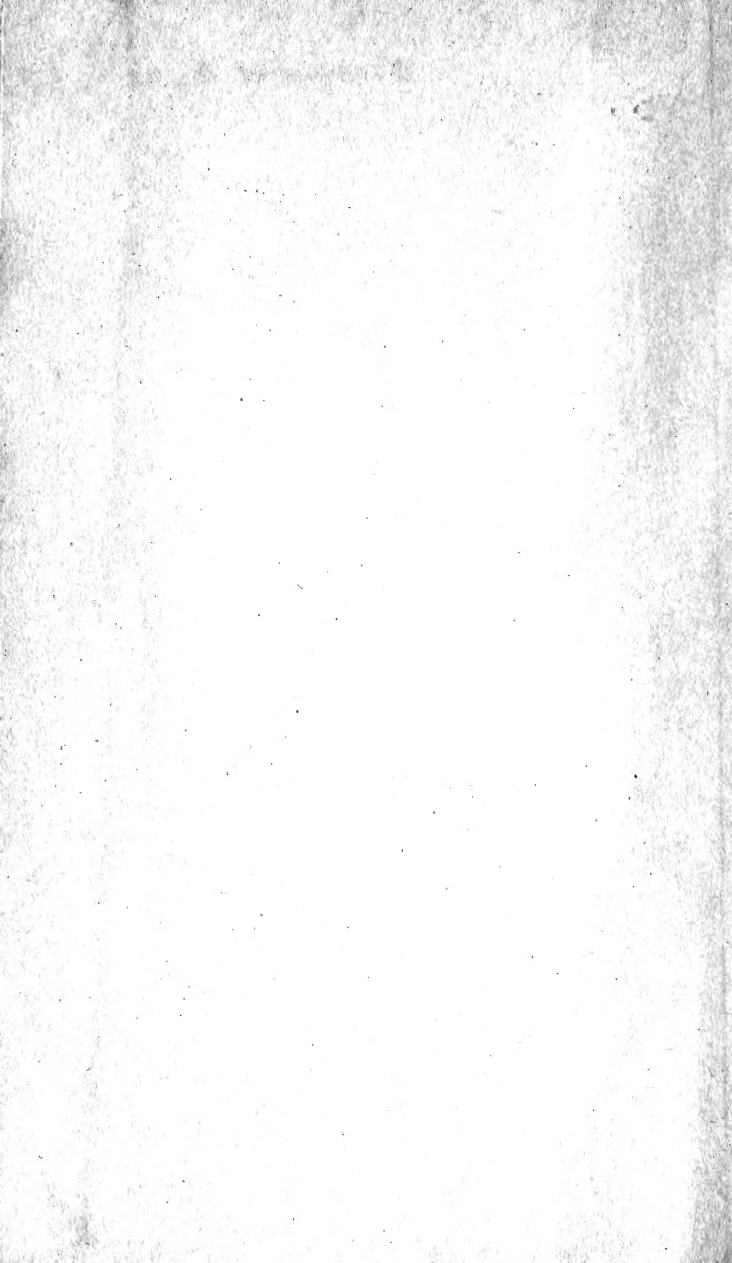




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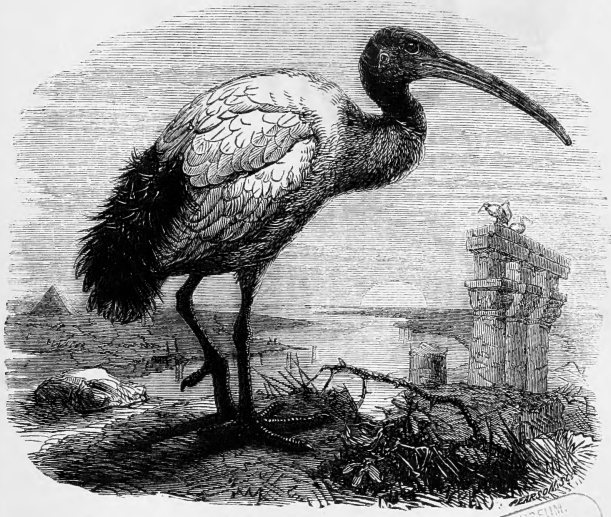
THE IBIS,

A

QUARTERLY JOURNAL OF ORNITHOLOGY.

EDITED BY

OSBERT SALVIN, M.A., F.R.S., F.L.S., F.Z.S., &c.



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PREFACE.

MR. SALVIN'S continued absence in Guatemala renders it necessary for his substitute to write a few lines as preface to the third volume of the Third Series of 'THE IBIS.'

When the British Ornithologists' Union was instituted at Cambridge in 1858, who would have ventured to prophecy that the Society and its Organ would attain such dimensions and such success? Yet our Union now comprehends ninety-four Members, and our Journal has reached its 15th volume. Nor does there seem any reason why our numbers should diminish or our volumes cease to appear. Though some of our original members have (I regret to say) become rather sparing of their contributions to 'THE IBIS,' a new generation of ornithologists is arising who show no symptoms of falling behind their predecessors, either in field-work abroad or in cabinet-work at home. To these, as well as to those of the older generation who have contributed to these pages and otherwise assisted us in our arduous undertaking, our best thanks are hereby offered.

P. L. SCLATER,
Acting Editor.

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CONTENTS OF VOL. III.—THIRD SERIES.

(1873.)

NUMBER IX., *January.*

	Page
I. Notes on the <i>Trochilidæ</i> . The Genus <i>Phaethornis</i> . By OSBERT SALVIN, M.A. &c., and D. G. ELLIOT, F.L.S., F.Z.S., &c.	1
II. On the Birds in the Imperial Collection at Vienna obtained from the Leverian Museum. By A. VON PELZELN. (Plate I.)	14
III. Notes from Archangel. By EDWARD R. ALSTON, F.Z.S., and JOHN A. HARVIE BROWN	54
IV. On a new Species of Little Bittern from China. By ROBERT SWINHOE, F.Z.S. &c. (Plate II.)	73
V. On the Nidification of certain Indian Birds. Part II. By ANDREW ANDERSON, F.Z.S.	74
VI. Addenda to the Avifauna of India. By EDWARD BLYTH, F.Z.S., Hon. Memb. As. Soc. Beng.	79
VII. Fragmentary Notes on the Guacharo or Oil-bird (<i>Steatornis caripensis</i>). By Dr. JAMES MURIE, F.L.S. &c.. . . .	81
VIII. Notes on a supposed new Species of <i>Prion</i> . By THOMAS H. POTTS, F.L.S.	85
IX. Descriptions of new Species of <i>Nectarinia</i> , <i>Sitta</i> , and <i>Parus</i> from Persia and Baluchistan. By WILLIAM T. BLANFORD, C.M.Z.S.	86
X. Description of a new Species of Cormorant from the Chatham Islands. By WALTER L. BULLER, Sc.D., F.L.S., &c. . . .	90

