very small, the throat white, with only a few black dots; crown of head blackish brown . . . . . 9. *stonii.*

XIV. SCENOPŒETES. Type.

Scenopæus, Ramsay, P. Z. S. 1875, p. 591 . . . . . *S. dentirostris.*

Scenopæetes, Coues, Auk, viii. p. 115 (1891) . . . . . *S. dentirostris.*

Tectonornis, Sharpe, Monogr. Parad. pt. i (1892) . . . . . *S. dentirostris.*

Range. N.E. Australia.

APPENDIX.

The best known Monograph of the *Paradiseidæ* hitherto published is that by Mr. D. G. Elliot. This Monograph was written in 1873: it is illustrated by magnificent plates, lithographed by Smit from original drawings by Joseph Wolf. Gould, in his 'Birds of New Guinea,' figured nearly every species known in his day, and he had intended to publish a complete Monograph of the Family, for which purpose he kept the lithographic stones from which the plates in his above-mentioned work had been prepared. Thus it came to pass that when Messrs. Sotheran purchased the stock of Gould's works after his death, they acquired the stones with which he had intended to illustrate his Monograph of the *Paradiseidæ*. Many of them were broken or otherwise damaged, and of these some have been redrawn or replaced by new plates by Mr. Hart. Since Gould's time, however, many marvellous new species have been discovered, and these have been described and figured in the present work.

The most elaborate memoir of the Birds of Paradise, however, is that published by Count Salvadori in his 'Ornitologia della Papuasia e delle Molucche.' With the exception of the Australian species, which did not come within the scope of Count Salvadori's work, every Bird of Paradise and Bower-Bird is treated of in a way that practically exhausted the subject at the time; and I may once more take the opportunity of acknowledging the obligation I owe to the labours of my friend Count Salvadori, as from his work the synonymy of most of the species in the present Monograph is taken.

In 1894 I published a list of the *Paradiseidæ* and *Ptilonorhynchidæ* (Bull. Brit. Orn. Club, iv. pp. xii–xv). It is not so complete as it ought to have been, as I omitted *Pteridophora alberti* and *Craspedophora alberti*, and the number of species should have been 84 instead of 82.

Dr. A. B. Meyer, who has always occupied himself with the study of the *Paradiseidæ*, and has described some of the most wonderful forms, such as *Pteridophora alberti*, *Astrarchia stephaniæ*, *Paradisornis rudolphi*, &c., has recently published a complete list of the known species (Abhandl. k. zool. Mus. Dresden, vii. no. 2, pp. 39–63). This is an invaluable contribution to our knowledge of the Birds of Paradise, of which 96 species are now recognized by Dr. Meyer. Lastly, in the 'Thierreich,' the Hon. Walter Rothschild has monographed the *Paradiseidæ* once more, and his essay is, therefore, the latest revision of the Family. As he has admitted in a recently published paper in his 'Novitates Zoologicæ' (v. pp. 84–87), he differs considerably from me and from the other ornithologists above named in his estimate of the worth of certain genera and species.

In place, therefore, of giving a complete historical list of the literature appertaining to the *Paradiseidæ* and *Ptilonorhynchidæ*, as was so well done by Mr. Elliot in his 'Monograph' that it would have to be copied here, I have decided merely to give a list of the species as recognized by me at the conclusion of the present 'Monograph,' with a few additional criticisms on the work of Dr. Meyer and the Hon. Walter Rothschild, so as to bring the book up to date.

APPENDIX.

Family I. PARADISEIDÆ.

Sub-family I. EPIMACHINÆ.

Genus I. PTILORHIS.

1. Ptilorhis paradisea.

Add:—

Ptilorhis paradisea, Sharpe, Monogr. Parad. part ii. (1893).—Id. Bull. Brit. Orn. Club, iv. p. xii (1894).—Campbell, Vict. Nat. xiii. p. 145 (1897).—Le Souëf, Ibis, 1897, p. 396.—Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 40 (1898).—Rothschild, Thierreich, Lief. 2, Parad. p. 24 (1898).

The nest and eggs of this species have recently been discovered by Mr. A. J. Campbell, on the Clarence River, and the following description has been published by him in the 'Victorian Naturalist' (xiii. p. 145), where he has also figured the nest and egg. He writes as follows:—

"The discovery of the nest and egg of the Rifle-bird, *Ptilorhis paradisea*, Latham, is of considerable importance. It is 71 years ago since the bird itself was described, and yet only this season have the nest and egg been brought to light. The nest was taken in the Richmond River scrub, on the 19th November last, by Messrs. W. T. Bailey and Isaac Foster. It was built in a buoyong, *Turrietia* (sp.), at a height of about 40 feet from the ground, the nest being placed in an entanglement of vines, which covered the top of the tree. A peculiar feature of the nest was its adornment with shed snake-skins, the largest pieces being on the top edge, while a few small bits were in the nest.

"*Nest*.—Somewhat bulky; outwardly constructed chiefly of green stems and fronds of a climbing fern, with a few other broad leaves at the base, ornamented round the rim with portions of shed snake-skins, probably from the Carpet Snake, *Morelia variegata*, lined inside with wire-like rootlets and a few scales of snake's skin at the bottom. Dimensions—over all 8–9 in., by 4 in. in depth; egg-cavity 4 in. across, by 2 in. deep.

"*Egg*.—In shape, inclined to oval, but more swollen about the upper quarter; shell, fine in texture, surface somewhat uneven, but slightly lustrous; colour, rich fleshy tint, moderately but boldly marked or streaked longitudinally with reddish brown and purplish brown, the markings being more numerous on the apex and upper quarter. Some of the markings have the appearance of having been painted on with a brush. The egg resembles in general character the smaller egg of Victoria's Rifle-bird, but is richer in the ground-colour, with the markings not so elongated. Dimensions—1·29×0·98 in."

2. Ptilorhis victoriæ.

Add:—

Ptilorhis victoriæ, Sharpe, Monogr. Parad. part iii. (1894).—Id. Bull. Brit. Orn. Club, iv. p. xii (1894).—Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 40 (1898).—Rothschild, Thierreich, Lief. 2, Parad. p. 24 (1898).

Genus II. CRASPEDOPHORA.

1. Craspedophora magnifica.

Add:—

Craspedophora magnifica, Sharpe, Monogr. Parad. part i. (1891).—Id. Bull. Brit. Orn. Club, iv. p. xii (1894).—Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 40 (1898).

Ptilorhis magnifica, Rothschild, Thierreich, Lief. 2, Parad. p. 24 (1898).

Dr. Meyer remarks (*l. c.*) that he found this species common at Rubi, in Geelvink Bay. "Skin at the angle of the gape greenish yellow."

Add:—

2. Craspedophora alberti.

Craspedophora alberti, Sharpe, Monogr. Parad. part vii. (1897).—Le Souëf, Ibis, 1897, p. 394, fig. 1.—Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 40 (1898).

Ptilorhis alberti, Rothschild, Thierreich, Lief. 2, Parad. p. 25 (1898).

By some unaccountable mistake, I left this species out of my list of the *Paradiseidæ* in 1894 (Bull. Brit. Orn. Club, iv. p. xii). I have always considered it to be distinct from *P. magnifica*.

Mr. D. Le Souef has given the following note on the nidification of the present bird (Ibis, 1897, p 394):—

"The eggs of this beautiful bird have been found this season at Cape York by Mr. H. G. Barnard, who has been collecting there for Dr. C. Ryan, Dr. Snowball, and myself; and I cannot do better than quote his own notes on the subject, which are exceedingly interesting:—'I found the first eggs of this bird on October 23rd, 1896, near Somerset, Cape York. On that date two nests were taken, each containing two fresh eggs. The first (which I forward for description) was built in a small palm, seven feet from the ground; it was very loosely put together; in fact, if one is not very careful in taking such a nest it would fall to pieces. As a rule the nests were placed in very conspicuous spots, the birds selecting patches of scrub where the undergrowth is very thin, evidently with the intention of seeing an enemy approach, as I did not in a single instance flush the bird from its nest. These birds are very shy and hard to get a shot at. They do not seem particular as to the kind of tree they breed in, as I found them nesting in pandanus-trees and palms, in small trees that had had their tops broken off and a few shoots growing out, also against the stems of small trees where two or three vines met; in one instance I found the nest on the top of a stump 18 inches from the ground. If a nest was found with one egg and the egg were taken, the bird always laid a second next day, but if the first egg was left it always disappeared.'

"At the first nest Mr. Barnard found he had to remain in hiding for over an hour before the bird returned, but owing to the weather being so warm there was no fear of the eggs getting cold during that time. The female of the Victoria Rifle-bird sits very closely to her nest, and the trunk of the tree on which she is nesting often has to be struck several times before she will fly off.

"The nest is very loosely constructed of green twigs with the leaves on, large dead leaves, and vine-tendrils. Its external depth is 5 inches, internal $2\frac{3}{4}$ inches; external diameter 9 inches, internal $4\frac{1}{4}$ inches. The eggs are beautifully marked, and are very similar to those of the other two Rifle-birds. There are two types, one having a much darker ground-colour than the other; both are slightly lustrous.

"*Type* A.—The ground-colour is ochraceous buff, richly marked with stripes starting from the larger end close to the apex, where they coalesce, towards the smaller end, and tapering off to a point. The markings are of various lengths and breadths, some being large and going three parts down the egg, and others again being only elongated dots. They vary in colour, but are principally various shades of rich rufous brown; some lighter ones appear of a greyish-blue hue. The markings have the appearance of being painted on by hand, one often overlapping the other, and darker markings sometimes appear as if beneath the lighter ones. They measure: A, 1·31×1·04 inch; B, 1·24×1·03 inch.

"*Type* B.—The ground-colour cream-buff, the elongated markings thinner than in the preceding and commencing further from the apex. Many of the markings are greyish blue at their larger end, darkening gradually towards their point to rufous brown. The smaller end of the egg generally has few markings on it, and those mostly small. They measure: A, 1·22×·88 inch; B, 1·28×·89 inch."

3. Craspedophora intercedens.

Add :—

Craspedophora intercedens, Salvad. Ann. Mus. Genov. xviii. p. 426 (1882).—Id. Orn. Papuasia, iii. p. 552 (1882).—Id. Ann. Mus. Genov. (2) x. p. 821 (1891), xvi. p. 108 (1896).—Sharpe, Monogr. Parad. part ii. (1893).—Id. Bull. Brit. Orn. Club, iv. p. xii (1894).—Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 40 (1898).

Ptilorhis intercedens, Rothschild, Thierreich, Lief. 2, Parad. p. 25 (1898).

Dr. Loria collected several specimens at Tuajagoro and Bujakori, in August 1890; these are villages on the Kemp Welch River, to the east of Port Moresby. The soft parts were as follows:—"Iris maroon; bill black; feet black, or dull lavender-colour in adult birds. In the females and young birds the bill was dusky horn-colour and the feet greyish." Their food consisted of fruit, and the native name was "Aroro." Dr. Loria has also met with the species in the Astrolabe Range.

Genus III. HETEROPTILORHIS (*antea*, p. x).

1. Heteroptilorhis mantoui.

Add:—

Craspedophora mantoui, Sharpe, Bull. Brit. Orn. Club, iv. p. xii (1894).—Id. Monogr. Parad. part vi. (1896).—Suchetet, Hybrides, i. p. 420 (1897).—Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 41 (1898).

Ptilorhis mantoui, Rothschild, Thierreich, Lief. 2, Parad. p. 25 (1898).

Dr. Meyer points out that the white on the under surface of this species distinguishes it from all the other Rifle-birds. M. Suchetet, in his zeal for the discovery of hybrids in a state of nature, has fallen foul of the present bird (described, too, by his countryman, Dr. Oustalet), and actually suggests the possibility of its being a hybrid between *Craspedophora magnifica* and *Seleucides nigricans*. This is certainly one of the most extraordinary propositions ever conceived in the history of ornithology.

Genus IV. PARYPHEPHORUS.

1. Paryphephorus duivenbodii.

Add:—

Paryphephorus duivenbodii, Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 41 (1898).—Rothschild, Thierreich, Lief. 2, Parad. p. 22 (1898).—Sharpe, Monogr. Parad. part viii. (1898).

As Dr. Meyer has pointed out (*l. c.*), and Mr. Rothschild has also determined, this genus should be placed close to *Craspedophora*, and not separated from it by the intervention of *Ianthothorax*, as I had proposed in 1894.

Genus V. IANTHOTHORAX.

1. Ianthothorax benzbachi.

Add:—

Ianthothorax benzbachi, Sharpe, Monogr. Parad. part vi. (1896).—Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 41 (1898).—Rothschild, Thierreich, Lief. 2, Parad. p. 22 (1898).

Genus VI. SELEUCIDES.

1. Seleucides nigricans.

Add:—

Seleucides nigricans, Salvad. Ann. Mus. Genov. (2) xvi. p. 109 (1896).—Sharpe, Monogr. Parad. part vii. (1897).—Reichen. J. f. O. 1897, p. 214.

Seleucides ignotus (Forster), Rothschild, Novit. Zool. v. p. 86 (1898).—Id. Thierreich, Lief. 2, Parad. p. 29 (1898).—Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 41 (1898).

Dr. Meyer gives the following notes from his diary of 1873:—"Iris red; feet rose-red. Flies about alone or in pairs. It cries loudly 'wau-wau,' in a high key in the throat, so that one can easily locate

its position and shoot it. It feeds three times in the day, searches for insects under the bark of trees, but also eats fruit." Mr. Rothschild points out that the English translation of Valentyn appeared in 1779, and not in 1780, which is the date of the French translation quoted by me, following Salvadori. He revives the name of *P. ignota* (Forster) for the species; but there are grave doubts as to whether Forster really meant this name to be specific, or whether he intended that the bird was "unknown," as he refers to it as "Oiseau de Paradis noir et *peu connu*" (i. e. *ignota*).

Recorded from the Jagei River and the Empress Augusta River, in German New Guinea, by Dr. Reichenow.

Genus VII. DREPANORNIS.

1. Drepanornis albertisi.

Add:—

Drepanornis albertisi, Sharpe, Monogr. Parad. part v. (1895).—Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 41 (1898).

Drepanornis albertisi (*typicus*), Rothschild, Thierreich, Lief. 2, Parad. p. 27 (1898).

2. Drepanornis geisleri.

Add:—

Drepanornis geisleri, Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 41 (1898).—Sharpe, Monogr. Parad. part viii. (1898).

Drepanornis albertisi geisleri, Rothschild, Thierreich, Lief. 2, Parad. p. 27 (1898).

Mr. Rothschild confirms the distinctness of this species, though founded on a female bird only. Compared with typical *D. albertisi*, it differs in the less distinct chestnut colour of the head and the ill-defined grey band on the neck, as well as the more olive-brown colour of the back and wings and the yellower colour of the tail.

3. Drepanornis cervinicauda.

Add:—

Drepanornis cervinicauda, Salvad. Mem. Accad. Torino, (2) xlii. p. 114 (1894).—De Vis, Report Coll. New Guinea, p. 6 (1894).—Sharpe, Bull. Brit. Orn. Club, iv. p. xii (1894).—Id. Monogr. Parad. part iv. (1895).—Salvad. Ann. Mus. Genov. (2) xvi. p. 107 (1896).—Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 41 (1898).

Drepanornis albertisi cervinicauda, Rothschild, Thierreich, Lief. 2, Parad. p. 27 (1898).

Dr. Loria obtained a considerable series of this species in the Astrolabe Mountains, in the Moroka district, in July, August, and October, and at Gere Kanumu in February. The colour of the iris is hazel in the old males, and pale maroon in the females and young males. The bill and feet are horn-coloured in the adult males, but in the females and young the bill is black, and the feet bluish-grey or leaden-grey. The food consists of insects and fruit.

Genus VIII. DREPANANAX.

1. Drepananax bruijni.

Add:—

Drepanornis bruijni, Sharpe, Monogr. Parad. part iv. (1895).—Rothsch. Thierreich, Lief. 2, Parad. p. 28 (1898).

Drepananax bruijni, Sharpe, Bull. Brit. Orn. Club, ix. pp. xii, xv (1894).—Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 41 (1898).

I separated this species generically in 1894, on account of the different shape of the lateral pectoral shields and the absence of the long flank-shields. Dr. Meyer agrees with me that the genus should be recognized, but Mr. Rothschild does not consider it to be distinct from *Drepanornis*. The range of the species is said by the latter ornithologist to be from about 138° to 140° E. long.

Genus IX. EPIMACHUS.

The Hon. Walter Rothschild (Nov. Zool. v. p. 84) revives the generic name *Falcinellus* of Vieillot, 'Analyse,' p. 47 (1816), and points out that Bechstein, to whom the generic name of *Falcinellus* is generally attributed, never applied it to the Glossy Ibis, which he called "*Tantalus falcinellus*."

1. Epimachus speciosus.

Add —

Epimachus speciosus, Sharpe, Monogr. Parad. part iii. (1894).—Id. Bull. Brit. Orn. Club, iv. p. xii (1894).—Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 42 (1898).

Falcinellus striatus, Rothschild, Novit. Zool. v. p. 85 (1898).—Id. Thierreich, Lief. 2, Parad. p. 30 (1898).

Mr. Rothschild adopts the name *striatus* of Boddaert, because it comes first on the page of the latter's work, before that of *speciosa*. At one time I was influenced by the same considerations, but I now think that to revive the unknown name of *striatus* instead of the well-known name of *speciosus* is an observance of the rule of "strict priority" which is better honoured in its breach. Dr. Meyer (*l. c.*) says that the note of this bird is "tuh, tuh, tuh, tuh, tuh, tuh. The food consists of fruit and insects. The feet are greyish-blue, and the iris is yellowish-red" (extract from his diary of 1873).

2. Epimachus meyeri.

Add :—

Epimachus meyeri, Sharpe, Monogr. Parad. part i. (1891).—Id. Bull. Brit. Orn. Club, iv. p. xii (1894).—Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 42 (1898).

Falcinellus meyeri, Rothschild, Thierreich, Lief. 2, Parad. p. 31 (1898).

3. Epimachus astrapioides.

Add :—

Falcinellus astrapioides, Rothschild, Thierreich, Lief. 2, Parad. p. 30 (1898).

The habitat of this species is believed to be some part of North-western New Guinea.

4. Epimachus ellioti.

Add :—

Epimachus ellioti, Sharpe, Monogr. Parad. part vi. (1896).—Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 42 (1898).

Falcinellus ellioti, Rothschild, Thierreich, Lief. 2, Parad. p. 29 (1898).

The habitat of this species is still unknown, but Dr. Meyer and the Hon. Walter Rothschild both think that it will be found to be some part of North-western New Guinea.

Sub-family II. PARADISEINÆ.

Genus X. ASTRAPIA.

Add :—

Astrapia nigra, Sharpe, Monogr. Parad. part ii. (1893).—Id. Bull. Brit. Orn. Club, iv. p. xii (1894).—Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 42 (1898).—Rothsch. Thierreich, Lief. 2, Parad. p. 32 (1898).

Genus XI. ASTRARCHIA.

1. Astrarchia stephaniæ.

Add :—

Astrarchia stephaniæ (Finsch & Meyer), Sharpe, Monogr. Parad. part iii. (1894).—Id. Bull. Brit. Orn. Club, iv. p. xii (1894).—Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 42 (1898).

Astrapia stephaniæ, Rothschild, Thierreich, Lief. 2, Parad. p. 33 (1898).

Genus XII. CALASTRAPIA (*anteà*, p. xiii).

1. Calastrapia splendidissima.

Add:—

Astrapia splendidissima, Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 42 (1898).—Rothsch. Novit. Zool. v. p. 85 (1898).—Id. Thierreich, Lief. 2, Parad. p. 32 (1898).—Sharpe, Monogr. Parad. part viii. (1898).

This species was at first believed to have come from the Charles Lewis Mountains, but Mr. Rothschild now considers its true habitat to be the Arfak Mountains.

Genus XIII. PARADISEA.

1. Paradisea apoda.

Add:—

Paradisea apoda, Sharpe, Monogr. Parad. part i. (1891).—Id. Bull. Brit. Orn. Club, iv. p. xiii (1894).—Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 43 (1898).

Paradisea apoda (*typica*), Rothschild, Thierreich, Lief. 2, Parad. p. 39 (1898).

2. Paradisea novæ-guineæ.

Add:—

Paradisea novæguineæ, Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 43 (1898).

Paradisea apoda novæguineæ, Rothschild, Thierreich, Lief. 2, Parad. p. 40 (1898).

Paradisea novæ-guineæ, Sharpe, Monogr. Parad. part viii. (1898).

3. Paradisea raggiana.

Add:—

Paradisea raggiana, Sharpe, Monogr. Parad. part vi. (1896).—Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 47 (1898).—Rothschild, Thierreich, Lief. 2, Parad. p. 41 (1898).

4. Paradisea maria.

Add:—

Paradisea maria, Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 44 (1898).—Rothschild, Thierreich, Lief. 2, Parad. p. 42 (1898).—Sharpe, Monogr. Parad. part viii. (1898).

5. Paradisea augustæ-victoriæ.

Add:—

Paradisea augustæ-victoriæ, Sharpe, Monogr. Parad. part iii. (1894).—Id. Bull. Brit. Orn. Club, iv. p. xiii (1894).—Reichen. J. f. O. 1897, p. 222.

Paradisea augustævictoriæ, Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 43 (1898).—Rothsch. Thierreich, Lief. 2, Parad. p. 41 (1898).

6. Paradisea intermedia.

Add:—

Paradisea intermedia, Rothschild, Bull. Brit. Orn. Club, vii. p. iv (1897).—Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 46 (1898).—Rothschild, Thierreich, Lief. 2, Parad. p. 41 (1898).—Sharpe, Monogr. Parad. part viii. (1898).

The habitat of this species is given by Mr. Rothschild as from Holnicote Bay to Collingwood Bay in N.E. British New Guinea.

7. Paradisea decora.

Add:—

Paradisea decora, Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 47, Taf. ii. (1898).—Rothschild, Thierreich, Lief. 2, Parad. p. 42 (1898).—Sharpe, Monogr. Parad. part viii. (1898).

8. Paradisea minor.

Add :—

Paradisea minor, Marshall, Arch. Néerl. vi. p. 298 (1871).—Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 44 (1898).—Sharpe, Monogr. Parad. part vii. (1897).

Paradisea minor (*typica*), Rothschild, Thierreich, Lief. 2, Parad. p. 40 (1898).

On the development of the plumes in this species, see Dr. Meyer's interesting article in the Dresden 'Abhandlungen' above quoted. Mr. Rothschild (*l. c.* p 48) says that the type of Van Musschenbroek's *Paradisea minor*, var. *albescens* (Bidr. Land- en Volkenk. Nederl. Indië, vii. p. 185, 1883), is a made up specimen: the type is now in the Tring Museum.

9. Paradisea jobiensis.

Add :—

Paradisea minor jobiensis, Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 46 (1898).—Rothschild, Thierreich, Lief. 2, Parad. p. 40 (1898).

Paradisea jobiensis, Sharpe, Monogr. Parad. part viii. (1898).

10. Paradisea finschi.

Add :—

Paradisea minor (nec Shaw), Madarász, Aquila, 1894, p. 90.— Id. Term. Füz. 1897, p. 27.—Reichen. J. f. O. 1897, p. 214.

Paradisea finschi, Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 43 (1898).—Sharpe, Monogr. Parad. part viii. (1898).

Paradisea minor finschi, Rothschild, Thierreich, Lief. 2, Parad. p. 40 (1898).

Genus XIV. TRICHOPARADISEA.

1. Trichoparadisea gulielmi.

Add :—

Trichoparadisea gulielmi, Sharpe, Monogr. Parad. part v. (1895).—Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 42 (1898).

Paradisea gulielmi, Rothschild, Thierreich, Lief. 2, Parad. p. 42 (1898).

Genus XV. URANORNIS.

1. Uranornis rubra.

Add :—

Paradisea rubra, Marshall, Arch. Néerl. vi. pp. 297-304 (1871).—Rothschild, Thierreich, Lief. 2, Parad. p. 43 (1898).

Uranornis rubra, Sharpe, Bull. Brit. Orn. Club, iv. p. xiii (1894).—Id. Monogr. Parad. part iv. (1895).

Genus XVI. PARADISORNIS.

1. Paradisornis rudolphi.

Add :—

Paradisornis rudolphi, Sharpe, Monogr. Parad. part ii. (1893).—Id. Bull. Brit. Orn. Club, iv. p. xiii (1894).—Salvad. Ann. Mus. Genov. (2) xvi. p. 111 (1896).—Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 43 (1898).

Paradisea rudolphi, Rothschild, Thierreich, Lief. 2, Parad. p. 43 (1898).

Dr. Loria obtained some examples of this species in the Moroka district of the Astrobabe Range, in July and August. The adult male had the "iris clear chestnut; the bill pearly-white; the feet greyish horn-colour. The food consisted of fruit, and the native name was 'Sescia' or 'Sessea.' The adult female had the feet greyish chestnut, as also had a young female, but in the latter the bill was greyish (horn-brown in the dried skin)" (*cf.* Salvad. *l. c.*).

Genus XVII. LAMPROTHORAX.

1. Lamprothorax wilhelminæ.

Add:—

Lamprothorax wilhelminæ, Sharpe, Monogr. Parad. part vi. (1896).—Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 51 (1898).—Rothschild, Thierreich, Lief. 2, Parad. p. 21 (1898).

Genus XVIII. CICINNURUS.

1. Cicinnurus regius.

Add:—

Paradisea regia, Marshall, Arch. Néerl. vi. p. 297 (1871).

Cicinnurus regius, Salvad. Ann. Mus. Genov. (2) x. p. 822 (1891).—Meyer, Abhandl. k. zool. Mus. Dresden, 1891, p. 12; 1893, p. 23.—Sharpe, Monogr. Parad. part i. (1891).—Id. Bull. Brit. Orn. Club, iv. p. xiii (1894).—Madarász, Aquila, i. p. 91 (1894).—Salvad. Ann. Mus. Genov. (2) xvi. p. 822 (1896).—Reichen. J. f. O. 1897, p. 214.—Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 47 (1898).

Cicinnurus regius (*typicus*), Rothschild, Thierreich, Lief. 2, Parad. p. 35 (1898).

Dr. Loria obtained a large series of specimens at Bara-Bara in Milne Bay, and at other villages on the Kemp Welch River to the east of Port Moresby. The iris was dull chestnut, the bill yellow, and the feet blue. The native name of the female bird was "Uanaro Uapu" (*cf.* Salvad. *l. c.*). Procured by Fenichel in the Finisterre Mountains, and by Tappenbeck on the Nuru River in German New Guinea.

Dr. A. B. Meyer (*l. c.*) says that the species was met with commonly by him during his journey across North-western New Guinea. It lives on the high trees, and he says that the blue colour of the feet is lovely, the claws grey, the bill clear yellow, and the iris clear brown. He also noticed the change of the colour from brown to red without a moult.

2. Cicinnurus coccineifrons.

Add:—

Cicinnurus regius coccineifrons, Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2 (1898).—Rothschild, Thierreich, Lief. 2, Parad. p. 35 (1898).

Cicinnurus coccineifrons, Sharpe, Monogr. Parad. part viii. (1898).

Genus XIX. RHIPIDORNIS.

1. Rhipidornis gulielmi tertii.

Add:—

Rhipidornis gulielmi tertii, Sharpe, Monogr. Parad. part ii. (1893).—Id. Bull. Brit. Orn. Club, iv. p. xiii (1894)

Rhipidornis gulielmitertii, Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 48 (1898).

Diphyllodes gulielmitertii, Rothschild, Thierreich, Lief. 2, Parad. p. 36 (1898).

Genus XX. DIPHYLLODES.

1. Diphyllodes magnifica.

Add:—

Diphyllodes magnifica, Sharpe, Bull. Brit. Orn. Club, iv. p. xiii (1894).—Id. Monogr. Parad. part vi. (1896).—Salvad. Ann. Mus. Civic. Genov. (2) xvi. p. 111 (1896).—Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 48 (1898).—Rothschild, Novit. Zool. v. p. 87 (1898).

Diphyllodes magnificus, Rothschild, Thierreich, Lief. 2, Parad. p. 36 (1898).

Dr. Meyer gives the following note from his diary of 1873:—"Its cry is a piping 'krrrrrr, krrrrrr.' Iris and feet black. Frequents the ground. The male clears a large round place: during this operation the female sits close at hand on the lianas or rattans, and when the male has finished, she dances with him on the newly-cleared space."

2. Diphyllodes seleucides.

Add:—

Diphyllodes seleucides, Sharpe, Monogr. Parad. part vi. (1896).—Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 49 (1898).

Diphyllodes magnificus, pt., Rothschild, Thierreich, Lief. 2, Parad. p. 36 (1898).

The Hon. Walter Rothschild has united all the species of *Diphyllodes* together, as he finds every gradation in the colour of the wings. I must say myself that after examining his series of specimens, it is extremely difficult to say where one species ends and the other begins; and yet I feel certain that when the different ranges of mountains in New Guinea are worked by competent collectors, a definite range will be assigned to each of these closely allied species of *Diphyllodes*.

3. Diphyllodes chrysoptera.

Add:—

Diphyllodes chrysoptera, Sharpe, Monogr. Parad. part iv. (1895).—Meyer, Abhandl. k. zool. Mus. Dresden, vii no. 2, p. 49 (1898).

Diphyllodes magnificus, pt., Rothschild, Thierreich, Lief. 2, Parad. p. 36 (1898).

4. Diphyllodes xanthoptera.

Diphyllodes xanthoptera, Salvad. Ann. Mus. Genov. (2) xvi. p. 110 (1896).—Meyer, Abhandl. k. zool. Mus Dresden, vii. no. 2, p. 49 (1898).

Diphyllodes magnificus, pt., Rothschild, Thierreich, Lief. 2, Parad. p. 36 (1898).

This is the bird which I considered to be the ordinary adult yellow-winged *Diphyllodes* of the Astrolabe Range, and the orange-winged birds, now separated as *D. hunsteini*, I looked upon as merely very old individuals. Dr. Meyer asserts that the colours of these birds change after the skin has been prepared.

Dr. Loria's specimens were procured in the Moroka district in July, August, and September. The male had the iris chestnut, the bill sky-blue, and the feet blue. In a female the iris was chestnut, the bill sky-blue or pearly grey, and the feet blue or ultramarine.

5. Diphyllodes hunsteini.

Add:—

Diphyllodes hunsteini, Sharpe, Monogr. Parad. part v. (1895).—Salvad. Ann. Mus. Genov. (2) xvi. p. 109 (1896).—Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 49 (1898).

Diphyllodes magnificus, pt., Rothschild, Thierreich, Lief. 2, Parad. p. 36 (1898).

Dr. Loria has met with this species at Hughibagu on the Hunter River in the Astrolabe Range. The iris was chestnut, the bill sky-blue or pearly grey, and the feet sky-blue or cobalt (*cf.* Salvad. *t. c.*).

I have figured this species, which has deep orange-coloured wings, as the very old bird of the preceding. The two upper figures represent *D. xanthoptera*, and I am not yet convinced that the two species are really distinct, after what one sees of the variation in the yellow and orange colour of the wings in *D. seleucides*.

Genus XXI. SCHLEGELIA.

1. Schlegelia respublica.

Add:—

Schlegelia respublica, Sharpe, Monogr. Parad. part iii. (1894).—Id. Bull. Brit. Orn. Club, iv. p. xiii (1894).—Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 49 (1898).

Schlegelia wilsoni, Rothschild, Thierreich, Lief. 2, Parad. p. 33 (1898).

Genus XXII. PTERIDOPHORA.

1. Pteridophora alberti.

Add:—

Pteridophora alberti, Sharpe, Monogr. Parad. part vii. (1897).—Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 51 (1898).—Rothschild, Thierreich, Lief. 2, Parad. p. 21 (1898).

Both Dr. Meyer and the Hon. Walter Rothschild differ from me as to the natural position of the genus *Pteridophora* in the *Paradiseidæ*.

Genus XXIII. SEMIOPTERA.

1. Semioptera wallacii.

Add:—

Semioptera wallacii, Sharpe, Monogr. Parad. part v. (1895).—Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 50 (1898).

Semioptera wallacei (*typica*), Rothschild, Thierreich, Lief. 2, Parad. p. 37 (1898).

2. Semioptera halmaheræ.

Add:—

Semioptera wallacii, pt., auct. (spec. ex Ins. Halmahéra).

Semioptera wallacii, var. *halmaheræ*, Salvad. Orn. Papuasia e delle Molucche, ii. p. 573 (1881).—Id. Agg. Orn. Papuasia etc. ii. p. 157 (1890).

Semioptera gouldi, Boucard, Humming-Bird, i. p. 43 (1891).

Semioptera halmaheræ, Sharpe, Bull. Brit. Orn. Club, iv. p. xiii (1894).—Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 50 (1898).

Semioptera wallacii, pt., Sharpe, Monogr. Parad. part v. (1895).

Semioptera wallacei halmaheræ, Rothschild, Thierreich, Lief. 2, Parad. p. 38 (1898).

On a reconsideration of the subject, I have come to the conclusion that the Halmahéra Standard-wing can be separated from the Batchian bird by slight but constant characters, and it has been recognized as distinct by Dr. Meyer and the Hon. Walter Rothschild. As it is confined to a separate island, a trinomial name ought scarcely to have been given.

Genus XXIV. PHONYGAMA.

Mr. Rothschild points out (Thierreich, *l. c.* p. 46) that the oldest name for this genus is *Phonygammus*, Less. & Garnier, in Férussac, Bull. Sci. Nat. viii. p. 110 (1826).

1. Phonygama keraudreni.

Add:—

Phonygama keraudreni, Sharpe, Bull. Brit. Orn. Club, iv. p. xiii (1894).—Id. Monogr. Parad. part iv. (1895).—Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 51 (1898).

Phonygammus keraudreni, Rothschild, Thierreich, Lief. 2, Parad. p. 46 (1898).

The great resemblance of immature *P. jamesi*, in its steel-blue plumage, to *P. keraudreni*, has led to the uniting of the two birds under the latter heading, and the extension of the range from Dutch New Guinea to S.E. New Guinea. Having gone over the series of specimens in the Rothschild Museum, I have adopted his opinion that *P. keraudreni* is not found in the last-named area, and that *P. jamesi* is a distinct species.

2. Phonygama jamesi.

Add:—

Phonygama purpureoviolacea, Sharpe, Bull. Brit. Orn. Club, iv. p. xiii (1894).—Id. Monogr. Parad. part iii. (1894).—Salvad. Ann. Mus. Genov. (2) xvi. p. 104 (1896).—Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 51 (1898).

Phonygama jamesi, Sharpe, Monogr. Parad. part vii. (1897).

Phonygammus jamesi, Rothschild, Thierreich, Lief. 2, Parad. p. 47 (1898).

The large series of specimens of Manucodes from South-eastern New Guinea which has lately passed through the hands of Mr. Rothschild and myself has convinced us that *P. jamesi* and *P. purpureoviolacea* are the same species, and that the latter is the full-plumaged bird. *P. keraudreni*, on the other hand, seems never to pass from the steel-green stage to a completely purple one. Difficult as this is to believe, I think that anyone examining the material in the Tring Museum will be forced to admit the truth of the above statement. Hence *P. jamesi* must be re-instated as a species, as the name has considerable priority over *P. purpureoviolacea* of Meyer.

Dr. Loria procured many specimens in the Moroka district of the Astrolabe Range, in July, August, and October. The iris varied in the males from orange-yellow to coral-red, while the female had a dull yellow iris. A young male had the iris lake-red, and in other young birds it was chestnut. Count Salvadori says that female birds are a little smaller than the males, and are less brilliant in colour, having also the tufts on the sides of the head shorter.

3. Phonygama hunsteini.

Add:—

Phonygama hunsteini, Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 51 (1898).—Sharpe, Monogr. Parad. part viii. (1898).

Phonygammus hunsteini, Rothschild, Thierreich, Lief. 2, p. 47 (1898).

This species is also found on Normanby Island, in the D'Entrecasteaux group (Rothschild, *l. c.*), and Dr. Meyer adds Goodenough Island also.

4. Phonygama gouldi.

Add:—

Phonygama gouldi, Forbes, P. Z. S. 1882, p. 349.—Sharpe, Bull. Brit. Orn. Club, iv. p. xiii (1894).—Id. Monogr. Parad. part vii. (1897).—Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 51 (1898).

Phonygammus gouldi, Rothschild, Thierreich, Lief. 2, Parad. p. 47 (1898).

The late Mr. W. A. Forbes published a note on this species from Mr. Thorpe, who observed the bird in Cape York Peninsula, where it was found with *Ptilorhis alberti*. He says that "they frequent the deep palm-forests, and are usually seen high up in the trees; they utter a very deep and loud guttural note, rather prolonged, and unlike that of any other bird with which I am familiar. Their movements are particularly active and graceful; on approaching them they evince more curiosity than timidity, looking down at the slightest noise, and apparently more anxious to obtain a full view of the intruder than for their own safety. They are almost invariably in pairs, and both birds can generally be secured. The note is more powerful and sonorous than anyone would suppose so small a bird could be capable of producing. It was a long time before I could believe that so powerful a sound emanated from this bird."

Genus XXV. MANUCODIA.

1. Manucodia chalybeata.

Add:—

Manucodia chalybeata, Sharpe, Monogr. Parad. part ii. (1893).—Id. Bull. Brit. Orn. Club, iv. p. xiii (1894).—Reichen. J. f. O. 1897, p. 213.—Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 51 (1898).

Manucodia chalybata, Rothschild, Thierreich, Lief. 2, Parad. p. 45 (1898).

2. Manucodia orientalis.

Add:—

Manucodia jobiensis (nec Salvad.), Madarász, Term. Füz. xx. p. 27 (1897).

Manucodia orientalis, Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 52 (1898).—Sharpe, Monogr. Parad. part viii. (1898, pt.).

Manucodia chalybata, Rothschild, Novit. Zool. v. p. 84 (1898).—Id. Thierreich, Lief. 2, Parad. p. 45 (1898, pt.).

The Hon. Walter Rothschild writes concerning this supposed eastern race of *M. chalybeata*:—"While admitting that some of the eastern specimens are of a more purplish-blue colour, I have others from Kapaur which are more blue than eastern examples, while some eastern specimens are greener than, or quite as green as, western birds. As to the alleged differences in size and shape of the beak, they are partly sexual and partly individual. I am therefore obliged to sink *M. orientalis* as a synonym of *M. chalybata*."

3. Manucodia jobiensis.

Add:—

Manucodia jobiensis, Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 52 (1898).—Rothschild, Novit. Zool. v. p. 84 (1898).—Sharpe, Monogr. Parad. part viii. (1898).

Manucodia jobiensis (*typica*), Rothschild, Thierreich, Lief. 2, Parad. p. 45 (1898).

Dr. von Madarász has recorded this species from North-eastern New Guinea, but Dr. Meyer (*l. c.*) points out that this must be probably an error. The bird was, no doubt, *M. rubiensis*.

4. Manucodia rubiensis.

Add:—

Manucodia rubiensis, Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 52 (1898).—Rothschild, Novit. Zool. v. p. 84 (1898).—Sharpe, Monogr. Parad. part viii. (1898).

Manucodia jobiensis rubiensis, Rothschild, Thierreich, Lief. 2, Parad. p. 45 (1898).

The Hon. Walter Rothschild has received specimens of this Manucode from Mr. Doherty, who procured them at Takar, in Northern New Guinea (long. 136°), not far from Kafu. Mr. Rothschild considers the species to be scarcely different from *M. jobiensis*, and only to be distinguished by the "slightly greenish gloss all over, and by having shorter wings" (Novit. Zool. v. p. 85).

5. Manucodia atra.

Add:—

Manucodia atra, Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 52 (1898).—Rothschild, Novit. Zool. v. p. 84 (1898).—Id. Thierreich, Lief. 2, Parad. p. 44 (1898).—Sharpe, Monogr. Parad. part viii. (1898).

Genus XXVI. EUCORAX.

1. Eucorax comrii.

Add:—

Eucorax comrii, Sharpe, Bull. Brit. Orn. Club, iv. pp. xiv, xv (1894).—Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 52 (1898).

Manucodia comrii, Sharpe, Monogr. Parad. part iii. (1894).—Rothschild, Novit. Zool. v. p. 85 (1898).—Id. Thierreich, Lief. 2, Parad. p. 45 (1898).

Dr. Meyer gives the habitat of this species as the islands of Trobriand, Ferguson, Normanby, and Goodenough.

Genus XXVII. LYCOCORAX.

1. Lycocorax pyrrhopterus.

Add:—

Lycocorax pyrrhopterus, Sharpe, Monogr. Parad. part i. (1891).—Id. Bull. Brit. Orn. Club, iv. p. xiv (1894).—Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 52 (1898).—Rothschild, Thierreich, Lief. 2, Parad. p. 47 (1898).

2. Lycocorax obiensis.

Add:—

Lycocorax obiensis, Sharpe, Monogr. Parad. part ii. (1893).—Id. Bull. Brit. Orn. Club, iv. p. xiv (1894).—Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 48 (1898).—Rothschild, Thierreich, Lief. 2, Parad. p. 48 (1898).

3. Lycocorax morotensis.

Add:—

Lycocorax morotensis, Sharpe, Monogr. Parad. part v. (1895).—Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 52 (1898).—Rothschild, Thierreich, Lief. 2, Parad. p. 48 (1898).

Genus XXVIII. PARADIGALLA.

1. Paradigalla carunculata.

Add:—

Paradigalla carunculata, Sharpe, Monogr. Parad. part ii. (1893).—Id. Bull. Brit. Orn. Club, iv. p. xii (1894).—Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 5, p. 42 (1898).—Rothschild, Thierreich, Lief. 2, Parad. p. 46 (1898).

Family II PTILONORHYNCHIDÆ.

Genus I. MACGREGORIA.