	Page
XI. Notices of some recently published Ornithological Books	91
XII. Letters, Announcements, &c. :—	
Letters from Mr. Swinhoe, Major Irby, Lord Lilford, Mr. Gurney, and Captain Hutton; References to <i>Cyanocephalus wiedi</i> , Bp., and Bonaparte's 'Conspectus Ptilopterorum Systematicus;' Notice of Prof. Brandt's Memoir on the Alcidae . . .	95
—————	
NUMBER X., April.	
XIII. On the Birds in the Imperial Collection at Vienna obtained from the Leverian Museum. By A. VON PELZELN. Part II.	105
XIV. On a new Species of Barbet from Western India. By Capt. J. HAYES LLOYD.	124
XV. Note on the <i>Pyrranga roseogularis</i> of Cabot. By P. L. SCLATER, M.A., Ph.D., F.R.S. (Plate III.)	125
XVI. On a new Chinese Owl of the Genus <i>Ketupa</i> . By R. SWINHOE, H.M. Consul at Ningpo	127
XVII. Ornithological Notes from the Argentine Republic. By WILLIAM BLACKSTONE LEE, B.A.	129
XVIII. Descriptions of six new Species of West-African Birds. By Captain G. E. SHELLEY	138
XIX. Notes on the Ornithology of Sardinia. By A. B. BROOKE, F.Z.S.	143
XX. On the Genus <i>Platystira</i> and its Allies. By R. BOWDLER SHARPE, F.L.S., F.Z.S., Senior Assistant, Zoological Department, British Museum. (Plate IV.)	156
XXI. On an apparently new Species of Hornbill from Angola. By D. G. ELLIOT, F.L.S., F.Z.S., &c.	177
XXII. Note on <i>Homochlamys luscinia</i> , Salvad. By T. SALVADORI, C.M.Z.S.	179
XXIII. On the <i>Upupidae</i> and their Relationships. By Dr. JAMES MURIE, F.L.S. &c. (Plates V., VI., VII.)	181

	Page
XXIV. Notes on 'Stray Feathers.' By W. T. BLANFORD, F.G.S., C.M.Z.S.	211
XXV. Descriptions of a new Jay and a new Woodpecker from Persia. By W. T. BLANFORD, F.G.S., C.M.Z.S.	225
XXVI. Letters, Announcements, &c. :—	
Letters from Mr. Swinhoe, Mr. J. H. Gurney, and Mr. Howard Saunders. Announcement of the Editor's Departure for Guatemala	227

NUMBER XI., July.

XXVII. Notes on the Ornithology of Sardinia. By A. B. BROOKE, F.Z.S.	235
XXVIII. On the Rosy Ibis of China and Japan (<i>Ibis nippon</i>). By ROBERT SWINHOE, H.M. Consul at Ningpo	249
XXIX. A Tenth additional List of Birds from Natal. By J. H. GURNEY, F.Z.S.	254
XXX. On rare or little-known <i>Limicolæ</i> . By JAMES EDMUND HARTING, F.L.S., F.Z.S. (Plates VIII. and IX.)	260
XXXI. Notes on the <i>Trochilidæ</i> . The Genera <i>Pygornis</i> , <i>Glaucis</i> , and <i>Threnetes</i> . By OSBERT SALVIN, M.A. &c., and D. G. ELLIOT, F.L.S., F.Z.S., &c.	269
XXXII. On two Species of <i>Trochilidæ</i> of the Genus <i>Lophornis</i> . By OSBERT SALVIN, M.A. &c., and D. G. ELLIOT, F.L.S., F.Z.S., &c.	279
XXXIII. Additional List of and Notes on Birds obtained in the Republic of Trans-Vaal. By THOMAS AYRES. (Communicated by JOHN HENRY GURNEY.)	280
XXXIV. Remarks on <i>Neomorphus pucherani</i> and its Allies. By GEORGE N. LAWRENCE	287
XXXV. Note on the <i>Fulica alba</i> of White. By OSBERT SALVIN, M.A. &c. (Plate X.)	295

	Page
XXXVI. On a Collection of Birds recently made by Lieut. ROBERT WARDLAW RAMSAY, F.Z.S., in the Andaman Islands. By ARTHUR, Viscount WALDEN, P.Z.S., F.R.S. (Plates XI., XII., XIII.)	296
XXXVII. Notices of recently published and forthcoming Ornithological Works	321
XXXVIII. Letters, Announcements, &c. :—	
Letters from Mr. J. H. Gurney, Mr. J. E. Harting, Mr. R. Bowdler Sharpe, Mr. D. G. Elliot, Mr. E. L. Layard, Mr. Robert Gray; Extracts from a letter received from Mr. Salvin . . .	324

NUMBER XII., *October.*

XXXIX. Notes on the Ornithology of Sardinia. By A. B. BROOKE, F.Z.S.	335
XL. On <i>Rallus modestus</i> of New Zealand. By Capt. F. W. HUTTON	349
XLI. Notes on the <i>Trochilidæ</i> . The Genus <i>Thalurania</i> . By OSBERT SALVIN, M.A., F.R.S., &c., and D. G. ELLIOT, F.L.S., F.Z.S., &c.	353
XLII. Notes on Chinese Ornithology. By ROBERT SWINHOE, F.Z.S., &c.	361
XLIII. Additions to the List of Birds of Nicaragua. By P. L. SCLATER, M.A., Ph.D., F.R.S.	372
XLIV. Notes on Birds observed at Para. By E. L. LAYARD, Esq., H.B.M. Consul.—With Descriptions of two new Species. By P. L. SCLATER. (Plates XIV. and XV.)	374
XLV. On the Birds of the Province of Kattiawar in Western India. By J. HAYES LLOYD, Capt. Bombay Staff Corps . . .	397

XLVI. Letters, Announcements, &c. :—

Letters from Mr. J. H. Gurney, Mr. R. Swinhoe, and Capt. F. W. Hutton ; Extracts from letters received from Mr. Salvin ; New Publications received ; Recent discoveries in Fossil Ornithology	421
---	-----

 SUPPLEMENT, 1873.

XLVII. Index to the Ornithological Literature of 1872. By P. L. SCLATER, M.A., Ph.D., F.R.S., and O. FINSCH, Ph.D. . .	431
XLVIII. List of Periodicals in which Ornithological Papers have appeared in 1872. By F. H. WATERHOUSE, Librarian to the Zoological Society of London	493
Index	497

PLATES IN VOL. III.

THIRD SERIES.

		Page
I.	<i>Trichoglossus pygmæus</i>	31
II.	<i>Ardetta eurhythmia</i>	74
III.	<i>Pyrranga roseigularis</i>	126
IV.	{ Fig. 1. <i>Diaphorophya blissetti</i>	173
	{ Fig. 2, 3. <i>Platystira peltata</i>	160
V.	<i>Upupa epops</i> and <i>U. minor</i>	208
VI.	<i>Irisor erythrorhynchus</i> and <i>I. senegalensis</i>	208
VII.	<i>Rhinopomastus</i> , <i>Promerops</i> , &c.	208
VIII.	<i>Ægialitis varius</i>	262
IX.	<i>Ægialitis sanctæ-helenæ</i>	266
X.	<i>Notornis alba</i>	295
XI.	<i>Centrocoecyx andamanensis</i>	305
XII.	{ Fig. 1. <i>Kittacincla albiventris</i>	307
	{ Fig. 2. <i>Sturnia andamanensis</i>	313
XIII.	<i>Ianthœnas columboides</i>	315
XIV.	<i>Picolaptes layardi</i>	386
XV.	<i>Thamnophilus simplex</i>	387





THE IBIS.

THIRD SERIES.

No. IX. JANUARY 1873.

I.—*Notes on the Trochilidæ. The Genus Phaethornis.* By OSBERT SALVIN, M.A. &c., and D. G. ELLIOT, F.L.S., F.Z.S., &c. .

AFTER careful examination of the birds composing the genus *Phaethornis*, we find that there are fourteen species that can be fairly characterized; and, judging from the ample materials at our service, we consider that only those enumerated in the following list can maintain any claim to specific distinction. The genus appears to be divisible into four sections or groups, each possessing sufficiently conspicuous characters, whereby it may be easily determined to which section any species of the genus should be referred. The four sections are as follows:—

- A. Species with curved bills, greyish or rufescent beneath, the central tail-feathers far exceeding the rest in length.
- B. Species with curved bills, grey or rufescent beneath, the rectrices next to the median very long.
- C. Species with curved bills, dark grey or iridescent green beneath; adult males with the extremity of the median rectrices reduced to a point.
- D. Species with nearly straight bills.

Division A. (*Phaethornis*, Sw.)

a. Species with median gular stripe.

a' Buff beneath.

Rump narrowly edged with fulvous 1. *P. superciliosus.*Rump broadly edged with fulvous 2. *P. longirostris.*

b' Grey beneath.

Rump banded with grey 3. *P. hispidus.*

c' Rufescent beneath.

Upper tail-coverts clear rufous 4. *P. symmatophorus.*

b. Species with scale-like markings on the throat.

d' Rufescent beneath.

Large 5. *P. eurynome.*Small 6. *P. squalidus.*e' Whitish beneath 7. *P. anthophilus.*

Division B.

Greyish white beneath 8. *P. augusti.*Rufescent beneath 9. *P. pretrii.*Division C. (*Toxoteuches*, Cab. & Hein.)Base of rectrices black 10. *P. yaruqui.*Rump and base of rectrices green 11. *P. guyi.*Rump and base of rectrices bluish green 12. *P. emilie.*Division D. (*Ametrornis*, Reich.)Pale buff beneath 13. *P. bourcierii.*Deep rufous beneath 14. *P. philippii.*

Before proceeding to the details referring to the above species, we will attempt to show the amount of individual variation to which these birds are subject. As regards the bills, measuring from the posterior end of the nostril to the tip, along the chord, we find that, in Panama specimens of *P. longirostris*, one is 1.62 long, while another is only 1.45, showing a difference of .17 of an inch, others, again, being intermediate. Cayenne specimens of *P. superciliosus* vary in the length of their bills from 1.78 to 1.46, with intermediate gradations. Rio-Janeiro specimens of *P. squalidus* vary from 1.02 to .90. Instances of similar variation are to be found in all the species, as regards their bills. The wing also varies in length, and we find that, in Panama specimens of *P. longirostris*, one is 2.1 in length, from carpal joint to tip,

another 1·88, while others are intermediate. Cayenne examples of *P. superciliosus* have the wing from the carpal joint varying from 2·20 to 1·80. In the coloration of the tips of the tail-feathers, the specimens of *P. longirostris* before us vary from rich buff to nearly pure white, and the same is the case with the examples of *P. superciliosus*; and as regards the shape of the rectrices, it would appear, in this group at least, that the younger the bird the more pointed are the lateral ones. As regards the group to which *P. guyi* belongs, the white tips of the lateral tail-feathers disappear with age, and in the adult of *P. yaruqui* these feathers become of a uniform black.

The geographical distribution of this genus appears to be well and plainly marked, and extends from the southern confines of Brazil to the northern limit of the neotropical region, to the exclusion of the West Indies. Its members are inhabitants of the depths of the warm tropical forests, being never found in the open country nor in elevated districts. In Brazil, as restricted, to the exclusion of the Amazonian valley, we find three, perhaps four species, viz. *P. eurynome* and *P. squalidus*, both of which are common in the southern provinces; in the Province of Bahia and parts of Minas Geraes *P. pretrii* is found; the fourth species is *P. philippii*, which may occur in the far interior on the confines of Bolivia. In the great valley of the Amazon we find but three species, viz. the widely ranging *P. superciliosus*, *P. hispidus*, and *P. bourcierii*, the latter being met with in the upper portion. In Guiana itself *P. superciliosus* alone is found. Passing to Ecuador we obtain *P. syntrophus*, which is probably restricted to the western slope of the Andes, and *P. yaruqui*; while on the Pacific coast *P. longirostris* appears at the southern extremity of its range. We now come to Columbia; and here we find two species occurring in the vicinity of Bogota, viz. *P. anthophilus* and *P. emiliae*; in the valley of the Magdalena *P. longirostris* and *P. augusti* also occur. In Trinidad and Venezuela *P. guyi* is the prevalent form, while the latter is the headquarters of *P. augusti*. Costa Rica and Veragua possess *P. emiliae*, which is not shared by the rest of Central America, wherein *P. longirostris* is found universally distributed.

1. PHAETHORNIS SUPERCILIOSUS.

Trochilus superciliosus, Linn. Syst. Nat. (1766) tom. i. p. 189; Vieill. Enc. Méth. Orn. ii. p. 549, sp. 5; Less. Hist. Nat. des Col. p. 35, pl. 6; Traité d'Orn. p. 288.

Phaethornis superciliosus, Swains. Class. Birds, vol. ii. p. 330; Gray, Gen. Birds, vol. i. p. 104; Gould, Mon. Troch. vol. i. pl. xvii.

Phaethornis malaris, Nordm. Erm. Reis. Atl. p. 2 (1835); Gray, Gen. Birds, vol. i. p. 104, sp. 2; Bonap. Consp. Gen. Av. tom. i. p. 67, sp. 2; Cab. & Hein. Mus. Hein. Theil. iii. p. 9; Gould, Intr. Troch. p. 41, sp. 17 (8vo ed.).

Phaethornis moorei, Lawr. Ann. N. Y. Lyc. Nat. Hist. vi. p. 258 (1858).

"*Phaethornis consobrinus*, Bourc.," Reich. Aufz. Colibr. p. 17; cf. J. f. Orn. 1853; Gould, Intr. Troch. p. 42.

Phaethornis fraterculus, Gould, Mon. Troch. vol. i. pl. xviii.
Colibri à longue queue de Cayenne, Briss. Orn. iii. p. 687; Buff. Pl. Enl. 600. 3.

Brin blanc, mâle, Vieill. Ois. Dor. tom. i. p. 37, pl. 17.

Hab. Guiana; Para (*Mus. J. Gould*); Pebas (*Hauxwell*); Ecuador (*Buckley*); Columbia (*Bourcier*).