1. Macgregoria pulchra.

Add:—

Macgregoria pulchra, Hartert, Bull. Brit. Orn. Club, vii. p. iv (1897).—Sharpe, Monogr. Parad. part vii. (1897).—Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 53 (1898).—Rothschild, Thierreich, Lief. 2, Parad. p. 16 (1898).

Genus II. PAROTIA.

1. Parotia sexpennis.

Add:—

Parotia sexpennis, Sharpe, Monogr. Parad. part v. (1895).—Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 50 (1898).

Parotia sefilata, Rothschild, Novit. Zool. v. p. 87 (1898).—Id. Thierreich, Lief. 2, Parad. p. 17 (1898).

Mr. Rothschild has resuscitated the name of *sefilata* for this species. This is undoubtedly the oldest name; but if Count Salvadori is right in believing that it is taken from the French 'Sifilet,' ought not the correct rendering to be *P. sifilata*?

2. Parotia lawesi.

Add:—

Parotia lawesi, Sharpe, Monogr. Parad. part i. (1891).—Id. Bull. Brit. Orn. Club, iv. p. xiii (1894).—Salvad. Ann. Mus. Genov. (2) xvi. p. 104 (1896).—Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 50 (1897).—Rothschild, Thierreich, Lief. 2, Parad. p. 18 (1898).

Dr. Loria procured a large number of specimens in the Moroka district, in the Owen Stanley Mountains. The iris of the adult male is given by him as sky-blue, with an external ring of yellow, the bill black, and the feet horny-black. The female has the soft parts exactly the same. The native name is "Mamanu," and the food consists of insects and fruit. Count Salvadori says that a large number of males, evidently fully adult, in the Loria collection, were exactly like the females, from which he argues that they must lose their full plumage for a certain time.

3. Parotia helenæ.

Add:—

Parotia helenæ, Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 50 (1898).—Rothschild, Thierreich, Lief. 2, Parad. p. 18 (1898).—Sharpe, Monogr. Parad. part viii. (1898).

4. Parotia carolæ.

Add:—

Parotia carolæ, Sharpe, Monogr. Parad. part vii. (1897).—Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 50 (1898).—Rothschild, Thierreich, Lief. 2, Parad. p. 18 (1898).

5. Parotia berlepschi.

Add:—

Parotia berlepschi, Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 50 (1898).—Rothschild, Thierreich, Lief. 2, Parad. p. 19 (1898).—Sharpe, Monogr. Parad. part viii. (1898).

Genus III. LOPHORHINA.

1. Lophorhina superba.

Add:—

Lophorhina superba, Sharpe, Bull. Brit. Orn. Club, iv. p. xiii (1894).—Id. Monogr. Parad. part iv. (1895).—Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 51 (1898).—Rothschild, Thierreich, Lief. 2, Parad. p. 19 (1898).

2. Lophorhina minor.

Add:—

Lophorhina minor, Sharpe, Monogr. Parad. part v. (1895).—Salvad. Ann. Mus. Genov. (2) xvi. p. 106 (1896).—Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 51 (1898).—Rothschild, Thierreich, Lief. 2, Parad. p. 20 (1898).

Dr. Loria procured a series of specimens in the Moroka district of the Astrolabe Range. The native name for the adult male was "Civaia," and for the young birds "Iohirugu." The iris is chestnut and the bill and feet black in the male, horny-black in the female. The food consists of fruit and insects (*cf.* Salvad. *l. c.*). Count Salvadori says that adult females have small white spots on the forehead, these being absent, however, in the young birds.

Genus IV. LOBOPARADISEA.

1. Loboparadisea sericea.

Add:—

Loboparadisea sericea, Sharpe, Monogr. Parad. part vii. (1897).—Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 51 (1898).—Rothschild, Thierreich, Lief. 2, Parad. p. 14 (1898).

Dr. Meyer gives the island of Krudu, in the east of Geelvink Bay, as the habitat of this species. The Hon. Walter Rothschild, however, believes that it comes from some portion of the north coast of Dutch New Guinea.

Genus V. LORIA.

1. Loria loriæ.

Add:—

Loria loriæ, Salvad. Ann. Mus. Genov. (2) xiv. p. 151 (1894).—Sharpe, Bull. Brit. Orn. Club, iv. p. xiv (1894).—Rothschild, Novit. Zool. iii. p. 252 (1896).—Salvad. Ann. Mus. Genov. (2) xvi. p. 112 (1896).—Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 53 (1898).—Rothschild, Thierreich, Lief. 2, Parad. p. 15 (1898).

Cnemophilus mariæ, De Vis, Report Orn. Coll. Brit. New Guinea, 1894, p. 6.—Sharpe, Bull. Brit. Orn. Club, iv. p. xiv (1894).

Loria mariæ, Sclater, Ibis, 1898, p. 343, pl. viii.—Rothschild, Novit. Zool. iii. p. 14 (1896).—Sharpe, Monogr. Parad. part vi. (1896).

There can be no question that *L. mariæ* is identical with *L. loriæ*, and the above is the correct synonymy for the species.

Genus VI. PTILONORHYNCHUS.

1. Ptilonorhynchus violaceus.

Add:—

Ptilonorhynchus violaceus, Sharpe, Monogr. Parad. part vi. (1896).—Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 53 (1898).—Rothschild, Thierreich, Lief. 2, Parad. p. 4 (1898).

A curious hybrid between this species and *Sericulus melinus* has been described and figured. The synonymy is as follows:—

Sericulus rawnsleyi, Diggles, Orn. Austr. pl. (1867).

Ptilonorhynchus rawnsleyi, Gould, Suppl. B. Austr. pl. 34 (1867).—Elliot, Monogr. Parad. pl. 29 (1873).—Sharpe, Cat. B. Brit. Mus. vi. p. 381, note (1881).—Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 53 (1898).—Rothschild, Thierreich, Lief. 2, Parad. p. 4, note (1898).

Genus VII. AMBLYORNIS.

1. Amblyornis flavifrons.

Add:—

Amblyornis flavifrons, Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 53 (1898).—Rothschild, Thierreich, Lief. 2, Parad. p. 12 (1898).—Sharpe, Monogr. Parad. part viii. (1898).

2. Amblyornis inornata.

Add:—

Amblyornis inornata, Sharpe, Monogr. Parad. part ii. (1893, = ♀ or ♂ juv.).—Id. Bull. Brit. Orn. Club, iv. p. xiv (1894).—Meyer, *t. c.* p. xvii.—Rothschild, Novit. Zool. iv. pp. 11–13, pl. i. fig. 1 (1896).—Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 53 (1898).

Amblyornis inornatus, Rothschild, Thierreich, Lief. 2, Parad. p. 12 (1898).—Sharpe, Monogr. Parad. part viii. (1898, = ♂ ad.).

3. Amblyornis subalaris.

Add:—

Xanthochlamys subalaris, Sharpe, Bull. Brit. Orn. Club, iv. pp. xiv, xv, xviii (1894).

Amblyornis subalaris, Sharpe, Bull. Brit. Orn. Club, iv. p. xiv (1894).—Id. Monogr. Parad. part iii. (1894).—Salvad. Ann. Mus. Genov. (2) xvi. p. 113 (1896).—Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 53 (1898).—Rothschild, Thierreich, Lief. 2, Parad. p. 12 (1898).

In 1894 I proposed for this species the short-lived generic name of *Xanthochlamys*. *Amblyornis inornata* had been known for twenty-three years, and none of the males sent by collectors showed a sign of a yellow crest; but no sooner had I separated the southern species than Dr. Meyer received an adult male of *A. inornata* with a fully developed crest, and of course the genus *Xanthochlamys* was deprived of its only claim to distinction (*cf.* Meyer, Bull. Brit. Orn. Club, iv. p. xvii). Since then I have seen several specimens of the male from the Arfak Mountains and from the Owen Stanley Mountains, in South-eastern New Guinea, in Mr. Rothschild's collection.

According to Dr. Loria the species is abundant in the Moroka district of the Astrolabe Range. The male has the bill horn-colour, greyer on the lower mandible, the feet greenish horn-colour or greenish-grey, and the iris chestnut or hazel. Young males resemble the old females (*cf.* Salvad. *l. c.*).

Genus VIII. CNEMOPHILUS.

1. Cnemophilus macgregori.

Add:—

Cnemophilus macgregori, Sharpe, Bull. Brit. Orn. Club, iv. p. xiv (1894).—Id. Monogr. Parad. part iv. (1895).—Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 53 (1898).—Rothschild, Thierreich, Lief. 2, Parad. p. 15 (1898).

Mr. Rothschild describes the female as greenish-brown above, with the wings and tail reddish-brown; under surface of body brown, merging into clear reddish-brown on the middle of the body; the six feathers at the base of the bill are shorter and not boat-shaped.

Genus IX. PRIONODURA.

1. Prionodura newtoniana.

Add:—

Prionodura newtoniana, Sharpe, Monogr. Parad. part i. (1891).—Id. Bull. Brit. Orn. Club, iv. p. xiv (1894).—Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 53 (1898).—Rothschild, Thierreich, Lief. 2, Parad. p. 13 (1898).

Genus X. XANTHOMELUS.

1. Xanthomelus aureus.

Add:—

Xanthomelus aureus, Sharpe, Monogr. Parad. part i. (1891).—Id. Bull. Brit. Orn. Club, iv. p. xiv (1894).—Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 52 (1898).

Xanthomelus aureus (*typicus*), Rothschild, Thierreich, Lief. 2, Parad. p. 10 (1898).

Dr. Meyer gives the following note from his diary of 1873:—"I shot this species at about a height of 2260 feet south of Rubi on a high tree. Iris clear yellow. The Papuans are afraid to kill this bird, for fear it should bring on thunder."

2. Xanthomelus ardens.

Add:—

Xanthomelus ardens, Sharpe, Monogr. Parad. part vi. (1896).—Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 52 (1898).

Xanthomelus aureus ardens, Rothschild, Thierreich, Lief. 2, Parad. p. 11 (1898).

Genus XI. SERICULUS.

1. Sericulus melinus.

Add:—

Sericulus melinus, Sharpe, Monogr. Parad. part iv. (1895).—Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 53 (1898).—Rothschild, Thierreich, Lief. 2, Parad. p. 13 (1898).

Genus XII. CHLAMYDODERA.

If Gould had understood that the proper rendering of his generic term for this genus of Bower-Birds should be *Chlamydodera* instead of *Chlamydera*, he would have accepted the correction, as I can vouch from personal knowledge of his character. It seems to me a little hard on him to revive his faultily composed name of *Chlamydera*, as the Hon. Walter Rothschild has done (Novit. Zool. v. p. 86; id. Thierreich, Lief. 2, Parad. p. 8), when everyone is now perfectly familiarized with the correct rendering of the genus *Chlamydodera* (χλαμὺς, a cloak; δέρη, neck).

1. Chlamydodera cerviniventris.

Add:—

Chlamydodera cerviniventris, Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 55 (1898).—Sharpe, Monogr. Parad. part viii. (1898).

Chlamydera cerviniventris, Rothschild, Thierreich, Lief. 2, Parad. p. 9 (1898).

Chlamydodera recondita, Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 55.—Sharpe, Monogr. Parad. part viii. (1898).

Dr. Meyer now believes that the egg on which he founded his *C. recondita*, though somewhat aberrant in colour, is really that of *C. cerviniventris*, and so the identity of *C. recondita* and *C. lauterbachi* is no longer in question.

2. Chlamydodera maculata.

Add:—

Chlamydodera maculata, Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 54 (1898).—Sharpe, Monogr. Parad. part viii. (1898).

Chlamydera maculata, Rothschild, Thierreich, Lief. 2, Parad. p. 9 (1898).

3. Chlamydodera occipitalis.

Add:—

Chlamydodera occipitalis, Sharpe, Bull. Brit. Orn. Club, iv. p. xiv (1894).—Id. Monogr. Parad. part iii. (1894).—Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 54 (1898).

Chlamydera maculata, pt., Rothschild, Thierreich, Lief. 2, Parad. p. 9 (1898).

The Hon. Walter Rothschild has united this species to *C. maculata*, as I did myself in the 'Catalogue of Birds.' Now that the range of *C. maculata* is known to extend to Cape York, there is nothing wonderful in the occurrence of the species at Port Albany, and I am quite prepared to accept the identity of *C. occipitalis* and *C. maculata*. Gould was always very emphatic as to my having made a mistake in uniting the two species, and as his judgment on the questions of Australian birds was always worthy of consideration, I preferred to consider *C. occipitalis* distinct, influenced also perhaps, as Mr. Rothschild suggests, by a desire to "bring in Gould's very beautiful original plate." I now believe that *C. occipitalis* is nothing more than a finely plumaged male of *C. maculata*, as Dr. Ramsay long ago suggested.

4. Chlamydodera guttata.

Add:—

Chlamydodera guttata, Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 54 (1898).—Sharpe, Monogr. Parad. part viii. (1898).

Chlamydera guttata, Rothschild, Thierreich, Lief. 2, Parad. p. 10 (1898).

5. Chlamydodera nuchalis.

Add:—

Chlamydodera nuchalis, Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 54 (1898).—Sharpe, Monogr. Parad. part viii. (1898).

Chlamydera nuchalis, Rothschild, Novit. Zool. v. p. 86 (1898).—Id. Thierreich, Lief. 2, Parad. p. 10 (1898).

6. Chlamydodera orientalis.

Add:—

Chlamydodera orientalis, Sharpe, Monogr. Parad. part i. (1891).—Id. Bull. Brit. Orn. Club, iv. p. xiv (1894).—Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 54 (1898).

Chlamydera orientalis, Rothschild, Novit. Zool. v. p. 86 (1898).

Chlamydera nuchalis, Rothschild, Thierreich, Lief. 2, Parad. p. 10 (1898).

The Hon. Walter Rothschild does not recognize this species as distinct from *C. nuchalis*, as he says that "in the British Museum there are examples of both forms, together with a specimen almost intermediate, all from one and the same locality." Although there is an approach to *C. nuchalis* in some specimens, I think the two forms can be fairly well divided.

7. Chlamydodera lauterbachi.

Add:—

Chlamydodera lauterbachi, Meyer, Abhandl. k. zool. Mus. Dresden, vii. no 2, p. 55 (1898).—Sharpe, Monogr. Parad. part viii. (1898).

Chlamydera lauterbachi, Rothschild, Thierreich, Lief. 2, Parad. p. 9 (1898).

Genus XIII. ÆLURŒDUS.

1. Ælurœdus melanotis.

Add:—

Ælurœdus melanotis, Sharpe, Bull. Brit. Orn. Club, iv. p. xiv (1894).—Id. Monogr. Parad. part iv. (1895).—Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 53 (1898).—Rothschild, Thierreich, Lief. 2, Parad. p. 7 (1898).

Ælurœdus melanotis (*typicus*), Rothschild, Thierreich, Lief. 2, Parad. p. 7 (1898).

2. Ælurœdus jobiensis.

Add:—

Ælurœdus jobiensis, Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 54 (1898).—Rothschild, Novit. Zool. v. p. 87 (1898).—Sharpe, Monogr. Parad. part viii. (1898).

Ælurœdus arfakianus, pt., Rothschild, Thierreich, Lief. 2, Parad. p. 7 (1898).

I have already stated that this species seemed to me somewhat difficult to separate, and lately Mr. Rothschild has expressed his conviction that there may have been some mistake as to the locality of the type-specimen, and he has united it to *Æ. arfakianus*.

3. Ælurœdus arfakianus.

Add:—

Ælurœdus arfakianus, Sharpe, Bull. Brit. Orn. Club, iv. p. xiv (1894).—Id. Monogr. Parad. part iv. (1895).—Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 54 (1898).—Rothschild, Thierreich, Lief. 2, Parad. p. 7 (1898).

4. Ælurœdus melanocephalus.

Add:—

Ælurœdus melanocephalus, Sharpe, Monogr. Parad. part vii. (1897).—Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 54 (1898).

Ælurœdus melanotis melanocephalus, Rothschild, Thierreich, Lief. 2, Parad. p. 7 (1898).

5. Ælurœdus maculosus.

Add:—

Ælurœdus maculosus, Sharpe, Bull. Brit. Orn. Club, iv. p. xiv (1894).—Id. Monogr. Parad. part v. (1895).—Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 52 (1898).—Rothschild, Thierreich, Lief. 2, Parad. p. 5 (1898).

6. Ælurœdus viridis.

Add:—

Ælurœdus viridis, Campbell, Victorian Naturalist, v. p. 82 (1888).—Sharpe, Bull. Brit. Orn. Club, iv. p. xiv (1894).—Id. Monogr. Parad. part iii. (1894).—Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 54 (1898).—Rothschild, Thierreich, Lief. 2, Parad. p. 5 (1898).

I find that I had missed a paper by that excellent observer Mr. A. J. Campbell, in which he had already drawn attention to the non-occurrence of the Cat-bird in Victoria and South Australia.

7. Ælurœdus buccoides.

Add :—

Ælurœdus buccoides, Sharpe, Bull. Brit. Orn. Club, iv. p. xiv (1894).—Id. Monogr. Parad. part iv. (1895).—Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 54 (1898).—Rothschild, Thierreich, Lief. 2, Parad. p. 6 (1898).

? *Ælurœdus subcaudalis*, De Vis, Ibis, 1897, p. 390.—Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 54 (1898).

Ælurœdus buccoides (*typicus*), Rothschild, Thierreich, Lief. 2, Parad. p. 6 (1898).

It is difficult to determine Mr. De Vis's species *Æ. subcaudalis* from Mount Scratchley, but I think that Mr. Rothschild is probably right in referring it to *Æ. buccoides*. The distribution of the latter species would thus be similar to that of *Amblyornis inornata*.

8. Ælurœdus geislerorum.

Add :—

Ælurœdus geislerorum, Sharpe, Monogr. Parad. part v. (1895).—Reichen. J. f. O. 1897, p. 214.—Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 54 (1898).

Ælurœdus buccoides geislerorum, Rothschild, Thierreich, Lief. 2, Parad. p. 6 (1898).

The Hon. Walter Rothschild gives the habitat of this species as the north coast of New Guinea, from Walckenaer Bay through German New Guinea to Collingwood Bay in northern British New Guinea. In Geelvink Bay he believes that this species and *Æ. buccoides* intergrade.

Dr. Reichenow records it from the Jagei River, in German New Guinea.

9. Ælurœdus stonii.

Add :—

Ælurœdus stonii, Sharpe, Monogr. Parad. part ii. (1893).—Id. Bull. Brit. Orn. Club, iv. p. xiv (1894).—Salvad. Ann. Mus. Civic. Genov. (2) xvi. p. 114 (1896).—Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 54 (1898).—Rothschild, Thierreich, Lief. 2, Parad. p. 6 (1898).

Only a single example of this species was procured by Dr. Loria at Hughibagu, on the Hunter River, in August. The bill and feet were pearly-grey, and the iris lake-red. The food consisted of insects (*cf.* Salvad. *l. c.*).

Genus XIV. SCENOPŒETES.

1. Scenopœetes dentirostris.

Add :—

Scenopœetes dentirostris, Coues, Auk, viii. p. 115.—Sharpe, Bull. Brit. Orn. Club, iv. p. xiv (1894).—Meyer, Abhandl. k. zool. Mus. Dresden, vii. no. 2, p. 53 (1898).—Rothschild, Thierreich, Lief. 2, Parad. p. 8 (1898).

Tectonornis dentirostris, Sharpe, Monogr. Parad. part i. (1891).

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PTILORHIS PARADISEA, *Swains.*

Mintern Bros. imp.

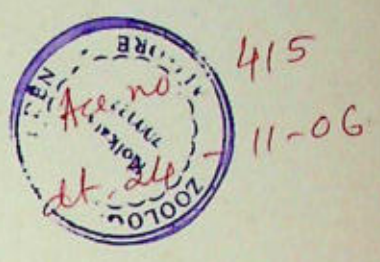
PTILORHIS PARADISEA, *Swains.*

W. Hart del. et lith.

Mintern Bros. imp.

PTILORHIS PARADISEA, *Swains.*

Australian Rifle-bird.



Ptilorhis paradisea, Swains. Zool. Journ. i. p. 481 (1825).—Less. Hist. Nat. Ois. Parad. pp. 25, 213, pls. 29, 30 (1835).—Gould, B. Austr. iv. pl. 100 (1847).—Reichenb. Vög. Neuholl. p. 93 (1849).—Bp. Consp. i. p. 412 (1850).—Cab. Mus. Hein. Th. i. p. 214 (1851).—Reichenb. Handb. Scans. p. 328, Taf. dcix. figs. 3083-85 (1851).—Gould, Handb. B. Austr. i. p. 591 (1865).—Elliot, P. Z. S. 1871, p. 582.—Id. Mon. Parad. pl. xxv. (1873).—Sharpe, Cat. B. Brit. Mus. iii. p. 154 (1877).—Ramsay, Proc. Linn. Soc. N. S. W. ii. p. 191 (1878).—Eudes-Deslongch. Ann. Mus. d'Hist. Nat. Caen, i. p. 8 (1880).—Ramsay, Tab. List Austr. B. p. 15 (1888).

Epimachus regius, Less. Voy. 'Coquille,' Zool. i. p. 667, pl. 28 (1828).—Id. Cent. Zool. pl. 3 (1830).

Epimachus brisbani, Less. Man. d'Orn. ii. p. 6 (1828).—Wilson, Ill. Zool. pl. 9 (1831).

Epimachus paradiseus, Gray, Gen. B. i. p. 94, pl. xxxii. (1848).—Schl. J. f. O. 1861, p. 386.—Id. Mus. P.-B., Coraces, p. 97 (1867).

Ptilornis paradisea, Gray, Hand-l. B. i. p. 105, no. 1271 (1869).

The Australian Rifle-bird is one of the most interesting birds of that continent, as well as one of the most beautiful. Although the skins are sent to London in large numbers for the purposes of decoration of ladies' hats, and the bird is now to be found in every museum, very little has been recorded of its habits since the days of Gould, and its egg seems to be undescribed up to the present moment.

The area of country inhabited by the Rifle-bird cannot be considered very extensive, and, if the present mode of destruction continues to be carried on, there is no doubt that the bird will soon become extinct.

Dr. Pierson Ramsay, in his 'Tabular List of Australian Birds,' gives the range of the *Ptilorhis* as the Wide Bay and the Richmond and Clarence River districts. Mr. Gould's note on the species is as follows:—

"Hitherto this magnificent bird has only been discovered in the brushes of the south-eastern portion of Australia; so limited in fact does its range of habitat seem to be, that the river Hunter to the southward, and Moreton Bay to the eastward, may be considered its natural boundaries in either direction." Mr. Gould never saw the bird himself alive, but Mr. F. Strange, who was an excellent field naturalist, forwarded him the following note:—"The principal resort of the Rifle-bird is among the large cedar-brushes that skirt the mountains and creeks of the Manning, Hastings, MacLeay, Bellenger, Clarence, and Richmond Rivers, and there, during the pairing-months of November and December, the male bird is easily found. At that time of the year, as soon as the sun's rays gild the tops of the trees, up goes the Rifle-bird from the thickets below to the higher branches of the pines (*Araucaria macleayana*) which there abound. It always affects a situation where three or four of these trees occur about two hundred yards apart, and there the morning is spent in short flights from tree to tree, in sunning and preening its feathers, and in uttering its song each time it leaves one tree for another. The sound emitted resembles a prolonged utterance of the word 'Yass,' by which the bird is known to the natives of the Richmond River. In passing from tree to tree, it also makes an extraordinary noise resembling the shaking of a piece of new stiff silk. After 10 A.M. it descends lower down, and then mostly resorts to the thick limb of a cedar-tree (*Cedrela australis*), and there continues its cry of *Yass* at intervals of two minutes' duration; at this time, owing to the thickness of the limb and the closeness with which the bird keeps to it, it is very difficult of detection: wait with patience, however, and you will soon see him, with wings extended, and his head thrown on his back, whirling round and round first one way and then another."

Mr. A. P. Goodwin, who has probably seen more Rifle-birds than any other man, has kindly given me his experiences of the species, which are as follows:—

"The Rifle-bird is now mostly found on the head-waters of the Clarence, Richmond, and Tweed Rivers in New South Wales, where it inhabits the large cedar-scrubs.

"In the months of July and August the male bird roves about, but during the pairing-months of September, October, and November it is to be found in one place. It is never seen in numbers, but it often happens during the months of incubation that when a male is shot another will take its place. It is generally found near water, where, after having its bath in the morning, it will seek the highest tree-top and there preen its feathers and send forth its shrill note of 'skragha,' which may be heard for a long distance.

"Its food consists of insects and fruit. When seeking for the former, it may be seen in the position of a

Woodpecker picking underneath the bark of the tree. It flies somewhat heavily when proceeding in a horizontal line, but it more often happens that it will dart with lightning speed from a high perch to a lower one in a slanting direction. This bird will never fly upwards. When it wishes to shift its position it will hop from branch to branch until it is sufficiently high, and then goes off to another tree in a downward direction. The native name is '*Bong Bong*.' I have never, during my residence of twelve years in the Richmond River district, heard it called by the name of '*Yass*.' The eggs have, to the best of my knowledge and belief, never been obtained. One of my friends, a farmer, when clearing his land, told me he had felled a tree which had a nest with eggs in. The eggs were white, with spots, but were broken by the fall of the tree, and, having no further interest in the matter, he had not saved the pieces. Some years since, when in the scrub with some cedar-cutters in October, we discovered a nest in a small tree, the top of which was very densely covered with creepers. A native climbed the tree, but found the nest just completed, with no eggs. We left the nest undisturbed for three weeks, when we found that it had been abandoned. We took it down and I found that it was built of sticks and leaves, similar to that of a Thrush. The inside was lined with snake-skins, and its diameter was about 9 inches. This bird has on one occasion been taken to London alive by myself. It lived in the Zoological Gardens for several years."

Adult male. General colour above velvety black, changing to deep fiery purple when viewed away from the light; wings black, the coverts deep purple like the back and scapulars, the quills bluish purple at the tip, the inner secondaries shaded with violet and bluish purple; tail-feathers velvety black, the two centre feathers burnished steel-green, the next ones on each side glossed with steel-blue near the base; crown of head burnished coppery green, fringed on the hind neck with metallic steel-blue; behind the eye, above the ear-coverts, a longitudinal patch of velvety purple; sides of face, sides of neck, and throat black, shaded with purple like the back when held away from the light; from the lower throat a large triangular patch of burnished steel-green, extending to the fore neck; breast velvety purple, each feather with a mesial shade of purplish blue, the plumes of the lower breast edged with olive-green; the rest of the under surface entirely of the latter colour with coppery purple bases; under wing- and tail-coverts black. Total length 11·5 inches, culmen 2, wing 6·2, tail 4·4, tarsus 1·45.

Adult female. General colour above ashy brown; the head also of this colour, all the feathers narrowly streaked with buffy white; over the eye a long streak of dull white, forming a distinct eyebrow; lores and sides of face brown, minutely streaked with buffy white, these streaks being also visible on the sides of the neck; cheeks and throat pale ochraceous buff, with whitish shaft-streaks; rest of under surface ochraceous buff, mottled with narrow black cross markings of irregular pattern, in the form of bars of different shapes; the lower abdomen, flanks, and under tail-coverts transversely barred with blackish; under wing-coverts orange-chestnut, with which colour also the quills are lined on the inner web; upper wing-coverts ashy brown like the back and scapulars, the greater series and the primaries externally washed with orange-rufous; quills brown, externally olivaceous brown, shading into orange-rufous on the edge of the quills; tail warm brown, slightly shaded with olive and edged with orange-rufous along the inner web. Total length 11·2 inches, culmen 2, wing 5·9, tail 4, tarsus 1·45.

The young male at first resembles the old female, and the process of change by which it gains the adult plumage is extremely interesting to follow; but so little has been recorded of the seasonal changes of Rifle-birds that it is difficult to find out how long the male takes in emerging from the barred plumage into the full livery of the adult, or whether he takes more than one year before he changes into the complete plumage.

One thing seems to be certain, viz. that the velvety plumage takes some time to acquire, and it is donned by means of a double process, both by moult and by a change of feather. Those plumes on the breast which are about to vary the pattern are generally plainly perceptible, and the kind of horseshoe marking which characterizes the young male begins to vary in form, breaking up into irregular lines, while the edges of the feathers commence to darken, at the same time that the centres become perceptibly lighter. The velvety green edges are acquired last. The quills are changed by a similar process, viz. partially by a clean moult, and partially by the darkening of the feather.

The Plate represents a male, a female, and an immature male, of about the natural size. The figures are drawn from specimens in the British Museum, from which also the descriptions have been taken.

PTILORHIS VICTORIÆ, *Gould.*

W. Hart del. et lith.

Mintern Bros. imp.

PTILORHIS VICTORIÆ, *Gould.*

Queen Victoria's Rifle-bird.

Ptilorhis victoriæ, Gould, P. Z. S. 1849, p. 111, pl. 12.—Id. B. Austr., Suppl. pl. 50 (1851).—Id. Handb. B. Austr. i. p. 593 (1865).—Reichenb. Handb. Scansoriæ, p. 329, Taf. dcx. figs. 4086–88 (1853).—Elliot, P. Z. S. 1871, p. 682.—Id. Monogr. Parad. pl. xxvi. (1873).—Sharpe, Cat. B. Brit. Mus. iii. p. 155 (1877).—Masters, Proc. Linn. Soc. N. S. W. i. p. 57 (1877).—Ramsay, op. cit. ii. p. 191 (1878).—Eudes-Deslongchamps, Ann. Mus. Caen, i. p. 9 (1880).—A. J. Campbell, Victorian Naturalist, ii. p. 165 (1887).—Ramsay, Tab. List Austr. B. p. 11 (1888).—Cairn & Grant, Rec. Austr. Mus. i. p. 27 (1890).—Campbell, Vict. Nat. viii. p. 134 (1892).—Le Souëf, t. c. p. 162.

Ptilornis victoriæ, Bp. Consp. i. p. 412 (1850).—Rosenb. J. f. O. 1864, p. 123.—Gray, Hand-l. i. p. 105, no. 1272 (1869).

This beautiful Rifle-bird is an inhabitant of Rockingham Bay and the adjacent Barnard Islands, in Eastern Australia. It is a smaller bird than *Ptilorhis paradisea*, and differs from the latter in having a distinct reflection of burnished copper on the throat; the gular shield is much smaller and has a coppery gloss; the purple is confined to the chest; and the rest of the under surface is oily green. In *P. paradisea* the upper breast is purple as well as the chest, and the shade of the underparts is olive-green. There is also a difference in the colour of the female birds, the hen of *P. victoriæ* being fawn-coloured with dusky spots, whereas in the female of *P. paradisea* the under surface is buff with a profusion of submarginal black barrings on the feathers.

The late Mr. John Macgillivray gave the following interesting note to Mr. Gould:—"This bird was seen by us during the survey of the N.E. coast of Australia on the Barnard Isles, and on the adjacent shores of the mainland at Rockingham Bay, in the immediate vicinity of Kennedy's first camp. On one of the Barnard Isles (No. III. in lat. 17° 43′ S.), which is covered with dense brush, I found Queen Victoria's Rifle-bird in considerable abundance. Females and young males were common, but rather shy; however, by sitting down and quietly watching in some favourite locality, one or more would soon alight on a limb or branch, run along it with great celerity, stop abruptly every now and then to thrust its beak under the loose bark in search of insects, and then fly off as suddenly as it had arrived. Occasionally I have seen one anxiously watching me from behind a branch, its head and neck only being visible. At this time (June) the young males were very pugnacious, and upon one occasion three of them were so intent upon their quarrel that they allowed me to approach sufficiently near to kill them all with a single charge of dust-shot. The adult males were comparatively rare, always solitary and very shy. I never saw them upon the trees, but only in the thick bushes and masses of climbing plants beneath them: on detecting the vicinity of man they immediately shuffled off among the branches towards the opposite side of the thicket and flew off for a short distance. I did not observe them to utter any call or cry; this, however, may have arisen from my attention not having been so much directed to them as to the females and young males, which I was more anxious to procure, the very different style of their colouring having led me to believe that they were a new species of *Pomatostomus*."

Mr. A. J. Campbell writes as follows, in the 'Victorian Naturalist' for 1892:—"In September, 1885, accompanied by two sons of our member, Mr. A. Coles, I visited the Barnard Islands, off the eastern coast of Northern Australia, hoping thereby to procure the eggs of the smallest Rifle-bird (*P. victoriæ*). Again, unfortunately, I was too early, as the dissection of some of the females proved. A season or two subsequently Mr. French, F.L.S., kindly presented me with a nest and egg of this species from Cardwell Scrub, for description. Of their authenticity he entertained not the slightest doubt. The specimens were described in the 'Naturalist' (April and September 1887).

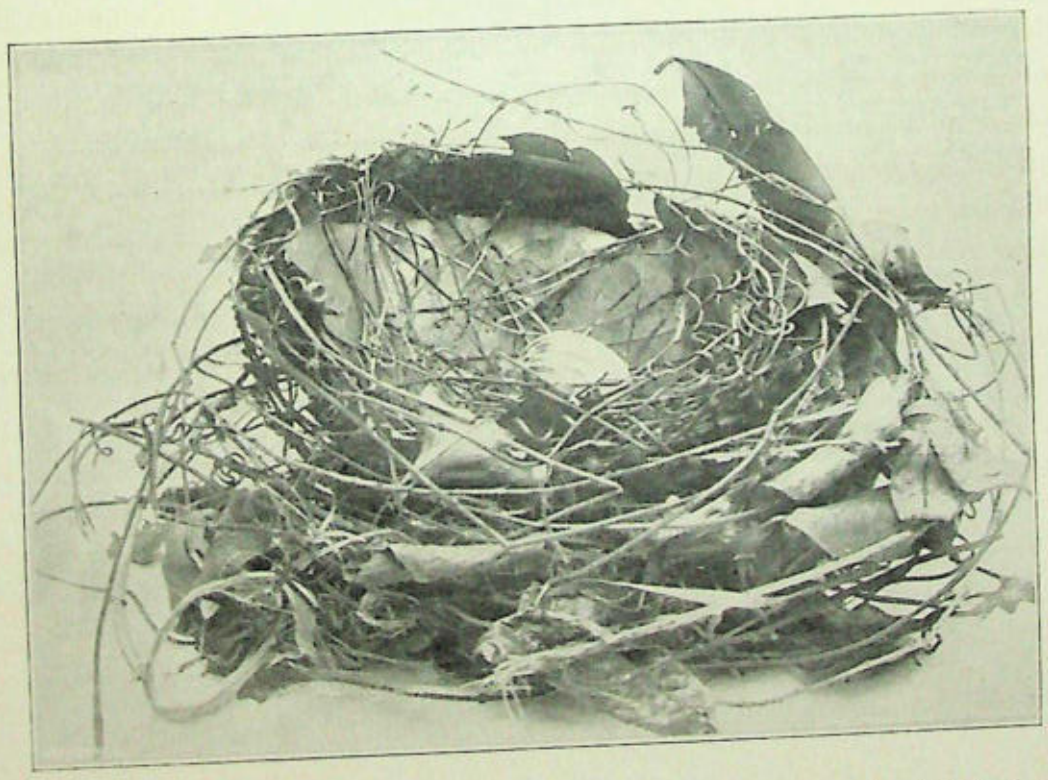
"But coming still nearer home, our good friend and secretary, Mr. Dudley Le Souëf, with Mr. Harry Barnard of Queensland, visited the Barnard Islands last month (November), and, as if drawn by a magnet, they actually pitched their camp under a tree which contained a nest and egg, with a Victoria Rifle-bird sitting thereon. I cannot do better than give Mr. Le Souëf's own words for the discovery of the nest:—'The nest was found 19th November, 1891. Mr. H. Barnard and myself watched the hen bird for some time, and saw her fly into the crown of a pandanus tree growing close to the open beach. Although we could not distinguish the nest itself, we could see the head of the bird as she sat on it. The nest was about ten feet

from the ground, and the bird sat quietly, notwithstanding we were camped about five feet away from the tree. There was a single egg, the incubation of which had probably lasted for about seven days.' There is a difference between the nest and eggs taken by Mr. French's collector and the last found by Mr. Le Souëf. For all that, after critical examination, I am not prepared to say that they are not of the same species, only found under different conditions—one taken inland in a dense scrub, the other found by the sea-shore on an island. The nests are similarly constructed, while the general colour of the eggs is alike, with the exception that one is spotted, the other streaked. However, the nest and egg now exhibited by Mr. Le Souëf may be described as follows :—

"*Nest*.—Somewhat loosely constructed of broad dead leaves and green branchlets of climbing plants and fibrous material. Inside may be seen two large concave-shaped dead leaves underneath pieces of dry tendrils which form a springy lining for the egg or young to rest upon. Measurement in centimetres—over all, 19 broad by 9 deep; egg-cavity, 9 across the mouth by 4 deep.

"*Egg*.—In shape nearly oval, but a little stouter about the upper quarter. Shell somewhat lustrous. Ground-colour of the egg of a fleshy tint, streaked in various lengths and breadths, longitudinally, with reddish brown and purplish brown. The markings commence near the apex, which is bare, and extend about halfway down the shell, and assume the appearance of having been painted on (boldly at the top and tapering downwards) with a camel-hair or such-like brush. Many of the markings are confluent, the longest single one being 1·23 cm., by a breadth of ·23 cm. There are also a few small spots near the lower quarter, and one large blotch of reddish brown which has a smudged appearance. Length of the egg 3·14 cm.; breadth 2·32 cm."

Mr. Campbell very kindly forwarded me a photograph of the egg taken by Mr. French; but as there seems to be some slight doubt as to the identification of this specimen, I give the accompanying representation of the nest and egg of the Victoria Rifle-bird taken by Mr. Le Souëf, who has kindly forwarded me a photograph of them.



He has given the following account of the taking of the nest, in the 'Victorian Naturalist' for February 1892:—"We left again during the afternoon and scrambled over the island, still searching for the nest of the Rifle-bird. A fair number of the birds showed themselves, but it was a difficult thing to discover any nests in such thick vegetation, and we thought our task a hopeless one. Once we came across a large nest built of leaves, and, thinking it might be the one we wanted, one of us sat down a short distance away and watched it quietly to see whether any birds came to it. A male Rifle-bird soon put in an appearance and uttered its grating kind of note. It clung to a vine and went through all sorts of antics, one favourite position being to stretch its expanded wings above its head until the tips touched, and then hiding its head behind them and bending its body from one side to the other. After going on for about a quarter of an hour it flew away. Shortly after returning to the camp, we again heard the female Rifle-bird near us, so we determined to watch her movements. Mr. Barnard went to one side of the small patch of scrub and I went

to the other; we soon saw the bird with a piece of moss in her mouth, which she kept dropping and catching again before it reached the ground; but after we had remained quiet for some time she darted into the scrub near to Mr. Barnard, and a few minutes afterwards he came round to where I was stationed and asked me to look in the crown of the pandanus palm under which we had our meals and kept our luggage. On going carefully round I saw the head of the bird as she sat on her nest, but the nest itself was so well hidden that it could not be seen; yet it was only nine feet from the ground. The tree was about six feet from our humpy, so every time we had returned to our meals we must have frightened her off the nest into the scrub, which accounts for our having heard and seen her so often; but she sat very close the second day, and was evidently getting used to us. We did not disturb her that night, and presumed she would have three eggs, and discussed what would be done with the odd one; but next evening, when we took the nest, we found there was only one egg in it, and on blowing it found that it had been sat upon for about a week, and that when the bird was carrying about the material in her beak, and making us think she was only building, it must have been with the intention of misleading us."

Adult male. Above velvety black, appearing rich purple against the light; wing-coverts coloured like the back; quills black, externally glossed with deep purple, the secondaries entirely of this colour; tail rich velvety purple, the two centre feathers metallic steel-green; head metallic steel-green with a coppery gloss, inclining to steel-blue on the nape; sides of face, sides of neck, and throat velvety purple, with a strong gloss of fiery copper on the chin and sides of the throat; a triangular shield of metallic green slightly shaded with purple extending from the upper part of the throat and occupying all the fore neck; entire fore neck and chest rich velvety purple, the lower plumes tipped with oily green; rest of under surface of body oily green, all the feathers with concealed velvety black bases; under wing-coverts purple, the lower surface of the wings and tail blue-black; bill and legs black. Total length 10 inches, culmen 1·5, wing 5·3, tail 3·3, tarsus 1·4.

Adult female. General colour above ashy brown, the head rather more dusky, all the feathers narrowly streaked with fulvous, as also the sides of the neck; lores and ear-coverts also brown, narrowly streaked with whitish; from above the fore part of the eye a broad fulvous line of feathers running above the ear-coverts and forming a distinct eyebrow; cheeks and chin buffy white, the throat and underparts of the body fawn-colour, spotted on the breast and barred on the flanks with dark brown; under wing- and tail-coverts uniform fawn-colour; wing-coverts above ashy brown like the back, the outermost of the greater series and the primary-coverts externally washed with orange-chestnut; quills brown, externally washed with olive, inclining to orange-chestnut towards the ends of the quills; tail olive-brown. Total length 9 inches, culmen 1·5, wing 4·9, tail 3·2, tarsus 1·4.

The figures are drawn from the typical specimens in the British Museum, and the descriptions are taken from the same birds.

CRASPEDOPHORA MAGNIFICA. (V.)

J. Gould & W. Hart del. et lith.

Mintern Bros. imp.

CRASPEDOPHORA MAGNIFICA (*Vieill.*).

New-Guinea Rifle-bird.

Le Proméfil, Levaill. Ois. de Parad. p. 36, pl. 16 (1807).
L'Epimaque Proméfil, Cuvier, Règne Anim. i. p. 408 (1817).—Swains. Zool. Journ. i. p. 481 (1825).
Falcinellus magnificus, Vieill. N. Dict. d'Hist. Nat. xxviii. p. 167, pl. G. fig. 3 (1819).
Tufted Promerops, Lath. Gen. Hist. B. iv. p. 112, pl. 67 (1822).
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Craspedophora magnifica, Gray, List Gen. B. 1840, Add. p. i.—Id. op. cit. 2nd ed. p. 15 (1841).—Bp. Consp. i. p. 412 (1850).—Cab. Mus. Hein. i. p. 214 (1851).—Reichenb. Handb. Scansoriæ, p. 330, taf. dcxi. figs. 4089–91 (1853).—Wallace, P. Z. S. 1862, p. 160.—Rosenb. Nat. Tijdschr. Nederl. Ind. xxv. p. 238 (1863).—Id. J. f. O. 1864, p. 123.—Salvad. Ann. Mus. Civ. Genov. viii. p. 404 (1876), ix. p. 191 (1876), x. p. 154 (1877).—D'Albertis & Salvad. op. cit. xiv. p. 106 (1879).—Gould, B. New Guinea, i. pl. 13 (1879).—D'Albertis, Nuova Guinea, pp. 582, 588 (1880).—Eudes-Deslongch. Ann. Mus. d'Hist. Nat. Caen, i. p. 10 (1880).—Salvad. Orn. Papuasia, ii. p. 554 (1881).—Guillem. P. Z. S. 1885, p. 650.—Meyer, Zeitschr. ges. Orn. iii. p. 36 (1886).—Salvad. Agg. Orn. Papuasia, ii. p. 157 (1890).
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Ptilorhis magnifica, Sclater, Journ. Linn. Soc. ii. p. 164 (1858).—Finsch, Neu-Guinea, p. 165 (1865, pt.).—Wallace, Malay Arch. ii. p. 420 (1869).—Schl. Dierent. p. 175, cum fig. (1872).—Sharpe, Cat. Birds in Brit. Mus. iii. p. 157 (1877).—D'Albertis, Ann. Mus. Civ. Genov. x. p. 14 (1877).—Ramsay, Proc. Linn. Soc. N. S. W. iv. p. 97 (1880).—D'Hamonv. Bull. Soc. Zool. France, 1886, p. 508.
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Ptilorhis wilsoni, Ogden, Proc. Acad. Nat. Sci. Philad. 1875, p. 451, pl. 254.—Id. op. cit. 1876, p. 182.—Sharpe, Cat. Birds in Brit. Mus. iii. p. 156, note (1877).—Salvin & Sclater, Ibis, 1877, p. 242.

This is the oldest known species of Rifle-bird, having been described by Cuvier in the early part of the present century; but it was for many years unrepresented in museums, until it was re-discovered in North-western New Guinea by Mr. A. R. Wallace, who procured some specimens near Dorey. Since the voyage of the latter naturalist to New Guinea, the Rifle-bird has been obtained by a number of travellers in North-western New Guinea, but it does not seem to ascend the higher ranges of that part of the great Papuan island. Signor D'Albertis met with the species at a distance of 300 miles up the Fly River, and it is interesting to find that the Rifle-bird which he obtained was *C. magnifica*, and not *C. intercedens* of the south-eastern portion of the island.

All the specimens received at first in Europe were dried native skins, and the typical example appears to have passed from Bullock's Museum into the hands of Cuvier at Paris. The latter only gave a French name to the species, and Vieillot was the first naturalist to confer a specific title on it.

The nesting-habits of this species of Rifle-bird are still unknown, though, according to information given

to Dr. Beccari by native hunters, it builds a nest on a branch of a tree. Macgillivray, on the contrary, heard from the natives of Cape York that the Rifle-bird of that country laid white eggs, which were placed in the hole of a tree. Count Salvadori inclines to the opinion that the latter mode of nidification is more probably the correct one; but my own opinion is that, when we obtain reliable information about the breeding-habits of the genus *Ptilorhis*, the species will be found to place their nests in the open and on the branches of trees, as Beccari's hunters have stated.

Signor D'Albertis states that in its habits the Rifle-bird is very shy, and it is impossible to hunt it; but by imitating its cry, which consists of three distinct notes—*oooih*, *oooih*, *oooih*—it may be brought within range of its pursuer, for the bird, overcome with curiosity to find out who is daring to try and charm his female, comes at last to the outside of the trees, craning his neck in all directions on the look-out for the intruder, when of course he pays the penalty for his curiosity and jealousy.

According to Signor D'Albertis the food of the present species consists of seeds and fruits as well as insects.

The bird named *Ptilorhis wilsoni* by Dr. Ogden, and figured in the 'Proceedings' of the Academy of Natural Sciences of Philadelphia, seems to be a made-up specimen, and the differences founded on the structure of the legs cannot be of any value, as it has since been found that they belong to some other bird. Count Salvadori thinks that otherwise it may be a representative of the large race from Triton Bay which Schlegel called *Paradisea magnifica major*. Salvadori also notes a large specimen from Sorong.

Adult male. General colour above velvety black with purplish reflections, the wing-coverts like the back, but not so glossy; bastard-wing, primary-coverts, and quills black, externally glossed with steel-green, the innermost secondaries velvety black like the back; centre tail-feathers metallic steel-green, the remainder velvety blue-black, with a steel-green lustre on the outer edges of some of them; head and nape metallic green; lores, eyebrows, sides of face, cheeks, ear-coverts, and throat black, with a purple gloss; the centre of the throat metallic steel-green, widening out into a præpectoral shield, which shows purplish reflections under certain lights, and is followed by a band of velvety black like the sides of the neck; this band is again followed by a band of oily green across the upper breast; remainder of under surface of body dark purple; the abdomen, vent, and under tail-coverts black, as well as the long flank-plumes; axillaries and under wing-coverts velvety black with a steel-blue gloss: "bill black; feet dull lead-colour" (*D'Albertis*); "iris nearly black; inside of mouth greenish yellow; bare space round eye black" (*Beccari*). Total length 13·5 inches, culmen 2·3, wing 7·3, tail 4·0, tarsus 1·6.

Adult female. Above cinnamon-rufous, the wings and tail entirely of the same colour as the back, the inner webs browner; over the eye a narrow streak of white; lores and sides of face dusky brown, the former washed with rufous; the ear-coverts minutely streaked with rufous along the shafts of the feathers; cheeks white, the feathers somewhat scaly in appearance; a malar streak of dark brown on each side of the throat; throat white, slightly mottled with minute dusky cross markings; rest of under surface of body dull white, very numerously and thickly barred across with dusky blackish. Total length 12 inches, culmen 1·95, wing 6·6, tail 4·45, tarsus 1·65.

Young male. Similar to the adult female, but of a deeper rufous, the head and neck rather dingier than the back; a tolerably well-defined white eyebrow, the feathers edged with brown; lores and ear-coverts dusky chocolate-brown, with a very few ochraceous shaft-streaks; under surface of body dirty white, very thickly barred across with black; the flank-plumes elongated, but barred exactly like the breast; from the base of the lower mandible a malar streak of dusky black, continued down the sides of the throat on to the sides of the chest. Total length 14·5 inches, culmen 2·3, wing 6·95, tail 4·9, tarsus 1·65.

Count Salvadori has described some of the changes by which the young males don the plumage of the adult, and believes that this is effected by a change of colouring in the feather itself rather than by a moult. Probably a partial moult also takes place, as is the case with *Ptilorhis paradisea*.

The descriptions are taken from examples in the British Museum, which also contains the specimens figured in the Plate. The latter were formerly in the Gould Collection.

CRASPEDOPHORA ALBERTI, *Gray.*

W. Hart del. et lith.

Mintern Bros. imp.

CRASPEDOPHORA ALBERTI, *Elliot.*

Prince Albert's Rifle-bird.

Ptilorhis magnificus (nec Vieill.), Gould, Birds of Australia, Suppl. pl. 51 (1851).

Ptilorhis magnifica, pt., Sclater, Journ. Proc. Linn. Soc. ii. p. 164 (1858).

Craspedophora magnifica (nec Vieill.), Gould, Handb. B. Austr. i. p. 595 (1865).—Gray, Hand-l. B. i. p. 105, no. 1273 (1869, pt.).

Ptilorhis alberti, Wall. Malay Arch. ii. pp. 417, 420 (1869 : descript. nullâ).—Elliot, Proc. Zool. Soc. 1871, p. 583 (ex Gray, MSS.).—Gray, Ann. Nat. Hist. (4) viii. p. 365 (1871).—Elliot, Monogr. Parad. pl. xxxiv. (1873).—Sharpe, Cat. Birds Brit. Mus. iii. p. 156 (1877).—Finsch, Vög. der Südsee, p. 37 (1884).

Craspedophora alberti, Masters, Proc. Linn. Soc. N. S. W. i. p. 37 (1877).—Ramsay, op. cit. ii. p. 191 (1878, pt.).—Salvad. Orn. Papuasia e delle Molucche, ii. p. 558, note (1881).—Ramsay, Tab. List Austr. B. p. 11 (1888).

This species is an inhabitant of the Cape York Peninsula in Northern Australia, and for many years it was considered to be identical with *Craspedophora magnifica* of New Guinea, though Dr. Sclater noticed certain differences between the two forms as long ago as 1858, and Gray had affixed the MS. name of *Ptilorhis alberti* to the specimens in the British Museum. Dr. A. R. Wallace first mentioned this name in his 'Malay Archipelago,' and Mr. D. G. Elliot gave a description of the species in 1871.

C. alberti is a smaller bird than *C. magnifica*, and is distinguished by the olivaceous tint which appears on the breast below the golden-green pectoral collar. In the New Guinea species the reddish-purple colour begins directly below the pectoral collar. The females of the two birds are also very distinct.

Macgillivray gives the following account of the species:—"This fine Rifle-bird inhabits the densest of the brushes in the neighbourhood of Cape York. The natives are familiar with it under the name of 'Yagoonya.' Its cry is very striking; upon being imitated by man, which may be easily done, the male bird will answer. It consists of a loud whistle resembling *wheeoo* repeated three times and ending abruptly in a note like *who-o-o*. Both sexes utter the same note, but that of the male is much the loudest. The old males are generally seen about the tops of the higher trees, where, if undisturbed, they remain long enough to utter their loud cry two or three times at intervals of from two to five minutes. If a female be near, the male perches on a conspicuous dead twig in a crouching attitude, rapidly opening and closing his wings, the feathers of which, by their peculiar form and texture, produce a loud rustling noise, which, in the comparative stillness of these solitudes, may be heard at the distance of a hundred yards, and may be faintly imitated by moving the feathers of a dried skin. The full-plumaged males are much more shy than the females or immature birds.

"From the shyness of this Rifle-bird, it is difficult to catch more than a passing glimpse of it in the dense brushes which it inhabits. I once, however, saw a female running up the trunk of a tree like a Creeper, and its stomach was afterwards found to be filled with insects only, chiefly ants; while the stomach of a male shot about the same time contained merely a few small round berries, the fruit of a tall tree, the botanical name of which is unknown to me."

Dr. Otto Finsch, when in the Cape York Peninsula, procured specimens in the neighbourhood of Somerset, where he says that its peculiar cry was one of the characteristic sounds of the jungle. It was not rare, but excessively shy and difficult to collect. Dr. Finsch procured a bird in nestling plumage, and remarks that the males gain their adult plumage by a gradual change of colour in the feather without any moult, and that they breed in this half-and-half plumage, showing that it takes some time for the male to assume his full livery.

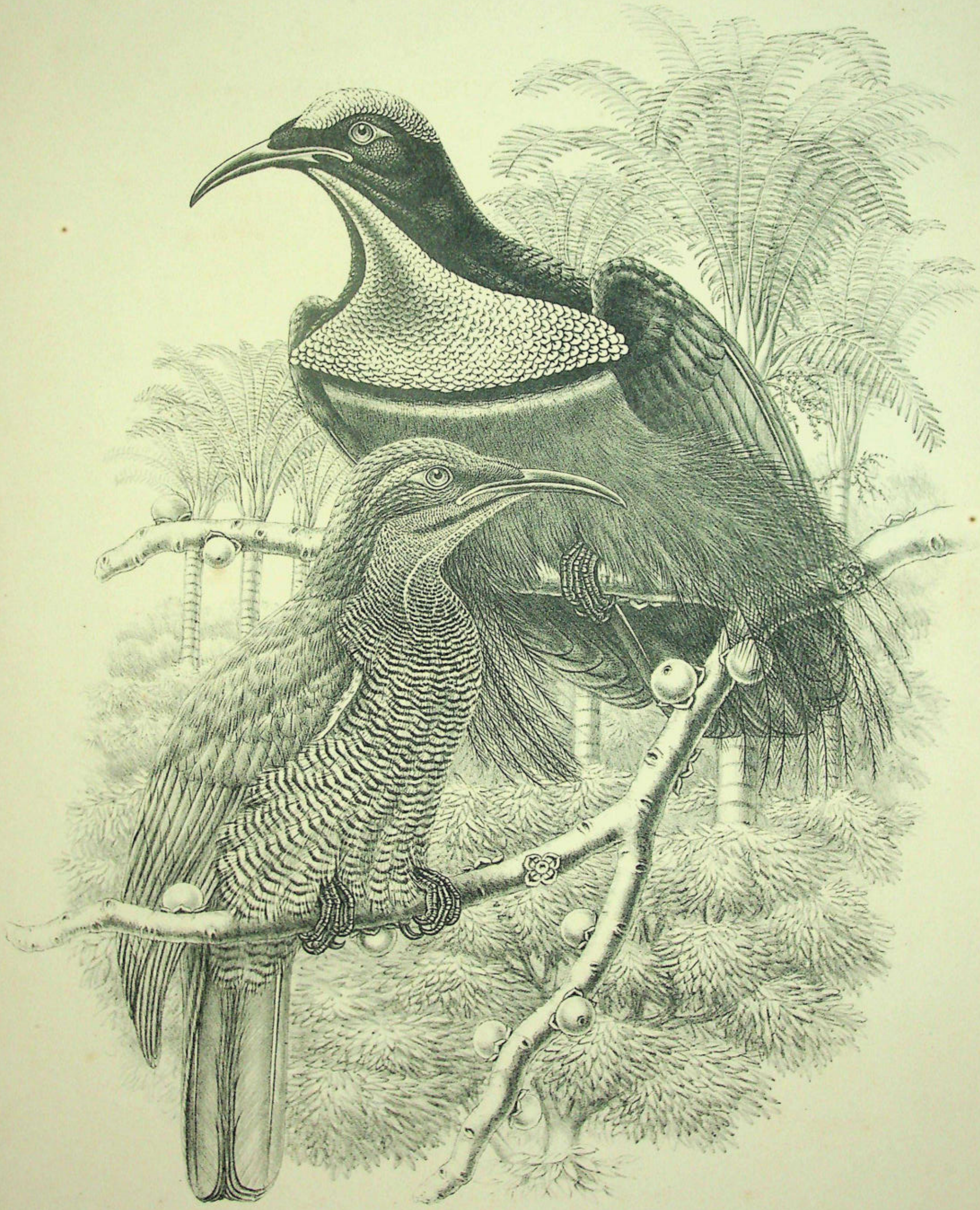
The following descriptions are copied from my third volume of the 'Catalogue of Birds':—

Adult male. General colour velvety black, appearing purple when held away from the light, with somewhat of a bluish-purple gloss on some of the feathers, this latter shade being especially distinct on the outer wing-coverts, which are otherwise like the back; quills blue-black, of a velvety texture, the inner secondaries glossed with purplish blue; tail velvety black, the two centre feathers metallic steel-green, the next one on each side also glossed with steel-green towards the base; crown of head and nape metallic steel-green with a

slight coppery lustre; lores, feathers above the eye, and sides of face, as well as the chin and sides of the throat, glossy purple; from the chin a shield of metallic steel-blue plumes spreads out onto the chest, and is followed by a double band, the first velvety black with a burnished coppery lustre, the second golden green with an olivaceous lustre; rest of under surface olivaceous, shaded with reddish purple, especially on the abdomen and flank-feathers, the latter being elongated into silky plumes, which reach beyond the tail; under tail-coverts and vent velvety blue-black: bill and legs black; iris brown. Total length 12·2 inches, culmen 2·2, wing 6·65, tail 4·25, tarsus 1·65.

Adult female. General colour ashy brown on the head and neck, shading into olivaceous brown on the back and rump, slightly tinged with reddish on the upper tail-coverts; lores, feathers round the eye, and ear-coverts dusky brown, with slightly indicated shaft-streaks of ochraceous, these being also faintly perceptible on the feathers of the crown; over the eye a broad line of white, forming a distinct eyebrow; cheeks white, as also the throat, which is separated from the cheeks by a broad malar streak of blackish; rest of under surface of body dull white, mottled with cross bars of blackish, much wider apart on the abdomen and flanks, the feathers of the latter being somewhat elongated; under wing-coverts like the breast, the cross-bars less distinct; upper wing-coverts like the back, the greater series orange-chestnut, this being also the colour of the quills, which are brown on the inner webs. Total length 11·2 inches, culmen 1·95, wing 6·0, tail 4·3, tarsus 1·6.

The figures in the Plate represent a pair of birds of the natural size, and are drawn from specimens in the British Museum.



CRASPEDOPHORA INTERCEDENS, *(Sharpe)*.

W. Hart del. et lith.

Mintern Bros. imp.

CRASPEDOPHORA INTERCEDENS, *Sharpe.*

Port Moresby Rifle-bird.

Craspedophora magnifica (nec V.), Ramsay, Proc. Linn. Soc. N. S. W. ii. p. 266 (1877), iv. p. 97 (1880).—Tristr. Ibis, 1889, p. 554.—De Vis, Ann. Queensl. Mus. no. 2, p. 7 (1892).

Ptilorhis intercedens, Sharpe, Journ. Linn. Soc. xvi. p. 444 (1882).—D'Hamonv. Bull. Soc. Zool. France, 1886, pp. 504, 508.

Craspedophora intercedens, Meyer, Zeitschr. ges. Orn. ii. p. 382 (1885).—Id. Ibis, 1886, p. 250.—Salvad. Agg. Orn. Papuasia, ii. p. 157 (1890).—Meyer, Ibis, 1890, p. 419.

Ptilorhis magnifica (nec V.), Goodwin, Ibis, 1890, p. 151.

When first I described the Rifle-bird from South-eastern New Guinea I gave to it the name of *intercedens*, because it seemed to me that it was intermediate between *C. magnifica* and *C. alberti*, but the specific characters then propounded for its separation are not those on which the distinctness of the species rests. A further examination of specimens has convinced me that in colour the Southern bird differs very little from the Rifle-bird of North-western New Guinea (*C. magnifica*); but, in addition to the shorter bill, it will be found that *C. intercedens* has the base of the culmen hidden by the frontal feathers, which unite on each side of it. This peculiarity is observable in both sexes, and I have therefore no hesitation in recognizing *C. intercedens* as a valid species.

As far as is known, the range of this Rifle-bird extends over the greater part of Eastern New Guinea, for it is found in the interior of the Port Moresby district and also on the Astrolabe range of mountains. In the former locality it has been met with by Messrs. Goldie and Broadbent, and the latter naturalist obtained specimens at Cloudy Bay. The late Karl Hunstein found the species in the Horseshoe range of the Astrolabe Mountains, and it was also obtained during Sir William Macgregor's expedition. Mr. A. P. Goodwin, who accompanied the latter, writes:—"We met with this Rifle-bird on Mount Kowald and Mount Belford, in the Owen Stanley range, at an altitude of from 2000 to 3000 feet. It haunts the denser scrubs generally near a running stream, and is solitary in its habits, wild, and shy, requiring no little skill in acquiring a specimen."

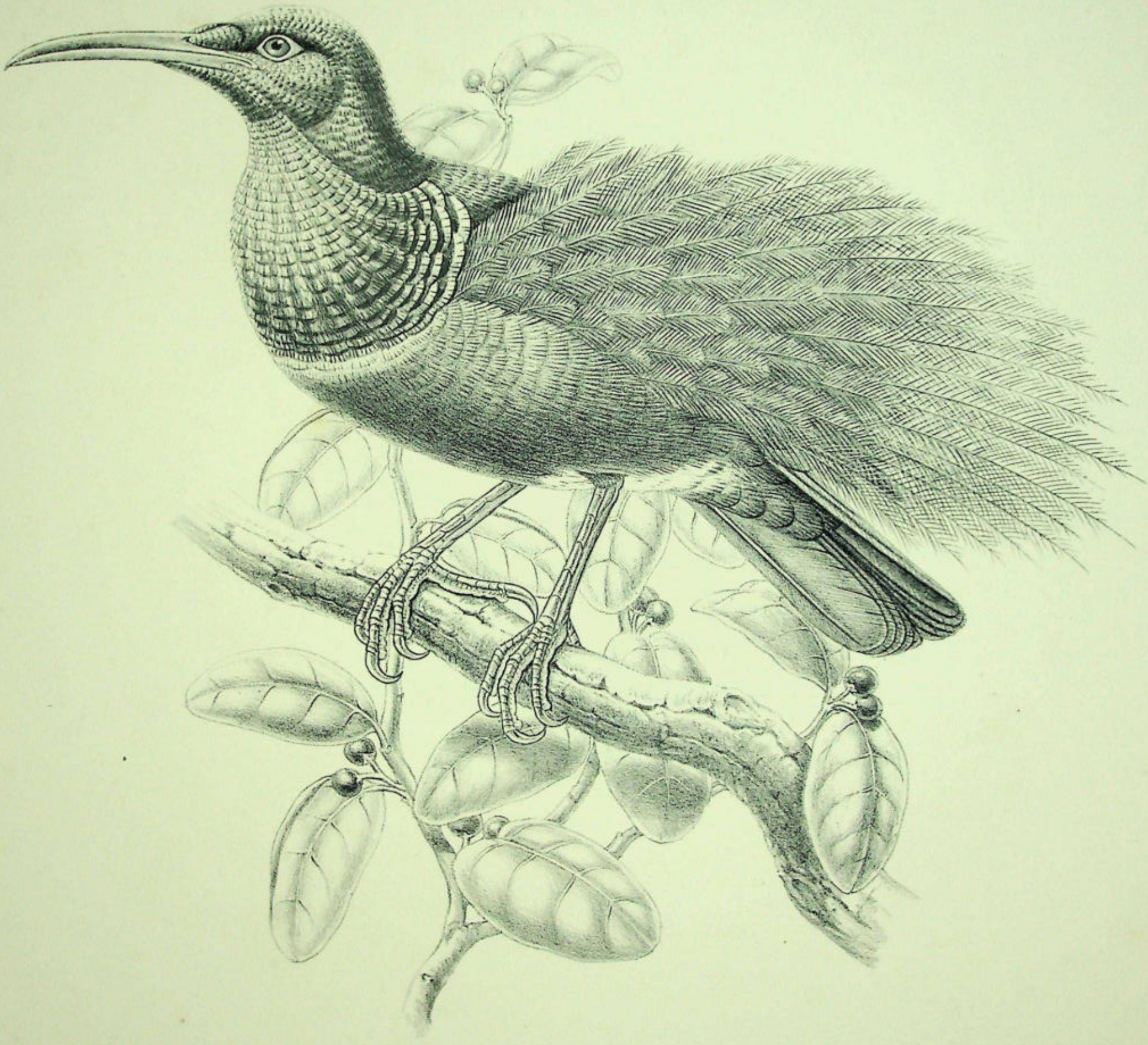
Hunstein forwarded the following note with his specimens:—"Very similar to the Australian Rifle-bird, but has a different call. It calls on two notes, one deeper than the other, similar to that of the Raven. The bird is shy and difficult to get at; it resorts mostly to the Ranges, and frequents trees with plenty of vines and creepers on them."

Mr. Basil Thomson procured the species at Milne Bay in South-eastern New Guinea. It would also seem to extend to the North-eastern coast, as Dr. Meyer records a specimen from Constantine Harbour, obtained there by Mr. Kubary. Further westward than the Astrolabe Range it does not appear to extend, as the Rifle-bird of the Upper Fly River is the true *C. magnifica*.

Adult male. Similar to *C. magnifica* in colour, but distinguished by the much smaller bill, the base of the culmen being completely hidden by the impinging frontal feathers: bill, feet, and iris black (*Hunstein*). Total length 11 inches, culmen 1·8, wing 7·2, tail 3·8, tarsus 1·7.

Adult female. Similar to the female of *C. magnifica*, but rather more ashy whitish below, the cross-bars being narrower, producing a generally paler appearance: the base of the culmen is hidden as in the male. Total length 11·5 inches, culmen 2, wing 7·2, tail 4·15, tarsus 1·7.

The figures on the Plate represent a pair of birds of the size of life, and are drawn from the typical examples in the British Museum.



CRASPEDOPHORA MANTOUI, *Oustalet.*

J. G. Keulemans & Hart del. et lith.

Mintern Bros imp.

CRASPEDOPHORA MANTOUI, *Oustalet.*

Mantou's Rifle-bird.

Craspedophora mantoui, Oustalet, Le Nat. 1891, p. 260.—Id. Nouv. Arch. Mus. (3) iv. p. 218, pl. xv. (1892).—Sharpe, Bull. Brit. Orn. Club, iv. p. xii (1894).—Büttik. Notes Leyden Mus. xvi. p. 165 (1894).
Craspedophora bruijni, Büttik. Notes Leyden Mus. xvi. p. 161 (1894).

This is a very fine species of Rifle-bird, but as yet no perfect specimens have been received in Europe, so far as I am aware. The original example was a plumassier's skin, which found its way into the hands of M. Manton, who presented it to the Paris Museum. In the Hon. Walter Rothschild's collection I have seen a second example, while a third is in the Leyden Museum. The habitat of the species is not known, but it is believed to be some part of North-western New Guinea.

The principal differences between *C. mantoui* and *C. magnifica* are as follows:—The flank-plumes are conspicuously longer, and the centre tail-feathers are darker, not being dark metallic green in all lights as in *C. magnifica*. The back of *C. mantoui* is more violet, the sides of the crown and neck purple, and the structure of the breast-shield is different, not being continued in a median line to the chin, but having the feathers crinkled, instead of being scaly; the lower part of the shield, moreover, has only one band of golden bronze, and no black band at all. The shape of the shield is rounder and not so triangular as in *C. magnifica*.

The following description has been taken from the specimen in the Leyden Museum, which is the type of Dr. Büttikofer's *C. bruijni*. He thinks that his bird may be distinct from *C. mantoui*, but I see no reason for believing them to be different.

Adult male. General colour above purplish black, with a purplish-violet gloss, with velvety black tips; wing-coverts velvety black, glossed externally with steel-blue, the primary-coverts similarly coloured, the edge of the wings purple; quills velvety black, with a steel-green gloss, the inner secondaries with purplish violet; tail-feathers velvety black, glossed with purple, the margins of the feathers steel-blue, with which the centre feathers are glossed; crown of head metallic steel-green, the feathers scaly in appearance; the sides of the crown and the sides of the face and neck as well as the upper throat purplish violet, with more distinct purple on the latter; lower throat steel-green, united to a beautiful shield of scaly metallic-green feathers, which are crinkled and have a purplish-violet gloss; the lateral feathers of the shield black, with a steel-green margin; breast and abdomen purplish red, with a bronzy reflection, this portion separated from the shield by a narrow band of golden bronze; the long flank-feathers blacker with a purple gloss, the long feathers becoming elongated into blackish filaments; a tuft of white feathers on the upper part of the thighs; under wing-coverts blacker, with a purplish gloss. Total length 11 inches, culmen 2·25, wing 6·9, tail 3, tarsus 1·7.

The figure in the Plate has been taken from the specimen in the Leyden Museum, and is copied from a sketch made by Mr. Keulemans.

PARYPHEPHORUS DUIVENBODII, *Meyer.*

W. Hart del et lith.

Mintern Bros. imp.

PARYPHEPHORUS DUIVENBODII, *Meyer.*

Van Duivenbode's Bird of Paradise.

Craspedophora duivenbodei, Meyer, Ibis, 1890, p. 419, pl. xii.
Paryphephorus duivenbodei, Meyer, Ibis, 1890, p. 420.—Salvad. Agg. Orn. Papuasia, iii. p. 241 (1891).—Sharpe, Bull. Brit. Orn. Club, iv. p. xii (1894).

This species is known from a single specimen in the Dresden Museum. It is supposed to have come from some part of New Guinea, but the exact habitat of the species still remains unknown.

In general appearance *Paryphephorus* resembles a Rifle-bird of the genus *Craspedophora*, having a green pectoral shield, but it differs in having a fan-like frill on the hind-neck and in not having the flank-plumes developed to any great extent. It is, in my opinion, correctly separated as a distinct genus from *Craspedophora* and *Ptilorhis*.

Nothing is known of its habits or various plumages.

The following is the description of the type specimen which I made in 1891 in the Dresden Museum :—

Adult male. General colour velvety black, with a purplish gloss under certain lights; wings and tail velvety black, the two centre tail-feathers metallic steel-green; round the hind-neck a prominent frill of velvety-black feathers glossed with violet; crown of head steel-green; sides of face and throat velvety purple with bronzy reflections; on the fore-neck and chest a triangular shield of rich steel-green with olive-green reflections, inclining to blue on the margins of the shield; under surface of body blackish, with a bronzy gloss on the upper breast, becoming rather more violet on the abdomen and flanks. Total length about 9·5 inches, culmen 1·7, wing 6·5, tail 3·8, tarsus 1·5.

The figure in the Plate is drawn from a sketch of the typical example made by Mr. Keulemans for the 'Ibis' in 1890.

IANTHOTHORAX BENZBACHI, *Büttik.*

J.G. Keulemans & Hart del et lith.

Mintern Bros. imp.

IANTHOTHORAX BENSBACHII, *Büttik.*

Bensbach's Bird of Paradise.

Ianthothorax bensbachii, Büttik. Notes Leyden Mus. xvi. p. 163 (1894).—Sharpe, Bull. Brit. Orn. Club, iv. p. xii (1894).

The type specimen of this species, which Dr. Büttikofer has rightly recognized as belonging to a distinct genus of *Paradiseidæ*, is in the Leyden Museum, where I examined it in 1895. The genus is nearly allied to *Ptilorhis* and *Craspedophora*, and has the flank-feathers developed as in those genera; but it lacks the metallic breast-shield of these latter, from which *Ianthothorax* is further distinguished by its elongated central tail-feathers, which are metallic. As Dr. Büttikofer has pointed out, moreover, it has the first primary emarginate near the end of the inner web, as in *Astrapia* and *Parotia*.

The home of this beautiful species is said to be in the Arfak range of mountains in North-western New Guinea, and the type specimen was presented to the Leyden Museum by Mr. J. Bensbach, the Dutch Resident at Ternate, in whose honour the species has been named by Dr. Büttikofer.

The type specimen described below is not quite fully adult, having a few brown immature feathers left.

Adult male. General colour above purplish black, with dark steel-green and purplish gloss when held away from the light; the lower back and rump apparently of the same colour as the back in the adult bird, but in the present specimen these parts are sandy brown; wings apparently black in full plumage, with a gloss of metallic green, but the wing-coverts sandy brown and the quills bronzy brown, the innermost secondaries paler brown towards the ends; upper tail-coverts steel-green; tail-feathers bronzy brown, externally metallic steel-green, with black shafts, but the green more of an oily shade; crown of head metallic oily or golden green, with steel-green and even bronzy reflections; sides of face and throat also metallic green, inclining to steel-blue on the throat, the lower throat scaly in appearance, more bronzy green, with purplish and even leaden-green reflections; fore-neck and breast purplish black, forming an ill-defined shield; the abdomen browner, but glossed with purplish black; flank-feathers close-set and long, dark brown, the longer feathers with elongated points, on which the barbs are very much dissociated: bill and feet black; iris red (*Bensbach*). Total length 13 inches, culmen 1·75, wing 6·7, tail 4·75, centre tail-feathers 8, tarsus 1·6.

The figure in the Plate is copied from a painting of the type specimen by Mr. Keulemans.

SELEUCIDES NIGRICANS. *(Shaw).*

W. Hart del. et lith.

Mintern Bros. imp.

SELEUCIDES NIGRICANS, ♀ and ♂ juv

J Gould & W Hart del et lith

Mintern Bros imp

SELEUCIDES NIGRICANS (*Shaw*).

Twelve-wired Bird of Paradise.

Oiseau de Paradis blanc, Forster, in Forrest, Voy. Moluq. et Nouv. Guin. p. 160 (1780 : ex Valentyn).
Oiseau de Paradis noir et peu connu, Forst. t. c. pp. 154, 160. no. 6 (1780 : ex Valentyn).
Paradisea candida (pt.), Forst. Zool. Ind. pp. 31, 35, 36, var. secunda (1781 : ex Valentyn).
Paradisea ignota, Forst. t. c. pp. 31, 36 (1781 : ex Valentyn).
Paradisea alba, var. β, Gm. Syst. Nat. i. p. 402 (1788 : ex Forst.).—Gerini, Ornith. tab. 65. fig. 1.—Lath. Ind. Orn. i. p. 197 (1790).—Blumenb. Abbild. naturh. Gegen. pl. 96 (1810).—Bechst. Kurze Uebers. p. 133 (1811).—Cuv. Règn. Anim. i. p. 403 (1817).—Schl. J. f. O. 1861, p. 386.
Paradisea melanoleuca, Daud. Tr. d'Orn. ii. p. 278 (1800).
Le Manucode à douze filets, Vieill. Ois. Dor. ii. p. 29, pl. 13 (1802).
Le Nébuleux, Levaill. Ois. Parad. i. pls. 16, 17 (1806).
Paradisea nigricans, Shaw, Gen. Zool. vii. pt. 2, p. 489, pls. 60, 61 (1809).—Steph. Gen. Zool. xiv. pt. 1, p. 76 (1826).
Paradisea violacea, Bechst. Kurze Uebers. p. 133 (1811).
Paradisea vaillanti, Shaw, Nat. Misc. xxiv. pl. 1025.
Le Promerops multifil, Levaill. Hist. Nat. Prom. et Guêp. p. 38, pl. 17 (1806).—Less. Man. d'Orn. ii. p. 6 (1828).
Falcinellus resplendescens, Vieill. N. Dict. d'Hist. Nat. xxviii. p. 165 (1819).—Id. Enc. Méth. p. 581 (1823).—Id. Gal. Ois. i. p. 307, pl. 185 (1825).—Less. Traité d'Orn. p. 322 (1831).—Drap. Dict. Class. xiv. p. 293 (1845).
Epimachus albus, Temm. Man. d'Orn. i. Introd. p. lxxxvi (1820).—Wagl. Syst. Av., *Epimachus*, sp. 9, p. 121 (1827).—Cuv. Règne Anim. i. p. 440 (1829).—Gray, Gen. B. ii. p. 94 (1848).—Id. P. Z. S. 1858, p. 190.—Id. Cat. B. New Guin. pp. 21, 55 (1859).—Id. P. Z. S. 1861, p. 435.—Wallace, P. Z. S. 1862, p. 160.—Finsch, Neu-Guinea, p. 165 (1865).—Schl. Mus. Pays-Bas, Coraces, p. 95 (1867).—Id. Nederl. Tijdschr. Dierk. iv. p. 49 (1871).—Musschenbr. Dagboek, pp. 202, 234 (1883).—Rosenb. Mitth. orn. Ver. Wien, 1885, p. 53.
Twelve-wired Paradise-bird, Lath. Gen. Hist. iii. p. 199, pl. 48 (1822).
Seleucides acanthylis, Less. Ois. Parad. Syn. p. 29, Hist. Nat. p. 229, pls. 36, 37 (♂ ad.), pl. 38 (♂ juv.) (1835).—Id. Compl. de Buff., Ois. p. 540 (1838).
Nematophora alba, Gray, List Gen. B. p. 12 (1840).
Seleucides albus, Gray, List Gen. B. Addenda, p. 1 (1840).—Id. List Gen. 2nd ed. p. 15 (1841).—Bp. Consp. Av. i. p. 412 (1850).—Cab. Mus. Hein. i. p. 215 (1851).—Scl. Journ. Linn. Soc. ii. p. 163 (1858).—Gray, Hand-l. B. i. p. 105, no. 1275 (1869).—D'Alb. Ann. Mus. Civ. Gen. x. pp. 13, 20 (1877).—Id. Nuova Guin. p. 484 (1880).
Seleucides alba, Reichenb. Scansoriæ, p. 331, tab. 612. figs. 4092-93 (1853).—Rosenb. J. f. O. 1861, p. 46.—Wallace, P. Z. S. 1862, pp. 155, 158, 160.—Id. Malay Archip. ii. pp. 388, 412, 419, cum tab. (1869).—Elliot, Monogr. Parad. pl. xxii. (1873).—Scl. P. Z. S. 1873, p. 697.—Beccari, Ann. Mus. Civ. Gen. vii. p. 713 (1875).—Salvad. t. c. p. 785.—D'Alb. Nuova Guin. pp. 34, 345, 372, 456, 484, 485 (1880).—Eudes-Deslongch. Ann. Mus. d'Hist. Nat. Caen, i. p. 13 (1880).—Scl. P. Z. S. 1881, p. 450.—D'Hamonv. Bull. Soc. Zool. France, xi. p. 509 (1886).
Ptiloris nebulosus, Licht. Nomencl. Av. Mus. Berol. p. 10 (1854).
Seleucides resplendens, Rosenb. Naturk. Tijdschr. Nederl. Ind. xxv. p. 238 (1863).—Id. J. f. O. 1864, p. 123.
Epimachus resplendens, Rosenb. Reist. naar Geelvinkb. pp. 101, 116 (1875).
Seleucides ignota, Salvad. Ann. Mus. Civ. Gen. viii. p. 403 (1876), ix. p. 191 (1876), x. p. 154 (1877).—D'Alb. & Salvad. op. cit. xiv. p. 107 (1879).—D'Alb. Nuova Guin. pp. 582, 588 (1880).
Seleucides niger (nec Shaw), Sharpe, Cat. B. Brit. Mus. iii. p. 159 (1877).—Forbes, P. Z. S. 1882, p. 333.—Goodwin, Ibis, 1890, p. 150.
Epimachus resplendescens, Rosenb. Malay. Archip. p. 552 (1879).
Seleucides nigricans, Salvad. Orn. Papuasia, etc. ii. pp. 561, 680 (1881).—Gould's B. New Guinea, i. pls. 14, 15 (1881).—Guillem. P. Z. S. 1885, p. 650 (Salawati).—Salvad. Aggiunte Orn. Papuasia, etc. ii. p. 157 (1890), iii. p. 241 (1891).—Sharpe, Bull. Brit. Orn. Club, iv. p. xii (1894).—Salvad. Ann. Mus. Civ. Gen. (2) xvi. p. 109 (1896).—Rothschild, Novit. Zool. iii. pp. 531, 633 (1896).

As Count Salvadori has pointed out, the earlier names of *Paradisea alba*, *P. ignota*, and *P. melanoleuca* are not applicable to this bird, as all of them convey a false impression of its coloration, or are founded

upon insufficient details. The first available name for the species is *P. nigricans* of Shaw, though such a title is not particularly applicable to a bird which is yellow underneath, but the name has been adopted by Count Salvadori, and recent ornithologists have followed him.

The genus *Seleucides* is remarkable for the elongated shafts to the flank-plumes, which represent six thread-like wires on each side of the body. The tail is square and not lengthened as in *Epimachus*; but the genus *Seleucides* belongs to the same long-billed section of the Birds of Paradise, which also includes the Rifle-birds (*Ptilorhis*) and the Sickle-billed genus *Drepanornis*. It differs from the latter in its thread-like flank-shafts, and from *Ptilorhis* in the want of a metallic pectoral shield.

The Twelve-wired Bird of Paradise is only found in New Guinea and the adjoining island of Salawati. In the latter it has been obtained by Dr. Wallace, by Bernstein, von Rosenberg, and Dr. Beccari. In New Guinea it has been found in the north-western and in the south-eastern districts. Thus Dr. Wallace met with the species at Dorei, von Rosenberg at Andai, Dr. Beccari at Wa Samson, D'Albertis at Sorong, and Dr. Beccari again at Mesan.

In South-eastern New Guinea D'Albertis procured a large series on the Fly River, and it has been obtained in the Port Moresby district. Mr. Goodwin tells me that on Sir William MacGregor's Expedition to Mount Victoria the species was not obtained inland, owing to the rapidity with which the Expedition travelled, but its note was heard on many occasions. It frequents the low and swampy districts near the coasts, where it is difficult to reach, as it generally sits perched on a dead tree in the middle of a swamp. Its call-note can be heard from a long distance off: it consists of a double note, difficult to imitate, even by the natives of the country. D'Albertis says that he found the bird to be solitary and frequently resting on the dead branch of a tree, uttering its note, which sounded like *Có-có-có*, in the early morning at the rising of the sun: during the day it was silent. The Hon. Walter Rothschild has received specimens from Mount Victoria, and he speaks of it as a lowland species, "evidently common about sixty miles inland from Port Chalmers, west of Port Moresby." Dr. Loria has obtained the species at Veimauri, on the left bank of the Vanapa, in October.

The following account of the species is given by Dr. A. R. Wallace in his 'Malay Archipelago':—"The Twelve-wired Bird of Paradise is found in the islands of Salawati and in the north-western parts of New Guinea, where it frequents flowering-trees, especially sago-palms and *Pandani*, sucking the flowers, round and beneath which its unusually large and powerful feet enable it to cling. Its motions are very rapid. It seldom rests more than a few moments on one tree, after which it flies straight off, and with great swiftness, to another. It has a loud shrill cry, to be heard a long way, consisting of 'cáh-cáh,' repeated five or six times in a descending scale; and at the last note it generally flies away. The males are quite solitary in their habits, although, perhaps, they assemble at certain times like the true Paradise-birds. All the specimens shot and opened by my assistant Mr. Allen, who obtained this fine bird during his last voyage to New Guinea, had nothing in their stomachs but a brown sweet liquid, probably the nectar of the flowers on which they had been feeding. They certainly, however, eat both fruit and insects; for a specimen, which I saw alive on board a Dutch steamer, ate cockroaches and paya fruit voraciously. This bird had the curious habit of resting at noon with the bill pointing vertically upwards. It died on the passage to Batavia; and I secured the body and formed a skeleton, which shows indisputably that it is really a Bird of Paradise. The tongue is very long and extensible, but flat, and a little fibrous at the end, exactly like the true Paradiseæ.