This bird was originally described by Brisson from specimens sent to M. Réaumur by Mons. Atur, from Cayenne; and upon this description Linnæus founded his *Trochilus superciliosus*. In 1835, Nordmann, in Erman's 'Reise um die Erde,' p. 2, bestowed another name upon the species, that of *T. malaris*, quoting Linnæus's name as a synonym. But the latter must of necessity take precedence, and that of Nordmann become a synonym. In 1858 Mr. Lawrence described (*l. c.*) the Ecuadorian bird as *Phaethornis moorei*. This form is known to us from the fact of the type having been sent to Mr. Gould, and, on comparison, proved to be the same as the bird which we have been in the habit of receiving from the Upper Amazon and Ecuador, and which we now unite with *P. superciliosus*. The *P. moorei* of Lawrence has been placed by Mr. Gould, in his 'Introduction to the Trochilidæ,' as a synonym of a species he calls *P. consobrinus* of Bourcier. This species has never been characterized, and the name only exists from the fact that Reichenbach, in his Aufzählung der Colibris,

placed it as a synonym of *P. malaris*, which is itself a synonym of *P. superciliosus*. Mr. Gould, in the first volume of the 'Trochilidæ,' described a bird from Cayenne and the neighbouring countries as *P. fraterculus*, stating that its differences from *P. superciliosus* consist in its smaller size and its somewhat more curved bill. We trace this small bird into New Granada and the Upper Amazon, from specimens before us; and we cannot separate it from *P. superciliosus*, the differences being such as belong to individuals and sex, rather than such as can be deemed specific. In 1860 Cabanis and Heine made some radical changes in the synonymy of this and one other species of this genus. They associated *P. pretrii* of Lesson and De Lattre, which is the *Trochilus superciliosus* of Prince Maximilian, with the true *T. superciliosus* of Linnæus, giving Brazil as its habitat; but we can discover no authority for saying that the Linnean bird has ever been found there. For the Cayenne bird, which is the true *superciliosus* of Linnæus, they use the name *malaris* of Nordmann. These conclusions Mr. Gould unfortunately adopted in his 'Introduction to the Trochilidæ,' the synonymy having been previously almost correctly given in the text accompanying his plates.

We notice, on comparing Cayenne with Upper Amazon and Ecuadorian specimens, that many of the former have dark-coloured throats, but on the other hand some have the ordinary pale-coloured gular stripe. This would seem to show that this character cannot be relied upon as specific.

We have examined the following specimens:—

Cayenne: two, Mus. P. L. S.; one, Mus. D. G. E. (*ex Deyrolle*).

Para: three, Mus. J. Gould.

Pebas: one (*Hauxwell*), Mus. D. G. E.; two (*id.*), Mus. S. & G.

Peruvian Amazon: one (*Bartlett*), Mus. D. G. E.

Ecuador: one (*ex J. Gould*), Mus. D. G. E. Canclos: one (*Buckley*), Mus. S. & G.

Columbia: one, Mus. P. L. S.; two (*Bourcier*), Mus. D. G. E.

†2. PHAETHORNIS LONGIROSTRIS.

Ornismya longirostris, Less. et De Lattre, *Echo du Monde Savant*; 1843, no. 45. p. 1070, June 15th.

Trochilus cephalus, Bourc. et Muls. Rev. Zool. 1848, p. 269.

Phaethornis cassini, Lawr. Ann. N. Y. Lyc. Nat. Hist. viii. p. 347.

Phaethornis cephalus, Gould, Mon. Troch. pl. 19.

Phaethornis longirostris, Cab. & Hein. Mus. Hein. Th. iii. p. 9; Gould, Intr. Troch. p. 42.

Phaethornis boliviana, Gould, Intr. Mon. Troch. p. 42.

Hab. The whole of Central America from Southern Mexico to the lower portion of the valley of the Magdalena and Western Ecuador.

Lesson and De Lattre first described this species in the 'Echo du Monde Savant' from a specimen obtained in Vera Paz. In the 'Revue Zoologique' for 1848, Bourcier and Mulsant re-described the species from Central-American specimens collected by Sallé, under the name of *Phaethornis cephalus*. This has long been acknowledged to be a synonym of *longirostris*. In the 'Annals' of the New York Lyceum of Natural History for 1866, viii. 347, Mr. Lawrence described a specimen from Cartagena, collected by Mr. Schott, who was attached to the Atrato expedition under Lieut. Michler, as *P. cassini*. This type has been examined by Mr. Gould, who pronounces it to belong to *P. longirostris*, thus adding another to the synonyms appertaining to this species.

Through Mr. Gould's kindness, we have had an opportunity of carefully comparing the type specimen of his *P. boliviana*, described in the 'Introduction to Trochilidæ,' with the large series of *P. longirostris* now before us. The specimen in question is immature, and we cannot separate it from examples of the present species from Santa Marta and Costa Rica. We cannot but suppose that Mr. Gould is in error in giving Bolivia as the habitat of this species. A second, similar specimen in Mr. Gould's collection, but of a more adult bird, and said to be from Brazil, we refer also to *P. longirostris*. In associating his *P. boliviana* with *P. symmatophorus*, we think Mr. Gould to be clearly wrong, the bright rufous upper tail-coverts of that species being sufficient to separate it at a glance. The differences between *P. superciliosus* and *P. longirostris* are not very decided and; we are even in doubt whether speci-

mens of the two can always be discriminated. As an almost invariable rule the fulvous markings of the lower back and rump are much clearer in *longirostris* than in *superciliosus*; nor do we see in the Central-American bird any tendency to assume the dark-coloured throat so prevalent, but not universal, in the Cayenne bird. The specimens from which our conclusions have been made come from the following localities:—

Mexico: one (*Sallé*), Mus. D. G. E.

Vera Paz, Guatemala: four, Mus. D. G. E. Choctun, Vera Paz: three (*Salv.* & *Godm.*), Mus. S. & G. Vera Paz: one (*Salv.*), Mus. P. L. S.

Chontales, Nicaragua: two (*Bell*), Mus. S. & G.

Costa Rica: two (*Carmirol* & *Endres*), Mus. S. & G.

Bugaba, Chiriqui: one (*Arcé*), Mus. S. & G.

Lion-Hill Station, Isth. Panama: four (*McLeannan*), Mus. S. & G.; one (*id.*), Mus. P. L. S.

Santa Martha: one (*Bourcier*), Mus. D. G. E.

Barranquilla: one (*Rippon*), Mus. P. L. S.

Esmeraldas: one (*Fraser*), Mus. P. L. S.

Bolivia? one, Mus. J. Gould (type of *P. boliviana*).

Brazil? one (*Campbell*), Mus. J. Gould.

3. PHAETHORNIS HISPIDUS.

Trochilus hispidus, Gould, P. Z. S. 1846, p. 90.

Phaethornis hispidus, Gray & Mitch. Gen. Birds, i. p. 104, sp. 14; Gould, Mon. Troch. i. pl. 22.

Trochilus oseryi, Bourc. & Muls. Ann. des Scien. Lyon, iv. 1852, p. 139.

Phaethornis oseryi, Gould, Mon. Troch. pl. 23.

Phaethornis villosus, Lawr. Ann. N. Y. Lyc. vi. p. 259.

Hab. Bolivia? (*Bridges*); Rio Pastaza (*Bourcier*); Pebas (*Hauxwell*); Upper Ucayali (*Bartlett*); Archidona, Ecuador (*Jameson*); New Granada (*fide Gould*).

This species was first described by Mr. Gould from a specimen brought home by the late Mr. Bridges, and stated to have been obtained in Peru or Bolivia. Six years afterwards M. Bourcier described a specimen from the banks of the Rio

Pastaza as *T. oseryi*, comparing it with *P. anthophilus* and *P. philippii*. This species has generally been recognized as distinct from Mr. Gould's *P. hispidus*; but on comparing the type of that species with several specimens from the Upper Amazon, we do not find sufficient differences to separate them. Mr. Gould's figures of both, in his monograph, show a distinct arrangement of markings on the throat; but we do not perceive this to be the case, as all the specimens before us agree in the coloration of this part, even Mr. Gould's type having a white line down the centre of the throat, although the feathers are so disarranged that at first sight it appears to want this character. The only difference appreciable is that the type of *hispidus* has a somewhat longer bill, and a very little longer wing; but as the length of bill in this species is well understood to be of no specific value, we do not deem it in this case worthy of consideration. The general coloration of all the specimens is identically the same. Mr. Lawrence, overlooking M. Bourcier's description of *P. oseryi*, and misled by Mr. Gould's plate, redescribed this species as *P. villosus*. We have examined the following examples:—

Pebas, Peru: two (*Hauxwell*), Mus. S. & G.; one (*Hauxwell*), Mus. D. G. E.; one (*id.*), Mus. P. L. S.

Peru or Bolivia: one (*Bridges*), Mus. J. Gould (type of species).

4. PHAETHORNIS SYRMATOPHORUS.

Phaethornis syrmatophorus, Gould, Contr. Ornith. 1851, p. 139; *id.* Mon. Troch. pl. 20.

Hab. Environs of Quito (*Jameson*); Pallatanga (*Fraser*).

This is a very distinct and well-marked species, and has its nearest ally in *P. pretrii*.

The following are our specimens:—

Ecuador: one (*ex Gould*), one (*Buckley*), Mus. S. & G.; one (*ex Gould*), one (*Buckley*), Mus. D. G. E.

Pallatanga: one, (*Fraser*) Mus. P. L. S.

5. PHAETHORNIS EURYNOME.

Trochilus eurynome, Less. Troch. p. 91, t. 31.

Phaethornis eurynome, Gray & Mitch. Gen. Birds, i.

p. 104, sp. 5 ; Gould, Mon. Troch. i. pl. 16 ; Pelz. Orn. Bras. p. 27.

Hab. Brazil, Mattodentro, Ypanema (*Natt.*).

This very well-known species is found in almost every collection coming from Rio Janeiro, but, so far as we are aware, from none of the more northern provinces.

Rio Janeiro: two (*Youds*), Mus. S. & G.; three, Mus. D. G. E.

Brazil: two, Mus. S. & G.; one, Mus. P. L. S.

6. PHAETHORNIS SQUALIDUS.

Trochilus squalidus, Temm. Pl. Col. 120. fig. 1 (1823), ex *Natt.* MS.

Phaethornis squalidus, Cab. & Hein. Mus. Hein. Th. iii. p. 8.

Phaethornis intermedius, Gould (*nec Less.*), Mon. Troch. pl. 30.

Phaethornis squalidus, Gould, *Intr. Troch.* p. 45 ; Pelz. Orn. Bras. p. 27.

Trochilus leucophrys, Nordm. Erm. Reise, p. 2 (1835).

Hab. South-east Brazil.

This species has been figured by Mr. Gould as the *P. intermedius* of Lesson ; but in his 'Introduction' he has changed the name correctly to that of *squalidus* of Temminck. With the former species, whatever it may be, the present has nothing to do ; under the latter name it is sufficiently well figured by Temminck, who described it in the 'Planches Coloriées.' It is an abundant and easily recognizable species, and is sent in quantities in collections from Rio Janeiro. Natterer procured many specimens in the southern and interior portions of Brazil.

Our specimens are the following :—

Rio Janeiro: two, Mus. S. & G.; two, Mus. D. G. E.; one, Mus. P. L. S.

Santa Fé, Minas Geraes: one (*Rogers*), Mus. S. & G.

7. PHAETHORNIS ANTHOPHILUS.

Trochilus anthophilus, Bourc. Rev. Zool. 1843, p. 71 ; Bourc. & Muls. Ann. des Sci. Lyon, 1843, p. 47.

Phaethornis anthophilus, Gray & Mitch. Gen. Birds, i. p. 104, sp. 15; Gould, Mon. Troch. i. pl. 24; *Uricocchia*, Contr. a las Cienc. 1861, p. 7.

Hab. Upper part of the valley of the Magdalena, temperate region (*Bourcier*); Tibacuy (*Uricocchia*); Venezuela (*Goering*).

Bourcier, in the 'Revue Zoologique' for 1843, described this bird from specimens in his own collection, giving as the habitat the temperate region of the upper valley of the Magdalena. This article appears to have been reproduced in the 'Annals' of the Society of Lyons under the authorship of MM. *Bourcier* and *Mulsant*, in which the precise habitat given above is omitted. Mr. Gould seems to have consulted the latter journal only, inasmuch as he states that M. *Bourcier* was unaware of the locality from which his specimen came, and he (Mr. Gould) assigns it correctly to Columbia, though not for the first time. The extension of its range into Venezuela is based upon a single specimen sent direct from that country by Mr. A. *Goering* (P. Z. S. 1868, p. 628). The only other authority for the range of this species being greater than that already given depends on the fact that *Pelzeln*, in the Ornith. Brasil. p. 27, records one specimen from Engenho do Gama, collected by *Natterer*. It is just possible that this specimen may have been wrongly identified.

We have examined the following specimens:—

Venezuela: one (*Goering*), Mus. S. & G.

New Granada: three, Mus. D. G. E.; one (*ex Gould*), Mus. P. L. S.

Bogota: two, Mus. S. & G.; one, Mus. P. L. S.

Barranquilla: one (*Rippon*), Mus. P. L. S.

8. PHAETHORNIS AUGUSTI.

Trochilus augusti, Bourc. Ann. des Scien. Phys. &c. de Lyon, i. p. 623 (1847),

Phaethornis augusti, Gould, Mon. Troch. i. pl. 29; Wyatt, Ibis, 1871, p. 376.

Hab. Caraccas, Venezuela (*Sallé*); Ocaña, Columbia (*Wyatt*).

The position of this species is rightly indicated by M. *Bourcier* as being next to *P. pretrii*, of Brazil. Besides the

country from which the type came, it has also been obtained by Mr. Wyatt at Ocaña, in the valley of the Magdalena.

The following specimens have been examined:—

Venezuela: one (*Sallé*), one (*Bourcier*), one (*Bouvier*), Mus. D. G. E.; one (*Sallé*), Mus. S. & G.

9. PHAETHORNIS PRETRII.

Trochilus pretrii, Less. et De Latt. Rev. Zool. 1839, p. 20.

Phaethornis pretrii, Gray & Mitch. Gen. Birds, i. p. 104, t. 35. sp. 16; Gould, Mon. Troch. i. pl. 28.

Trochilus superciliosus, Max. Beitr. iv. p. 116 (1832).

Phaethornis superciliosus, Cab. & Hein. Mus. Hein. Th. iii. p. 9 (1860); Gould, Introd. Troch. p. 45.

Hab. Minas Geraes (*Rogers*); Bahia (*Pr. Max.*; *Wucherer*).