"In the island of Salawati the natives search in the forests till they find the sleeping-place of this bird, which they know by seeing its dung upon the ground. It is generally in a low bushy tree. At night they climb up the tree, and either shoot the birds with blunt arrows, or even catch them alive with a cloth. In New Guinea they are caught by placing snares on the trees frequented by them, in the same way as the Red Paradise-birds are caught in Waigiou."

The first specimen of this species brought alive to Europe was apparently a bird presented by Signor G. E. Serruti to the King of Italy. It survived but a few months. Another specimen was received by the Zoological Society of London in 1881, where it lived for nearly twelve months. Dr. Guillemard gives the following note on one of these birds which was captured alive in Salawati and lived for some time on board the 'Marchesa':—"During our visit to Salawati we were fortunate enough to acquire a living specimen of this exquisite species. The way they are caught appears almost incredible. The native searches in the forest until, by the droppings, he has discovered the usual roosting-place of the species. He conceals himself beneath the tree to discover the exact branch chosen by the bird, and then climbing up at night, quietly places a cloth over it. The species being exceedingly fond of the fruit of the *Pandanus*,

the roosting-places are easily recognized by the *dejecta*, but in three weeks our hunters only secured one bird. This was a male in full plumage, which afterwards became very tame, and lived for many weeks on board the 'Marchesa,' though we were unfortunate enough to lose him before our arrival in England. I find the following notes in my 'Diary':—'The *Seleucides* is now wonderfully tame, and will eat out of one's hand. He feeds on the fruit of the *Pandanus*, on Papaw (*Carica papaya*), when it can be obtained, on cockroaches, and occasionally on banana. He is fond of resting motionless, with the head sunk low on the chest. The top of the head is very flat and low, so that the upper margin of the eyes protrudes above it. He remains more or less quiet during the day, but in the morning and evening is more restless, moving from perch to perch with a peculiar bounding hop. In feeding he is most wonderfully *neat*! With his long sharp bill he catches a cockroach with lightning-like rapidity, taking it across the body. He then gives it a sudden snap with the beak, throws it up in the air, catches it lengthwise, and it is out of sight in an instant. In this operation he displays to advantage the lovely colouring of the inside of the mouth and throat. The only note he has as yet uttered in confinement is a single unmelodious croak.'"

The late Mr. W. A. Forbes published, in 1882, a "Note on a Peculiarity in the Trachea of the Twelve-wired Bird of Paradise." His observations were based on the specimen which lived in the Zoological Society's Gardens for nearly a year; he writes:—"The death of the male *Seleucides* has given me the opportunity of observing a peculiarity in the construction of its trachea of a nature unlike anything of the kind yet known to me. The windpipe, for the greater part of its course, has the normal avian structure, the tracheal rings, which are ossified and, as usual, notched both before and behind, being of the ordinary form, and separated by but narrow intervals from each other. For a space, however, of about one inch above the largely developed short pair of intrinsic muscles, the interval comprising 8 tracheal rings, it becomes peculiarly modified, the tube itself becoming slightly dilated and flattened antero-posteriorly, whilst the tracheal rings become broader, and ossified along the middle of their depth, the borders only remaining cartilaginous. This ossified part of each ring is slightly concave, so that when seen laterally the cartilaginous margins project slightly from it, the whole ring being thus like a fluted table-napkin ring, when seen in section. The intervals between these peculiar rings are very much deeper than those above, and occupied by delicate membrane only, so that all this part of the trachea is highly elastic.

"The sterno-tracheales are inserted just below the lowest of these peculiar rings, which is the last but three of those composing the trachea—the next two, which are very narrow, and the last, which is broad and bears the pessulus, being concealed from view by the largely developed syringeal muscles, of which there are four pairs, all, except the small anterior long muscle, being inserted on the ends of the very strong third bronchial semi-rings. The lateral tracheal muscles are weak, extending, however, nearly to the thoracic end of the tube.

"Nothing like the modification of the trachea here described obtains in any other allied form of Paradise-bird that I have been able to examine (including *Paradisea papuana* and *P. rubra*, *Craspedophora alberti*, *Phonygama gouldi*, *Manucodia atra*, *Ptilorhynchus violaceus*, and *Æluræedus smithi*); nor do I know any structure in other birds quite comparable with that now described, which is probably correlated with the very loud harsh note of these birds. In all other respects *Seleucides* is, as might have been expected, a typical oscine Passerine.

"I may take this opportunity of remarking that the various published figures of *Seleucides* do not give a very accurate idea of the bird, as they fail to represent the peculiar way in which the leg-feathering ceases altogether some way above the 'knee,' leaving the large and muscular legs bare for about an inch or so above that joint."

Adult male. General colour above velvety black, with a strong gloss of oil-green when viewed from the light, with coppery bronze reflections; scapulars and wing-coverts resembling the back; greater coverts and secondaries fiery purple, the primaries black, with an external gloss of violet; tail fiery purple; head all round of a velvety texture, coppery purple above, oily green on the sides of the face and throat; fore-neck and chest velvety black, forming a shield, somewhat shaded with oily green in the centre, the lateral plumes all tipped with bright metallic emerald-green, forming a fringe; rest of the under surface of body buffy yellow, the plumes of the flanks elongated and silky, and furnished with six thread-like shafts, produced to a great length, and curved backwards on the body; under wing-coverts black: "bill black, feet pale coral-red, iris cherry-red" (*L. Loria*): "iris holly-berry red, bill black, inside of mouth and throat grass-green, legs and feet the colour of pink coral" (*F. H. H. Guillemard*). Total length 12 inches, culmen 2·7, wing 6·45, tail 3·15, tarsus 1·75; threads reaching 10·2 inches beyond the flank-feathers.

Adult female. General colour above bright chestnut-red; back of the neck and sides of the same black;

the feathers of the mantle also mottled with black, the bases of the feathers being of this colour; crown of head and nape velvety black, with a purplish gloss when seen away from the light; wing-coverts and secondaries chestnut-red, like the back, the primaries black, chestnut on their outer webs; tail uniform chestnut; space around and behind the eye bare, as also a spot on the auricular region; ear-coverts black; sides of face and throat greyish white, faintly mottled with dusky bars of blackish; rest of under surface of body buffy brown, washed here and there with pale rufous, the whole transversely barred with somewhat irregular cross lines of blackish brown, broader on the fore-neck and breast, and more faintly indicated on the abdomen, and especially on the long flank-feathers and under tail-coverts; under wing-coverts bright chestnut, with dusky blackish cross bars: "iris orange" (*Guillemard*). Total length 12·5 inches, culmen 2·55, wing 6·5, tail 4·3, tarsus 1·7.

Young male. At first resembles the adult female. A specimen collected by Dr. Wallace is in perfect plumage as regards its head, mantle, and breast, the rest of the body being in the chestnut plumage of the female, the tail being still entirely chestnut. At the same time the beautiful purple colour is being put on the wings by a gradual change of feather, and not by a moult; half the inner secondaries are chestnut, but more or less mottled with black, the purple colour appearing very plainly on the inner webs.

With regard to the method of change in this species, Dr. Guillemard remarks as follows:—"The head first assumes its black plumes, with darkening of the feathers, from within outwards, on the neck: the shield appearing gradually meanwhile. The neck then gets darker, and the wing-feathers begin to be tinged with violet, apparently commencing with the secondaries. As yet the lower breast and abdomen have remained unchanged, except that on the flanks the feathers are more plumose. In the next stage the upper parts, head, neck, and breast are complete, the wings tolerably so, while the tail is tinged with violet. The sub-alar plumes have appeared, but are short, of a dull buff, and barred with brown, though the wires are almost as long as in the adult, but are black with pale tips. The breast is still almost unchanged, except that it is somewhat yellower. The final change that appears to take place is the assumption of the yellow on the breast and plumes, and the deep violet-black tail. The native name for this bird in Salwatti is 'Palengo.'"

The Plates are the same as those published by Gould in his 'Birds of New Guinea,' the adult male being figured in two positions; while the adult female, and the young male in two stages of plumage, form the subject of the second Plate. The descriptions are copied from my third volume of the 'Catalogue of Birds.'

DREPANORNIS ALBERTISI, *Sclater.*

J. Gould & W. Hart del. et lith.

Mintern Bros. imp.

DREPANORNIS ALBERTISI, *Sclater.*

D'Albertis' Bird of Paradise.

Drepanephorus albertisii, Sclater, Nature, viii. pp. 151, 195 (1873).

Drepanornis albertisii, Sclater, Proc. Zool. Soc. 1873, pp. 557, 560, pl. xlvii.—Id. Nature, viii. p. 305, cum fig. (1873).—Elliot, Monogr. Parad. pl. 21 (1873).—Sclater, Proc. Zool. Soc. 1873, p. 697.—Id. Ibis, 1874, pp. 177, 187.—Finsch, J. f. O. 1874, p. 54.—Meyer, t. c. p. 55.—Id. Zool. Gart. 1874, p. 116.—Schl. in Rosenb. Reist. naar Geelvinkb. p. 117, note (1875).—Beccari, Ann. Mus. Civic. Genov. vii. p. 711 (1875).—Gould, B. New Guinea, i. pl. xi. (1875).—Salvad. Ann. Mus. Civic. Genov. vii. pp. 785, 899 (1875); viii. p. 403 (1876); ix. p. 190 (1876); x. p. 154 (1877).—Sharpe, Cat. Birds Brit. Mus. iii. p. 160 (1877).—D'Albert. Nuova Guinea, pp. 80, 582, cum tab. (1880).—Salvad. Orn. Papuasia e delle Molucche, ii. p. 549 (1881).—Eudes-Deslongch. Ann. Mus. Hist. Nat. Caen, i. p. 15 (1880).—Cory, Beautiful and Curious Birds, part vi. (1883).—Mussch. Dagboek, pp. 204, 235 (1883).—Guillem. Proc. Zool. Soc. 1885, p. 649.—D'Hamonv. Bull. Soc. Zool. France, 1886, pp. 505, 509.—Salvad. Agg. Orn. Papuasia, ii. p. 155 (1890).—Sharpe, Bull. B. O. Club, iv. p. xii (1894).

Epimachus wilhelminæ, Meyer, Nat. Tijdschr. Nederl. Ind. 1873, p. 415.—Id. J. f. O. 1873, p. 405.—Finsch, J. f. O. 1874, p. 54.—Meyer, t. c. p. 55.—Id. Zool. Gart. 1874, p. 116.—Id. Sitz. k. Akad. Wiss. Wien, lxix. p. 75, note (1874).—Sclater, Ibis, 1874, p. 186.—Meyer, Ibis, 1874, p. 303.

Epimachus vethi, Rosenb. Zool. Gart. 1874, p. 8.—Id. Reist. naar Geelvinkb. p. 116, pl. xviii. (1873).—Id. Malay. Arch. pp. 552, 590 (1878–79).

Epimachus albertisii, Rosenb. Mitth. orn. Ver. Wien, 1885, p. 54.

This interesting species of Sickle-billed Bird of Paradise was described in 1873 by Dr. Sclater, from specimens procured in the Arfak Mountains by Signor D'Albertis. He proposed at first the name of *Drepanephorus* for the genus, but this, being found to be preoccupied, was changed into *Drepanornis*. Von Rosenberg had seen a female bird two years previously in the collection of Mr. Renesse van Duivenbode, at Ternate, but the first specimens to be described were those obtained by D'Albertis. A few months afterwards the species was also described by Dr. A. B. Meyer; since that date several specimens have reached Europe, and the bird is to be seen in several public and private museums. The species appears to be entirely confined to the Arfak Mountains in North-western New Guinea, being replaced in South-eastern New Guinea by *D. cervinicauda*. Besides the specimens procured by D'Albertis at Hatam, it has also been obtained at Andai by Dr. Beccari and the hunters employed by the late Mr. Bruijn.

D'Albertis states that the species is very rare near Hatam, and many of the natives did not know it, but others called it 'Quarna.' The food of the species doubtless consists of berries and insects, though the specimens procured by D'Albertis had nothing in their stomachs excepting clean water.

Dr. Beccari writes:—

"*Drepanornis* is well known to the Arfaks under the name of 'Sagroja'; it is not very rare, but difficult to find, because, as the hunters assure me, it has no peculiar cry, so that it is only met with by chance. Its inconspicuous colour makes it difficult to see. It is partial to places near recent clearings from 3000 to 5000 feet, as it has the habit of flying to dead trees and fallen trunks, about which it finds insects which form its food. In the stomachs of the two specimens which I dissected I found only insects of various orders, ants predominating, and the larvæ of a lepidopterous insect."

Adult male. General colour above brown, the rump tawny chestnut, shading into fawn-colour on the upper tail-coverts, the tail being uniform fawn-colour; wing-coverts chestnut-brown, the rest of the wing being paler and more tawny brown, the quills blackish brown on the inner webs, the innermost secondaries pale tawny brown like the back; crown of head rich brown with a purple gloss; sides of head bare, with a line of brown feathers drawn across the ear-coverts; lores and feathers in front of the eye and cheeks velvety brown glossed with purple; throat rich purplish brown; rest of the under surface of body chocolate-brown, with a lilac gloss on the breast and abdomen; across the lower breast a bar of dull green; from the sides of the chest springs a tuft of fine purple feathers, brown at the base and tip; from the sides of the breast another long tuft of plumes, chocolate-brown glossed with lilac, each feather tipped with a bar of amethystine purple; under wing-coverts brown, the innermost of the greater series whitish at the tip; quills

ashy brown, edged with tawny on both webs: "bill black; feet dark lead-colour; iris chestnut" (*D'Albertis*); "iris violescent brown" (*Beccari*). Total length 13·3 inches, culmen 2·8, wing 5·95, tail 5·5, tarsus 1·4.

Adult female. Differs from the male in altogether wanting the ornamental plumes; the throat and cheeks brown, with indistinct linear streaks of blackish; the under surface of the body fulvescent, barred with dusky brown, the markings on the fore-neck and breast rather duller, and the cross-bars somewhat concentric, the bars wider apart and more distinct on the lower breast and abdomen. Total length 12·5 inches, culmen 3·4, wing 5·9, tail 4·9, tarsus 1·35.

The young male at first resembles the adult female in colour.

The Plate is the same as that published in the late Mr. Gould's 'Birds of New Guinea,' and the descriptions are taken from examples in the British Museum.

DREPANORNIS GEISLERI, *Meyer*.

Geisler's Bird of Paradise.

Drepanornis geisleri, Meyer, Abhandl. k. zool. Mus. Dresden, 1892-93, no. 3, p. 15 (1893).—Sharpe, Bull. Brit. Orn. Club, iv. p. xii (1894).—Reichenow, J. f. O. 1897, p. 222.

This species of *Drepanornis* is known only from a female specimen obtained by the brothers Geisler on the north-western side of the Sattel-Berg range in Eastern New Guinea at a height of nearly 3000 feet. According to the natives, it is common, but only the hen bird was obtained by the travellers. The native name is "Vaun."

Dr. A. B. Meyer, who has described the species, is of opinion that it is quite recognizable from both *D. albertisi* and *D. cervinicauda*. Although allied to *D. albertisi*, Dr. Meyer states that this species can be distinguished by the olivaceous colour of the upper surface and by the less amount of violet on the head, by the greyish colour on the neck, and by the under surface of the body being pale fulvous instead of rufous. The throat is more grey and the fore-neck and breast have narrower cross-bars, and the quills below are somewhat darker in colour. He further remarks that the head of *D. geisleri* exhibits less brown colour, and that the band on the nape is not sharply defined, but has a greyish appearance, while the back and the wings are more olive-brown. The underside shows greater differences from that of *D. albertisi*, as it is altogether lighter and lacks the reddish tone of the last-named species. *D. cervinicauda* is to be distinguished from *D. geisleri* by the much lighter colour of the tail.

DREPANORNIS CERVINICAUDA *(Sclater).*

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

DREPANORNIS CERVINICAUDA, *Sclater*.

Bennett's Bird of Paradise.

Drepanornis d'albertisii (nec Sclater), Ramsay, Proc. Linn. Soc. N. S. W. ix. p. 469 (1879), viii. pp. 16, 28.
Drepanornis bruijni (nec Oust. 1883, pt.), Salvad. Orn. Papuasia, ii. p. 553 (1881).
Drepanornis albertisii (nec Sclater), Sharpe, Journ. Linn. Soc. xvi. p. 445 (1882).—Salvad. Orn. Papuasia, iii. App. p. 552 (1882).
Drepanornis albertisii cervinicauda, Sclater, P. Z. S. 1883, p. 578.
Drepanornis cervinicauda, Sharpe, in Gould's B. New Guin. i. pl. 10 (1884).—Meyer & Finsch, Zeitschr. ges. Orn. ii. p. 381, Taf. xix. (1885).—Iid. Ibis, 1886, p. 248.—D'Hamonv. Bull. Soc. Zool. France, 1886, pp. 505, 509.—Salvad. Agg. Orn. Papuasia, ii. p. 155 (1890).—Goodwin, Ibis, 1890, p. 152.—Salvad. Ann. Mus. Genov. (2) ix. p. 585 (1890).—Id. Agg. Orn. Papuasia, iii. p. 240 (1891).

This species represents, in the south-eastern end of New Guinea, the *Drepanornis albertisii* of the Arfak Mountains. It is a light-tailed form of that species, and the characters which distinguish it are slight, but appear to be perfectly constant.

Mr. Goldie was the first to forward specimens of a *Drepanornis* from South-eastern New Guinea, and his specimens from the Goldie River were seen by Dr. Ramsay to differ from typical specimens of *D. albertisii* from the Arfak Mountains, and I noticed the same differences in the specimens forwarded from the Taburi district of the Astrolabe Range by Mr. Goldie, on a later occasion. As, however, only female individuals were sent, both Dr. Ramsay and myself forebore, at the time, to bestow a specific name upon them, until such time as male birds were examined.

In December, 1883, Dr. Sclater received, from the late Dr. George Bennett, of Sydney, adult birds of both sexes from the Astrolabe Mountains, and it at once became evident that the *Drepanornis* of South-eastern New Guinea was a distinct species from that of the mountains of the north-western portion of the island. So far, *D. cervinicauda*, as Dr. Sclater named the Astrolabe bird, has not been found in any other range than that of the Owen Stanley Mountains, and it has not yet been discovered in the Finisterre Mountains, or in any portion of German New Guinea.

Dr. Ramsay has received many specimens at the Sydney Museum, and has likewise described the nest and egg of the species, as follows:—

"The nest is a thin, rather flat structure, built between a horizontal bough in a fork of a thin branch; it has a slight depression about one inch deep, a network of wire rootlets is stretched across the fork, and the nest proper built on them; it is composed of wiry grasses of a light reddish-brown colour, the platform being of black wiry roots.

"The egg is in length 1·37, by 1 inch in breadth; it is of a light dull cream-colour, with a reddish tinge, spotted all over with oblong dashes of reddish brown and light purplish grey, closer on the thick end."

Mr. Goodwin has given me the following note:—"*Drepanornis cervinicauda* inhabits the same zone on the Owen Stanley Mountains as *Parotia lawesi*, but is very seldom seen, and during Sir Wm. Macgregor's expeditions we were unable to sight a single specimen, though we heard its call several times during our stay on the mountains. It keeps to the topmost branches of the highest trees, and there it pours out its song, which resembles that of the Nightingale!" As Mr. Goodwin admits that no specimen of the songster was obtained by the expedition, we may be allowed to question the singing powers of the species, a feat as yet denied to any Bird of Paradise. Doubtless some other bird was the possessor of this powerful song, which reminded Mr. Goodwin of the Nightingale.

The male may be described as very similar to that of *D. albertisii*, but distinguished by its paler rump and more fawn-coloured tail. The crown appears to want the lilac gloss of the species above mentioned, and is consequently browner. The loral tuft of metallic feathers is steel-blue instead of purple or lilac. Total length 12 inches, wing 6, tail 4·95, tarsus 1·4.

The female is a lighter-coloured bird than that of *D. albertisii*, and the dusky markings on the under surface are rather paler and more sparsely distributed. Total length 12 inches, wing 5·6.

The figures in the Plate represent a male and female of the natural size.

DREPANORNIS BRUIJNI, *Oustalet.*

W. Hart lith. *Mintern Bros. imp.*

DREPANORNIS BRUIJNII, *Oustalet.*

Bruijn's Bird of Paradise.

Drepanornis bruijnii, Oustalet, Bull. Assoc. Sci. France, 1880, p. 172.—Id. Ibis, 1881, p. 164.—Salvad. Orn. Papuasia, etc. ii. p. 553 (1881).—Musschenbr. Dagboek, pp. 206, 236 (1883).—Guillem. P. Z. S. 1885, p. 649.—Meyer, Zeitschr. ges. Orn. 1885, p. 382.—Id. Ibis, 1886, p. 249.—Sharpe, in Gould's B. New Guinea, i. pl. 12 (1886).—D'Hamonv. Bull. Soc. Zool. France, 1886, pp. 505, 509.—Oustalet, Le Naturaliste, 1887, p. 180.—Id. Ibis, 1889, p. 583.—Salvad. Agg. Orn. Papuasia, etc. ii. p. 155 (1890).—Oustalet, N. Arch. Mus. Paris, (3) v. p. 295, pl. 6 (1893).

When Count Salvadori wrote his account of the Birds of Paradise in his celebrated work on the Ornithology of New Guinea, the present species was only known from Dr. Oustalet's description of a female bird, and the distinctness of the species was somewhat questioned by the Count. The specimen described by Dr. Oustalet was in brown plumage, and was collected by Mr. Bruijn's hunters in the eastern part of the Bay of Geelvink in North-western New Guinea.

Several specimens in brown plumage were subsequently sent to Europe by Mr. Bruijn, some of which were acquired by Dr. Meyer for the Dresden Museum, and by the British Museum. During the cruise of the 'Marchesa,' Dr. Guillemard procured two examples, also in brown plumage, one of which was figured and described by me in the late Mr. Gould's 'Birds of New Guinea.'

Dr. Guillemard gives the following account of his specimens:—"While in Ternate Mr. Bruijn showed me the skins of two birds of the genus *Drepanornis* obtained by his hunters on the north coast of New Guinea a little to the eastward of the mouths of the Amberbaki River. One was marked 'female,' the other 'male'; but both were destitute of any brilliant colouring whatsoever . . . . . Mr. Bruijn informed me that his hunters had obtained seven or eight examples of this species, but that, though of different sexes, they were all of the same sober colouring. Judging from the habits of others of the *Paradiseidæ*, notably in the case of *P. rubra*, where the immature males and females appear to live in districts quite apart from the adult male at certain seasons of the year, and from the fact that in this group of birds the males are all of brilliant colouring, we can safely predict that the adult male of this species has yet to be discovered, and that it will probably show a development of subalar plumes closely resembling that of *D. albertisi*."

By a happy decree of fate, Dr. Oustalet, to whom was due the first discrimination of the species, when only an example of a female or immature male was at his disposal, has been the first to describe the full plumage of the adult male. In 1887 he communicated a description to the French Scientific Association, and he has since given a beautiful figure of the male bird in the 'Nouvelles Archives' of the Paris Museum. This figure shows that the characters of the massive bill and the extension of the bare skin of the face, which Dr. Oustalet relied on for the distinctive characters of the species, fully justified him in its separation from *D. albertisi*. The different disposition of the shields of plumes on the sides of the breast and flanks also proves that *D. bruijnii* belongs to a separate genus, for which I have proposed the name of *Drepananax*.

The first specimen of an adult male was, according to Dr. Oustalet, acquired by the well-known traveller M. Léon Laglaize, and was obtained on the north coast of New Guinea opposite the island of Podena, between Geelvink Bay and Humboldt Bay, at about 141° E. long. Since then several fully plumaged birds have been received in Europe, and the Hon. Walter Rothschild possesses a good series of the species. He has kindly lent me an adult male bird, from which I take the following description:—

Adult male. General colour above brown, a little more reddish on the lower back, rump, and upper tail-coverts; bastard-wing blackish; primary-coverts and quills also blackish, externally dull reddish brown, the innermost secondaries almost entirely of the latter colour; tail dull tawny, dusky brown along the inner web; crown of head covered with short velvety plumes of a purplish-bronze colour; sides of face entirely bare; a line of metallic plumes along the sides of the crown, of a dull steel-green; cheeks and throat velvety black, with a slight gloss of bronze or purplish copper; a spot of steel-blue on each side of the middle of the throat; fore-neck and lateral præ-pectoral shields of feathers blackish or velvety brown, according to the light, with an oily-green gloss in the centre of the fore neck, the fan-like shields having a subterminal row of feathers which are tipped with fiery metallic copper, while the terminal row are velvety black, with a narrow fringe of metallic steel-blue at the tip; remainder of under surface of the body from the fore-neck downwards

dark lavender-grey, with a row of metallic grass-green feathers along each side of the breast, backed by some velvety-black plumes with a narrow steel-green tip; under wing-coverts dusky brown; quills dusky brown below, tawny buff along the inner edge; bill horny whitish. Total length 12·5 inches, culmen 3·1, wing 6·2, tail 4·3, tarsus 1·4.

Mr. W. Rothschild has also lent me a female and young male of the present species. The former closely agrees with the description given by me in the 'Birds of New Guinea,' slightly modified, as follows:—

Adult female. General colour above brown, with a slight tinge of olive; wing-coverts like the back, the outer median and the greater coverts washed externally with dull fawn-colour; bastard-wing and primary-coverts dusky brown, the latter shaded with fawn near the base; quills dusky brown, externally pale reddish brown, the secondaries washed with fawn-colour on the outer web; upper tail-coverts and tail-feathers chestnut-brown; crown of head blackish, the feathers being of a velvety texture; the hind neck also shaded with blackish; sides of face bare; lores and a line of feathers from the gape along the side of the face blackish, the cheeks whity brown, black anteriorly, followed by a broad malar line of black; throat and under surface of body pale fawn-buff, regularly barred with blackish, the throat and fore-neck more dusky and the cross bars smaller and more indistinct; the abdomen clearer buff, and the bars wider and more distinct; sides of body and flanks like the abdomen; thighs and under tail-coverts also fawn-buff, barred with blackish; on each side of the fore-neck a blackish patch, relieved by triangular spots of yellowish buff; under wing-coverts and axillaries paler fawn-buff than the breast and indistinctly barred; quills below dusky, fawn-buff along the inner edge. Total length 12 inches, culmen 2·7, wing 5·6, tail 4·3, tarsus 1·25.

The young male in Mr. Rothschild's collection is very like the adult, but still retains the barred abdomen of the immature plumage. It is therefore evident that the sexes are alike in their first plumage, and the male appears to get his full livery by a direct moult, as I cannot trace any sign of change in the pattern of any of the feathers.

The descriptions are taken from the above-mentioned specimens in the Rothschild collection. The figure of the male has been lithographed by Mr. Hart from a sketch made by Mr. Keulemans of the specimen in the Paris Museum, while that of the female is from Dr. Guillemard's bird.

EPIMACHUS SPECIOSUS, *(Bodd.)*

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

EPIMACHUS SPECIOSUS (*Bodd.*).

Great Sickle-billed Bird of Paradise.

De groote zwarte Paradys-vogel, Valentyn, Gesch. Amboina etc. p. 311 (1726).
Le Promerops brun de la Nouvelle Guinée, Sonnerat, Voy. Nouv. Guin. p. 164, pl. 100 (1776).
Le Grand Promerops de la Nouvelle Guinée, Sonn. t. c. p. 166, pl. 101 (1776).—Daubent. Pl. Enl. vi. pl. 639.
Le Grand Oiseau de Paradis noir, Forster in Forrest Voy. Madag. et Nouv. Guin. p. 158 (1780, ex Valentyn).
Paradisea nigra major, Forster, Zool. Ind. p. 34 (1781, ex Valentyn).
Black Paradise Bird, Penn. Ind. Zool. 2nd ed. p. 22 (1790, ex Valentyn).
New Guinea Grand Promerops, Lath. Gen. Syn. i. pt. 2, p. 694 (1782, ex Sonnerat).
Grand Promerops, Lath. Gen. Syn. p. 695 (1782, ex Sonnerat).
Le Promerops de la Nouvelle Guinée, Daubent. Pl. Enl. vi. pl. 638 (♀).
Le Promerops à ventre rayé, Montb. Hist. Nat. Ois. vi. p. 471 (1783).
Le Grand Promerops à paremens frisés, Montb. Hist. Nat. Ois. vi. p. 472 (1783).
Upupa striata, Bodd. Tabl. Pl. Enl. p. 39 (1783).
Upupa speciosa, Bodd. t. c. p. 39.
Merops brunneus, Scop. Del. Flor. et Faun. Insubr. ii. p. 90 (1786, ex Sonnerat).
Merops maximus, Scop. op. cit. p. 90 (1786, ex Sonnerat).
Upupa fusca, Gmelin, Syst. Nat. i. p. 468 (1788, ex Sonnerat).
Upupa magna, Gmelin, tom. cit. p. 468 (1788, ex Sonnerat).—Illiger, Prodr. p. 211 (1811).
Upupa papuensis, Latham, Ind. Orn. i. p. 279 (1790).
Upupa superba, Latham, tom. cit. p. 279 (1790).
Le Promerops rayé, Vieill. Ois. Dor. i. Hist. Nat. Promerops, p. 18, pl. 7 (1802).
Le Grand Promerops, Vieill. op. cit. p. 18, pl. 8 (1802).
Le Promerops à large parure, Levaill. Hist. Nat. Promerops et Guêpiers, pls. 13, 14, 15 (1806).
Paradisea nigra (nec Gm.), Shaw, Gen. Zool. vii. pt. 2, p. 488 (1809, ex Pennant).
Promerops striatus, Shaw, op. cit. viii. pt. 1, p. 144 (1811).
Promerops superbus, Shaw, op. cit. viii. pt. 1, p. 145 (1811).
Falcinellus magnus, Vieill. Analyse, p. 47 (1816).
Epimachus magnus, Cuvier, Règne An. i. p. 400 (1817).—Bp. Consp. i. p. 411 (1850).—Cab. Mus. Hein. Th. i. p. 215 (1851).—Reichenb. Handb. spec. Orn., Scansoriæ, p. 326, tab. 608. figs. 4481-82 (1853).—Wallace, Ibis, 1861, p. 287.—Id. Proc. Zool. Soc. 1864, pp. 154, 157, 160.—Finsch, Neu-Guinea, p. 165 (1865).—Wall. Malay Arch. ii. p. 414, cum fig. pp. 415, 419 (1869).—Ward, Proc. Zool. Soc. 1873, p. 743.—Rosenb. Reist. naar Geelvinkb. pp. 17, 101 (1875).—Cory, Beautiful & Curious Birds, pt. v. (1883).
Falcinellus fuscus, Vieill. Nouv. Dict. d'Hist. Nat. xxviii. p. 164 (1819).
Falcinellus superbus, Vieill. Nouv. Dict. d'Hist. Nat. xxviii. p. 166, pl. M. 32, fig. 3 (1819).
Epimachus superbus, Temm. Man. i. p. lxxxvi (1820).—Wagler, Syst. Av. *Epimachus*, sp. 1 (1827).—Less. Traité, p. 321, pl. 73. fig. 1 (1831).—Temm. Pl. Col. Tabl. Méth. p. 72 (1840).—Rosenb. J. f. O. 1864, p. 123.
Cinnamolegus papuanus, Less. Hist. Nat. Ois. Parad. Syn. p. 32, Hist. Nat. p. 233, pls. 39, 40 (1835).
Epimachus speciosus, Gray, Gen. B. ii. p. 94 (1848).—Schl. Mus. Pays-Bas, Coraces, p. 94 (1867).—Id. N. T. D. iv. pp. 17, 49, 50 (1871).—Elliot, Monogr. Parad. pl. 19 (1873).—Salvad. Ann. Mus. Civic. Genov. vii. p. 785 (1875), ix. p. 190 (1876), x. p. 156 (1877).—Sharpe, Cat. Birds Brit. Mus. iii. p. 162 (1877).—Gould, B. New Guinea, i. pl. 9 (1878).—Rosenb. Malay. Arch. p. 552 (1879).—D'Albertis, Nuova Guinea, p. 582 (1880).—Salvad. Orn. Papuasia, etc. ii. p. 541 (1881).—Cory, Beautiful & Curious Birds, pt. v., text (1883).—Guillem. P. Z. S. 1885, p. 648.—D'Hamonv. Bull. Soc. Zool. France, xi. p. 509 (1886).—Salvad. Agg. Orn. Papuasia, ii. p. 152 (1890).
Epimachus maximus, Sclater, Journ. Proc. Linn. Soc. ii. p. 163 (1858).—Gray, Proc. Zool. Soc. 1858, p. 190.—Id. Cat. B. New Guinea, pp. 21, 55 (1859).—Id. Proc. Zool. Soc. 1861, p. 433.—Id. Hand-l. B. i. p. 105, no. 1274 (1869).—D'Albert. Proc. Zool. Soc. 1873, p. 558.—Sclater, tom. cit. p. 697.—Beccari, Ann. Mus. Civic. Genov. vii. p. 710 (1875).—Musschenbr. Dagboek, pp. 201, 231 (1883).—Rosenb. MT. orn. Ver. Wien, 1885, p. 53.
Paradisea nigra, Schlegel, J. f. O. 1861, p. 386.

The above elaborately detailed synonymy has been chiefly copied from the 'Ornitologia della Papuasia' of Count Salvadori, who has worked out the literary history of the species with his usual exhaustive zeal.

There can be no question that the earliest allusion to the species is that of Valentyn, who was evidently a very careful observer; and on comparing the descriptions given in the work of this old traveller with the accounts of the older authors, it is evident that the latter are derived from the observations of Valentyn.

Although the present species has been said to occur in the island of Waigiou, all the evidence of recent years tends to prove that it is strictly an inhabitant of North-western New Guinea, and it is probably confined to the Arfak Mountains. Here it has been actually obtained by D'Albertis and Beccari, to whom we owe an account of its habits. Beccari writes:—"The *Epimachi* have been separated from the other Birds of Paradise; but I think this is paradoxical. The form and the length of the beak of *Epimachus maximus* is most variable; the young males and females are found with the beak only half the length of that of the adult males and females. This fact made me think at first that I had found the female of *E. ellioti*; but I was mistaken. An *Epimachus* seems to be found at Waigiou, and will probably be *E. ellioti*; but I was not able to return there as I had intended. *Epimachus maximus* and *Astrapia gularis* are only found on the highest and most difficult peaks of Mount Arfak, nearly always above 6000 feet elevation. Specimens in dark plumage are common enough; but those which have attained perfect plumage are rare, perhaps because they take some years to acquire it. Both of them live on the fruits of certain Pandanaceæ, and especially on those of the *Freycinetiæ*, which are epiphytous on the trunks of trees."

Mr. Wallace never obtained perfect skins of this species, on which he has published the following note:—"This splendid bird inhabits the mountains of New Guinea, in the same district with the Superb (*Lophorina atra*) and the Six-shafted (*Parotia sexpennis*) Paradise-birds, and, I was informed, is sometimes found in the ranges near the coast. I was several times assured by different natives that this bird makes its nest in a hole underground, or under rocks, always choosing a place with two apertures, so that it may enter at one and go out at the other. This is very unlike what we should suppose to be the habits of the bird; but it is not easy to conceive how the story originated if it is not true; and all travellers know that native accounts of the habits of animals, however strange they may seem, almost invariably turn out to be correct."

The descriptions are taken from the 'Catalogue of Birds.'

Adult male. Above velvety black, with metallic feathers of coppery green on the head, middle of the back, and rump; lores and feathers on the side of the head metallic like the crown; entire under surface of body velvety black, with a purplish-brown gloss on the sides of the body; on each side of the breast springs a tuft of sickle-shaped plumes in the shape of a fan, velvety black, tipped with a broad band of steel-blue, before which is a narrow subterminal band of purplish blue; flank-feathers long and drooping, the outer ones broadly tipped with metallic bronzy-green, before which is a double subterminal band of velvety black and purplish blue; wings velvety black, with a gloss of steel-blue; tail-feathers black, all but the three outermost feathers washed with steel-blue, the two centre ones entirely of this colour: bill and legs black; iris dark brick-red (*Beccari*). Total length 26 inches, culmen 2·85, wing 7·2, tail 16·7.

Female. Upper part of head brownish red; rest of upper parts olive-brown, becoming slightly rufous on the rump and upper tail-coverts; secondaries reddish brown, edged with rufous; primaries dark brown, edge of outer web rufous; cheeks, throat, and upper part of breast brownish black; underparts white, narrowly barred with black; tail light brown, with a rufous tinge: bill long and slender, much curved, and, with the feet and tarsi, jet-black.

Count Salvadori, who has examined a large series of this bird, states that the young birds are at first very much like the old female, and that the black plumage is obtained by a change of feather instead of by a moult. The first indication of the change is seen by a blackening of the tail-feathers. This dark appearance next extends to the wings and the back. The Count has not been able to trace the sequence of change of the black plumage, but he states that he has no doubt that the black dress is assumed by a change of pattern of feather rather than by a moult.

The Plate represents a male and female, nearly of the natural size. It is the same as that which appeared in Mr. Gould's 'Birds of New Guinea,' and the figures are taken from a fine pair formerly in his collection, and now in the British Museum.

EPIMACHUS MEYERI, *Finsch.*

W. Hart del. et lith.

Mintern Bros. imp.

EPIMACHUS MEYERI, *Finsch.*

Meyer's Sickle-billed Bird of Paradise.

Epimachus meyeri, Finsch in Madarász, Zeitschr. ges. Orn. ii. p. 380 (1885).—Id. Ibis, 1886, p. 247.—D'Hamonv. Bull. Soc. Zool. France, 1886, p. 509.—Meyer, J. f. O. 1889, p. 323.—Salvad. Orn. Papuasia, Agg. ii. p. 154 (1890).

Epimachus macleayanæ, Ramsay, Proc. Linn. Soc. N. S. Wales, ii. p. 239 (1887).—Meyer, J. f. O. 1889, p. 322.—Goodwin, Ibis, 1890, p. 152.

Epimachus macleayæ, Meyer, J. f. O. 1889, p. 324 (*nom. emend.*).—Salvad. Orn. Papuasia, Agg. ii. p. 152 (1890).

The British Museum possesses a pair of this interesting Bird of Paradise, procured by Mr. A. P. Goodwin during Sir William Macgregor's exploration of the Owen-Stanley Mountains in New Guinea. A female specimen was originally procured by the late Carl Hunstein on the Horseshoe Range of the Owen-Stanley Mountains, and was named by Dr. Otto Finsch in honour of Dr. A. B. Meyer, the well-known and energetic Director of the Museum at Dresden, where he has got together a series of the Paradisiidæ, which may some day rival the great collections of Leyden and London.

In 1887 Dr. E. Pierson Ramsay described the male bird as *Epimachus macleayanæ*, and named it in honour of Lady Macleay, the wife of Sir William Macleay, who has done so much to promote the study of natural science in Australia. The orthography of the specific name should have been *macleayæ*, as Dr. Meyer has already pointed out. The specimen was said by Dr. Ramsay to have been procured at the foot of the Astrolabe Mountains; and Dr. Meyer was at first inclined to believe that the birds procured by Hunstein at a height of 7000 feet would prove to be distinct, and that *E. macleayæ* and *E. meyeri* were not identical. Count Salvadori, on the other had, has expressed his opinion that the identity of the two birds was probable, and I believe that Dr. Meyer is now also satisfied on this point. After comparing the specimens in the British Museum with Dr. Ramsay's description, I have no doubt that we have his species before us, and that there is only one form of Great Epimachus in South-eastern New Guinea. There must have been some mistake about the locality of Dr. Ramsay's specimen, as the species inhabits only very high altitudes.

Mr. Goodwin, who accompanied Sir William Macgregor's expedition to Mount Owen Stanley, has given me the following notes:—"One day, when we were on Mount Musgrave, at an altitude of 6000 feet, one of our party brought in a Long-tailed Bird of Paradise, which we recognized as the *Epimachus macleayanæ* of Ramsay. The original specimen was discovered some two years previously by Belford, one of our party, in the Maroko district. It inhabits the higher ranges at an altitude of from 6000 to 9000 feet, and is the highest ranging species of Bird of Paradise that I know, as above that limit we met with no other species of the family, though Bower-birds occurred. The call of *E. macleayanæ* is a double note, similar to the sound of striking two clappers together. I had many an unprofitable stalk before I was rewarded by a successful shot at one of these birds, and only got specimens on the last day which we spent at these heights."

Mr. Goodwin's specimens, of which the best pair have been secured by Dr. Meyer for the Dresden Museum, were all damaged by having their bills more or less broken; but Mr. Goodwin explained to me that the bird inhabits rocky ground, so that, when shot, it falls with tremendous force down the ravines, the long tail guiding it in its downward descent, and thus the slender bill invariably touches the ground first and is broken by the shock.

The adult male may be described as very similar to *E. speciosus*, but differing in the colour of the under surface, which is dark drab-brown glossed with purple, the long filamentous plumes of the flanks being mouse-brown instead of black; the axillaries are very similar in the two species, but the long plumes which clothe the flanks are differently coloured. The sickle-shaped side-plumes are arranged in four series, and are not so developed in *E. meyeri* as they are in *E. speciosus*.

The anterior (pectoral) tuft is brown, barred at the end with bronzy lilac in *E. meyeri*, and with coppery green preceded by a subterminal line of deep blue.

The median tuft in *E. meyeri* is black with a purplish metallic bar at the end, preceded by a subterminal band of metallic steel-blue.

In *E. speciosus* the colouring is the same, but the plumes are much larger.

The inner (axillary) tuft is velvety black in both species, but is very much larger in *E. speciosus*.

In *E. meyeri* the sickle-shaped plumes on the flanks are tipped with a bar of bronzy lilac, with a narrow subterminal bar of velvety black; whereas in *E. speciosus* the bands at the tip are much broader, metallic oily green with a subterminal bar of steel-blue.

In *E. meyeri* the tail is rather greener than in *E. speciosus*. The male measures:—Total length 40 inches, culmen 3·5, wing 7·5, tail 31, tarsus 2·2.

Adult female. Very similar to that of *E. speciosus*, but with much longer bill and with an olive-coloured tail, not reddish. The rufous colour of the head is lighter and more bay, not such a deep chestnut; the barring on the under surface is much more distinct and the throat only is dusky, the lower throat and fore neck blackish with bars like the breast, only narrower; the wings are chestnut-rufous externally in *E. speciosus*, and in *E. meyeri* the wings are externally olive like the back. It must be mentioned that Mr. Goodwin was by no means certain that the brown birds were adult females, and it may yet turn out that they are immature males, and that the plumage of the old hen bird remains to be described.

The figures in the Plate represent a pair of birds of a little less than the natural size, and are drawn from specimens procured in the Astrolabe Range by Mr. A. P. Goodwin, and presented to the British Museum by Mr. Henry Seebohm.

EPIMACHUS ASTRAPIOIDES, *Rothschild.*

Green-breasted Sickle-billed Bird of Paradise.

Epimachus astrapioides, Rothschild, Bull. Brit. Orn. Club, vii. p. xxii (1897).

This species has been described by the Hon. Walter Rothschild, who has given to it the very appropriate name of *astrapioides*. It is certainly wonderfully like an *Astrapia* in plumage, but is, of course, by reason of its sickle-shaped bill, a member of the genus *Epimachus*.

The steel-green gloss on the wings and tail-feathers is a mark of affinity with *E. speciosus* and *E. meyeri*, and the spangles on the back are also metallic green and not purple as in *E. ellioti*. Although there is a slight purplish shade under certain lights in *E. astrapioides*, there is nothing like the prevailing purple colour seen in *E. ellioti*. The present species is entirely different below from the three other species, for it has a glossy purplish-black throat, followed by a bronzy-red gorget which merges into the coppery-green of the fore-neck and breast, the abdomen and flank-feathers being more of a grass-green. The long fan-shaped plumes on the side of the fore-neck are also different from those of *E. speciosus*, having a distinct shade of coppery-purple before the bright steel-blue at the end of these feathers. The crown of the head and the hind-neck are purple, the latter with a shade of metallic copper and oily-green. Total length about 33 inches, wing 7·3, tail 23·4, tarsus 2.

EPIMACHUS ELLIOTI, *Ward*

Mintern Bros imp.

W. Hart del. et lith.

EPIMACHUS ELLIOTI, *Ward.*

Elliot's Bird of Paradise.

Epimachus ellioti, Ward, P. Z. S. 1873, p. 742.—Elliot, Monogr. Parad. pl. xx. (1873).—Beccari, Cosmos, iii. p. 89 (1875).—Id. Ann. Mus. Civic. Genov. vii. p. 710 (1875).—Salvad. Ann. Mus. Civic. Genov. ix. p. 190 (1876).—Sharpe, Cat. B. Brit. Mus. iii. p. 163 (1877).—Gould, B. New Guinea, i. pl. 8 (1880).—Eudes-Deslongch. Ann. Mus. d'Hist. Nat. Caen, i. p. 8 (1880).—Salvad. Orn. Papuasia, etc. ii. p. 548 (1881).—Cory, Beautiful and Curious Birds, pt. v. (1883).—Musschenbr. Dagboek, pp. 202, 234 (1883).—Rosenb. Mitth. orn. Ver. Wien, ix. p. 53 (1885).—D'Hamonv. Bull. Soc. Zool. France, xi. p. 509 (1886).—Salvad. Agg. Orn. Papuasia, etc. ii. p. 154 (1890).—Sharpe, Bull. Brit. Orn. Club, iv. p. xii (1894).

The exact habitat of *Epimachus ellioti* still remains unknown. The typical specimen, described by Mr. Edwin Ward, a well-known taxidermist in his day, was received by him along with a number of trade-skins, supposed to have come from New Guinea. The original specimen was purchased by Mr. Gould, and passed with his collection into that of the British Museum.

The principal characters which distinguish *E. ellioti* from *E. speciosus* are the smaller size, the brilliant violet-purple colour of the tail, the dark-green, instead of olive-green, colour of the underparts, and the maroon colour of the throat and upper breast, with a narrow band of reddish purple across the lower breast. In the typical specimen the wings are wanting, as it is a 'native' skin, and in some of the illustrations which have appeared of the present bird the lateral flank-shields have done duty for the true wings. I have seen a perfect skin of *Epimachus ellioti*, which was offered by a dealer to the British Museum; but the price demanded was so exorbitant that I was not able to recommend the purchase of the specimen, and I do not know what has become of it.

The habitat of this species will probably be found to be the island of Waigiou, and not New Guinea, as has been supposed to be the case, from the fact that the type specimen, *more Papuano*, was without wings and feet. The celebrated Italian traveller Dr. Beccari was informed that an *Epimachus* existed in Waigiou, and that it was also to be found near Sorong, which Count Salvadori regards as improbable, and, from the evidence before us, I quite agree with him.

Adult. Top of head rich amethyst; occiput and sides of neck also amethyst-colour, changing in certain lights to a rich greenish gloss; back, wings, upper tail-coverts, and tail brilliant violet-purple; the wings and the tail also marbled with a dark amethyst hue, like watered silk, changing according to the light; throat and upper portion of breast deep maroon-colour, with purple reflections, a narrow reddish-purple band crossing the lower part of the breast; sides of the breast, flanks, and rest of underparts dark green, the flank-feathers much elongated and stretching beyond the wings; beneath the shoulder of the wing spring two rows of plumes, which are greenish at the base, graduating into deep purple, and terminating in a brilliant metallic blue, very much narrower on the upper row than the lower one. The plumage of the entire bird is very velvety in texture, and, with the exception of the metallic parts, appears black in ordinary lights: bill black, rich orange-yellow at gape. Total length 21·7 inches, culmen 2·1, tail 15·2.

ASTRAPIA NIGRA, *(Gmelin).*

W. Hart del. et lith.

Mintern Bros imp.

ASTRAPIA NIGRA (*Gm.*).

Gorgeted Bird of Paradise.

Gorget Paradise Bird, Lath. Ind. Orn. i. p. 478, pl. 20 (1782).
Paradisea nigra, Gm. Syst. Nat. i. p. 401 (1788).—Schl. J. f. O. 1861, p. 386.—Id. Dierent. p. 174 (1872, cum fig.).
Paradisea gularis, Lath. Ind. Orn. i. p. 196 (1790).—Shaw, Gen. Zool. vii. p. 501, pls. 69, 70 (1809).
Le Hausse-col doré, Audeb. et Vieill. Ois. Dor. ii. p. 22, pls. 8, 9 (1802).
L'Oiseau de Paradis à gorge d'or, Sonnini, ed. Buffon, ix. p. 23 (1806).
La Pie de Paradis, ou *l'Incomparable*, Levaill. Hist. Nat. Ois. Parad. i. pls. 20, 22 (1806).
Astrapia gularis, Vieill. N. Dict. d'Hist. Nat. iii. p. 37 (1816).—Id. Gal. Ois. i. p. 169, pl. 107 (1825).—Less. Man. d'Orn. i. p. 397 (1828).—Id. Traité d'Orn. p. 388 (1831).—Id. Ois. Parad. Syn. p. 18 (1835).—Id. Hist. Nat. p. 106, pls. 21–23 (1835).—Swains. Classif. B. ii. p. 98 (1837).—Rosenb. Nat. Tijdschr. Nederl. Ind. xxv. p. 247 (1863).—Id. J. f. O. 1864, p. 131.—Id. Reist. naar Geelvinkb. pp. 102, 111 (1875).—Beccari, Ann. Mus. Gen. vii. p. 711 (1875).—Salvad. t. c. p. 899.—Scl. Ibis, 1876, p. 249.—Rosenb. Malay. Arch. p. 558 (1879).
Merle de la Nouvelle Guinée, Cuv. Règn. An. i. p. 355 (1817).
Lamprotornis gularis, Temm. Man. d'Orn. i. p. lvi (1820).—Ranz. Elem. di Zool. iii. pt. 4, p. 81, t. xvi. fig. 1 (1822).—Wagl. Syst. Av. *Paradisea*, sp. 1 (1827).
Astrapia nigra, Steph. in Shaw's Gen. Zool. xiv. pt. 2, p. 75 (1826).—Gray, Gen. B. ii. p. 263 (1846).—Bp. Consp. Av. i. p. 414 (1850).—Scl. Journ. Linn. Soc. ii. p. 164 (1858).—Gray, P. Z. S. 1858, p. 194.—Id. Cat. B. New Guin. pp. 36, 59 (1859).—Id. P. Z. S. 1861, p. 436.—Wall. P. Z. S. 1862, p. 154.—Finsch, Neu-Guin. p. 173 (1865).—Wall. Malay Arch. ii. p. 157 (1869).—Elliot, Mon. Parad. pl. ix. (1873).—Salvad. Ann. Mus. Genov. vii. p. 782 (1875), ix. p. 190 (1876).—Sharpe, Cat. B. Brit. Mus. iii. p. 165 (1877).—Gould, B. New Guinea, i. pl. 17 (1878).—Eudes-Deslongch. Ann. Mus. d'Hist. Nat. Caen, i. p. 18 (1880).—Salvad. Orn. Papuasia, etc. ii. p. 535 (1881).—Cory, Beautiful and Curious Birds, part iv. (1882).—Musschenbr. Dagboek, pp. 194, 227 (1883).—Rosenb. Mitth. orn. Ver. Wien, 1888, p. 40.—Guillem. P. Z. S. 1885, p. 648.—D'Hamonv. Bull. Soc. Zool. France, xi. p. 509 (1886).—Salvad. Agg. Orn. Papuasia, ii. p. 151 (1890).
Epimachus niger, Schl. Mus. Pays-Bas, Coraces, p. 94 (1867).—Id. Nederl. Tijdschr. Dierk. iv. pp. 17, 49 (1871).

Like most of the genera of the *Paradiseidæ*, this extraordinary bird stands apart from the others, and presents us with characters which are found in no other genus of this wonderful family. The long tail has suggested to many ornithologists that the species must be allied to the long-tailed *Epimachi* or Sickle-billed Birds of Paradise, and in my arrangement of the family I have placed it next to those birds; but the short and stout bill shows that it must be classed with the true Birds of Paradise, and not with the *Epimachi*. By the possession of a ruff on the head, it also shows itself a true Paradise-bird, and the other ornamental developments of the plumage also demonstrate that it is more allied to the latter than to the Sickle-bills.

Although it is only in recent years that perfect specimens of this wonderful bird have reached Europe, it has been known from skins of native preparation for one hundred years. The first specimen described appears to have been acquired by Sir Joseph Banks during his voyage with Captain Cook; but the original specimen has disappeared, and is not in the Banksian collection at the British Museum of the present day.

The range of the species seems to be limited to the mountains of the North-western portion of New Guinea, though many of the recent visitors to that portion of the great Papuan island did not obtain specimens. Neither Wallace nor D'Albertis met with it, but Beccari and Guillemard procured examples. Baron von Rosenberg also got a few specimens, and several perfect skins of both sexes have been sold in Europe during the last twenty years, doubtless procured by the hunters employed by the late Mr. Bruijn of Ternate. It has also been said to inhabit the island of Jobi, but apparently on insufficient evidence.

The native name is given as 'Haroma' or 'Aroma' by Beccari and Guillemard. The latter gentleman observes:—"The natives say that they do not think that this bird is really much less abundant than the *Epimachus*, although so few skins are ever obtained. They are found in the same district as the latter bird, and,

like it, frequent the tops of high trees, but are very silent; whereas the loud cry of the Great Bird of Paradise at once calls attention to its presence, and causes it to fall a tolerably easy prey to the hunter."

Dr. Beccari has published the following note:—"*Epimachus maximus* and *Astrapia gularis* are only found on the highest and most difficult peaks of Mount Arfak, nearly always above 6000 feet elevation. Specimens in dark plumage are common enough; but those which have attained perfect plumage are rare, perhaps because they take some years to acquire it. Both of them live on the fruits of certain Pandanaceæ, and especially on those of the *Freycinetiæ*, which are epiphytous on the trunks of trees. The irides of the large *Epimachus* are dark brick-red, those of the *Astrapia* almost black; the neck-feathers of the latter are erectable, and expand into a magnificent collar round the head. The first day I went out at Atam, on June 23, I got both these species (two specimens of each), besides one *Drepanornis albertisi*, three *Paradigallæ*, one *Parotia*, and several other wonderful kinds of birds. It was a memorable day, because I ascended one of the peaks, and was surprised to find myself surrounded by four or five species of *Vaccinium* and *Rhododendron*; I also found an Umbellifer (a *Drymis*) and various other plants common to the mountains of Java, and there were also some mosses a foot and a half in height."

Adult male. General colour above velvety black, with a purplish gloss; the wings black externally, glossed with purple; tail-feathers black, with wavy lines of dusky black under certain lights, the two centre feathers very long and glossed with rich purple; feathers of the head black, dense and velvety in texture, with a steel-blue gloss; from the nape a shield of golden-green feathers springs, and the feathers of the hind neck are very long and tipped with the same golden green; from each side of the nuchal shield spreads a ruff of velvety steel-black plumes; the feathers of the throat are also steel-black, and encircled by a band of brilliant golden copper, which extends from behind the eye down the sides of the neck and encircles the throat; rest of under surface of body rich velvety grass-green, the lateral plumes of the breast tipped with burnished emerald-green; the sides of the body and under wing- and tail-coverts dusky black: bill and legs black; "iris almost black" (*Beccari*). Total length 28 inches, culmen 1·6, wing 8·8, tail 7, centre feathers 18.

Dr. Guillemard says that the bill and feet are black and the iris bright red in the male.

The female is quite different from the male. I copy the description from Count Salvadori's 'Ornitologia,' as the only example in the British Museum is not quite perfect:—

"Head coal-black; the sides of the neck with a tuft of dusky black plumes of rather long feathers, commencing from the region of the ear; back dusky black, the rump and upper tail-coverts slightly paler; fore part of neck dusky black and glossy; breast, abdomen, and under tail-coverts black, marked with greyish transverse lines; wings dusky, the greater coverts and outer quills rufous olive, vermiculated with dusky brown; quill-lining rufous; under wing-coverts brown, varied with black; tail very long, graduated, dusky brown, with obsolete cross-markings; bill and feet black."

The young male, according to Count Salvadori, resembles the adult female, but is somewhat darker on the back, and has the transverse barring of the underparts somewhat less distinct. According to Baron von Rosenberg, who describes the transition plumage of the young male, it would appear that the change from the immature livery to that of the adult is effected by a gradual alteration in the pattern of the feather, as is often the case with the Birds of Paradise.

The Plate is the same as that published by the late Mr. Gould in his 'Birds of New Guinea,' and the description of the male is taken from the 'Catalogue of Birds.'

With regard to the White-winged Paradise-bird of Latham (Gen. Syn. Suppl. p. 92=*Paradisea leucoptera*, Lath. Ind. Orn. i. p. 196), Count Salvadori thinks that it may have been a variety or a manufactured specimen of the present species.

ASTRAPIA SPLENDIDISSIMA, *Rothschild.*

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

ASTRAPIA SPLENDIDISSIMA, *Rothsch.*

Rothschild's Bird of Paradise.

Astrapia splendidissima, Rothschild, Novit. Zool. ii. p. 59, pl. v. (1895).—Id. Novit. Zool. iii. p. 19 (1896).

This extraordinary bird is at present known only from the specimens in the Rothschild Museum at Tring, where there are now five examples. The first one described by the Hon. Walter Rothschild was supposed to come from the foot of the Charles Louis Mountains, in Dutch New Guinea, but the actual habitat of the species is still unknown.

Mr. Rothschild remarks :—"On comparison with *Astrapia nigra*, some of the structural characters show important differences. The feathers covering part of the nostrils are a little shorter than in *A. nigra*. The large ear-tufts of *A. nigra* are very much smaller, in fact barely indicated, in *A. splendidissima*, and not different in colour from the hind-neck. The splendid pectoral band is much broader and more patch-like, the feathers above it less velvety. The scaly feathers on the sides of the breast do not extend so far down as in *A. nigra*. The beak of the new species is actually much larger than that of the much bulkier *Astrapia nigra*."

Adult male. General colour above velvety black, glossed with beautiful purple on the mantle and back, and with steel-green on the wing-coverts, rump, and upper tail-coverts; quills and tail black, the two centre tail-feathers creamy white for more than half their length, the terminal portion black glossed with purple; the remainder of the feathers with a decreasing amount of creamy white towards the base, disappearing entirely on the outer feathers; forehead velvety black in some lights, but shot with metallic golden green, which verges into steel-green on the crown and then becomes glossed with metallic violet; the hinder crown and hind-neck metallic emerald-green, many of the feathers shot with golden green and metallic violet; anterior lores velvety black, followed by a vivid patch of golden green, continued below the eye, and contrasting with the ear-coverts, which appear velvety black, but are glossed with golden green like the forehead; entire throat metallic oily green, shot with steel-green, especially on the edges, which incline to steel-blue; the fore part of the cheeks golden green, the hinder part fiery crimson, uniting in a broad collar of the same colour on the fore-neck, and separated from the green throat by an intervening patch of velvety purplish black; remainder of under surface of body glossy green with coppery-golden reflections, the feathers of the sides of the breast ornamented with crescentic tips of metallic steel-green; sides of body and flanks washed with purplish; lower abdomen, thighs, and under tail-coverts purplish black, as also the under wing-coverts: bill and feet black. Total length 15 inches, culmen 1·45, wing 5·4, tail 7·7, tarsus 1·45.

The adult female is not known, but a young male in Mr. Rothschild's collection has a fulvous breast with dusky bars, like the female of *Astrapia nigra*, so that it is evident that the female of *A. splendidissima* will be found to have a barred plumage below.

The description is taken from a beautiful specimen in Mr. Rothschild's collection; and the Plate represents the same bird in two positions, to show the different sheen which the sides of the head present according to the positions in which the bird may be held.

P.S.—Since the above was printed, Mr. Rothschild has received the female of this species, and I have been able to add a figure of this sex.

ASTRARCHIA STEPHANIÆ, *Finsch.*

W. Hart del. et lith.

Mintern Bros. imp.

ASTRARCHIA STEPHANIÆ, *Finsch & Meyer.*

Princess Stephanie's Bird of Paradise.

Astrarchia stephaniæ, Finsch & Meyer, Zeitschr. ges. Orn. ii. p. 378, pl. xviii. (1885).—Iid. Ibis, 1886. p. 245.—D'Hamonv. Bull. Soc. Zool. France, xi. pp. 505, 509 (1886).—Meyer, J. f. O. 1889, p. 321.—Goodwin, P. Z. S. 1889, p. 451.—Id. Ibis, 1890, p. 153.—De Vis, Ann. Rep. Brit. New Guinea, p. 61 (1890).—Id. Colon. Papers, no. 103, p. 113 (1890).—Salvad. Agg. Orn. Pap. ii. p. 151 (1890).—De Vis, Ibis, 1891, p. 36.—Salvad. Agg. Orn. Pap. iii. p. 240 (1891).—De Vis, Ann. Rep. Brit. New Guinea, p. 95 (1892).

The present wonderful bird was discovered in the Horseshoe Mountains by the late Mr. Carl Hunstein, and is, like the equally wonderful *Paradisornis rudolphi*, an inhabitant of the Owen Stanley Range, in South-eastern New Guinea. The last-named bird was dedicated by Dr. Finsch to the late Crown Prince of Austria, and *Astrarchia stephaniæ* to the Crown Princess Stephanie.

So far as is known at present the *Astrarchia* is confined to the Owen Stanley Range. Since Hunstein's discovery of the species, it has only been met with by Sir William McGregor during his expedition up the same range of mountains. Mr. H. O. Forbes did not meet with it during his journey to the Owen Stanley Mountains, but saw it on one occasion.

The only notes on the habits of the species which appear to have been published as yet are those of Mr. Goodwin in 'The Ibis' for 1890. He was fortunate enough to accompany Sir William McGregor's expedition and has written the following remarks:—"In the same locality (Mount Musgrave, 6000 to 9000 feet) we procured several female specimens of the Stephanie's Paradise-bird (*Astrarchia stephaniæ*), being the first examples of that sex yet discovered. The male bird, of which there is only one specimen known, was described by Dr. Meyer of Dresden from a specimen sent to Europe by the late Mr. Hunstein. It may be noted that, although we remained for some time in the same locality, no specimen of this rare species was seen after the first day or two. As I had not the good fortune to come across one myself, I am unable to give much information on this very interesting species." Sir William McGregor procured both sexes on Mount Suckling in July 1891 at a height of 7720 feet.

The type of this grand bird is in the Dresden Museum, where, by the courtesy of Dr. Meyer, we had the pleasure of examining it in 1891. The following is the description which we wrote at the time:—

Adult male. General colour above olive-greenish, of a velvety texture; rump and upper tail-coverts blackish; wing-coverts black with a slight olive-green gloss; quills black, with a purplish gloss on the inner secondaries; tail-feathers black, the inner ones with white shafts, and with a beautiful purple gloss, the edges recurved as in *Quiscalus major*; head metallic steel-green, with a purple gloss, forehead and sides of face as well as the throat and chest glossy emerald-green; ear-coverts more steel-blue, becoming purplish as they form a frill on each side of the nape; sides of the neck and a broad band across the chest bronzy velvet, with lilac or purplish reflection, this chest-band edged below with fiery copper, which separates the breast from the fore neck; rest of under surface coppery red, with metallic green shades on the flanks and abdomen. Total length about 31 inches, culmen 1·3, wing 6·4, tail about 26, tarsus 1·8.

Adult female. General colour above dull olive-brown, slightly mottled with black bases to the feathers; wing-coverts and quills velvety black, with a faint purplish gloss, narrowly edged with olive-brown; tail-feathers velvety black, with a very faint purplish gloss; head all round, throat, and fore neck black, slightly glossed with oily green; some of the feathers of the hind neck tipped with rusty brown edges; remainder of under surface of body tawny buff, barred across with black, including the under tail-coverts; under wing-coverts and axillaries black, with bars of deep tawny buff near the ends; the chest rather deeper tawny colour than the rest of the under surface and more closely barred with black; quills purplish black below. Total length 20·5 inches, culmen 1·25, wing 6, tail 13, tarsus 1·6.

The female described above is in the British Museum. Two specimens were brought to England by

Mr. Goodwin, one of which was purchased from him by Mr. Seebohm, and presented to the National Collection by the last-named gentleman; the other one was secured by Dr. Meyer for the Dresden Museum.

We have unfortunately no specimen of a male *Astrarchia* in this country, but our artist, Mr. Hart, has prepared the figure in the accompanying Plate from Dr. von Madarász's figure in the 'Zeitschrift.' Dr. Meyer kindly compared Mr. Hart's painting with the type in the Dresden Museum, and under his direction it was amended by a competent artist, so that it is a correct representation of the bird, excepting that the tail is scarcely recurved enough on the edges. The figure of the female is taken from the specimen in the British Museum.

PARADISEA APODA. *Linn.*

Mintern Bros. imp.

PARADISEA APODA, *Linn.*

Great Bird of Paradise.

The Greater Bird of Paradise, Edwards, Birds, iii. p. 110, pl. 110 (1750).—Lath. Gen. Syn. ii. p. 471 (1782).
L'Oiseau de Paradis, Briss. Orn. ii. p. 130, pl. xiii. fig. 1 (1760).—Montb. Hist. Nat. Ois. iii. p. 182.
Paradisea apoda, Linn. Syst. Nat. i. p. 165 (1766).—Penn. Faun. Ind. p. 40 (1781).—Gm. Syst. Nat. i. p. 399 (1788).—Lath. Ind. Orn. i. p. 194 (1790).—Daud. Orn. ii. p. 270 (1800).—Cuvier, Règne Anim. i. p. 403 (1817, pt.).—Vieill. N. Dict. d'Hist. Nat. xxx. p. 110 (1819).—Temm. Man. d'Orn. p. lv (1820).—Ranz. Element. Zool. iii. pt. iv. p. 60 (1822).—Wagler, Syst. Av., Paradisea, sp. 1 (1827).—Cuvier, Règne Anim. i. p. 426 (1829).—Gray, Gen. B. ii. p. 322 (1847).—Bp. Consp. i. p. 412 (1850).—Cab. Mus. Hein. Th. i. p. 213 (1851).—Wall. Ann. & Mag. Nat. Hist. (2), xx. pp. 411, 476 (1857).—Sclater, Journ. Proc. Linn. Soc. ii. p. 162 (1858).—Gray, P. Z. S. 1858, p. 193.—Id. Cat. B. New Guinea, pp. 35, 58 (1859).—Wall. Ibis, 1859, p. 111.—Gray, P. Z. S. 1859, p. 157.—Id. P. Z. S. 1861, p. 436.—Wall. Ibis, 1861, p. 289.—Schl. J. f. O. 1861, p. 384.—Wall. P. Z. S. 1862, pp. 153, 154, 160, 161.—Rosenb. Nat. Tijdschr. Nederl. Ind. xxv. p. 242 (1863).—Id. J. f. O. 1864, p. 126.—Finsch, Neu-Guinea, p. 173 (1865).—Schl. Nederl. Tijdschr. Dierk. iii. p. 342 (1866).—Rosenb. Nat. Tijdschr. Nederl. Ind. xxix. p. 137 (1867).—Id. Reis naar de Zuidoostereil. p. 41 (1867).—Schl. Mus. Pays-Bas, Coraces, p. 79 (1867).—Wall. Malay Arch. ii. p. 390 (1869).—Gray, Hand-l. B. ii. p. 16, no. 6247 (1870).—Elliot, Monogr. Paradiseidæ, pl. 2 (1873).—Brehm, J. f. O. 1875, p. 453.—Salvad. Ann. Mus. Civ. Genov. ix. p. 191 (1876).—Sharpe, Cat. B. Brit. Mus. iii. p. 166 (1877).—Beccari, Ann. Mus. Civ. Genov. ix. pp. 393–396 (1877).—Salvad. P. Z. S. 1878, p. 98.—Gould, B. New Guinea, i. pl. 30 (1879).—Rosenb. Malay. Arch. p. 366 (1879).—D'Albert. Nuova Guinea, pp. 116, 121, 133 (1880).—Eudes-Deslongch. Ann. Mus. d'Hist. Nat. Caen, i. p. 20 (1880).—Salvad. Orn. Papuasia, ii. p. 594 (1881).—Id. Rep. Voy. H.M.S. 'Challenger,' Birds, p. 81 (1881).—Cory, Beautiful and Curious Birds, pl. 18 (1883).—Musschenbr. Dagboek, pp. 176, 219 (1883).—Meyer, Zeitschr. ges. Orn. i. p. 293, taf. 17. fig. 2 (1884).—Rosenb. MT. orn. Ver. Wien, 1885, p. 17 (pt.).—Guillem. P. Z. S. 1885, p. 652.—D'Hamonv. Bull. Soc. Zool. France, 1886, p. 509.—Bartlett, P. Z. S. 1887, p. 392.—Salvad. Agg. Orn. Papuasia, ii. p. 159 (1890).
L'Oiseau de Paradis des Moluques, Daubent. Pl. Enl. iii. p. 254.
Great Bird of Paradise from Aroo, Forrest, Voy. New Guinea, p. 135 (1780, *teste* Salvadori).
Paradisea major aruana, Forster, Zool. Ind. p. 31 (1781).
L'Émeraude, Audeb. et Vieill. Ois. Dor. ii. p. 9, pl. 1 (1802).
Le Grand Oiseau de Paradis Émeraude, Levaill. H. N. Ois. de Parad. i. pls. 1 & 3 (1806, nec pl. 2=*P. minor*).
Paradisea major, Shaw, Gen. Zool. vii. p. 480, pl. 58 (1809).—Less. Traité, p. 336 (1831).—Id. Ois. de Paradis, Syn. p. 6.—Id. Hist. Nat. p. 155, pl. 6 (1835, nec descr. ♀).—Id. Compl. Buff. p. 458 (1838, nec descr. ♀).
Paradisea smaragdina, Dumont, Dict. Sci. Nat. xxxvii. p. 501 (1825).
Paradisea apoda, var. *wallaciana*, Gray, P. Z. S. 1858, pp. 181, 193.—Id. Cat. B. New Guinea, pp. 35, 58 (1859).—Id. P. Z. S. 1859, p. 158.—Rosenb. Reis naar de Zuidoostereil. p. 45 (1867).
Great Bird of Paradise, Wall. Malay Arch. ii. p. 252, cum fig. (1869).

As duly recorded by Count Salvadori, who has written an excellent monographic account of this species, it enjoys a somewhat notable history. It is the original "Bird of Paradise," the bird without any feet (hence the name *apoda* of Linnæus), which flew about continuously and never slept, unless when resting for a few moments suspended by the long wire-like appendages to the central tail-feathers. In a cavity in the back of the male the female laid her eggs, and by a convenient depression in the breast of the hen bird the latter was enabled to sit and hatch out her offspring, and further myths ennobled the reproduction of the Birds of "Paradise."

It is sad to have to dispel these fanciful illusions, which arose from a very simple cause. The earliest skins of this magnificent bird reached Europe in the usual rough way in which the natives prepared them, generally without feet, sometimes too without wings, and only one traveller, Antonio Pigafetta, seems to have stated that the species really possessed feet like any other bird, as recorded by Aldrovandus. This record, nevertheless, did not prevent Linnæus from applying the name *apoda*, or "footless," bird to the species. It was even said to migrate from the Aru Islands to New Guinea and back.

The first traveller who gave an account of the species as it really exists was undoubtedly Dr. A. R. Wallace, from whose work on the 'Malay Archipelago' the following extracts have been taken :—

"When the earliest European voyagers reached the Moluccas in search of cloves and nutmegs, which were then rare and precious spices, they were presented with the dried skins of birds so strange and beautiful as to excite the admiration even of those wealth-seeking rovers. The Malay traders gave them the name of 'Manuk dewatee' (or God's birds); and the Portuguese, finding that they had no feet or wings, and not being

able to learn anything authentic about them, called them 'Passaros de Sol' (or Birds of the Sun); while the learned Dutchmen, who wrote in Latin, called them 'Avis paradiseus' (or Paradise-bird). John van Linschoten gives these names in 1598, and tells us that no one has seen these birds alive; for they live in the air, always turning towards the sun, and never lighting on the earth till they die; for they have neither feet nor wings, as, he adds, may be seen by the birds carried to India, and sometimes to Holland; but being very costly they are rarely seen in Europe. More than a hundred years later Mr. William Funnel, who accompanied Dampier, and wrote an account of the voyage, saw specimens at Amboyna, and was told that they came to Banda to eat nutmegs, which intoxicated them, and made them fall down senseless, when they were killed by ants. Down to 1760, when Linnæus named the largest species *Paradisea apoda* (the footless Paradise-bird), no perfect specimen had been seen in Europe, and absolutely nothing was known about them. And even now, a hundred years later, most books state that they migrate annually to Ternate, Banda, and Amboyna, whereas the fact is that they are as completely unknown in these islands in a wild state as they are in England." I may remark that Edwards had probably a complete specimen in 1750, as he mentions the figures in the older authors, such as Willughby, and says, "As none of these were satisfactory to me, I have given this figure and description of a *perfect bird*, which may more than answer the purposes of so many;" and again:—"It hath legs and feet of a moderate proportion and strength for its bigness, shaped much like those of Pyes or Jays, of a dark brown colour, armed with claws of middling strength."

Dr. Wallace continues:—"The Great Bird of Paradise is very active and vigorous, and seems to be in constant motion all day long. It is very abundant, small flocks of females and young males being constantly met with; and though the full-plumaged birds are less plentiful, their loud cries, which are heard daily, show that they also are very numerous. Their note is 'Wauk-wauk-wauk-wok-wok-wok,' and is so loud and shrill as to be heard at a great distance, and to form the most prominent and characteristic animal-sound in the Aru Islands. The mode of nidification is unknown; but the natives told me that the nest was made of leaves placed on an ants' nest, or on some projecting limb of a very lofty tree, and believe that it contains only one young bird. The egg is quite unknown, and the natives declared they had never seen it; and a very high reward offered for one by a Dutch official did not meet with success. They moult about January or February; and in May, when they are in full plumage, the males assemble early in the morning to exhibit themselves. This habit enables the natives to obtain specimens with comparative ease. As soon as they find that the birds have fixed upon a tree on which to assemble, they build a little shelter of palm leaves in a convenient place among the branches; and the hunter ensconces himself in it before daylight, armed with his bow and a number of arrows terminating in a round knob. A boy waits at the foot of the tree; and when the birds come at sunrise, and a sufficient number have assembled, and have begun to dance, the hunter shoots with his blunt arrow so strongly as to stun the bird, which drops down, and is secured and killed by the boy without its plumage being injured by a drop of blood. The rest take no notice, and fall one after another till some of them take the alarm."

The descriptions are taken from my 'Catalogue of the Birds in the British Museum':—

"*Adult male*. General colour above maroon-brown, including the entire back and wings; head and neck clothed in compressed thick-set feathers of a straw-yellow colour, velvety in texture; round the eye a narrow line of black; forehead, lores, cheeks, throat, and fore neck dark metallic green, all the plumes close-set and velvety, the forehead, lores, and chin having a velvety black appearance under certain lights, and forming as it were a mask; breast deep purplish brown, shading gradually into maroon-brown on the abdomen and under tail-coverts; under wing-coverts and inner lining of wings maroon-brown; tail maroon-brown like the back, the two centre feathers enormously elongated into two wire-like shafts about 30 inches long; from the flanks spring two enormous tufts of beautiful plumes, bright yellow for two-thirds of their length, and then shading into chocolate-brown; the shafts produced at the tips of the feathers and white, the plumes towards their extremities very lax, the webs separate and very distinct; at the base of these side-tufts are several rigid plumes of bright yellow, some of which end in blood-red, giving the appearance of being streaked with blood-red; bill lead-colour, inclining to greenish white at the tip; legs and feet flesh-colour. Total length 18 inches, culmen 1·6, wing 9·35, tail 7·2, tarsus 2·2.

"*Adult female*. General colour all over maroon-brown, deepening to purplish chestnut on the head, neck, and chest; plumes of the head close-set and velvety, and the nape somewhat tinged with straw-yellow; flank-plumes lax and elongated, maroon-brown like the breast and abdomen; two centre tail-feathers rather pointed. Total length 15·3 inches, culmen 1·45, wing 7·5, tail 6·4, tarsus 1·85."

The only known egg of this Paradise-bird exists in the Dresden Museum, and has been described by Dr. A. B. Meyer. It has a peculiar reddish colour all over, marked with blotches of darker rufous or chestnut-brown, with a few large spots of black near the larger end. Length 1·55 inches, diam. 1·1. The figure by Dr. von Madarász in the 'Zeitschrift' represents the egg as much too small.

The figures are taken from specimens in the British Museum, formerly in the Gould Collection.

PARADISEA NOVÆ-GUINEÆ, *D'Albertis & Salvad.*

Fly-River Bird of Paradise.

Paradisea apoda (nec Linn.), D'Albert. Ann. Mus. Civic. Genov. x. pp. 14–20 (1877).—Id. Nuova Guinea, pp. 372, 374, 490, 517, 518 (1880).—Rosenb. MT. orn. Ver. Wien, 1885, p. 17 (pt.).

Paradisea apoda, var. *novæ-guineæ*, D'Albert. & Salvad. Ann. Mus. Civic. Genov. xiv. p. 96 (1879).—Musschenbr. Dagboek, pp. 182, 220 (1883).

Paradisea novæ-guineæ, D'Albert. & Salvad. Ann. Mus. Civic. Genov. xiv. p. 147 (1879).—Salvad. Orn. della Papuasia, etc. ii. p. 609 (1881).—Id. Aggiunte Orn. Papuasia, ii. p. 159 (1890).— Sharpe, Bull. Brit. Orn. Club, iv. p. xiii (1894).

This species represents on the mainland of New Guinea the true *Paradisea apoda* of the Aru Islands; but Count Salvadori points out that it is a distinctly smaller bird, the chestnut colour of the male being brighter and more vinaceous, the breast darker blackish brown, the median and greater wing-coverts often more or less golden, though this colour is obsolete in some individuals.

So far *Paradisea novæ-guineæ* has only been found on the Fly and Alice Rivers in Southern New Guinea. Here D'Albertis obtained a large series, and Count Salvadori points out that in the lower districts of the Fly River the species is absent and is replaced by *Paradisea raggiana*. It appears not to be found at Hall Bay, and it is probable that the species has a somewhat limited range in Southern New Guinea.

Many specimens from the Fly River and the Alice are recorded by Count Salvadori in his 'Ornitologia della Papuasia' as undoubted hybrids between *Paradisea raggiana* and *P. novæ-guineæ*. Besides the possession of characters which are intermediate between the two forms, the Count records a variation in the colour of the flank-plumes in these hybrids ranging from yellow to orange and bright orange-red.

I have not considered it necessary to give a figure of this species, as the characters for its separation from *P. apoda* are very slight, and the smaller size of the New Guinea bird seems to be the best mark of difference.

PARADISEA RAGGIANA, *Sclater.*

W. Hart del. et lith.

Mintern Bros imp.

PARADISEA RAGGIANA, *Sclater.*

Marquis Raggi's Bird of Paradise.

Paradisea raggiana, Sclater, P. Z. S. 1873, pp. 559, 697.—D'Alb. t. c. p. 559.—Sclater, Nature, viii. p. 306 (1873).—Elliot, Monogr. Parad. pl. 3 (1873).—Sclater, Ibis, 1874, pp. 177, 187.—Rosenb. Zool. Gart., Jan. 1875, p. 31.—Meyer, Nature, 1875, pp. 208, 268.—Id. Mitth. zool. Mus. Dresd. i. p. 7, note (1875).— Salvad. et D'Alb. Ann. Mus. Civ. Gen. vii. p. 289 (1875).—D'Alb. P. Z. S. 1875, pp. 531, 532.—Id. Ibis, 1876, pp. 359, 360.—Scl. P. Z. S. 1876, p. 414.—Salvad. Ann. Mus. Civ. Gen. ix. pp. 39, 191 (1876).—Ramsay, Proc. Linn. Soc. N. S. W. i. pp. 387, 393 (1876).—Gould, B. New Guin. i. pl. 32 (1877).—D'Alb. Ann. Mus. Civ. Genov. x. pp. 14, 20 (1877).—Salvad. t. c. p. 153.—Sharpe, Cat. B. Brit. Mus. iii. p. 169 (1877).—Id. Journ. Linn. Soc. xiii. p. 318 (1877), xiv. p. 500 (1878).—Ramsay, Proc. Linn. Soc. N. S. W. iii. pp. 101, 266 (1378), iv. p. 97 (1879).—Sharpe, Journ. Linn. Soc. xiv. p. 687 (1879).—Rosenb. Malay. Archip. pp. 557, 590 (1879).—D'Alb. et Salvad. Ann. Mus. Civ. Genov. xiv. p. 100 (1879).—D'Alb. Nuova Guin. p. 172 etc. (1880).—Eudes-Deslongch. Ann. Mus. d'Hist. Nat. Caen, i. p. 24 (1880).—Salvad. Orn. Papuasia, etc. ii. p. 613 (1881).—Musschenbr. Dagboek, pp. 184, 220 (1883).—Ramsay, Proc. Linn. Soc. N. S. W. vii. p. 26 (1883).—Rosenb. Mitth. orn. Ver. Wien, 1885, p. 35.—Chalmers & Wyatt, Ibis, 1885, p. 463.—Finsch & Meyer, Zeitschr. ges. Orn. 1885, p. 384.—Id. Ibis, 1886, p. 251.—Sharpe, Nature, vol. xxxiv. p. 340 (1886).—d'Hamonv. Bull. Soc. Zool. France, xi. pp. 507, 509 (1886).—Tristram, Ibis, 1889, p. 553.—Salvad. Aggiunte Orn. Papuasia, etc. ii. p. 159 (1890).—Id. Ann. Mus. Civic. Gen. (2) ix. p. 585 (1890).—Crowley, Bull. B. O. Club, i. p. xvi (1892).—Sharpe, op. cit. iv. p. xiii (1894).—De Vis, Report British New Guinea, pp. 6, 7 (1894).—Salvad. Ann. Mus. Civ. Gen. (2) xvi. p. 109 (1896).

This species is remarkable for its red ornamental plumes, which distinguish it at once from all the ordinary species of the genus *Paradisea*, which have these plumes yellow or orange. It appears to be entirely confined to South-eastern New Guinea, the first specimens having been procured by Signor D'Albertis at Orangeisa Bay. Mr. Goldie obtained many specimens in the Port Moresby district, and it was found by the late Dr. James at Aleya and in Hall Bay, and by Mr. Stone at Munikahila. According to the late Carl Hunstein the species is found in the interior about fifteen miles from Port Moresby, but it was not met with by him in the Horseshoe Mountains, its range extending from Basilisk Island to Bentley Bay. Dr. Loria met with it on the southern slope of the Astrolabe Mountains at a place called Gerekanumu.

During Sir William Macgregor's expedition to the Owen Stanley Mountains the species was found everywhere up to 3000 feet.