This species was first fully described by Prince Max., under the name of *P. superciliosus*, he having mistaken it for the species described by Linnæus under that name. In 1839 Lesson and De Lattre redescribed it in the 'Revue Zoologique' as *P. pretrii*, which name will of course be the one for it to bear. The types of these last-named authors were procured from the Brazilian province of Minas Geraes. Cabanis and Heine in their 'Museum Heineanum,' for reasons we cannot appreciate, assumed this species to be the *P. superciliosus* of Linnæus, a course which unfortunately was followed by Mr. Gould in his 'Introduction to the Trochilidæ,' though in the body of his work he figured it under its proper name. It is a well-known and well-marked Brazilian bird, being sent not unfrequently from Bahia; and we have also before us a skin from Minas Geraes, recently sent by Mr. Rogers.

The following specimens have been examined:—

Pernambuco: two (*Bourcier*), Mus. D. G. E.

Bahia: one (*Youds*), Mus. S. & G.; one, Mus. D. G. E.

Brazil: two, Mus. D. G. E.; one, Mus. P. L. S.

Santa Fé, Minas Geraes: one (*Rogers*), Mus. S. & G.

10. PHAETHORNIS YARUQUI.

Trochilus yaruqui, Bourc. Compt. Rend. no. xxxii. p. 187.

Phaethornis yaruqui, Gould, Mon. Troch. pl. 27.

Hab. Ecuador; environs of Yaruqui (*Bourcier*).

This fine species is easily recognized from its allies by having the entire tail-feathers of a uniform glossy black. It appears abundant in Écuador.

Our specimens are as follows :—

Ecuador: two (*ex Gould*), Mus. D. G. E.; one (*Fraser*), Mus. P. L. S.; three (*ex Gould*), Mus. S. & G.; one (*Buckley*), Mus. S. & G.

11. PHAETHORNIS GUYI.

Trochilus guyi, Less. Hist. Troch. p. 119, t. 44.

Phaethornis guyi, Gray & Mitch. Gen. of Birds, i. p. 104, sp. 6; Gould, Mon. Troch. pl. 26.

Hab. Venezuela (*Goering*); Trinidad (*Léotaud*).

This species, first described by Lesson in his 'Hist. Troch.,' differs from the others of this section in having the base of the tail a bright glittering green. It is a native of Trinidad and Venezuela, having been procured in the latter country by Mr. A. Goering.

We have examined the following examples :—

Venezuela: one (*Goering*), Mus. S. & G.

Trinidad: one (*ex Gould*), Mus. D. G. E.

Trinidad: one, Mus. J. Gould; one, Mus. P. L. S.

And others with localities of questionable authenticity.

+12. PHAETHORNIS EMILIÆ.

Trochilus emiliæ, Bourc. Ann. Soc. Sci. de Lyon (1846), p. 317.

Phaethornis emiliæ, Gould, Intr. Troch. p. 44.

Hab. New Grenada (*Bourcier*); Veragua (*Arcé*); Costa Rica (*Arcé*).

This bird was described by M. Bourcier as distinct from the *P. guyi*; but Mr. Gould, in his article on that species, has thrown reasonable doubts upon its specific value. From the specimens before us we find that it is difficult, perhaps impossible, to distinguish many Columbian examples from those from Venezuela. The Central-American specimens are a little more blue; and though we doubt if ultimately the distinctness of the two species can be maintained, yet for the present we refrain from placing both forms under the same name*.

* Since the above was in type Mr. H. Whitely has sent a specimen undistinguishable from *P. guyi* from Eastern Peru. It may be that the

Our examples are as follows:—

New Granada: three, Mus. S. & G.; four, Mus. D. G. E.

Veragua: four (*Arcé*), Mus. S. & G.; three (*Arcé*), Mus. D. G. E.; one (*Arcé*), Mus. P. L. S.

Costa Rica: five (*Arcé*), Mus. S. & G.

13. PHAETHORNIS BOURCIERI.

Trochilus bourcierii, Less. Les Trochil. p. 62, t. 18 (1832).

Phaethornis bourcierii, Gray & Mitch. Gen. Birds, i. p. 104, sp. 9; Gould, Mon. Troch. pl. 25.

Ametrornis abnormis, Reich. Journ. für Ornith. 1853, p. 14; Pelz. Orn. Bras. pp. 27, 56.

Hab. Pebas, Peru (*Hauxwell*); Marabitanas (*Natt.*).

Lesson described this species from a specimen sent to him by M. Bourcier, and he says that it appears to live in Brazil. Its locality is satisfactorily fixed by specimens sent from the Upper Amazon by Hauxwell (from Pebas), and by Mr. E. Bartlett from Xeberos and Chyavetas. The *Ametrornis abnormis* of Pelzeln, of which Salvin has examined the type in the Vienna Museum, is inseparable from this species. This extends the range of the species to Marabitanas on the Rio Negro, where Natterer procured his single specimen. Mr. Gould, and also Cabanis (Mus. Hein.), state that the species is found in Cayenne; but we have been unable to verify this assertion.

We have examined the following examples:—

Pebas, Peru: two (*Hauxwell*), Mus. S. & G.; two (*id.*), Mus. D. G. E.

14. PHAETHORNIS PHILIPPII.

Trochilus philippii, Bourc. Ann. Sc. de Lyon, 1847, p. 623.

Phaethornis philippii, Gray & Mitch. Gen. Birds, i. p. 104, sp. 18; Gould, Mon. Troch. i. pl. 21.

Hab. Bolivia (fide *Bourc.*).

Columbian birds referred to above really belong to this species, and that its range extends southwards in the warm valleys of the eastern slope of the Andes, the range of *P. emiliæ* extending throughout the valley of the Magdalena northwards to Costa Rica.

According to Heine (J. f. Orn. 1863, p. 177) *P. apicalis*, Tsch. F. P. 243, described from a specimen in the Berlin Museum, is the same as *P. emiliæ*.

The type of this species, which we believe still remains unique, is now in Elliot's collection; and though evidently allied (from its straight bill) to *P. bourcierii*, is eminently distinct from that species in coloration. We may remark that, although Mr. Gould expresses a doubt from what part of America this bird was procured, M. Bourcier, in his original description, without hesitation assigns Bolivia as its habitat.

Bolivia: (*Bourcier*) Mus. D. G. E. (type of species).

II.—*On the Birds in the Imperial Collection at Vienna obtained from the Leverian Museum.* By A. VON PELZELN.

(Plate I.)

It was in the year 1806 that the celebrated museum formerly in possession of Sir Ashton Lever and then of Mr. T. Parkinson, was sold by auction in London. Rich as this collection was, its value was further increased by the circumstance that the types of a number of species described by various authors were therein included. The reigning Emperor of Austria, Francis I., resolved, on the report of Director von Schreibers, that some of the treasures of this collection should be acquired for the Imperial Museum at Vienna; and the well-known naturalist Leopold von Fichtel, being about to proceed to England, was commissioned with the negotiation of the purchase. In fulfilling his mission Herr von Fichtel bought at the auction no less than 82 mammals, more than 200 birds, 60 reptiles, 73 fishes, and other objects of various classes of the animal kingdom*. Among the birds there were included a considerable number of types, especially of species described or figured by Latham in his 'General Synopsis of Birds' and 'Index Ornithologicus,' by White in the 'Journal of a Voyage to New South Wales,' and by Shaw in the 'Museum Leverianum' †.

Believing that it is of importance to science that the exist-

* See Fitzinger, "Geschichte des k.-k. Hof-Naturalien-Cabinetes zu Wien, ii. Abth.," in Sitzungsber. d. k. Akad. d. Wissensch. lvii. (1868) p. 1040.

† *Musei Leveriani explicatio anglica et latina*, 1792–1796. Published by James Parkinson, proprietor of the above museum. I regret that the

tence of type specimens and the place where they are deposited should be known, especially in cases where only very few or no more specimens have been since collected, I propose to give in the following pages a catalogue of the birds obtained from the Leverian Museum, with such remarks as seem called for respecting them.

This catalogue is based on specimens still contained in the Vienna Museum, on the inventory of birds received through Herr von Fichtel of the Leverian collection, and on the old MS. catalogue of our ornithological museum. In the inventory it is said that the species obtained from dealers are marked with an asterisk; but as the whole acquisition is inscribed as from the Leverian Museum, it is probable that the birds marked in this way were bought by dealers at the auction and then purchased by Herr von Fichtel. Besides these, a number of species are contained in a separate inventory as purchased from Herr von Fichtel in the year 1806. As in a few cases it is said expressly in this catalogue that the specimens are from the Museum Leverianum, and as other birds seem with the greatest probability to be from the same source, I have thought it useful, for greater completeness, to include also these species in the present paper.

To separate, however, the certain from the probable, and with the intention of giving an account as accurate as possible, I have divided this paper into two parts, the first of which treats of birds obtained directly from the Museum Leverianum, the other of those obtained through dealers and purchased from Herr von Fichtel.

In both lists I have added such synonyms from older works as seemed in some way useful for the determination of the species, especially the descriptions and plates, which were taken from the specimens here enumerated.

Supplement ii. of Latham's 'General Synopsis' is not in our library, and that therefore, respecting the species described therein for the first time, I am only able to compare the short descriptions in the 'Index Ornithologicus' and the quotations in Shaw's 'General Zoology.' Under these circumstances it is not always possible to say whether specimens in our collection were Latham's types or not.

As the importance of typical specimens was formerly not so acknowledged as now-a-days, several of the types, being in bad preservation, were transferred to the duplicates. I have therefore given an indication in every case where the specimens no longer exist in our collection.

PART I.

Birds enumerated in the inventory as obtained directly from the Museum Leverianum.

VULTURIDÆ.

1. *SARCORAMPHUS GRYPHUS* (Linné). (280, 51.)

Condur, Latham, Gen. Synops. i. 4; Suppl. 1. p. 1.

Vultur gryphus, Linné; Lath. Ind. Orn. i. 1. n. 1; Shaw, Mus. Lever. vi. (1796) t. 1; Humboldt, Rec. d'Observ. 1811, i. 26-45, t. 8, 9 (Mém. lu à l'Acad. 13 Oct. 1806).

Vultur magellanicus, Shaw, Mus. Lever. i. (1792) t. 1.

Sarcoramphus cuntur, Duméril, Zool. Anal. 1806, 32.

Vultur condor, Shaw, Gen. Zool. 1809, vii. 2, t. 2 et 3, t. 4 (copied from *Humboldt*).

Cathartes gryphus (L.), Temm. Pl. Col. t. 133 (m. ad.), 494 (caput maris), 408 (fem. juv.).

The male (280) is the type of the descriptions and figures of Shaw (Mus. Lever. vi. t. 1, and Gen. Zool. t. 2) and Temminck (Pl. Col. 133), where also measurements are given.

The female (51) was bought by Herr von Fichtel; it was not enumerated among the birds from the Museum Leverianum, but in another inventory of birds which were purchased (1806) from Herr von Fichtel. Nevertheless, as at this time the Leverian collection was in possession of the unique pair of this Vulture, as Shaw (Gen. Zool. 7) remarks that it is said that both specimens were purchased for the Emperor of Austria, and as this is confirmed by Temminck*, it appears doubt-

* "Le Muséum Impérial à Vienne est la seule collection en Europe où se trouve un couple de ces oiseaux; ce sont les mêmes qui ont fait partie de la belle collection du Leverian Museum à Londres; ils ont été acquis par l'Empereur d'Autriche lors de la vente de cette brillante collection; ces deux individus sont les seuls apportés en Europe depuis la découverte de l'Amérique."—TEMMINCK, *l. c.*

less that this female is the type of *Vultur magellanicus*, Shaw (Mus. Lever. i. t. 1), and *Vultur gryphus*, fem. (Gen. Zool. t. 3). The male as well as the female were brought from the Magellan coasts by Captain Middleton, of the Royal Navy.

2. *SARCORAMPHUS PAPA* (L.). (231.)

King Vulture, Lath. Gen. Synops. i. 7, n. 3.

Latham mentions that this species was contained in the Museum Leverianum; our specimen from that collection was transferred to the duplicates (1861).

FALCONIDÆ.

3. *MILVAGO AUSTRALIS* (Gmel.). (115.)

Statenland Eagle, Lath. Synops. i. 1. 40.

New Zealand Falcon, Lath. *ibid.* t. 4 (solum tab. nec descr.).

Falco leucurus, Forster, Icon. ined. n. 34.

Falco australis, Gmel. Syst. 259. n. 53; Lath. Ind. Orn. i. 16. n. 23.

Falco novæ-zelandiæ, Temminck, Pl. Col. t. 192 et 224.

Circaëtus antarcticus, Less. *Traité*, 49.

Vultur plancus fem., Forster, Descr. An. 323 (insula Novi Anni, ad Terram Statuum).

Milvago leucurus, Gould, Zool. Beagle, iii. 13 et 15.

The specimen was inscribed in the old inventory as *Falco novæ zeelandiæ*, L. Latham's plate 4 belongs to this species, but shows a much lighter colouring than the individual in our possession, which corresponds with Temminck's t. 192; the inner web of one of the rectrices in our bird is pale ferruginous, which seems to indicate that the obscure plumage of the adult (female?) is preceded by a dress with ferruginous tail.

4. *LEUCOPTERNIS ALBICOLLIS*, Latham. (163.)

White-necked Falcon, Lath. Gen. Syn. Suppl. 30. n. 101.

Falco albicollis, Lath. Ind. Orn. i. 36, 81.

Falco picatus, Shaw, Gen. Zool. vii. 167.

Spotted Eagle of the old inventory.

The specimen from the Mus. Lever. is no longer in the collection.

5. TINNUNCULUS SPARVERIUS (Linn.). (265.)

Male? (Tobago Hawk) not agreeing with Latham's description (New York Merlin, Synop. i. 107, 93, var. A; Little Falcon, *l. c.* 110. n. 94; St. Domingo Falcon, *l. c.* 111, 95).

6. IERACIDEA NOVÆ ZEELANDIÆ (Gmel.). (1295.)

New Zealand Falcon, Lath. Gen. Syn. i. 57. 38 (nec tab.).

Falco novæ zeelandiæ, Gmel. Syst. i. 268.

Falco novæ zelandiæ, Lath. Ind. Orn. i. 28. 62.

Falco harpe, Forst. Descr. 68 et Icon. ined. 36, 37, 38.

Falco brunneus, Gould, P. Z. S. 1837, 139.

Hieracidea novæ-zeelandiæ, Kaup, Isis, 1847, 80; Gray, Ibis, 1862, 214; Buller, Trans. and Proc. N. Zeal. Inst. i. 106 (*H. brunnea* is the young of *H. novæ-zeal.*); Hutton, *ibid.* 160; Finsch, Journ. f. Ornith. 1870, 243.