Signor D'Albertis procured the species during his expedition to the Fly River, and gives the following note on its habits:—"I was rather fortunate in my excursion into the mountains; for I found *Paradisea raggiana*, and obtained some beautiful specimens in full dress. In its voice, movements, and attitudes it perfectly resembles the other species of the genus. It feeds on fruit; and I could find no trace of insects in the seven individuals which I prepared. It inhabits the dense forest, and is generally found near the ravines—perhaps because the trees on the fruit of which it feeds flourish in the neighbourhood of water. The female is always smaller in size than the male; and I find this sex less abundant, because, as I believe, it was the season of incubation. The female is more like the same sex of *P. apoda* than that of *P. papuana*. The young male is like the female, but often recognizable by having distinguishable traces of the yellow collar which in the old male divides the green of the throat from the breast-feathers. The irides are of a rather bright yellow, and the feet lead-colour with a reddish tinge. The long flank-feathers in individuals recently killed have a very bright tint, which they lose in a few days—even in a few hours. The two middle tail-feathers are filiform, like those of *P. apoda* and *P. papuana*, and in no stage of development resemble those of *P. rubra*. These two feathers are not so long as in *P. apoda*, and about equal to those of *P. papuana*. Like its sister species, *P. raggiana* is an inquisitive bird, and often approaches from branch to branch within a few yards of the hunter, and remains motionless for some seconds to observe its pursuer, stretching out its neck, flapping its wings, and emitting a peculiar cry, upon the sound of which other individuals come forward to join it. When one is wounded and cries out, many others come forward as if to protect it, and approach quite near, descending to the lowest boughs. The adult males frequent the tops

of the highest trees, as Dr. Wallace observed in the other species, and as I also remarked in my former expedition."

Mr. A. P. Goodwin, who accompanied the Macgregor Expedition, says: "Raggi's Paradise-bird (*Paradisea raggiana*) was found on the lower ranges of the mountains, and is rarely ever seen above an altitude of 3000 feet. One evening I observed a number of this species flying from one tree to another, evidently feeding and dancing, as I am told is their habit. *P. raggiana* lives on fruit, which generally grows on high trees in Papua; and as nature has provided these birds with a thick skin to keep their long plumage from falling out, it requires a strong charge of shot to bring them to the ground. It is to be regretted that the long red plumes soon lose their brightness after death."

The following note is taken from Messrs. Chalmers and Wyatt's 'Adventures in New Guinea':—"One morning we had camped on a spur of the Owen Stanley Range, and being up early, to enjoy the cool atmosphere, I saw on one of the clumps of trees close by six Birds of Paradise, four cocks and two hens. The hens were sitting quietly on a branch, and the four cocks, dressed in their very best, their ruffs of green and yellow standing out, giving them a large handsome appearance about the head and neck, their long flowing plumes so arranged that every feather seemed combed out, and the long wires stretched well out behind, were dancing in a circle round them. It was an interesting sight; first one then another would advance a little nearer to a hen, and she, coquette-like, would retire a little, pretending not to care for any advances. A shot was fired, contrary to my expressed wish; there was a strange commotion, and two of the cocks flew away, the others and the hens remained. Soon the two returned, and again the dance began and continued long. As I had strictly forbidden any more shooting, all fear was gone; and so, after a rest, the males came a little nearer to the dark brown and certainly not pretty hens. Quarrelling ensued and in the end all six birds flew away.

"Passing through a forest at the back of the Astrolabe, I saw several more engaged as above; our approach startled them, and away they flew.

"Anxious to taste the flesh, I had one cooked after being skinned; but, although boiled for several hours, it was as tough as leather, and the soup not much to our taste. Fortunately we had other things for dinner, so put the paradise-dish aside."

Mr. Philip Crowley possesses an egg of this Bird of Paradise, procured by Mr. Goldie in South-eastern New Guinea. It is of the usual type of the eggs of *Paradisea*, and similar to those of *P. apoda* figured by Dr. A. B. Meyer (Zeitschr. ges. Orn. i. Taf. xvii. fig. 2). Mr. Goldie supplied the following note to Mr. Crowley:—"This bird inhabits the entire length of British New Guinea towards the east, being often found close to the sea-coast. In the Australian Flora district, around Port Moresby, it is more retired, not being found under 1500 feet elevation, probably from not meeting with its ordinary food, as it is very dry in this district at one season of the year. They are most abundant at an elevation of from 2000 to 3000 feet above the sea, but above that altitude are rarely found. In the morning they congregate in the very tallest and largest trees of the district, selecting certain ones about half a mile apart, and here they disport themselves, dancing and strutting with outstretched plumes till about 8 A.M., when they leave to feed. All day they continue to shout, but do not keep in flocks. They return to the same trees an hour or two before sunset, and continue dancing and shouting often till quite dark.

"The ornamental plumage is assumed about the end of April or in May, and is retained for six or seven months. The nesting-season is in June and July. I think that the reason the nests have not been got before was owing to the mistaken idea that the bird nested in very high trees, such as those in which they assemble, but the truth is that they mostly build in shrubs at about fifteen or twenty feet above the ground.

"There was only one egg in the nest, and this, so the natives say, is almost invariably the case, though sometimes two, and on very rare occasions three, eggs are found. I discovered several nests with one young bird in each."

The following descriptions are taken from my 'Catalogue of Birds':—

Adult male. Head and neck all round straw-buff, the feathers close-set and of a velvety texture; a frontal band and cheeks, ear-coverts, and throat, bright metallic green, the feathers velvety to the touch, this green patch leaving a narrow band of straw-buff plumes across the lower throat; forehead appearing black in certain lights; chin velvety greenish black, contrasting with the throat; entire back ruddy chestnut-brown, the wings slightly paler than the back and not so glossy, the shafts of the quills bright reddish, the least wing-coverts broadly edged with straw-buff; tail ruddy brown, with red shafts like the quills, the two centre feathers

elongated into two long thread-like shafts 20 inches in length; fore-neck and chest velvety purplish brown, forming a small shield; rest of under surface ruddy brown, rather paler on the abdomen and under tail-coverts, the flank-feathers elongated into two large tufts of plumes of a brilliant crimson, the ends of these plumes paler and whity brown, the barbules being lax near the end of these long plumes; under wing-coverts and inner lining of quills ruddy brown: "bill pearly grey; feet leaden grey, tinged with reddish; iris yellow" (*D'Albertis*). Total length 13·5 inches, culmen 1·5, wing 6·9, tail 5·4, tarsus 1·85.

Adult female. General colour above dull ruddy brown, including the wings and tail; hinder part of crown, hind-neck, and sides of the latter dull straw-buff; fore part of crown-feathers round the eye, sides of face, throat, and breast deep purplish brown; rest of under surface very pale ruddy brown, including the under wing- and under tail-coverts; bill pearly grey; feet plumbeous; iris yellow. Total length 12·5 inches, culmen 1·4, wing 6·15, tail 5, tarsus 1·5.

Young male. Similar to the adult female, but much richer brown.

A male shot on Mount Epa on the 23rd of April begins to show indications of the approaching bright plumage on the head and throat.

The Plate represents the male bird, the front figure being of about the size of life.

PARADISEA MARIÆ, *Reichenow.*

Mrs. Reichenow's Bird of Paradise.

Paradisea mariæ, Reichenow, Orn. Monatsb. ii. p. 22 (1894).—Sharpe, Bull. Brit. Orn. Club, iv. p. xiii (1894).—Reichen. J. f. O. 1897, p. 222, Taf. v.

This species was discovered in the Finisterre Mountains, in German New Guinea, at a height of 1500 feet, and was described by Dr. Reichenow, the type specimen being in the Berlin Museum and, up to the time of writing, unique. Dr. Reichenow, however, has given a figure of the species in the 'Journal für Ornithologie,' from which one is able to gather that *Paradisea mariæ* partakes of the characters of *P. augustæ-victoriæ* and *Trichoparadisea gulielmi*. This opinion has been suggested to me by the notes given to me by Mr. Ernst Hartert, who recently examined the type specimen at the meeting of the German Ornithological Society in Dresden. The extent of the metallic-green colour on the forehead and throat is apparently the same as in *Trichoparadisea*, and the dissociated webbing of the tips of the long flank-feathers is another character in common with the last-named genus. The colour of the under surface recalls that of *P. minor*, but is not unlike that of *T. gulielmi* also. The colour of the long flank-feathers is different from that of both *T. gulielmi* and *P. augustæ-victoriæ*, but the dark stripes are like those of the latter bird; so that, on the whole, it seems to me more correct to compare *P. mariæ* with the last-named species rather than with *P. minor*.

Dr. Reichenow's description of the species is as follows:—"Distinguished from *P. minor* by the metallic-green forehead and vertex, by the paler yellow on the occiput, mantle, back, and wing-coverts, and by the reddish plumes of the train. Forehead and fore part of crown, as well as the lores and fore-part of cheeks and throat, metallic green; hind part of the head, nape, back, and lesser wing-coverts pale straw-yellow, lighter than in *P. minor*; greater wing-coverts only narrowly washed with straw-yellow on their edges, not yellow on the entire outer web or for the greater part of the feather, as in *P. minor*; rump slightly washed with straw-yellow. The brown colour on the wings, tail, and under surface of body resembles that of *P. minor*. The ornamental feathers on the flanks have a yellow ground-colour, washed with brownish red on the outer web, and especially on the inner one, afterwards becoming white with a brownish-red tint and then pure white at the tips; the shafts are partly yellow, partly reddish brown and white at their ends. Some of the outer flank-plumes have a brownish-red outer edge near the base, and this forms on the outspread feathers a continual red longitudinal stripe, whereas in *P. minor* it is formed of shorter and separate stripes of dark chestnut-brown. Owing to the mixture of white and brownish red the mass of the ornamental plumes has a kind of greyish-violet appearance. It is worthy of remark that the ornamental plumes are more close-set, as in *P. minor*; the single barbs show broad intervals, and those at the end of the feathers are without any trace of barbs. Total length 14 inches, wing 7·25, tail 5·5, bill 1·3, tarsus 1·8."

As there is no specimen of this Bird of Paradise in England, I have been unable to give a figure of it.

PARADISEA AUGUSTÆ VICTORIÆ, *Cab.*

W. Hart del. et lith.

Mintern Bros. imp.

PARADISEA AUGUSTÆ-VICTORIÆ, *Cab.*

Empress of Germany's Bird of Paradise.

Paradisea augustæ-victoriæ, Cab. J. f. O. 1888, p. 119, 1889, Taf. ii.—Salvad. Agg. Orn. Papuasia, ii. p. 159 (1890).—Meyer, Ibis, 1890, p. 421.—Salvad. Agg. Orn. Papuasia, iii. p. 241 (1891).—Meyer, Abhandl. k. zool. Mus. Dresden, 1892–93, no. 3, p. 17.—Id. Ibis, 1893, p. 481, pl. xiii.

This fine Bird of Paradise is intermediate between *Paradisea minor* and *P. raggiana*. It has a straw-coloured mantle, like *P. minor*, but in its narrow yellow collar on the throat and in its dense velvety fore neck it is like *P. raggiana*. The colour of the flank-plumes, however, being of a golden-orange, serves to distinguish it from both of the above-named species.

The habitat of the species appears to be the neighbourhood of Huon Gulf in Eastern New Guinea, and it is apparently common in that district, as Dr. Meyer has received several specimens from this locality procured by the brothers Geisler, who have made considerable collections in that locality, and have even obtained the egg of the species, of which a most interesting account has been given by Dr. Meyer in 'The Ibis' for 1893.

He gives the following note on the species:—"The breeding-season of *P. augustæ-victoriæ* begins in July, when the males, in companies of from three to six, hold their dancing-parties on the high trees. Females on the wing bearing nesting-materials were often seen, but for a long time no nest could be discovered. The males were also observed with like materials in their bills, though they generally dropped them again. At the end of October a young bird made its appearance on the mountains behind Butaueng on Huon Gulf. At this time of the year the rainy season (S.E. monsoon) generally ceases, and the dry N.W. monsoon then prevails till the beginning of April. The moulting of the Bird of Paradise begins at the end of October; in January the gorgeous new feathers begin to sprout, but it is only in July that the breeding-plumage becomes fully developed in its finest phase. The brothers Geisler once observed this Paradise-bird robbing the nest of *Chalcophaps stephani*; a specimen kept in captivity also sucked other eggs with avidity.

"According to the present state of our knowledge, *P. augustæ-victoriæ* has only a narrow range along the borders of Huon Gulf, north of which, in Astrolabe Bay, *P. finschi* occurs, and in South and South-east New Guinea *P. raggiana*, which is represented on the D'Entrecasteaux Islands by *P. decora*. It appears that red and yellow Paradise-birds do not occur together, but represent each other. According to the Geislers, *P. augustæ-victoriæ* never changes its hunting-ground."

Quite recently, Dr. Reichenow has described, under the name of *P. maria*, a Bird of Paradise from the Finisterre Mountains, which appears to be intermediate between *P. minor* and *P. augustæ-victoriæ*.

The discovery of an authentic egg of a Bird of Paradise is a very interesting event, as it proves that these birds lay an egg unlike those of the Corvidæ, and apparently characteristic of the family. The first authentic egg appears to have been described by Dr. Pierson Ramsay in 1883, being that of *P. raggiana*. In 1884 Dr. Meyer described and figured the egg of *P. apoda*. In 1892 Mr. Philip Crowley exhibited an egg of *P. raggiana* from South-eastern New Guinea, at a meeting of the British Ornithologists' Club, held on the 21st of December of that year.

In 'The Ibis' for October 1893 Dr. Meyer has given a figure of the egg of *P. augustæ-victoriæ*, with the following description of it:—"The general superficial impression made by these eggs calls to mind those of certain Rails,—some specimens of the eggs of *Crex pratensis*, for instance, having a similar appearance. The shell is coarse, with fine indentations and single deep pores, as in *Coracias*; it is everywhere polished and glossy, except a few of the paler and smaller spots, which are dull and glossless. The ground-colour is pale pinkish buff (*cf.* Ridgway, Nomencl. of Col. v. 14, but lighter), longitudinally streaked and spotted over the greater part of the large end. The darker streaks are remarkable for their length (10–15 mm. long, 2–4 mm. broad, or even narrower); the deeper-lying spots are rosy grey, the darker longitudinal streaks mostly reddish brown (walnut-brown, Ridgway, pl. iii. 7), but mixed with lighter and darker tints. There are several very dark spots, others are smaller and of a glossless brownish yellow; others, again, of this same colour are glossy. The small end of the egg has few spots; the pole of the large end is almost clear of spots.

"The form is ovate (Ridgway, xvi. 1), but more lengthened; the size 38×25·5 and 36·5×25 mm., and the weight 0·7 gr.

"The egg of *P. apoda* is darker, with spots of the same colour, but with much broader and more isolated streaks and dashes, and the space round the pole of the large end somewhat spotted.

"The egg of *P. raggiana*, as described by Ramsay (*l. s. c.*), appears to be of a similar character.

"The two eggs described and figured, each from two sides and from above, were taken by the brothers Geisler, in the month of August 1890, near the village of Jakema on the Saddle Mountain ('Sattelberg'), Huon Gulf, East New Guinea, at about 250–300 metres above the sea-level. A native having told them that he had discovered the nest of a Paradise-bird, they proceeded to the spot, but found the tree too high and big to climb it themselves. The native, however, ascended it and brought down two eggs, unfortunately leaving the nest torn to pieces between the twigs. Several females fluttered and cried around while the native was thus employed, a male having been shot just before on a neighbouring tree."

The figure in the Plate represents an adult male of about the natural size, and is drawn from an example in the British Museum.

PARADISEA INTERMEDIA, *De Vis.*

Mintern Bros. imp.

W. Hart del. et lith.

PARADISEA INTERMEDIA, *De Vis.*

De Vis's Bird of Paradise.

Paradisea intermedia, De Vis, Rep. Orn. Coll. Brit. New Guinea, 1894, p. 7.—Rothschild, Bull. Brit. Orn. Club, vi. p. xl (1897).

One of the most curious phenomena connected with the distribution of the Birds of Paradise in New Guinea is the occurrence of intermediate forms which seem to connect species otherwise distinctly separate and defined. The present species seems to be an excellent example of this interesting fact, for it is indeed an "intermediate" species, as its name implies, presenting on the upper surface the appearance of *P. augustæ victoriæ*, while it resembles *P. raggiana* below.

The species was discovered by Sir William MacGregor on the Kumusi River, in South-eastern New Guinea. I have availed myself of the opportunity afforded by the kindness of Mr. De Vis in lending a specimen to the Hon. Walter Rothschild, to borrow it from the latter gentleman and describe and figure it in the present work.

Adult male. General colour above straw-colour with a golden gloss, the scapulars and least wing-coverts vinous brown with an ashy shade and a slight gloss of yellow; median coverts golden straw-colour; greater coverts, primary-coverts, and bastard-wing chestnut-brown like the quills, with faint straw-coloured edges; tail-feathers chestnut; crown of head and neck straw-colour, extending in a collar round the lower throat; base of forehead, lores, feathers below the eye, cheeks, and throat metallic green, appearing velvety black in front of the eye; chin velvety black; remainder of under surface of body vinous brown, the long flank-plumes crimson, lighter on their upper aspect, and paler towards the bases, some of the outer plumes stiffened and black at the ends; the chest velvety black, the plumage crisp; under wing-coverts pale vinous brown. Total length 12·5 inches, culmen 1·5, wing 7, tail 5·1, tarsus 1·6, flank-plumes about 16·5 inches.

The figure in the Plate represents a male bird of the size of life, and is drawn from the specimen mentioned above.

PARADISEA· DECORA, *Salv. et Godm.*

W Hart del. et lith.

Mintern Bros. imp.

PARADISEA DECORA, *Salvin & Godman.*

Grey-chested Bird of Paradise.

Paradisea decora, Salvin & Godman, Ibis, 1883, pp. 131, 202, pl. viii.—Sharpe, in Gould's Birds of New Guinea, i. pl. 27 (1885).—D'Hamonv. Bull. Soc. Zool. France, 1886, pp. 507, 509.—Tristram, Ibis, 1889, p. 553.—Salvad. Aggiunte Orn. Papuasia, ii. p. 160 (1890).—De Vis, Ann. Rep. Brit. New Guinea, p. 61 (1890).—Id. Colonial Papers, no. 103, p. 113 (1890).—Id. Ibis, 1891, p. 37.—Salvad. Ann. Mus. Civic. Genov. (2) x. p. 833 (1891).—Id. Aggiunte Orn. Papuasia, iii. p. 243 (1891).—Sharpe, Bull. Brit. Orn. Club, iv. p. xiii (1894).—Hartert, Novit. Zool. ii. p. 61 (1895).—Rothschild, Novit. Zool. iii. p. 235 (1896).

Paradisea susannæ, Ramsay, Proc. Linn. Soc. N. S. Wales, viii. p. 21 (1883).—Salvad. Ibis, 1884, p. 354.

This beautiful species is an inhabitant of Fergusson Island, one of the D'Entrecasteaux group, where it was discovered by Mr. A. Goldie, a well-known botanical collector, who also obtained many fine species of birds on the mountains of South-eastern New Guinea. This Bird of Paradise, however, is the most splendid of his discoveries. It is found, he says, "in the mountains, at a considerable elevation above the sea, the first specimen obtained having been secured at the lowest point. The plumed males and the younger individuals were generally seen three or four together. Once heard, their call was unmistakable, being very like that of *P. raggiana*; but the plumed and wired birds, after giving their call a few times, added to it a peculiar shrill whistle. Their motions whilst calling were identical with those of *P. raggiana*; but, so far as we were able to observe, they had no particular tree for dancing in. The females were found alone.

"We neither saw nor heard *P. raggiana* on these islands; and the new bird is not found on the mainland. On showing it to the natives of Chad's Bay and China Straits along with a specimen of *P. raggiana*, they, in both cases, made us to understand that the latter is found in their country, whilst *P. decora* is not; but two or three of them in China Straits who had traded to the D'Entrecasteaux Islands made signs that the new bird was to be found there."

Since the species was discovered in Fergusson Island by Mr. Goldie it has been met with by several other collectors who have visited the locality. Mr. Basil Thomson obtained it on Mount Maybole in the north of the island, and believed that it was confined to that part only; but Mr. Albert Meek, who collected in Fergusson Island for the Hon. Walter Rothschild, found the species "not rare, but by no means very numerous on the hills of South Fergusson, from about 1500 feet upwards."

P. decora has red ornamental plumes like *P. raggiana*, but it is easily distinguished by the straw-coloured back, the absence of a yellow collar on the throat, the grey chest, and the patch of black plumes on each side of the abdomen.

The following is a description of the type specimens of *P. decora* in the British Museum:—

Adult male. General colour above golden straw-colour, a little deeper and more orange on the head and ear-coverts; wing-coverts light drab-brown, edged with golden straw-colour, the lesser and median coverts being entirely of the latter colour; bastard-wing, primary-coverts, and quills light reddish brown, externally drab or ashy brown, the inner secondaries washed externally with straw-yellow; tail-feathers pale reddish brown, washed with ashy, the two long centre feathers consisting of a black barbless shaft; lores and base of forehead, cheeks, and throat metallic green, the upper throat, lores, and fore part of cheeks and throat appearing velvety black under certain lights; fore-neck and breast lilac-grey, shading off into vinaceous grey on the abdomen and under tail-coverts; the long flank-plumes rich crimson, the feathers with very few barbs or barbules at the ends, these being hoary whitish; on each side of the base of the long plumes a patch of slightly recurved black feathers with red bases; under wing-coverts pale vinaceous grey; quills ashy below, the quill-lining ruddy vinous: "iris yellow" (*A. Meek*). Total length 13 inches, culmen 1·35, wing 7, tail 5·5, tarsus 1·7.

Adult female. Wants the ornamental plumes of the male and has a greyer back, with the feathers edged with dull straw-yellow; the lores, cheeks, and throat, which are green in the male, are blackish brown in the female; the rest of the under surface of the body vinous brown, with dusky vermiculations or cross-bars

on the feathers of the fore-neck, breast, sides of body, and under tail-coverts. Total length 12 inches, culmen 1·4, wing 6·8, tail 6·3, tarsus 1·6.

The young males at first resemble the females and have the bars on the breast. As Messrs. Salvin and Godman have pointed out in their original description, the procedure of moulting into the adult plumage varies in different individuals, sometimes the green throat being assumed while the flank-plumes and other ornamental feathers have scarcely begun to develop.

The Plate represents an adult male and female, drawn from the type specimens in the National Collection.

PARADISEA MINOR, *Shaw.*

J. Gould & W. Hart del. et lith.

Mintern Bros. imp.

PARADISEA MINOR, *Shaw.*
(Young Male & Female.)

W. Hart del. et lith.

Mintern Bros. imp.

PARADISEA MINOR, *Shaw.*

Lesser Bird of Paradise.

Manucodiata minoris generis, Clus. Exot. Auctuar. p. 361 (1605).
Smaller Bird of Paradise, Forrest, Voy. to New Guinea, p. 137.
Le petit oiseau de paradis des îles des Papous, Forrest, Voy. to New Guinea (trad. franç.), p. 156 (1780).—Sonnini, édit. de Buffon, Ois. viii. p. 360.
Paradisea minor papuana, Forst. Zool. Ind. p. 31 (1781).—Id. ibid. 2nd ed. p. 20.—Vieill. N. D. d'Hist. Nat. xxx. p. 113 (1819).
Lesser Bird of Paradise, Lath. Gen. Syn. ii. p. 474 (1782).—Leadb. P. Z. S. 1862, p. 153.
Paradisea apoda, var. β, Gm. Syst. Nat. i. p. 400 (1788).—Lath. Ind. Orn. i. p. 194 (1790).—Daud. Tr. d'Orn. ii. p. 270 (1800).
Le petit Émeraude, Vieill. Ois. Dor. ii. Ois. Par. p. 12, pl. 2 (1802).
Le grand Oiseau de Paradis émeraude, femelle, Levaill. Ois. Parad. p. 15, pl. 2 (♀) (1806).
Le petit Oiseau de Paradis émeraude, mâle, Levaill. op. cit. p. 17, pl. 4 (♂ ad.).
Le petit Oiseau de Paradis émeraude, femelle, Levaill. op. cit. p. 21, pl. 5 (♂ jun.).
Paradisea minor, Shaw, Gen. Zool. vii. p. 486 (1809).—Temm. Man. d'Orn. i. p. lv (1820).—Ranz. Elem. di Zool. iii. pt. 4, p. 66 (1822).—Steph. in Shaw's Gen. Zool. xiv. p. 76 (1826).—Wagl. Syst. Av., *Paradisea*, sp. 2 (1827).—Less. Tr. d'Orn. p. 336 (1831).—J. E. Gray, Ill. Ind. Zool. i. pl. 27 (1832).—Less. Ois. Parad. Syn. p. 3, et Hist. Nat. p. 132, pl. 2 (♂ ad.), pl. 3 (♀), pl. 4 (♂ jun.), pl. 5 (♂ juv.) (1835).—Id. Compl. de Buff., Ois. p. 453 (1838).—Blyth, Cat. B. Mus. As. Soc. p. 106 (1849).—Gray, Hand-l. B. ii. p. 16, no. 6248 (1870).—Elliot, Mon. Parad. pl. 4 (1873).—Salvad. Ann. Mus. Civ. Gen. vii. p. 781 (1875), viii. p. 402 (1876), ix. p. 191 (1876), x. p. 153 (1877).—Sharpe, Cat. Birds Brit. Mus. p. 168 (1877).—D'Alb. Nuov. Guin. p. 582 (1880).—Salvad. Orn. Pap. ii. p. 577 (1881).—Eudes-Deslongch. Ann. Mus. d'Hist. Nat. Caen, i. p. 22 (1880).—Musschenbr. Dagboek, pp. 185, 220 (1883).—Rosenb. Mitth. orn. Ver. Wien, 1885, p. 30.—Guillem. P. Z. S. 1885, p. 651.—D'Hamonv. Bull. Soc. Zool. France, xi. pp. 506, 509 (1886).—Salvad. Aggiunte Orn. Papuasia, etc. ii. p. 158 (1890).—Sharpe, Bull. Brit. Orn. Club, iv. p. xiii (1894).—Rothsch. Bull. Brit. Orn. Club, vi. p. xlv (1897).
Paradisea papuana, Bechst. Kurze Uebersicht, p. 131 (1811).—Vieill. Enc. Méth. p. 906, pl. 142. fig. 4 (1823).—Gray, Gen. B. ii. p. 322 (1847).—Bp. Consp. Av. i. p. 413 (1850).—Cab. Mus. Hein. i. p. 214 (1851).—Wall. Ann. & Mag. N. H. (2) xx. p. 415 (1857).—Scl. Journ. Pr. Linn. Soc. ii. p. 163 (1858).—Gray, Cat. B. New Guin. p. 36 (1859).—Id. P. Z. S. 1859, p. 157.—Wall. Ibis, 1859, p. 111. —Id. ibid. 1861, pp. 287–291.—Gray, P. Z. S. 1861, p. 436.—Schl. J. f. O. 1861, p. 385.—Scl. P. Z. S. 1862, pp. 123, 140, 184, 185.—Wall. t. c. pp. 154–156.—Rosenb. Nat. Tijdschr. Ned. Ind. xxv. p. 242 (1863).—Id. J. f. O. 1864, p. 126.—Finsch, Neu-Guin. p. 173 (1865).—Schl. Mus. P.-B., Coraces, p. 82 (1867).—Wall. Malay Arch. ii. pp. 394, 419 (1869).—Schl. Nederl. Tijdschr. Dierk. iv. pp. 17, 49 (1871).—Murie, Ibis, 1873, p. 203.—Bruijn, P. Z. S. 1875, p. 30.—Meyer, t. c. p. 469.—Rosenb. Reist. naar de Geelvinkb. pp. 17, 56 (1875).—Salvad. Ann. Mus. Civ. Gen. vii. pp. 781, 899 (1875).—Gould, B. New Guinea, i. pls. 28, 29 (1879).—Rosenb. Malay. Arch. p. 555 (1879).
Paradisea smaragdina minor, Dumont, Dict. d'Hist. Nat. xxxvii. p. 504 (1826).—Drap. Dict. Class. xiii. p. 46.
Paradisea apoda fœm., Wagl. Syst. Av., gen. *Paradisea*, sp. 1 (1827).
Paradisea papuensis, Less. Man. d'Orn. i. p. 392 (1828).—Voigt, Cuv. Uebers. p. 615 (1831).—S. Müll. Verhandl. Land- en Volkenk. pp. 22, 70 (1839–44).—Gray, P. Z. S. 1858, p. 193.—Id. Cat. B. New Guin. p. 58 (1859).
Oiseau de Paradis petit-émeraude, Less. Voy. Coq., Zool. i. pt. 2, pp. 446, 654, 655 (1828).
Paradisea apoda, Garn. (nec Linn.) Voy. Coq., Zool. i. pt. 2, p. 596 (1828).
Oiseau de Paradis émeraude, Quoy & Gaim. Voy. Astrol., Zool. i. p. 155 (1830).

The Lesser Bird of Paradise is, as its name implies, a smaller bird than *P. apoda*, and it is further distinguished by having the mantle of a dull straw-colour and not maroon-brown like the rest of the back. The wing-coverts are also more or less straw-coloured. The female differs from the female of *P. apoda* in having the breast white instead of maroon-brown.

The range of this species appears to be confined to the northern and western portions of New Guinea and the island of Mysol. In German New Guinea it is replaced by *Paradisea finschi* of Meyer, and in the island of Jobi by *P. jobiensis* of Rothschild.

The true *Paradisea minor* is found in the mountains of North-western New Guinea, especially in the Arfak district, having been procured at Andai, Mansema, Profi, and Mori by Dr. Beccari and Mr. Bruijn's hunters. Signor d'Albertis met with it at Emberbaki, and Dr. Beccari at Wa Samson and Dorei Hum. Dr. A. R. Wallace obtained specimens at Dorei, and he believes that the species is found on Salawati. The same traveller met with it in the island of Mysol. Solomon Müller noticed the species at Lobo and on the Atanata River, and the Hon. Walter Rothschild possesses specimens from Etna Bay and Kapaur. It seems to occur both in the vicinity of the coast-region and on the high mountains as well, as it was found on the Arfak ranges near Profi and Mori by Dr. Beccari and by Mr. Bruijn's hunters at a height of 3400 feet.

A full account of the various observations of the habits of this species will be found in Count Salvadori's 'Ornitologia della Papuasia' and in Mr. Elliot's 'Monograph of the Paradiseidæ,' and I quote the most important of these observations in the present work.

Lesson's note is as follows, and deals with his experiences as Naturalist on board the 'Coquille':—"The small Emerald Bird of Paradise has the vivacious and agile movements and has much of the manners of a Crow. In the forests that it inhabits it seeks the summits of the tallest trees, and it descends to the lower branches to search for its food or to escape from the rays of the sun. It shuns the heat and loves the shade of the thick and bushy foliage of the teak-trees. It rarely leaves these trees in the middle of the day; and it is only in the morning and evening that it is seen seeking its food. Ordinarily, when it believes itself to be alone, it utters a sharp cry, frequently repeated, which can be imitated by the syllables *roake*, *roake*, *roako*, strongly articulated. These cries, at the time of our sojourn in New Guinea in July, appeared to us to be a call for the females, which were in parties of twenty individuals and responded from the surrounding trees, in a similar manner to the love-call. Never among these troops did we see more than one male strutting proudly in the midst of these plainly apparelled individuals, whilst he, plumed dandy, resembled a cock who shouts victory after having beaten a rival and gained the sovereignty of a poultry-yard. Is the little Emerald Bird of Paradise, then, a polygamist? or is the disproportionate number of females owing to the continual chase after the males, which causes this scarcity, whilst the females are neglected and allowed to live in peace without fear of man, having only to protect themselves from their natural enemies the beasts of the woods? Attracted by this *roake*, *roako*, we found it easy in our expeditions to follow the birds, discover and kill many. The first one we saw astonished us so much that the gun remained at rest in our hand, so great was our surprise. We walked with care in the tracks made by the wild boars in the thick and leafy forests in the neighbourhood of Dorey, when a male of this species passed over our heads with graceful and soft flight, and seemed to us like a meteor, of which the fiery tail left behind it a long streak of light. When an unaccustomed sound strikes the ear of the bird its note ceases and its movements are suspended, so that it becomes absolutely passive and remains hiding in the deep foliage which conceals it from the view of the hunter; but if the sound continues, it soon flies away. It perches upon the highest branches of the loftiest trees of New Guinea, and it is very difficult to shoot without using long-range guns. When it is only wounded it expires in the thickets; however, we happened one day to find, dying upon the banks of a pond in the bed of a half-dried torrent, one of the birds which had been wounded the day before. It is, then, in the evening or, better, the morning that the hunter must be on the watch, after having carefully reconnoitred the trees filled with fruit, to which the Paradise-birds resort. There, perfectly still, he awaits patiently the advent of the Birds of Paradise, soon foretold by their harsh and loud cry. At the time of our stay in this land of promise for naturalists (from the 29th of July to the 9th of August), these birds searched for the fleshy buds of the teak-trees, but above all for the pinky white, very mucilaginous fruits of the fig-tree (Amihou). We always found insects in their crops, and during our sojourn in Amboina two living specimens, which we saw alive at the house of a rich Chinese merchant, were fed with large cockroaches and boiled rice."

Dr. A. R. Wallace writes in his 'Malay Archipelago':—"The true Paradise-birds are omnivorous, feeding on fruit and insects—of the former preferring small figs; of the latter, grasshoppers, locusts, and phasmas, as cockroaches and caterpillars. When I returned home, in 1862, I was so fortunate as to find two adult males of this species in Singapore; and as they seemed healthy, and fed voraciously on rice, bananas, and cockroaches, I determined on giving a very high price asked for them—£100—and to bring them to England by the overland route under my own care. On my way home I stayed a week at Bombay to break the journey and to lay in a fresh stock of bananas for my birds.

I had great difficulty, however, in supplying them with insect food, for in the Peninsular and Oriental steamers cockroaches were scarce, and it was only by setting traps in the store-rooms, and by hunting every hour of the night in the forecastle, that I could secure a few dozen of these creatures, scarcely enough for a single meal. At Malta, where I stayed a fortnight, I got plenty of cockroaches from a bakehouse, and when I left took with me several biscuit-tins full, as provision for the voyage home. We came through the Mediterranean in March, with a very cold wind; and the only place on board a mail-steamer where their large cage could be accommodated was exposed to a strong current of air down a hatchway which stood open day and night, yet the birds never seemed to feel the cold. During the night journey from Marseilles to Paris it was a sharp frost, yet they arrived in London in perfect health, and lived in the Zoological Gardens for one, and two years, often displaying their brilliant plumes to the admiration of the spectators. It is evident, therefore, that the Paradise-birds require air and exercise rather than heat; and I feel sure that if a good-sized conservatory could be devoted to them, or if they could be turned loose in the tropical department of the Crystal Palace, or the Great Palm House at Kew, they would live in this country for many years."

The late Mr. A. D. Bartlett contributed the following note to Mr. Elliot's monograph:—"When the two Birds of Paradise first arrived at the Gardens, in April 1862, their plumes were quite short, only about five inches long. The birds had moulted, and the new feathers were growing in a thick bunch on each side below their wings. They appeared in good health, and were active and lively. I soon ascertained how fond they were of meal-worms and other insects; and they fed freely upon fruit, boiled rice, &c.; a little cooked flesh was also acceptable to them. Their mode of hopping about from perch to perch and clinging to the bars or wires of the cage reminded one of a Jay or Jackdaw. They were fond of a bath, and were very careful in dressing and drying their fine plumes; these were about two months in growing to full perfection; and it was a charming sight to see them when in full plumage. When uttering their loud call the body was bent forward, the wings spread open and raised up, frequently over their heads, meeting the plumes, which were spread in the most graceful manner, every feather vibrating in a way that almost dazzled the sight. During this display the bird would become greatly excited, and sometimes turn almost under the perch or branch, the head and neck being bent so low down. At this period we found they would not agree, but attacked each other; and we were therefore obliged to keep them separated by a wire division. They hopped about like Jays or Jackdaws, never ran like Starlings or Magpies, and when on the ground raised the points of the plumes so that they should not touch the earth. They soon became very tame, and would take food from the hand; and the sight of a meal-worm would bring them down from the perch immediately. The moult was extremely rapid, the fine plumes being thrown off in a few days; and these appeared to grow all at the same time in a bunch. It is therefore certain that these birds, after they attain the adult plumage, lose it only during the annual moult, like the Peacock and many other richly ornamented birds."

The following descriptions are taken from my third volume of the 'Catalogue of Birds':—

Adult male. A narrow frontal band, lores, cheeks, and throat velvety green, slightly metallic, the forehead and chin, as well as a spot at the base of the lower mandible, appearing velvety black; crown of head and hind-neck, as well as the sides of the latter, converging towards the lower throat, bright golden straw-colour, all the plumes velvety in texture; mantle and scapulars dull ochraceous straw-colour, all the feathers ruddy at the base; wing-coverts maroon-brown, the least ones washed with ochraceous straw-colour, the median and greater series tipped with golden straw-colour, forming a double bar across the wing-quills, which are maroon-brown, as also the lower back, rump, upper tail-coverts, and tail, the two centre tail-feathers produced into two long thread-like shafts about 18 inches in length; under surface of body from the throat downwards to the under tail-coverts maroon-brown; from the flanks are developed two large tufts of plumes, bright yellow for their basal half, white for the terminal half, at the base of the flank-tufts a few rigid blood-red plumes; under wing-coverts and inner lining of quills maroon-brown, like the breast: bill leaden grey; feet black. Total length 14·5 inches, culmen 1·35, wing 7·3, tail 6·2, tarsus 2.

Adult female. Wants the long flank-plumes and the metallic green about the forehead and throat which are seen in the male. General colour above, including the wings and tail, maroon-brown; head, sides of face, and throat maroon-brown, darker than the back, the hind-neck and mantle dull ochraceous straw-colour, with which also the wing-coverts are washed; the whole of the under surface, from the throat downwards, silky white; thighs pale maroon-brown, the sides of the breast and flanks also slightly washed

with maroon; the under wing-coverts white, those near the outer edge of the wing maroon-brown. Total length 13·5 inches, culmen 1·35, wing 6, tail 4·9, tarsus 1·6.

Young male. At first resembling the old female, and gaining the adult plumage only very gradually. Specimens in the Museum show that by the time the yellow head and throat are assumed the middle tail-feathers commence to elongate and become narrower, the maroon-brown on the breast gradually extends over the whole of the under surface; but even when it has overspread the entire breast the long flank-plumes are not developed, although the two wire-like centre tail-feathers are seen to their full extent.

The first of the Plates represents the adult male of this species, and in the second Plate is figured an adult female and young male.

PARADISEA JOBIENSIS, *Rothsch.*

Jobi Lesser Bird of Paradise.

Paradisea minor (pt.), Salvad. Orn. Papuasia e delle Molucche, ii. p. 577 (1881).—Guillem. P. Z. S. 1885, p. 651.—Salvad. Agg. Orn. Papuasia, ii. p. 158 (1890).
Paradisea minor jobiensis, Rothschild, Bull. Brit. Orn. Club, vi. p. xlvi (1897).

The Jobi Island form of *Paradisea minor* is easily distinguishable in a series of skins by its larger size and longer flank-plumes. It is a very recognizable race when compared with specimens of the ordinary *P. minor* of New Guinea. In every other respect the Jobi birds resemble typical *P. minor*, but their larger size has been more than once remarked by Salvadori, Guillemard, and other naturalists. The last-named traveller states that in Jobi the abundance of the present species was wonderful. "In the neighbourhood of Ansus, at an altitude of about 1000 feet or less, we obtained no less than fifty-one examples in five days. The known segregation of the older males at certain (or all ?) periods of the year partly explains the great preponderance of that sex in the present series. Immature males are also very common, but it is difficult to get females, and there is no doubt a considerable actual preponderance in numbers in favour of the male sex."

Dr. Guillemard gives an interesting account of the changes of plumage in this Bird of Paradise from the large series obtained by him during the voyage of the 'Marchesa.' The iris was "lemon-yellow, with a tinge of green. The green shade is sufficiently well marked during life, but fades immediately after death, when the iris appears yellow. Feet and tarsus bluish slate; bill almost lavender."

Dr. Guillemard remarks further that the sixty specimens of the Lesser Bird of Paradise recorded by him in his paper on the birds collected during the voyage of the yacht 'Marchesa' form "only a part of the whole series collected during the voyage," but they "demonstrate well the gradual change from immature to adult plumage." These changes are described by Dr. Guillemard as follows:—"The young birds in first plumage exactly resemble the females, but in a short time the purity of the white on the under surface and a marked increase in size render apparent the difference in sex. The yellow of the scapulars becomes more marked, and the green of the throat and the yellow of the head begin to appear simultaneously. This green is assumed by the gradual tipping of each feather with that colour (in the adult the apex only of each feather is green), while on the head the brown feathers gradually become yellow from beneath. The plumage of the head and throat having become complete, the two median rectrices begin to elongate, and the lower part of the throat becomes tinged with chestnut. At a further stage the mantle has become more yellow, the chestnut on the throat and breast has extended, and the median rectrices, which are still slightly webbed at the tip, protrude some six inches beyond the other feathers. At a still further advanced stage the yellow mantle is complete, the entire breast is chestnut, and the abdomen is becoming so, the wire-like tail-feathers have reached their extreme length, and nothing is therefore wanting to complete the full plumage except the chestnut abdomen and the long sub-alar plumes, of which latter there is as yet no trace.

"I am rather inclined to the belief that the bird remains for some time in this half-perfect plumage. We were fortunate enough in our expedition to New Guinea to obtain no less than four living examples of this species, three of which are at the present moment (June, 1885) in the Gardens of the Zoological Society. When first obtained, in the month of December, they were in the dress I have just described, and they remained thus for some two or three months. The yellow feathers of the head then fell off in two of the four, the birds becoming quite bald in patches, leaving nothing but the black skin showing. At the same time the sub-alar tufts began to appear. New feathers rapidly appeared on the head; they were almost white at first, but soon assumed the yellow shade. The sub-alar tufts grew quickly, and were tolerably long within three weeks of their first appearance.

"The food given to the birds while on board consisted of boiled rice, banana, papaw fruit, cockroaches, and chopped egg."

The changes of plumage described above may be considered to occur in the true *Paradisea minor*, and for these reasons I have quoted Dr. Guillemard's account in full.

The close resemblance of *P. jobiensis* to *P. minor* has rendered a separate figure unnecessary.

PARADISEA FINSCHI, *Meyer*.

Finsch's Bird of Paradise.

Paradisea finschi, Meyer, Zeitschr. f. ges. Orn. ii. p. 383 (1885), iii. p. 36 (1886).—Id. Ibis, 1886. p. 250.—D'Hamonv. Bull. Soc. Zool. France, xi. pp. 507, 509 (1886).—Salvad. Aggiunte Orn. Papuasia, ii. p. 158 (1890), iii. p. 241 (1891).—Meyer, Ibis, 1890, p. 420.—Id. Abhandl. k. Mus. Dresd. 1892–93, no. 3, p. 20 (1893).—Sharpe, Bull. Brit. Orn. Club, iv. p. xiii (1894).—Rothschild, op. cit. vi. p. xlvi (1897).

Paradisea minor (nec Shaw), Madarász, Aquila, 1894, p. 90.—Id. Termesz. Füzetek, xx. p. 27 (1897).—Reichen. J. f. O. 1897, p. 214.

This is a race of *Paradisea minor*, and represents the latter species in German New Guinea. It was first described by Dr. A. B. Meyer from a native skin procured by Dr. Otto Finsch, who remarks:—"I obtained only imperfect skins of this species from the natives of the north-east coast of Kaiser Wilhelm's Land, at 142° 30′ E. long., about 60 miles west of D'Urville Island: on the Admiralty chart 'Passir Point' is marked here, but no such point exists in reality. Only at this one spot on the north coast did the natives bring Paradise-bird skins for sale along with ornamental plumes of *Dasyptilus*. All skins from this locality were small in dimensions."

In describing the type specimen of *P. finschi*, Dr. Meyer writes as follows:—"The single native skin which constitutes the type of this species has the brown of the upper surface not pure chestnut, as in *P. minor*, but paler brown, while the under surface is not chestnut-brown with a vinous tinge as in *P. minor*, but more of a reddish brown. These variations in colour are very noticeable. *P. finschi*, moreover, differs from *P. minor* in the size and the form of the bill, which is more slender and elongated in the latter; its length in *P. minor* reaches 32–35 millim. in specimens in the Dresden Museum. There seems to be also a difference in the colour of the upper mandible, which in *P. finschi* has a light-coloured culmen."

Since Finsch's Bird of Paradise was first described, several specimens have been received from Kaiser Wilhelm's Land. Near the coast the full-plumaged males have all been shot down (as Dr. Meyer, a true naturalist, regrets) by the gentlemen who represent the German New Guinea Company, and the skins have been sold for plumes for women's hats in Australia and in Europe.

Only the present form of yellow-plumed Bird of Paradise is found in Astrolabe Bay, and Dr. Meyer was informed by Miklucho-Maclay, the Russian traveller who lived there for eighteen months, that only *P. finschi* occurred in the district, and that *P. augustæ-victoriæ* was not found there. From an examination of the series in the Tring Museum, I am able to confirm the observation of the Hon. Walter Rothschild, that Dr. Meyer's characters for the separation of *P. finschi*, made from a native skin, are not the most salient ones for the separation of this race. The real differences have been pointed out by Mr. Rothschild, and they consist of the following, viz., the darker vinous-brown colour of the breast and the crisp texture of the feathers of the chest, somewhat approaching the shield of *P. augustæ-victoriæ*, while the yellow on the wing-coverts is less distinct.

Mr. Rothschild's collection contains a good series of specimens obtained in German New Guinea by Captains Webster and Cotton, and it is probable that *P. finschi* extends along the northern coast of New Guinea, but its range is not yet fully known.

It has not been considered necessary to give a separate figure of this race.

TRICHOPARADISEA GULIELMI (Cab.)

W. Hart del. et lith.

Mintern Bros. imp.

TRICHOPARADISEA GULIELMI (*Cab.*).

Emperor of Germany's Bird of Paradise.

Paradisea gulielmi, Cabanis, J. f. O. 1888, p. 119.

Paradisea gulielmi tertii, Cabanis, J. f. O. 1889, tab. i.—Salvad. Agg. Orn. Papuasia e delle Molucche, p. 158 (1890).—Madarász, Aquila, i. p. 90 (1894).

Trichoparadisea gulielmi, Meyer, Abhandl. k. zool. Mus. Dresden, 1892-93, p. 20 (1893).—Sharpe, Bull. Brit. Orn. Club, iv. p. xiii (1894).

This fine species of Bird of Paradise, for which Dr. Meyer has rightly instituted a new generic name, was discovered in German New Guinea, and named after the Emperor of Germany by Professor Cabanis.

The exact locality of the species was not known till Mr. Geisler procured the species in the mountains to the north of Huon Gulf, where it was found not lower than 800 feet. It has also been found by the late Mr. Fenichel in the Finisterre Mountains at a height of about 1600 feet, where it is called by the natives 'Chanbi.' Captain Cotton and Captain Webster procured a series of specimens on the Sattelberg Mountain in the Finisterre range, on their recent expedition, for the Hon. Walter Rothschild, who has presented a fine pair of birds to the British Museum, from which the following descriptions are taken :—

Adult male. General colour above maroon-brown, washed on the lower back with straw-yellow ; the whole of the hinder neck, mantle, and upper back, as well as the lesser wing-coverts, bright straw-yellow ; remainder of the wing-coverts, quills, upper tail-coverts, and tail-feathers maroon-brown, the two centre tail-feathers represented by long brown shafts, devoid of webs ; crown of head metallic grass-green, as well as the sides of the face and entire throat and chest ; the green cap approaching a point on the nape, which is deeper straw-colour, extending down the sides of the neck in a sharply defined line from the green throat-shield ; remainder of under surface of body deep maroon, velvety on the breast, the abdomen rather more blackish, with a pale yellowish-white patch on each side ; long flank-plumes white, the feathers with hair-like and dissociated webs, some of the upper long flank-plumes being dark maroon-brown like the breast, the inner long plumes being golden yellow ; under wing-coverts and quill-lining dark maroon-brown : "bill and feet reddish brown ; iris reddish brown" (*Fenichel*). Total length 13 inches, culmen 1·15, wing 6·7, tail 4·4, centre tail-feathers 18·5, tarsus 1·8.

Adult female. Similar to the male, but much duller in colour and wanting the ornamental flank-plumes, the crown and throat being blackish chocolate of a velvety character, the shape of the yellow on the hinder crown being the same as in the male, but the yellow much duller in colour, as well as the straw-yellow on the breast, this colour being washed with greenish grey ; the lesser wing-coverts entirely of a greenish-grey colour ; the same crossing the fore-neck in an indistinct band ; remainder of the under surface from the chest downwards dark maroon-brown ; the flank-plumes a little longer, but of the same colour as the breast. Total length 13·3 inches, culmen 1·5, wing 6·6, tail 4·5, tarsus 1·75.

A younger female, from the Sattelberg Mountain, lent me by Mr. Rothschild, is paler than the female bird described, especially on the under surface of the body, which is pale maroon or dull vinous, with indistinct mottlings of dusky cross-bars, nearly obsolete and scarcely distinguishable, the pale straw-colour of the sides of the neck extending across the fore-neck below the blackish throat.

The three specimens from the Rothschild Museum described above are figured in the Plate. The adult male and female have been presented by him to the British Museum.

URANORNIS RUBRA *(Daud.)*

J. Gould & W. Hart del. et lith.

Mintern Bros. imp.

URANORNIS RUBRA (*Daud.*).

Red Bird of Paradise.

Paradisea rubra, Lacép. Mus. Paris.—Daud. Tr. d'Orn. ii. p. 271 (1800).—Vieill. Ois. Dor. ii. p. 14 (1802).—Le Vaill. Ois. Parad. i. p. 23 (1806).—Cuv. Règn. An. i. p. 403 (1817).—Vieill. N. Dict. d'Hist. Nat. xxx. p. 114, pl. (1819).—Ranz. Elem. di Zool. iii. pt. 4, p. 68, pl. xii. fig. 1 (1822).—Vieill. Enc. Méth. p. 907 (1823).—Id. Gal. Ois. i. p. 152, pl. 99 (1825).—Dumont, Dict. Sc. Nat. xxvii. p. 506 (1825).—Stephens, Gen. Zool. xiv. p. 76 (1826).—Less. Voy. Coq., Zool. pl. 27 (1826).—Wagl. Syst. Av., Paradisea, p. 101, sp. 3 (1827).—Less. Man. d'Orn. i. p. 393 (1828).—Id. Voy. Coq., Zool. i. pt. 2, p. 660 (1828).—Drapiez, Dict. Class. Hist. Nat. xiii. p. 46 (Jan. 1828).—Cuv. Règn. An. 2nd ed. i. p. 427 (1829).—Less. Traité d'Orn. p. 336, pl. 37. fig. 1 (1831).—Id. Ois. Parad. Syn. p. 8, & Hist. Nat. p. 160, pls. 7 (♂), 8 (♀) (1835).—Swains. Classif. B. ii. p. 331 (1837).—Gray & Mitchell, Gen. B. ii. p. 322, pl. 79 (1847).—Blyth, Cat. B. Mus. As. Soc. p. 106 (1849).—Bp. Consp. Av. i. p. 413 (1850).—Cab. Mus. Hein. i. p. 214 (1851).—Horsf. & Moore, Cat. B. Mus. E. I. Co. ii. p. 548 (1856-58).—Scl. Journ. Proc. Linn. Soc. ii. p. 163 (1858).—Gray, Proc. Zool. Soc. 1858, p. 194.—Id. Cat. B. New Guin. pp. 36, 59 (1859).—Wall. Ibis, 1859, p. 111, 1861, pp. 211, 287, 290.—Gray, Proc. Zool. Soc. 1861, pp. 431, 436.—Schl. J. f. O. 1861, p. 385.—Wall. Proc. Zool. Soc. 1862, pp. 157-161.—Rosenb. Nat. Tijdschr. Nederl. Ind. xxv. p. 245 (1863).—Id. J. f. O. 1864, p. 130.—Finsch, Neu-Guinea, p. 173 (1865).—Schl. Nat. Tijdschr. Dierk. iii. p. 249 (1866).—Id. Mus. Pays-Bas, Coraces, p. 84 (1867).—Id. Dierent. Vogels, p. 170 (c 1869).—Wall. Malay Archip. ii. pp. 351, 353, 367, 397, 419 (1869).—Beccari, Ann. Mus. Genov. vii. p. 713 (1875).—Salvad. op. cit. viii. p. 402 (1876).—Rosenb. Malay. Arch. p. 359 (1879).—Sclater, Proc. Zool. Soc. 1881, p. 450.—Nehrk. J. f. O. 1885, p. 34.—Guillem. Proc. Zool. Soc. 1885, p. 653.—D'Hamonv. Bull. Soc. Zool. France, 1886, pp. 506, 509.

Le Paradis rouge, Vieill. Ois. Dor. ii. p. 14, pl. 3 (1802).

L'Oiseau de paradis rouge, Le Vaill. Ois. Parad. i. pl. 6 (1806).

Paradisea sanguinea, Shaw, Gen. Zool. vii. pt. 1, p. 487, pl. 59 (1809).—Temm. Man. d'Orn. i. p. lv (1820).—Raffl. Trans. Linn. Soc. xiii. p. 300 (1821).—Gray, Hand-l. B. ii. p. 16, no. 6249 (1870).—Elliot, Monogr. Parad. pl. 4 (1873).—Salvad. Ann. Mus. Genov. vii. p. 782 (1875).—Gould, Birds of New Guinea, i. pl. 31 (1877).—Sharpe, Cat. Birds Brit. Mus. iii. p. 170 (1877).—Eudes-Deslongch. Ann. Mus. Caen, i. p. 25 (1880).—Cory, Beautiful and Curious Birds, part vi. (1883).—Musschenbr. Dagboek, pp. 188, 221 (1883).—Rosenb. Mitth. orn. Ver. Wien, 1885, p. 31.

Red Bird of Paradise, Lath. Gen. Hist. Birds, iii. p. 186 (1822).

Uranornis rubra, Salvad. Ann. Mus. Civic. Genov. ix. p. 191 (1876).—Id. Orn. Papuasia, etc. ii. p. 623 (1881).—Id. op. cit. iii. p. 553 (1882).—Id. Agg. Orn. Papuasia, ii. p. 160 (1890).

The brilliant red flank-plumes of this Bird of Paradise would suggest that it is closely allied to *Paradisea raggiana* and *P. decora*. I fully agree, however, with Count Salvadori as to the advisability of separating it generically from the genus *Paradisea*, as the extraordinary form of the central tail-feathers, the erectile tufts of feathers on each side of the head, and the composition of the flank-plumes are all characters of sufficient weight to justify its separation.

Although some writers have recorded the species from New Guinea, it would seem that all statements as to its occurrence in the Great Papuan Island must be considered to be erroneous, and the home of the Red Bird of Paradise is undoubtedly in the islands of Waigiou and Batanta. It will doubtless also be found in some of the adjacent islands, as it was collected in the small island of Ghemien by the late Dr. Bernstein.

The development of the central tail-feathers in the adult male of this species is one of the most curious and interesting features in the economy of any species belonging to this extraordinary family of birds. The female lacks the beautiful decorations of the male, and the young male resembles the female at first, but gradually assumes the adult plumage. Count Salvadori, as a result of the examination of a large series of specimens, believes that the first change takes place in the feathers of the head, where the beautiful green plumes make their appearance, and that probably at the same time the central tail-feathers commence their development, while the red flank-plumes are the last to appear.

The central tail-feathers are at first shorter than the others, and as they grow the web disappears from the middle of the feather, leaving a spatula or racket at the end. At first the shaft is brown, and Count Salvadori thinks that the black and hollowed shaft of the adult is assumed only by successive moults; but I fancy that the change takes place more rapidly, as it is evident that the shaft of the feather broadens and

hardens gradually, and the black shaft is sometimes found with a feathery spatule at the end. It appears to me to be improbable that each succeeding moult of the black whalebone-like plumes should be accompanied by a feathery tip to the latter.

Dr. Wallace's account of the habits of this species is still the only full one that has been published, and I give some extracts below. Since he travelled in the Malay Archipelago, a specimen has been successfully kept in confinement, and one lived for some time in the Zoological Gardens, having been brought home by Mr. Kettlewell during the cruise of the 'Marchesa.'

The following are Dr. Wallace's notes:—

"When I first arrived I was surprised at being told that there were no Paradise-birds at Muka, although there were plenty at Bessir, a place where the natives caught them and prepared the skins. I assured the people I had heard the cry of these birds close to the village; but they would not believe that I could know their cry. However, the very first time I went into the forest I not only heard but saw them, and was convinced there were plenty about; but they were very shy, and it was some time before we got any. My hunter first shot a female; and I one day got very close to a fine male. He was, as I expected, the rare red species, *Paradisea rubra*, which alone inhabits this island and is found nowhere else. He was quite low down, running along a bough searching for insects, almost like a Woodpecker; and the long black riband-like filaments in his tail hung down in the most graceful double curve imaginable. I covered him with my gun, and was going to use the barrel, which had a very small charge of powder and No. 8 shot, so as not to injure his plumage; but the gun missed fire, and he was off in an instant among the thickest jungle. Another day we saw no less than eight fine males at different times, and fired four times at them; but though other birds at the same distance almost always dropped, these all got away, and I began to think we were never to get this magnificent species. At length the fruit ripened on the fig-tree close to my house, and many birds came to feed on it; and one morning, as I was taking my coffee, a male Paradise-bird was seen to settle on its top. I seized my gun, ran under the tree, and, gazing up, could see it flying across from branch to branch, seizing a fruit here and another there; and then, before I could get a sufficient aim to shoot at such a height (for it was one of the loftiest trees of the tropics), it was away into the forest. They now visited the tree every morning; but they stayed so short a time, their motions were so rapid, and it was so difficult to see them, owing to the lower trees which impeded the view, that it was only after several days' watching, and one or two misses, that I brought down my bird—a male in the most magnificent plumage. . . . . I had only shot two Paradiseas on my tree when they ceased visiting it, either owing to the fruit becoming scarce, or that they were wise enough to know there was danger. We continued to hear and see them in the forest, but after a month had not succeeded in shooting any more; and as my chief object in visiting Waigiou was to get these birds, I determined to go to Bessir, where there are a number of Papuans who catch and preserve them. I hired a small outrigger boat for this journey, and left one of my men to guard my house and goods. . . . . My first business was to send for the men who were accustomed to catch the Birds of Paradise. Several came; and I showed them my hatchets, beads, knives, and handkerchiefs, and explained to them as well as I could by signs the price I would give for fresh-killed specimens. It is the universal custom to pay for everything in advance; but only one man ventured to take goods to the value of two birds. The rest were suspicious, and wanted to see the result of the first bargain with the strange white man, the only one who had ever come to their island. After three days my man brought me the first bird—a very fine specimen, and alive, but tied up in a small bag, and consequently its tail- and wing-feathers were very much crushed and injured. I tried to explain to him, and to others that came with him, that I wanted them as perfect as possible, and that they should either kill them or keep them on a perch with a string to their leg. As they were now apparently satisfied that all was fair, and that I had no ulterior designs upon them, six others took away goods, some for one bird, some for more, and one for as many as six. They said they had to go a long way for them, and that they would come back as soon as they caught any. At intervals of a few days or a week some of them would return, bringing me one or more birds; but though they did not bring any more in bags, there was not much improvement in their condition. As they caught them a long way off in the forest, they would scarcely ever come with one, but would tie it by the legs to a stick, and put it in their house till they caught another."

The figures in the Plate represent an adult male in two positions, and are drawn from specimens formerly in the Gould collection.

PARADISORNIS RUDOLPHI, *Finsch.*

W. Hart del. et lith.

Mintern Bros. imp.

PARADISORNIS RUDOLPHI, *Finsch*

Prince Rudolph's Bird of Paradise.

Paradisornis rudolphi, Finsch, Zeitschr. ges. Orn. ii. p. 385, Taf. xx. (1885).—Finsch and Meyer, op. cit. iii. p. 29 (1886).—Finsch, Ibis, 1886, p. 252, pl. vii.—Sharpe, Nature, 1886, p. 340.—D'Hamonv. Bull. Soc. Zool. France, xi. p. 509 (1886).—Ramsay, Pr. Linn. Soc. N. S. W. (2) ii. p. 25 (1887).—Salvad. Agg. Orn. Papuasia, pt. ii. p. 163 (1890).

This wonderful bird is an inhabitant of South-eastern New Guinea, and it is not saying too much to state that, among all the extraordinary birds which inhabit the earth, this is one of the most striking. Accustomed as naturalists have been to the fantastic coloration of the Birds of Paradise, with their long flowing yellow or red plumes, no one could have expected that a bird existed which had blue streamers, as we find to be the case in the present bird.

The original examples were obtained in the Horseshoe range of mountains by the late Mr. Karl Hunstein, and they were described in a joint paper by Dr. Otto Finsch and Dr. A. B. Meyer, the genus *Paradisornis* being characterized by the last-named ornithologist, while the species was dedicated to the late Crown Prince of Austria by Dr. Finsch. Mr. H. O. Forbes afterwards met with this fine species in the Sogeri district of the Owen Stanley Mountains, but he only obtained females, and this was the case subsequently with other collectors. The late Mr. Hugh Romilly's collection at the Colonial Exhibition in South Kensington contained a couple of specimens of the present species, which were afterwards given by him to the British Museum, where they still remain: they were likewise female birds, and the male is up to the present moment unrepresented in the National Collection.

The following descriptions are taken from the papers of Drs. Finsch and Meyer, above referred to:—

"*Male*. Front and sides of the head, neck, and shoulders satiny black, with a dark yellowish-green metallic sheen, which disappears behind; eyelashes long, white, silky; behind the eye a naked spot; back of head and nape cherry-brown; back greenish blue mixed with black. Wings above blue, in front brighter, the lesser and middle coverts edged with bright blue, as also the tertiaries on the inner webs; inner webs of the wings black. Breast-shield with long feathers, blackish, in certain lights alternately glancing bluish and greenish, towards the belly terminating in a well-defined broad blue cross band, and on the sides passing into the ultramarine of the ornamental plumes; belly shining satiny black. Under wing-coverts brownish mixed with dark grey; axillaries exteriorly brownish, interiorly bluish green; under surface of wings blackish grey, with brighter inner edgings on the primaries and bluish on the secondaries. The ornamental plumes are divided into two portions: the larger outer ones are rather rigid, and on the underside are bright ultramarine blue at their bases and pass into lilac; on their uppersides, *i. e.* on the hinder sides, they are shining brown; the shafts of these feathers above at their bases are white, with the end half brown, below they are entirely bright brown. The smaller inner ornamental plumes, which are in part strongly curved inwards, are bright blue at their base, in the middle portion ultramarine or cobalt-blue, passing towards the apices into bright greenish blue; upon the smaller ornamental plumes lie as coverts a row of shortened chestnut-brown feathers strongly curved, and upon part of them another row of black feathers. Tail blue above, with brighter edgings, and dirty greenish at the base; below it is uniform bright blue: two lengthened middle tail-feathers carry at their bases brownish webs on a white shaft; at the end of the other tail-feathers these webs disappear almost entirely, and then again gradually increase to a breadth of half a centimetre the two together; the spatula-shaped tips are about 7 millim. in diameter; the colour of these feathers is above black, changing to violet; below black, with a light blue spot at the tip; the shafts are black both above and below. Bill yellowish white; feet (in dried skin) brownish horn-colour; iris (according to Hunstein's information) brown.

"*Female*. Flank-feathers loose and lengthened, on their inner sides greenish blue; belly rusty reddish with dark cross bands; the feathers on their undersides bluish green; tail beneath with lightly marked shadings, which disappear towards the end of the tail; thighs black; feathers of the upper back long, loose, satiny black, beneath greenish blue; side-feathers of the hinder neck lengthened and erectile."

The figure of the adult male is taken from a drawing made by Mr. J. G. Keulemans from the typical specimen, when the latter was sent to England by Dr. Meyer to be figured in the 'Ibis.' Dr. Meyer has very kindly supervised Mr. Hart's figures for me, and made several corrections of details, so that I hope that this Plate gives a more correct idea of the bird than any of those previously published. The typical male specimen is in the Dresden Museum, and the figure of the female has been taken from one of the examples in the British Museum.

LAMPROTHORAX WILHELMINÆ, *Meyer.*

J.G. Keulemans lith. Hart del et lith. *Mintern Bros. imp.*

LAMPROTHORAX WILHELMINÆ, *Meyer.*

Green-trained Bird of Paradise.

Lamprothorax wilhelminæ, Meyer, Abhandl. k. zool. Mus. Dresd. 1894-95, No. 2, p. 3, Taf. i.—Büttik. Notes Leyd. Mus. xvi. p. 164 (1894).—Sharpe, Bull. Brit. Orn. Club, iv. p. xiii (1894).

At the time of writing, only two specimens of this wonderful bird are known to me. One is the typical specimen in the Dresden Museum, and the other is in the Leiden Museum. The genus *Lamprothorax* occupies a well-marked position among the Birds of Paradise, and is distinguished from *Lophorhina* and the other allied genera by its square tail, with two elongated metallic green centre feathers. There is also a very distinct frill round the hind-neck.

The habitat of the species is the Arfak Mountains, in North-western New Guinea. Nothing is known of its habits or changes of plumage.

The following description is taken from the specimen in the Leiden Museum :—

Male (not quite full-plumaged). Velvety brown, blacker on the rump and upper tail-coverts; the back much mixed with reddish-brown feathers, and especially on the wing-coverts; the outer wing-coverts purplish violet, the quills blackish, glossed with purplish violet; the inner secondaries more or less reddish brown. The plumage of these parts is, I think, imperfect, and I expect that the wing will be velvety black; tail black with a purplish-violet gloss, the two centre feathers metallic steel-green; head and neck purplish violet, with a tinge of leaden grey, the lores and fore part of the cheeks having a velvety-black appearance; the feathers of the hind-neck elongated and forming a frill; throat, sides of face, and sides of neck purplish bronze, with a bronzy shade on the sides of the face; chin and upper throat bronzy; lower throat, fore-neck, and chest metallic green, forming a shield, with some beautiful reflections of purple and green, especially on the lengthened feathers on the sides of the shield: breast, abdomen, thighs, and under tail-coverts velvety black; under wing-coverts with a violet shade.

Total length 12·4 inches, culmen 1·1, wing 5, tail 2·9, centre tail-feathers 5·85, tarsus 1·4.

The figure in the Plate represents a life-sized illustration of the specimen above described. It is drawn from a sketch made by Mr. Keulemans.

CICINNURUS REGIUS.

J. Gould & W. Hart del et lith.

Mintern Bros. imp.

CICINNURUS REGIUS.

King Bird of Paradise.

The supposed King of the Greater Birds of Paradise, Edwards, Birds, iii. p. 111, pl. 111 (1750).
Le Petit Oiseau de Paradis, Briss. Orn. ii. p. 136, pl. 13 (1760).
Paradisea regia, Linn. Syst. Nat. i. p. 166 (1766).—Forst. Ind. Zool. p. 36 (1781).—Gm. Syst. Nat. i. p. 400 (1788).—Daud. Orn. ii. p. 272, pl. 19 (1800).—Shaw, Gen. Zool. vii. p. 497, pl. 67 (1809).—Less. Voy. Coquille, i. p. 658, pl. 26 (1826).—Wagler, Syst. Av., Paradisea, sp. 7 (1807).—Gray, Gen. B. ii. p. 323 (1847).—Schl. Handl. Dierk. i. p. 332, pl. iv. fig. 46 (1857).—Id. Journ. für Orn. 1861, p. 385. —Id. Mus. Pays-Bas, Coraces, p. 88 (1867).—Id. Nederl. Tijdschr. Dierk. Amsterdam, iv. pp. 17, 49 (1871).—Gray, Proc. Zool. Soc. 1858, p. 181, 1861, p. 436.—Id. Hand-l. B. ii. p. 16, no. 6252 (1870).—Wallace, Ibis, 1859, p. 111.—Id. Proc. Zool. Soc. 1862, p. 160.—Id. Malay Arch. ii. p. 132 (1869).—Wagler, Zool. Gart. 1873, p. 10.—Rosenb. Reist. naar Geelvinkb. p. 17 (1875).—Id. Malay. Archip. pp. 369, 395, 557 (1879).—Musschenbr. Dagboek, pp. 192, 224 (1883).—Rosenb. Mitth. orn. Ver. Wien, 1885, p. 39.
King Paradise-bird, Lath. Gen. Syn. i. pt. 2, p. 475 (1772).
Le Manucode, Daubent. Pl. Enl. iii. pl. 496.—Montb. Hist. Nat. Ois. iii. p. 163, pl. 13 (1775).—Audeb. & Vieill. Ois. Dor. ii. p. 16, pl. 5 (1802).—Levaill. Hist. Nat. Ois. de Paradis, i. pls. 7, 8 (1806).
Le Roi des Oiseaux de Paradis, Sonn. Voy. Nouv. Guin. i. p. 156, pl. 95 (1776).
Paradisea rex, Scop. Del. Flor. et Faun. Insubr. ii. p. 88 (1786, *ex* Sonn.).
Cicinnurus spiniturnix, Less. Ois. de Parad. Syn. p. 14 (1835).—Id. Hist. Nat. Ois. de Paradis, p. 182, pls. 16-18 (1835).
Cicinnurus regius, Vieill. N. Dict. d'Hist. Nat. xix. p. 247 (1818).—Id. Gal. Ois. i. p. 146, pl. xcvi. (1825).—Lesson, Traité d'Orn. p. 338 (1831).—Bp. Consp. i. p. 413 (1850).—Wall. Ibis, 1861, p. 287.—Rosenb. Journ. für Orn. 1864, p. 130.—Elliot, Monogr. Parad. pl. xvi. (1873).—Salvad. Ann. Mus. Civic. Genov. vii. p. 783 (1875).—Id. & D'Albert. t. c. p. 832 (1875).—Salvad. op. cit. viii. p. 402 (1876), ix. p. 192 (1876).—Gould, Birds of New Guinea, i. pl. 24 (1876).—Sharpe, Cat. Birds in Brit. Mus. iii. p. 171 (1877).—Salvad. Ann. Mus. Civ. Genov. x. p. 152 (1877).—Id. P. Z. S. 1878, p. 98.—Ramsay, Pr. Linn. Soc. N. S. W. iii. p. 267 (1878), iv. p. 97 (1879).—Salvad. & D'Alb. Ann. Mus. Civ. Genov. xiv. p. 112 (1879).—Eudes-Deslongchamps, Ann. Mus. d'Hist. Nat. Caen, i. p. 28 (1888).—Salvad. Orn. della Papuasia e delle Molucche, ii. p. 646 (1881).—Id. Voy. 'Challenger,' Birds, p. 81 (1881).—Cory, Beautiful and Curious Birds, pt. ii. (1881).—Salvad. Orn. della Papuasia e delle Molucche, iii., Addenda, p. 554 (1882).—Sharpe, Journ. Linn. Soc., Zool. xvi. p. 444 (1882).—Meyer, Zeitschr. ges. Orn. i. p. 293 (1884).—Guillem. P. Z. S. 1885, p. 655.—Meyer, Zeitschr. ges. Orn. iii. p. 34 (1886).—d'Hamonv. Bull. Soc. Zool. France, 1886, p. 509.—Tristr. Ibis, 1889, p. 554.—Salvad. Aggiunte Orn. della Papuasia e delle Molucche, ii. p. 163 (1890).—Goodwin, Ibis, 1890, p. 150.

Considering that the present beautiful species is one of the earliest known to European travellers, and that it was described in the very first published records of the Birds of Paradise, it is somewhat remarkable that we know so little of its habits.

It is apparently not a rare bird in the countries which it inhabits, and it has, moreover, the largest distribution of any species of the family, being found all over New Guinea, and inhabiting also the islands of Salawati, Mysol, Jobi, as well as the Aru group. It has even been said to occur in Batanta, but Count Salvadori thinks that there may have been some mistake as to this locality. There is a certain amount of variation in size between specimens from different localities, and the late Mr. Gould considered that there were at least two forms of King Bird of Paradise, recognizable not only by their different dimensions, but more especially by the size of the spiral racket at the end of the centre tail-feathers. Although some individuals are larger than others, I have not been able to assure myself that these variations are accompanied by any difference of habitat, nor has Count Salvadori recognized more than one species of *Cicinnurus*, though he duly draws attention to the differences to be seen in specimens from the island of Jobi, where both sexes vary somewhat from the ordinary type.

The best account of the finding of the present species in its native haunts is that given by Dr. A. R. Wallace in his 'Malay Archipelago,' from which book I make the following extract:—

"The first two or three days of our stay here were very wet, and I obtained but few insects or birds; but at length, when I was beginning to despair, my boy Baderoon returned one day with a specimen which repaid me for months of delay and expectation. It was a small bird, a little less than the Thrush. Merely in arrangement of colours and texture of plumage, this little bird was a gem of the first water; yet these comprised only half of its strange beauty. Springing from each side of the breast, and ordinarily lying concealed under the wings, were little tufts of greyish feathers about two inches long and each terminated by a broad band of intense emerald-green. These plumes can be raised at the will of the bird, and spread out into a pair of elegant fans when the wings are elevated. But this is not the only ornament.

The two middle feathers of the tail are in the form of slender wires about five inches long and which diverge in a beautiful curve. Almost half an inch of the end of this wire is webbed on the outer side only, and coloured of a fine metallic green; and being curved spirally inwards, they form a pair of elegant glittering buttons, hanging five inches below the body, and at the same distance apart. These two ornaments, the breast-fans and the spiral-tipped tail-wires, are altogether unique, not occurring on any other species of the eight thousand different birds that are known to exist upon the earth, and, combined with the most exquisite beauty of plumage, render this one of the most perfectly lovely of the many lovely productions of nature. My transports of admiration and delight quite amused my Aru hosts, who saw nothing more in 'Burong raja' than we do in the Robin or Goldfinch. Thus one of my objects in coming to the far east was accomplished. I had obtained a specimen of the King Bird of Paradise, which had been described by Linnæus from skins preserved in a mutilated state by the natives. I knew how few Europeans had ever beheld the perfect little organism I now gazed upon, and how very imperfectly it was still known in Europe. The emotions excited in the mind of a naturalist who has long desired to see the actual thing which he has hitherto known only by description, drawing, or badly preserved external covering, especially when that thing is of surpassing rarity and beauty, require the poetic faculty fully to express them. After the first King bird was obtained, I went with my men into the forest; and we were not only rewarded with another in equally perfect plumage, but I was enabled to see a little of the habits of both it and the larger species. It frequents the lower trees of the less dense forests, and is very active, flying strongly with a whirring sound, and constantly hopping or flying from branch to branch. It eats hard stone-bearing fruits as large as a gooseberry, and often flutters its wings after the manner of the South-American Manakins, at which times it elevates and expands the beautiful fans with which its breast is adorned. The natives of Aru call it 'Goby-goby.'"

Mr. Goodwin, who was the naturalist to Sir William Macgregor's expedition to Mount Owen Stanley, writes:—"After we had left the low country and had commenced our ascent, we met with the King Bird, and secured several specimens on the first day. This was the first time I had the pleasure of seeing it in all its beauty, for the legs, when the bird is alive, are of a beautifully clear cobalt-blue, but they become black and shrivelled when the bird is dead. We did not meet with any more, and I do not think that this magnificent little bird is found at a higher altitude than 2000 feet above the sea-level, or far away from the coast. It is a restless little body, and not easy to see or to secure. It feeds on berries and seeds, which are plentiful in that locality."

Baron von Rosenberg states that the cry of this species, which is often uttered, has much similarity to the mewing of a kitten, and sounds like the word *kau*, which is pronounced in a soft tone like that of a flute.

The following descriptions are copied from the pages of the 'Catalogue of Birds':—

"*Adult male*. General colour above brilliant metallic crimson, slightly orange under certain lights, and more particularly so in the frontal plumes; above the eye a spot of green velvety feathers, appearing black in most lights; sides of head and sides of neck crimson like the back; entire throat and fore neck rich purplish crimson, the lower feathers tipped with orange-buff, forming a band across the fore neck, followed by a small pectoral band of rich metallic green, while from each side of the breast springs a tuft of long plumes, ashy brown in colour, tipped with metallic green, each feather with a subterminal line of buff and a second narrower one of reddish brown; remainder of under surface, including the under wing- and under tail-coverts pure white; scapulars and wings crimson, like the back; the quills orange-brown, externally washed with crimson, the innermost secondaries being entirely of the latter colour; tail ashy brown, the feathers margined with crimson or orange-red, the whole tail hidden with the long tail-coverts; two centre feathers elongated into a thread-like wire, with a curved disk of metallic green at the tip; 'iris brown; bill yellowish horn-colour, becoming quite yellow in the dried skin, in the female and young male brownish; legs and feet bright blue, somewhat duller in the female; inside of mouth bright yellowish green' (*F. H. H. Guillemard*). Total length 6·6 inches, culmen 0·8, wing 3·75, tail 1·6, middle tail-feathers 6·5, tarsus 1·1.

"*Adult female*. Dissimilar to the male. General colour above uniform brown, with a slight olive or golden shade, more particularly on the head; least and median wing-coverts uniform with the back; greater coverts and quills darker brown, externally washed with reddish orange; tail brown, with a slight golden gloss; loral plumes, feathers round the eye, sides of face, and throat dusky, varied with minute straw-coloured mesial streaks; rest of under surface pale fulvous, washed with golden buff on the fore neck, all transversely barred with dusky brown; under wing-coverts and axillaries rufous obscurely barred with brown, the edge of the wing golden orange. Total length 7·2 inches, wing 3·9, tail 2·5, tarsus 1·05.

"*Young male*. Similar to the adult female at first, but with a dull crimson shade on the wing. When the crimson plumage of the adult is nearly complete the two central feathers of the tail are put on, the shafts being feathered the whole way, and the ends of the feathers having the web entire and curved round. From the excellent series in the British Museum it would appear that the curve is gradually continued upon the feather itself, and that when the twist is complete the metallic green colour is assumed without a change of feather. One young male before me has one racket brown, and the other metallic green."

CICINNURUS COCCINEIFRONS, *Rothsch.*

Jobi-Island King Bird of Paradise.

Cicinnurus regius, auct. (ex Ins. Jobi).
Cicinnurus regius coccineifrons, Rothschild, Novit. Zool. iii. p. 10 (1896).

Count Salvadori seems to have been the first ornithologist to notice that the King Bird of Paradise from the Island of Jobi differed somewhat from the true *C. regius* of the Aru Islands and New Guinea, the differences consisting in the brighter red colour of the upper parts, and in the fuller development of the plumage at the base of the bill, which not only seemed to be shorter, but was remarkable for the way in which the feathering extended forward over the base. He also noticed a further difference in the colour of the light edging which separates the red colour of the neck from the green pectoral band, which was slightly greyish in some, but not in all, of the Jobi specimens. Dr. A. B. Meyer and Dr. Guillemard have also observed certain differences in the Jobi birds; but the Hon. Walter Rothschild states that the size of the supra-ocular spot and the violet tinge on the throat vary with individuals, and are therefore of no consequence.

Mr. Rothschild, however, separates the Jobi bird on account of its having the forehead of the same crimson colour as the rest of the upper parts, instead of being yellow as in the birds from the Aru Islands, and because the feathering at the base of the bill encroaches more on the culmen. He finds the characters constant in the series in the Tring Museum, from Mailu and Nicura in British New Guinea, Simbang and Constantine Harbour in German New Guinea, from Arfak, Salwatti, Mysol, and the Aru Islands.

The yellow-fronted bird is undoubtedly the true *Cicinnurus regius* of Linnæus, founded as this name is on Edwards's figure; and therefore the crimson-fronted bird requires separation, though Mr. Rothschild considers the Jobi form to be worthy of sub-specific rank only.

I find from an examination of the series in the British Museum that there is considerable variation with respect to the amount of crimson tint on the frontal plumes, as well as in the extent of the feathering over the base of the bill and the shape of the supra-ocular spot. The form of the latter seems to me to be dependent in great measure on the preparation of the skin. All the birds from the Aru Islands are large, and have the forehead inclining to orange-yellow; but this colour is less marked in a specimen from the Fly River and is still less marked in others from Mysol, which approach the crimson-fronted Jobi bird, and are apparently intermediate between *C. regius* and *C. coccineifrons*. An example in the Wallace collection from "New Guinea," presumably from Dorei, also agrees with the Mysol bird, rather than with those from Aru.

The following is a description of the type-specimen in Mr. Rothschild's museum:—

Similar to *C. regius*, but with a smaller bill; the frontal plumes encroaching further on the latter, and being entirely of a rich crimson colour, like the crown and rest of the upper parts, which are of a very dark tint like the throat; the dark spot above the eyes linear in shape and not rounded. Total length 6 inches, culmen 0·6, wing 4, tail 1·4, longest feathers 6, tarsus 1·05.

It has been considered unnecessary to give a separate figure of this race.

RHIPIDORNIS GULIELMI, III, (*Meyer*)

J. Gould & W. Hart del et lith.

Mintern Bros. imp.

RHIPIDORNIS GULIELMI TERTII (*Meyer*).

King of Holland's Bird of Paradise.

Diphyllodes gulielmi III., Musschenbr. in litt.—Meyer, Zool. Gart., Jan. 1875, p. 29.—Rosenb. t. c. p. 30.—Meyer, Nature, Jan. 14, 1875, p. 208.—id. P. Z. S. 1875, p. 31.—id. Mitth. Zool. Mus. Dresd. i. p. 3, pl. i. (1875).—Beccari, Ann. Mus. Gen. vii. p. 710 (1875).—Sclater, Ibis, 1876, p. 249.—Gould, Birds New Guin. i. pl. 21 (1876).—Sclater, Ibis, 1877, p. 493.—D'Hamonv. Bull. Soc. Zool. France, 1886, p. 510.

Rhipidornis guglielmi tertii, Salvad. Ann. Mus. Gen. ix. p. 192 (1876).—Meyer, Proc. Zool. Soc. 1886, p. 297.—Salvad. Agg. Orn. Papuasia, pt. ii. p. 162 (1890).

Rhipidornis respublica, Sharpe (nec Bp.), Cat. B. Brit. Mus. iii. p. 173 (1877).—Eudes-Deslongch. Ann. Mus. d'Hist. Nat. Caen, i. p. 30 (1880).

Rhipidornis gulielmi III., Salvad. Orn. Pap. ii. p. 645 (1881).—Scl. P. Z. S. 1883, p. 252.—Meyer, P. Z. S. 1886, p. 297.

Paradisea guglielmi III., Musschenbr. Dagboek, pp. 190, 223 (1883).—Rosenb. Mitth. orn. Ver. Wien, 1885, p. 31.

The present species was first recognized as distinct by Mr. van Musschenbroek, a well-known officer of the Dutch East Indian Service, whose name has often been mentioned in connection with the natural history of the Malayan Archipelago. He appears to have been well aware that the species, when he first received it, was quite new to science, and he even sent a description of it to Baron von Rosenberg, naming it *Diphyllodes gulielmi tertii*, after the King of Holland.

At the same time Van Musschenbroek forwarded the type specimens, with the name *D. gulielmi tertii* attached to them, to Dr. Meyer, who was then, as now, deeply attached to the study of Papuan Ornithology, to the history of which he has himself furnished most important contributions. Dr. Meyer duly published a description of the species, using Van Musschenbroek's specific title, in the 'Zoologischer Garten' for January 1875, and on the succeeding page appears Van Musschenbroek's original description, contributed by his friend Von Rosenberg. The first description of the species, however, having been furnished by Dr. Meyer, must bear his name as author.

The type specimens remained for some time in the Dresden Museum, but their ultimate fate is plaintively narrated by Dr. Meyer, as follows:—"As it is of importance to know where type specimens are preserved, I add the history of those of *Rhipidornis gulielmi tertii* described by myself. Having kept them in the Dresden Museum since the year 1875, I one day in the year 1877 received a telegram from Van Musschenbroek, who had returned home in 1876, telling me that he wished to show the birds to King William III. I sent the specimens to him, and never saw them again. They remained in the hands of the King, and we never succeeded in recovering these types for science, though supported by the late Prof. Schlegel, of Leyden; but after Van Musschenbroek's death, in the year 1883, the King of the Netherlands delivered the specimens to the Museum of the Zoological Society ('Natura Artis Magistra') of Amsterdam, where they probably will remain."

Very few specimens of this rare Bird of Paradise have as yet reached Europe. Besides the two original types, we know of one other, which was disposed of by Mr. Bouvier, of Paris, to the Warsaw Museum. Before being sent to Poland, this individual was figured by the late Mr. John Gould in his 'Birds of New Guinea.' A fourth specimen was afterwards received by Mr. Whitely, of Woolwich, and was exhibited at a Meeting of the Zoological Society of London by Dr. Sclater on the 1st of May, 1883. This specimen was acquired by the British Museum. I have myself been shown two more specimens, both of which appear to have passed into the collection of the Hon. Walter Rothschild, who has also another perfect male.

This makes seven specimens known to me at present; of these all but one were flat skins of native manufacture, but about two years ago a perfect specimen was offered to the British Museum along with a complete example of *Epimachus ellioti* and other rare Papuan species. The price asked, however, was prohibitory, and I do not know what afterwards became of the specimen.

The home of the species was originally supposed to be the island of Waigiou, but the exact habitat will probably be found to be New Guinea. Dr. Beccari writes:—"It seems most improbable to me that *Diphyllodes gulielmi tertii* should be found in Waigiou, because the type specimen (which I have seen) was, if I do not mistake, prepared in the manner of the 'alfuros' of New Guinea, and was acquired at Salawatti

from a 'Bugis Nakoda' (captain of a Celebes boat), to whom it had most likely come from Has. It seems to me hardly probable that the female is the bird that has been described as such. I have had information of this bird at Wa-Samson; and it is not improbable that it may also be found in Salawatti."

The following is the description of a flat skin in the British Museum:—

Crown of head sandy buff, followed by a ruff on the hind neck of golden orange; the mantle deep crimson; lower back, rump, and upper tail-coverts golden olive; the tail-feathers dusky brown with golden olive margins; the two centre tail-feathers elongated with wire-like shafts, ending in a lyriform tip where the web is green; wings golden, the coverts and inner secondaries washed with fiery crimson; throat velvety brown, with a golden shade, followed by a shield of velvety green, with a few green-tipped feathers on the lower throat, the lower feathers of the shield being tipped with emerald-green, forming a band; on each side of the breast a fan of purplish feathers, broadly tipped with emerald-green; abdomen sandy buff; under tail-coverts white, with a sandy buff tinge.

The Plate here given is reproduced from Mr. Gould's 'Birds of New Guinea,' and represents a male bird in two positions. The figures have been drawn from the specimen now in the Warsaw Museum.

DIPHYLLODES MAGNIFICA *(Penn.)*

J. Gould & W. Hart del et lith.

Mintern Bros imp.

DIPHYLLODES MAGNIFICA (*Penn.*).

Magnificent Bird of Paradise.

Oiseau de Paradis de la Nouvelle Guinée dit le Magnifique, D'Aubent. Pl. Enl. iii. pl. 631.

Le Magnifique de la Nouvelle Guinée, ou Le Manucode à bouquets, Montb. Hist. Nat. Ois. iii. p. 198 (1774).—Forst. Zool. Ind. p. 38 (1781).

L'Oiseau de Paradis surnommé le Magnifique, Sonnerat, Voy. Nouv. Guin. p. 163, pl. 98 (1776).

Paradisea magnifica, Penn. Faun. Ind. p. 40 (1781: ex D'Aubent. Pl. Enl. pl. 631).—Scop. Del. Faun. et Flor. Insubr. ii. p. 88 (1786).—Gm. Syst. Nat. i. p. 401 (1788).—Lath. Ind. Orn. i. p. 195 (1790).—Daud. Traité d'Orn. ii. p. 273 (1800).—Shaw, Gen. Zool. vii. p. 492, pl. 62 (1809).—Bechst. Kurze Uebers. p. 132 (1811).—Vieill. N. Dict. d'Hist. Nat. xxx. p. 110, pl. M 7 (1819).—Id. Enc. Méth. iii. p. 907, pl. 143. fig. 2 (1823).—Steph. Gen. Zool. xiv. p. 76 (1826).—Wagl. Syst. Av., *Paradisea*, sp. 4, p. 101 (1827).—Less. Man. d'Orn. i. p. 395 (1828).—Id. Voy. Coquille, Zool. i. p. 446 (1828).—Drapiez, Dict. Class. xiii. p. 45 (1828).—Cuv. Règne Anim. i. p. 427 (1829).—Less. Traité d'Orn. p. 338 (1831).—Wallace, P. Z. S. 1862, pp. 154–161.—Finsch, Neu-Guinea, p. 173 (1865).—Rosenb. Reist. naar Geelvinkb. pp. 17, 114 (1875).

Magnificent Paradise-Bird, Lath. Gen. Syn. ii. p. 477, pl. 19 (1782 : pt.).

Paradisea speciosa, Bodd. Tabl. Pl. Enl. p. 38 (1783).—Gray, Gen. B. ii. p. 322 (1847).—Id. P. Z. S. 1848, p. 194.—Id. Cat. B. New Guin. pp. 36, 59 (1859).—Id. P. Z. S. 1861, p. 436.—Schl. J. f. O. 1861, p. 385.—Id. Mus. Pays-Bas, Coraces, p. 86 (1867).—Id. Ned. Tijdschr. Dierk. iv. pp. 17, 49 (1871).—Rosenb. Malay. Archip. pp. 395, 557 (1879).—Musschenbr. Dagboek, pp. 190, 222 (1893).—D'Hamonv. Bull. Soc. Zool. France, xi. p. 510 (1886).

Le Magnifique, Vieill. Ois. dor. ii. Ois. Paradis, p. 15, pl. 4 (1802).—Less. Voy. Coquille, Zool. i. p. 354 (1826), ii. p. 654 (1828).

Diphyllodes magnifica, Gray, List Gen. B. p. 39 (1840).—Id. ibid. p. 53 (1841).—Bp. Consp. Av. i. p. 413 (1850).—Gray, List Gen. & Subgen. B. p. 65 (1855).—Wallace, Ibis, 1861, p. 287.—Rosenb. Nat. Tijdschr. Nederl. Ind. xxv. p. 246 (1863).—Id. J. f. O. 1864, p. 130.—Salvad. Ann. Mus. Genov. vii. p. 970 (1875).—Id. op. cit. ix. p. 192 (1876).—D'Alb. Nuova Guinea, p. 582 (1880).—Eudes-Deslongch. Ann. Mus. d'Hist. Nat. Caen, i. p. 32 (1880).—Salvad. Orn. Papuasia, etc. ii. p. 634 (1881).—Guillem. P. Z. S. 1885, p. 654.—Salvad. Aggiunte Orn. Papuasia, etc. ii. p. 160 (1890).

Lophorina superba (err.), Bp. C. R. xxx. p. 131 note (1850).

Diphyllodes speciosa, Scl. Journ. Linn. Soc. ii. p. 163 (1858).—Wallace, Malay Archip. ii. pp. 403, 404, cum fig. (1869).—Gray, Hand-l. B. ii. p. 16, no. 6251 (1870).—D'Alb. P. Z. S. 1873, p. 559.—Scl. tom. cit. p. 697.—Wagner, Zool. Gart, 1873, p. 11, pl. 1, map 5.—Elliot, Monogr. Parad. pl. 12 (1873).—Salvad. Ann. Mus. Genov. vii. p. 783 (1875).—Meyer, Mitth. zool. Mus. Dresd. i. pp. 5–8 (1875).—Gould, B. New Guinea, i. pl. 23 (1876).—Salvad. Ann. Mus. Genov. x. p. 153 (1877).—Sharpe, Cat. Birds Brit. Mus. iii. p. 174 (1877).—Rosenb. Mitth. orn. Ver. Wien, 1885, p. 31.

Diphyllodes speciosus, Beccari, Ann. Mus. Gen. vii. p. 712 (1875).—Scl. Ibis, 1876, p. 251.

This fine bird has been known to science for more than a hundred years, but it cannot be said to be very common in collections, and it does not arrive in such large numbers for the purposes of the plume-trade as do some of the other Birds of Paradise. It appears to be an inhabitant of North-western New Guinea, and Count Salvadori states that it is found in Salawati and at many places on the mainland of New Guinea itself. He mentions the following localities where the species has been found by the Italian travellers D'Albertis and Beccari and by the hunters employed by Mr. Bruijn :—Andai, Mansema, Arfak, Profi, Hatam, Wa-Samson, Gunon Morait, and Warmon.

The late Dr. Bernstein procured the species at Sorong, and Lesson near Dorey. According to Dr. Wallace the species occurs likewise in Mysol, but the statement that it has also been found in Waigiou requires confirmation.

The following account is from the pen of Dr. Beccari :—

"*Diphyllodes speciosus* is also pretty common, and easy to kill when one has learnt to know its song, which resembles a kind of 'teia-teia-teia' repeated several times with diminishing force. The sound produced by kissing the palm of the hand is a very good imitation. When once you have heard the song,

if you approach carefully, especially early in the morning, you will find some small spaces about a yard and a half in diameter cleared of sticks and leaves, where one or two males are paying court to a female. The males then erect all their feathers; the skin of the neck swells up like a bladder; the head seems like the centre of an aureola, which is formed beneath by the expanded feathers of the breast, and above by those of the yellow mantle, which are carried in a perfectly vertical position and spread like a fan. I kept a bird of this species alive for some days. It is found sometimes at a little distance from the sea, on the plains, but perhaps more often on the hills at 1000 to 2000 feet of elevation, preferring open places and the vicinity of streams."

Adult male. Crown of head covered with close-set velvety-brown feathers, deepening into dull orange on each side of the crown; forehead slightly washed with metallic green; a spot at the base of the bill and another above the eye velvety black, the latter slightly glossed in front with metallic green; from the nape a little fan-shaped tuft of light brown feathers, each with a sub-terminal spot of darker brown; from the hind-neck a broad fan-shaped shield of light yellow, flanked on each side by two long tufts of plumes, brown in colour, with a sub-terminal mark of darker brown on each, the inner ones inclining to orange; feathers of the back metallic chestnut; lower back and rump orange, the upper tail-coverts and tail dark brown, the two centre feathers, produced and curved back on themselves, metallic steel-green; wing-coverts dull ochraceous, the primary-coverts and quills dark brown, externally washed with ochraceous straw-colour; the whole of the inner secondaries bright ochraceous straw-colour; cheeks and throat metallic olive-green; the under surface of the body from the throat, occupying the whole of the breast in the form of a shield, rich green, the external feathers tipped with metallic steel-blue, forming a fringe; down the centre of the breast a broad band of metallic emerald-green, formed by the tips to the feathers being of this colour; rest of under surface of body purplish black; under wing-coverts deep ochraceous, as also the lining of the quills: bill pearly blue; feet leaden blue; iris brown. Total length 6·8 inches, culmen 0·95, wing 4·55, tail 1·95, middle tail-feathers 9·5, tarsus 1·35.

Adult female. General colour dark olive-brown, the crown and sides of head rather inclining to ochraceous brown; wings and tail dark brown, the former washed externally with olivaceous; tail clearer brown; cheeks and under surface of body fulvescent, the throat and cheeks whiter, the whole barred across very distinctly with black: "bill pearly grey; feet bluish; iris black" (*D'Albertis*). Total length 7·8 inches, culmen 0·95, wing 4·45, tail 2·6, tarsus 1·35.

The descriptions are copied from my third volume of the 'Catalogue of Birds,' and the figures in the Plate are drawn from specimens in the British Museum.

DIPHYLLODES SELEUCIDES, *Less.*

Mintern Bros. imp.

W Hart del. et lith.

DIPHYLLODES SELEUCIDES, *Less.*

Lesson's Bird of Paradise.

Le Manucode à bouquet, ou le Magnifique, Le Vaill. Ois. Parad. i. pls. 9, 10 (1806).
Magnificent Paradise-Bird, Lath. Gen. Hist. iii. p. 189, pl. xlv. (1822).
Diphyllodes seleucides, Lesson, Ois. Parad. pp. 16, 191, pls. 19, 20 (1835).—Sharpe, Bull. Brit. Orn. Club, iv. p. xiii (1894).—Salvad. Ann. Mus. Civic. Genov. (2) xvi. p. 111 (1896).
? *Diphyllodes magnificus*, Lesson, Compl. Buff., Ois. p. 466 (1838).

Towards the end of the year 1895, Mr. Dunstall, to whom the British Museum owes many fine acquisitions from New Guinea, brought for my inspection a large number of skins of *Diphyllodes*, which had been sent over to this country for the decoration of ladies' hats. There were over a hundred of these skins, and among them were one or two specimens of *D. magnifica*, but the bulk consisted of a form of *Diphyllodes* which I had not seen before.

The specimens were believed to have come from the Arfak district, but the actual locality was unknown to Mr. Dunstall. Instead of having pale ochre-coloured wings, the latter were yellow, and this colour was very fairly constant in the large series examined by me. Although in a few examples a tendency to orange on the wings was exhibited, none of these approached the deep colour of *D. chrysoptera* or *D. hunsteini*.

Although it is very difficult to determine the species figured in the works of the old authors, I believe that we may safely attach to this Arfak bird the name of *D. seleucides* of Lesson; and doubtless some of the synonymy placed under the heading of *D. magnifica* really belongs to *D. seleucides*, but it is impossible to determine this point at the present day.

The existence of this race of *Diphyllodes* was known to Count Salvadori, who had some specimens before him from Andai and Mount Arfak when he was writing the 'Ornitologia della Papuasia,' and he remarked on the brighter colour of the wings in the males from these localities, which showed an approach to *D. chrysoptera* of Jobi Island. Whether a complete connection will some day be found between the three species of *Diphyllodes* which inhabit North-western New Guinea, can only be proved by some naturalist who is fortunate enough to have time and opportunity to follow up the exact distribution of these birds.

The present species, as will be seen from the figures in the Plate, is very similar to *D. magnifica*, but differs, as has been pointed out above, in the richer yellow colour of its wings. The specimens figured are in the British Museum.

DIPHYLLODES CHRYSOPTERA *Gould.*

J. Gould & W. Hart del. et lith.

Mintern Bros. imp.

DIPHYLLODES CHRYSOPTERA, *Elliot.*

Golden-winged Bird of Paradise.

Diphyllodes specioza, pt., Schl. Nederl. Tijdschr. Dierk. iv. pp. 17, 50 (1871).—Rosenb. Reist. naar Geelvinkb. p. 56 (1875).—Id. Malay. Arch. p. 557 (1879).—Id. Mitth. orn. Ver. Wien, 1885, p. 31.

Diphyllodes chrysoptera, Gould, MSS.

Diphyllodes speciosus, var. *chrysopterus*, Elliot, Monogr. Parad. pl. 13 (1873, *ex* Gould).

Diphyllodes chrysoptera, Meyer, Mitth. Zool. Mus. Dresden, i. p. 6, note (1875).—Beccari, Ann. Mus. Genov. vii. p. 710 (1875).—Salvad. t. c. p. 971 (1875).—Id. op. cit. ix. p. 192 (1876).—Gould, B. New Guinea, i. pl. 23 (1876).—Sharpe, Cat. B. Brit. Mus. iii. p. 175 (1877).—Eudes-Deslongch. Ann. Mus. Caen, i. p. 33 (1880).—Salvad. Orn. Papuasia, ii. p. 641 (1882).—Guillem. P. Z. S. 1885, p. 654.—Sharpe, Bull. B. O. C. iv. p. iii (1894).

Paradisea chrysoptera, Musschenbr. Dagboek, pp. 190, 222 (1883).

Diphyllodes jobiensis, Meyer, Zeitschr. ges. Orn. ii. p. 388 (1885).—Id. Ibis, 1886, p. 256.—D'Hamonv. Bull. Soc. Zool. France, 1886, p. 510.—Salvad. Agg. Orn. Papuasia, ii. p. 161 (1890).—Meyer, J. f. O. 1892, p. 262.

This species was described from two skins, of native preparation, in the collection of the late Mr. Gould. No clue to their exact habitat was received with them, and Mr. Elliot described them as a new species, using Mr. Gould's MSS. name of *D. chrysoptera*. Since that time the utmost confusion has prevailed with regard to this species, and to this result, in common with other ornithologists, I have myself contributed.

The presence of a golden wing in specimens of *Diphyllodes* from South-eastern New Guinea led me to believe that in the examples from the south-eastern part of that great island was found a form of *Diphyllodes* identical with the skins in the Gould collection, and I therefore identified specimens from the Astrolabe Range as *D. chrysoptera*. This proves to have been a mistake, and I have now not the least doubt that the typical specimens came from the island of Jobi, as they agree absolutely with a specimen in the collection of the Hon. Walter Rothschild, obtained on that island by Dr. Guillemard. In this conclusion I am supported by Count Salvadori, who examined with me the specimens in the Rothschild collection.

The chief characters of *D. chrysoptera*, as distinguished from *D. speciosa*, are the golden wing and the deep crimson colour of the mantle, which is of so deep a crimson as to be almost blackish or deep claret-colour. The bird from South-eastern New Guinea possesses the golden wing, but has the mantle of a much more fiery hue, so that it is a very conspicuous feature in the species. Specimens from the Finisterre Mountains and from Kaiser Wilhelm's Land may, and doubtless do, belong to a slightly intermediate race, but the dark-mantled Jobi race is the true *D. chrysoptera*. Of this fact, the comparison of the types with the Jobi specimen in the Rothschild collection leaves no matter of a doubt.

Dr. Meyer described his *D. jobiensis* as having bronzy reflexions on the abdomen. This is a character which I believe to be due to the abrasion of the plumage, or, in many cases, to the method of drying the skins by native hunters. In a series of skins of *Diphyllodes* recently examined by me this bronzy coloration was very apparent in many individuals, and without doubt was due to the way in which the skins had been dried by artificial heat, or by exposure to damp. The fine specimen obtained by Dr. Guillemard shows that in perfectly preserved skins this bronzy shade is entirely absent.

D. chrysoptera may therefore be described as similar to *D. magnifica*, but distinguished by the golden wing. Total length 6·8 inches, culmen 0·8, wing 4·4, tail 1·55, tarsus 1·3.

The above measurements have been taken from Dr. Guillemard's Jobi specimen in the Rothschild Museum.

The Plate represents a male in two positions, drawn from the original types of *D. chrysoptera*.

DIPHYLLODES HUNSTEINI, *Meyer.*

W. Hart del et lith.

Mintern Bros. imp.

DIPHYLLODES HUNSTEINI, *Meyer*.

Hunstein's Bird of Paradise.

Diphyllodes chrysoptera (nec Gould), Sharpe, Journ. Linn. Soc., Zool. xvi. p. 443 (1882).—Salvad. Orn. Papuasia, iii. p. 553 (1882).—Ramsay, Proc. Linn. Soc. N. S. W. viii. p. 15 (1883).—Meyer, Zeitschr. ges. Orn. ii. p. 387 (1885).—Id. Ibis, 1886, p. 255.—D'Hamonv. Bull. Soc. Zool. France, 1886, p. 510.—Salvad. Agg. Orn. Papuasia, ii. p. 161 (1890).—Goodwin, Ibis, 1890, p. 153.—Meyer, J. f. O. 1892, p. 262.

Diphyllodes hunsteini, Meyer, Zeitschr. ges. Orn. ii. p. 389 (1885).—Id. Ibis, 1886, p. 256.—D'Hamonv. Bull. Soc. Zool. France, 1886, p. 510.—Salvad. Agg. Orn. Papuasia, ii. p. 162 (1890).—Id. op. cit. iii. p. 242 (1891).—Meyer, J. f. O. 1892, p. 262.—Sharpe, Bull. B. O. C. iv. p. iii (1894).

Diphyllodes magnifica (nec Penn.), De Vis, Ann. Rep. Brit. New Guinea, p. 61 (1890).—Id. Colonial Papers, no. 103, p. 113 (1890).—Id. Ibis, 1894, p. 37.

Diphyllodes chrysoptera septentrionalis, Meyer, J. f. O. 1892, p. 261.—Id. Abhandl. k. Zool. Mus. Dresden, 1892-93, no. 3, p. 22 (1893).

Diphyllodes septentrionalis, Sharpe, Bull. B. O. C. iv. p. iii (1894).—Madarász, Aquila, i. p. 91 (1894).

This is the form of Golden-winged Bird of Paradise found in the south-eastern portion of New Guinea. At one time I believed it to be the same as *D. chrysoptera* of Gould, but recent experience has shown me that it is a distinct species. Though it has the same golden colour on the wings as *D. chrysoptera*, it may easily be recognized by its lighter crimson mantle.

Diphyllodes hunsteini was described by Dr. Meyer from a specimen obtained in the Horseshoe Range of the Owen Stanley Mountains by the late Carl Hunstein. The specimen was not fully adult, but differed from *D. chrysoptera* in its more brilliant orange-red wings, longer nasal plumes, and other minor characters, which seemed to Dr. Meyer to warrant its specific separation.

Having now seen a considerable series of specimens from the mountains of South-eastern New Guinea, I believe that there is but one species of *Diphyllodes* to be found there; and as it is not *D. chrysoptera* of Gould, it must bear the name of *D. hunsteini* of Meyer. The British Museum received the two specimens figured in the accompanying Plate from the same collection. Both were presented to the Museum by the late Hon. Hugh Romilly; and this fact is pretty conclusive that the more brilliant orange-golden wing is a sign of age in the bird, as both forms occur in the same locality. The Hon. Walter Rothschild has lent me several specimens of *D. septentrionalis* from the Finisterre Mountains in German New Guinea, collected by Capts. Webster and Cotton, and after comparing them with a number of others from the Astrolabe Range in the British Museum and the Rothschild collection, I believe that they cannot be separated from *D. hunsteini*.

Dr. Meyer does not claim for his *D. septentrionalis* more than sub-specific value, and he recognizes that the species of *Diphyllodes* vary gradually from east to west; but the only difference that I can find in *D. septentrionalis* is that the mantle is slightly darker, and on comparing half a dozen specimens of this race with *D. hunsteini* from the Astrolabe Range, there are some individuals which cannot be distinguished. I have therefore united the two forms.

Mr. Goodwin tells me that the present species is apparently a bird of the interior of New Guinea, as it was only met with by Sir William Macgregor's expedition on their reaching Mount Knutsford.

D. hunsteini may be described as very similar to *D. chrysoptera*, but differing in the lighter crimson colour of the mantle-patch. Total length 7 inches, culmen 0·9, wing 4·3, tail 1·8, tarsus 1·15.

The female is rather lighter brown than the female of *D. magnifica*, and is more rufous on the head and ear-coverts. The wings are slightly more golden, and the cross-bars on the under surface more dusky and less pronounced.

The Plate represents two adult males, of the natural size, from the Astrolabe Mountains, and a reduced figure of a female bird from the same locality.

SCHLEGELIA RESPUBLICA, *(Bp.)*

J. Gould & W. Hart del. et lith.

Mintern Bros. imp.

SCHLEGELIA RESPUBLICA (*Bp.*).

Bare-headed Bird of Paradise.

Lophorina respublica, Bp. Compt. Rend. xxx. p. 291 (February 1850, note).—Id. Rev. et Mag. de Zool. 1850, p. 124, note.—Sclater, Ibis, 1877, p. 493.

Diphyllodes respublica, Bp. Compt. Rend. xxx. p. 291 (1850, note).—Id. Rev. et Mag. de Zool. 1850, p. 242.—Id. Consp. Av. i. p. 413 (1850).—Id. Compt. Rend. xxxviii. p. 262 (1854).—Rosenb. Nat. Tijdschr. Ned. Ind. xxv. p. 247 (1863).—Id. J. f. O. 1864, p. 130.—Elliot, Mon. Parad. Introd. p. xxvii, pl. xiv. (1873).—Meyer, Mitth. zool. Mus. Dresd. i. pp. 5-7 (1875).—Gould, B. New Guin. i. pl. 20 (1876).—Cory, Beautiful & Curious B. pt. iii. (1881).

Paradisea wilsoni, Cass. Proc. Acad. Philad. 1850, p. 57 (August).—Id. Journ. Acad. Philad. 1852, p. 133, pl. 15.—Gray, P. Z. S. 1858, p. 194.—Id. Cat. B. New Guin. pp. 36, 59 (1859).—Id. P. Z. S. 1861, p. 436.—Scl. P. Z. S. 1865, p. 465.—Schl. Nederl. Tijdschr. Dierk. iii. p. 249 (1866).—Id. Mus. Pays-Bas, Coraces, p. 87 (1867).—Finsch, J. f. O. 1866, p. 136.—Gray, Hand-l. B. ii. p. 16, no. 6250 (1870).—Wagler, Zool. Gart. 1873, p. 11, map 7.—Rosenb. Malay. Arch. p. 395 (1879).—Musschenbr. Dagboek, pp. 189, 221 (1883).

Diphyllodes wilsonii, Sclater, Proc. Zool. Soc. 1857, p. 6.—Id. Proc. Linn. Soc. ii. p. 163 (1858).—Wallace, Proc. Zool. Soc. 1862, p. 160.—Newton, Ibis, 1865, p. 343.—Wall. Malay Arch. ii. pp. 405, 419 (1869).—Beccari, Ann. Mus. Genov. vii. p. 713 (1875).—Sclater, Ibis, 1876, p. 251.—Nehrk. J. f. O. 1885, p. 34.—Guillem. Proc. Zool. Soc. 1885, p. 654.—D'Hamonv. Bull. Soc. Zool. France, xi. p. 510 (1886).

Paradisea respublica, Finsch, Neu-Guinea, p. 173 (1865).

Schlegelia calva, Bernst. Nat. Tijdschr. Nederl. Ind. xxvii. p. 79 (1864).—Id. Nat. Tijdschr. Dierk. ii. p. 1 (1864).—Id. J. f. O. 1864, p. 401.—Id. Nederl. Tijdschr. Dierk. ii. p. 320 (1865), iii. p. 4, pl. 7 (1866).

Paradisea calva, Schl. Nederl. Tijdschr. Dierk. ii. p. 1 (1864).—Finsch, Neu-Guinea, p. 173 (1865).—Rosenb. MT. orn. Ver. Wien, 1885, p. 31.

Schlegelia wilsoni, Sharpe, Cat. B. Brit. Mus. iii. p. 175 (1877).—Eudes-Deslongch. Ann. Mus. Caen, i. p. 34 (1880).—Witmer Stone, Proc. Philad. Acad. 1891, p. 448.

Schlegelia respublica, Salvad. Ann. Mus. Civic. Genov. ix. p. 192 (1876).—Id. Orn. Papuasia, etc. ii. p. 642 (1881).—Id. Agg. Orn. Papuasia, etc. ii. p. 162 (1890).

This wonderful Bird of Paradise was described in August, 1850, by the late Mr. John Cassin from a specimen in imperfect condition which had been acquired in Paris by Dr. Wilson and presented by him to the Museum of the Philadelphia Academy of Sciences. It was named *Paradisea wilsoni* by Cassin, in honour of the donor, to whose liberality the Philadelphia Museum owed so much. In February of the same year, however, Bonaparte had published a short diagnosis of a new Bird of Paradise, which he called *Lophorina respublica*; and in 1877, when I was describing the family in the 'Catalogue of Birds,' I pointed out that the only species which answered to Bonaparte's diagnosis, "fasciculo e plumis elongatis nuchæ rubris," was *Rhipidornis gulielmi-tertii* of Meyer, and I therefore restored the name of *wilsoni* to the present species. In commenting upon my conclusions Dr. Sclater has given us the whole history of the transaction, and it seems that the specimen described by Cassin in Philadelphia was actually the same as the one seen by Bonaparte in Europe. The following are Dr. Sclater's notes on the subject:—"The late Prince Bonaparte, having been allowed to examine the (then unique) type specimen in question, before its transmission to Philadelphia, thought the opportunity of describing a new Paradise-bird, and at the same time of promulgating his republican sympathies, too good to be lost, and in spite of the injunctions of the owner of the specimen, inserted the name '*respublica*,' with a short diagnosis (certainly erroneous, and probably drawn up from recollection), in a footnote to a paper which he was at the time engaged upon for the 'Comptes Rendus.'" Under the circumstances thus detailed by Dr. Sclater there is no choice left but to adopt the name of *respublica* for the species, as has been done by Count Salvadori; but I am inclined to agree with Mr. Witmer Stone that "anyone would be justified in passing over such a description as Bonaparte's and adopting the first clear diagnosis, which, in the case of the present bird, is that of Cassin."

Bernstein was the first naturalist to discover the true habitat of the present species, which he met with both in Waigiou and Batanta. He described it as a new genus and species of Bird of Paradise, and the name of *Schlegelia* happily remains to remind us of Bernstein's prowess as a traveller and a naturalist, and at the same time of the great Director of the Leiden Museum, to whom science is so deeply

indebted. Since Bernstein's death the species has been met with in Waigiou by Beccari, Guillemard, and Platen, and by the two first-named travellers in Batanta also. As far as can be determined, it is confined to the two islands mentioned above.

Bernstein states that in Waigiou the present species inhabits the parts of the country more or less in the interior, and is much rarer than *Paradisea rubra*, which is, moreover, met with in the island of Gemien, where the *Schlegelia* has not yet been seen. Beccari says that the habits are almost identical with those of *Diphyllodes magnifica*. His specimens were obtained at a very short distance from the sea; and Count Salvadori remarks that the species cannot be rare, to judge from the number of specimens procured by Beccari and the hunters sent by Bruijn.

The following is the description of the sexes given by me in the 'Catalogue of Birds' (*l. c.*):—

Adult male. Head bare, of a blue colour in life; nasal plumes, lores and forehead, cheeks, ear-coverts, chin, and upper throat covered with velvety feathers of an oily-brown lustre; a narrow line of similar feathers drawn from the centre of the frontal patch down the back of the head to the hind neck, and transversely crossed above the occiput by a narrow line of velvety plumes which run down the side of the hinder skull along the sides of the neck to the hind neck; behind the ear-coverts a small bare patch; sides of neck and a band above the mantle and running down the sides of the latter metallic oily-green; mantle bright yellow; remainder of the back bright metallic crimson, the lower plumes tipped with black, forming a terminal fringe; on each side of the back a border of greenish black, formed by the outer webs of the crimson plumes, which are somewhat curved inwards; rump brown, washed with reddish; upper tail-coverts olivaceous brown; tail brown, the two centre feathers elongate and narrow, and, after crossing each other twice, ending in a ram's-horn curve; scapulars, as well as the lesser and median wing-coverts, brown, all more or less broadly edged with reddish ochre, shaded, under certain lights, with metallic oil-green; greater coverts and quills brown, narrowly edged with metallic crimson like the back, these margins becoming broader on the innermost both of the coverts and of the secondaries, which are entirely fiery crimson; lower throat and entire breast forming a shield of metallic grass-green, all the jugular feathers having a mesial spot of brilliant metallic blue, which is represented by a similar spot of brilliant green on the breast-plumes, which become developed into long square-tipped plumes on the lower breast, forming a kind of pectoral ruff, the lateral plumes of which are burnished copper; remainder of under surface purplish brown, including the under wing- and tail-coverts; quills brown below, edged with dull orange-buff on the inner web: bill black, paler and more dusky at the tip; feet dull blue; iris dusky. Total length 7·2 inches, culmen 0·95, wing 3·85, tail 2 (elongated feathers extending 2·15 inches beyond), tarsus 1·15.

Adult female. Different from the male, but the head bare as in that sex, the feathers on the crown being velvety brown; mantle brown; remainder of the back olive-brown, somewhat shaded with golden, and on the upper tail-coverts with faint red; wings brown, the greater coverts narrowly edged with dull crimson, as also are the quills, the secondaries having a decidedly golden gloss; tail brown, also slightly shaded with golden; cheeks and under surface of body light yellowish brown, transversely barred with narrow cross-lines of blackish brown, a little broader on the flanks and sides of the body; hinder part of cheeks and chin hoary white, minutely speckled with brown cross-lines; under wing-coverts and axillaries reddish, barred with dusky brown; quills dark brown below, edged with reddish buff along the inner web. Total length 7 inches, culmen 0·9, wing 3·8, tail 2·4, tarsus 1·1.

According to Count Salvadori the young males are similar to the old females, but differ in having some velvety-black plumes on the throat and cheeks.

In the Plate are represented two males and a female, of the size of life.

PTERIDOPHORA ALBERTI, *Meyer.*

W Hart del et lith

Mintern Bros imp

PTERIDOPHORA ALBERTI, *Meyer*.

King of Saxony's Bird of Paradise.

Pteridophora alberti, Meyer, Bull. Brit. Orn. Club, iv. p. xi (1894).—Id. Abhandl. k. zool. Mus. Dresden, 1894-95, no. 5, pp. 1–7, Taf. 1 (1895).—Rothschild, Bull. Brit. Orn. Club, iv. p. xxi (1895).

This marvellous Bird of Paradise does not require to be exactly compared with any other genus of the *Paradiseidæ*, for it is recognizable from any of them at a glance. It is, indeed, distinct from every form of bird in the world by reason of the two long streamers on the head, with their enamelled and flag-like appendages.

Dr. A. B. Meyer, in his original account of the species, has given a note by Dr. Heller on the structure of these curious enamel-like processes, and an epitome of Dr. Heller's observations will be found in the Introduction to the present work, under the heading of the genus *Pteridophora*. The structure of these enamel-like appendages is of the same class as the ornamental metallic or wax-like structure to be found in the crowns of the Curl-crested Toucan (*Pteroglossus beauharnaisi*) and Cuming's Bush-Cuckoo (*Lepidogrammus cumingi*), the hackles of Sonnerat's Jungel-fowl (*Gallus sonnerati*), the tips to the secondaries of the Wax-wing (*Ampelis garrulus*), the breast-feathers of the African Open-bill Stork (*Anastomus lamelligerus*), and other birds.

It will be noticed that the shaft of the elongated crest-plumes is only feathered on one side, and that the enamel flag-like appendages appear blue on their outer aspect, and are internally brown. Each of these decorative streamers is inserted in a muscular sheath on the side of the head, and we may thus believe that the bird is able to erect or depress them at will.

The home of this wonderful bird is New Guinea, and the first specimens were received from the Amberno Mountains, which lie to the eastward of Geelvink Bay, in the north-west of the great Papuan island.

Adult male. General colour above velvety black, the feathers on the mantle and upper back elongated and apparently forming a shield; the lower back, rump, and upper tail-coverts olive-brown, the latter a little darker; lesser wing-coverts like the back, the median and greater coverts with a shaft-streak of ochreous buff; bastard-wing and primary-coverts black; quills black, edged with ochreous brown, and distinguished by broad ochreous-buff bases to the feathers, extending for some distance up the inner webs; the inner-most secondaries uniform black; tail black; head velvety black like the back, with two long streamers on each side of the crown, consisting of quadrangular enamelled plates of blue above, brown below, only found on one web of the feather; sides of face and throat velvety black like the crown, the feathers on the sides of the fore-neck elongated and apparently forming a small shield; remainder of under surface of body pale yellow, becoming lighter and more isabelline on the abdomen and sides of body; thighs dusky grey; under wing-coverts and axillaries pale ochraceous buff like the quill-lining. Total length 8 inches, culmen 0·8, wing 4·85, tail 2·9, tarsus 1·3.

The description and figure in the Plate are taken from a specimen from the Amberno River, presented to the British Museum by the Hon. Walter Rothschild.

W.Hart del. et lith.

Mintern Bros imp.

SEMIOPTERA WALLACII. *Gray.*

SEMIOPTERA WALLACII (*Gray*).

Wallace's Standard-wing.

Paradisea wallacei, Gray, Proc. Zool. Soc. 1859, p. 130.—Schlegel, J. f. O. 1861, p. 385.—Id. Mus. Pays-Bas, Coraces, p. 91 (1867).

Paradisea (*Semioptera*) *wallacii*, Sclater, Ibis, 1859, p. 210.

Semioptera wallacii, Gould, Proc. Zool. Soc. 1859, p. 351.—Sclater, Ibis, 1859, p. 322.—Gould, B. Austr. Suppl. pl. 3 (1859).—Sclater, Ibis, 1860, p. 26, pl. 2.—Wallace, Proc. Zool. Soc. 1860, p. 61.—Gray, Proc. Zool. Soc. 1860, p. 355.—Wallace, Ibis, 1861, p. 212.—Rosenb. J. f. O. 1864, p. 125.—Finsch, Neu-Guinea, p. 105 (1865).—Gould, Handb. B. Austr. ii. p. 532 (1865).—Finsch, J. f. O. 1866, p. 135.—Wallace, Malay Archip. ii. pp. 41, 409, 419, cum tab. (1869).—Elliot, Monogr. Parad. pl. 18 (1873).—Salvad. Ann. Mus. Civic. Genov. vii. p. 785 (1875), ix. p. 190 (1876).—Sharpe, Cat. Birds Brit. Mus. iii. p. 178 (1877).—Eudes-Deslongch. Ann. Mus. Caen, i. p. 38 (1880).—Salvad. Orn. Papuasia, etc. ii. p. 572 (1881).—Guillem. Proc. Zool. Soc. 1885, p. 574.—D'Hamonv. Bull. Soc. Zool. France, 1886, p. 510.—Salvad. Agg. Orn. Papuasia, ii. p. 157 (1890).—Sharpe, Bull. Brit. Orn. Club, iv. p. xiii (1894).

Semioptera wallacii, var. *halmaheræ*, Salvad. Orn. Papuasia, etc. ii. p. 573 (1881).—Id. Agg. Orn. Papuasia, ii. p. 157 (1890).

Epimachus wallacii, Gray, Hand-l. B. i. p. 105, no. 1276 (1869).—Musschenbr. Dagboek, pp. 203, 235 (1883).—Rosenb. Mitth. orn. Ver. Wien, 1885, p. 53.

Epimachus wallacei, var. *halmaheræ*, Musschenbr. Dagboek, pp. 204, 235 (1883).

Semioptera gouldi, Boucard, Humming-Bird, i. p. 43.

Semioptera halmaheræ, Sharpe, Bull. Brit. Orn. Club, iv. p. xiii (1894).

This wonderful Bird of Paradise was discovered in the island of Batchian in the Moluccas, and was considered by Dr. Wallace to be one of the most important of the discoveries made by him during his celebrated expedition to the Malay Archipelago, as was undoubtedly the case. He likewise met with a Standard-wing in Halmahéra, or Gilolo, as it was then called, and he noted certain differences, which have since been considered sufficient by Count Salvadori to separate the Halmahéra bird as a variety, under the name *Semioptera wallacii*, var. *halmaheræ*. On looking over the series in the British Museum, where we have specimens from both islands, I am inclined to disregard the greater amount of violet on the crown as only of slight importance, neither can I see much in the less plentiful amount of the feathering of the frontal plumes, which does not show forth very strongly; but the longer shield-plumes are an evident if a slight character, and may be sufficient for those who wish to separate *S. halmaheræ* as a race of *S. wallacii*.

Very little has been recorded of the habits of this extraordinary bird, and the following is Dr. Wallace's account of it in his well-known work on the Malay Archipelago.

He thus relates his first discovery of this wonderful Bird of Paradise in the island of Batchian:—"Just as I got home, I overtook Ali returning from shooting, with some birds hanging from his belt. He seemed much pleased, and said, 'Look here, Sir, what a curious bird,' holding out what at first completely puzzled me. I saw a bird with a mass of splendid green feathers on its breast, elongated into two glittering tufts; but what I could not understand was a pair of long white feathers, which stuck straight out from each shoulder. Ali assured me that the bird stuck them out this way itself, when fluttering its wings, and that they had remained so without his touching them." Again he writes:—"On lifting the wing-coverts these feathers are seen to arise from two tubular horny sheaths, which diverge from near the point of junction of the carpal bones."

The following note was given by Dr. Wallace to the late Mr. John Gould:—

"The *Semioptera* frequents the lower trees of the virgin forests, and is almost constantly in motion. It flies from branch to branch, and clings to the twigs and even to the vertical smooth trunks almost as easily as a Woodpecker. It continually utters a harsh croaking cry, something between that of *Paradisea apoda* and the more musical cry of *Cicinnurus regius*. The males, at short intervals, open and flutter their wings, erect the long shoulder-feathers, and expand the elegant shields on each side of the breast. Like the Birds of Paradise, the females and young birds far outnumber the fully plumaged birds, which renders it probable that the extraordinary accessory plumes are not fully developed until the third or fourth year. The bird seems to feed principally upon fruit, but it probably takes insects occasionally. I have obtained