Hieracidea brunnea (Gould), Gray, Gen. B. ii. 15.

Hawk, *S. Seas*, Sale Cat. n. 2219 (old invent.).

A young bird in the dress called *I. brunnea*. Its total length is 15"; the wing measures 9", the tail 7".

7. ACCIPITER FUSCUS (Gmel.). (190.)

Striated Hawk, Jamaica, Sale Cat. n. 4497.

This specimen is no longer in the collection.

STRIGIDÆ.

8. ATHENE TORQUATA (Daud.).

Spectacle Owl, Lath. Gen. Synops. Suppl. i. 50. t. 107.

Strix perspicillata, Lath. Ind. Orn. i. 58, 24.

The type of Latham's description and figure, now in our museum, was originally in a collection of birds which was brought from Cayenne, and then transferred to the Leverian collection. The bird is in the transition from the white dress of the young to the plumage of the adult.

9. SYRNIUM CINEREUM (Gmel.). (88.)

Sooty Owl, Penn. Arct. Zool. ii. p. 232. n. 120.

Cinereous Owl, Lath. Gen. Synops. i. 134. 19, et Suppl. 45.

Strix cinerea, Gmel. Syst. i. 291; Lath. Ind. Orn. i. 58. 22.

Strix fuliginosa, Shaw, Mus. Lever. (1796) t.

Strix cinerea, Gmel. (*H. fuliginosa*, Mus. Lever.), in the inventory.

Latham's description is taken from a type in the British Museum; but Shaw, *l. c.*, gives a representation of a specimen formerly in the Leverian collection.

10. EPHIALTES ASIO (Linné). (306.)

Our individual agrees well with Latham's description of the Mottled-eared Owl (Synops. i. 126. 11).

EURYLÆMIDÆ.

11. CYMBIRHYNCHUS MACRORHYNCHUS (Gmel.). (78.)

Great-billed Tody, Lath. Gen. Synops. ii. 664. n. 14, t. 30.

Todus macrorhynchus, Gmel. Syst. i. 446. 15.

Todus nasutus, Lath. Ind. Orn. i. 268. 14.

Latham's type (*Todus nasutus*). Locality unknown.

TROGONIDÆ.

12. TROGON VIRIDIS, Linné. (130.)

Leverian Trogon, Lath. Gen. Syn. Suppl. ii. 131.

Trogon leverianus, Shaw, Mus. Lever. t. 177; Lath. Ind. Orn. Suppl. xxix. 1; Gray, Gen. 70.

Couroucou albane mâle, Levaill. Hist. Nat. Courouc. t. 5.

Trogon albiventer, Cuv.

Trogon viridis, L.; Gray, Hand-l. i. 81.

The male (Sale Cat. n. 4785) is the type of Shaw's description and plate; the abdomen has changed from yellow to white, probably by the influence of light.

ALCEDINIDÆ.

13. HALCYON SACRA (Gmel.). (135.)

Sacred Kingfisher, Lath. Gen. Synops. i. 621. 12, excl. var.

Alcedo sacra, Gmel. Syst. i. 453; Lath. Ind. Orn. i. 250. 15.

Halcyon sacra (Gmel.), Hartl. et Finsch, Orn. Central-Polyn. 32.

The type of Latham's description (Sale Cat. n. 6084) has a pale ferruginous superciliary stripe, and agrees therefore with the birds considered by MM. Hartlaub and Finsch younger individuals.

Latham's passage, "under the blue beneath the eye, a nar-

row orange-ferruginous stripe," is, as M. Finsch says, unintelligible; and on the type there is nothing corresponding with it, but a slight tinge of yellowish under the dark band over the ears. Latham gives Otaheite as habitat.

14. HALCYON SANCTA, Vig. et Horsf. (266.)

Sacred King's Fisher, Phillip's Voy. New South Wales, 149, t. 29 (*vide* Cab.); White, Voy. New South Wales, tab. ad. pag. 193.

Halcyon sanctus, Vig. et Horsf.; Gould, Hand-b. B. Austr. i. 128.

Sauropatis sancta, Cab. et Hein. Mus. Hein. ii. 158.

A young bird. I am not quite sure whether this is the bird which was obtained from the Leverian Museum.

15. TODIRAMPHUS VENERATUS, Gmel. (132.)

Venerated Kingfisher, Lath. Gen. Synops. i. 623. 13.

Alcedo venerata, Gmel. Syst. i. 453. 29; Lath. Ind. Orn. i. 251. 16.

Halcyon venerata (Gmel.), Gray, Gen. 79; Pelzeln, Sitzgsber. d. k. Akad. xx. (1856) 501; Ornith. Novara, 47.

Latham's type (Sale Cat. n. 4251) is in our museum; it is marked as having been brought from the Friendly Isles (from the island of Apye, as Latham says in his Synopsis).

TROCHILIDÆ.

16. PHAETORNIS SUPERCILIOSUS (Linné). (186.)

Supercilious Humming-bird, Lath. Gen. Synops. ii. 747.

The bird, Sale Cat. n. 6354, seems to have been the specimen mentioned by Latham as contained in Leverian Museum; it no longer exists in the collection.

17. LOPHORNIS ORNATA (Bodd.). (189.)

Hupecol, Buffon, Ois. vii. 14; Pl. Enl. 640. 3.

Tufted-necked Humming-bird, Lath. Gen. Syn. ii. 784, 55.

Trochilus auratus, Gmel. Syst. i. 497.

Trochilus ornatus, Lath. Ind. Orn. i. 318, 58; Shaw, Mus. Lever. t. 130.

A male (from Cayenne), the type of Shaw's figure.

Latham mentions that this species was represented in the

Leverian collection; but his description is evidently a reproduction of that of Buffon.

MELIPHAGIDÆ.

18. *DREPANIS PACIFICA* (Gmel.). (m. 112, f. 113.)

Great Hook-billed Creeper, Lath. Gen. Synops. ii. 703. 3 (Friendly Isles, Mus. Lever.), Suppl. 126 (Owhyhee).

Hoo-hoo, Cook's last Voy. iii. 119.

Certhia pacifica, Gmel. Syst. i. 470; Lath. Ind. Orn. i. 281. 3.

Hoho, Audub. et Vieill. Ois. Dor. ii. t. 63 (from a specimen from Mus. Lever., lent by Parkinson).

Merops jaunoir, Levaill. Hist. Nat. des. Promer. t. 19 (err. New Holl.).

Drepanis pacifica (Gmel.), Temm. Man. d'Orn. 2nd ed. i. lxxxvi. 1820; Gray, Birds Trop. Isl. Pacif. Oc. 7; Reichenbach, Handb. d. Sp. Orn. 253, sp. 614; Gray, Hand-l. i. 113.

We have two specimens from Owhyhee, marked male (no. 112) and female (113), Sale Cat. n. 2790, the types of Latham's description, and one of them also the original of the plate of Vieillot, to whom it was lent by Mr. Parkinson. It seems probable to me that these birds are from Cook's voyage; I am not aware if, besides these, and the specimen formerly contained in Levaillant's collection, other individuals are to be found in European museums.

Mr. Peale (United States Expl. Exp. 1848, 149) asserts that he collected a bird, which he thought to be *Drepanis pacifica*, in the island of Kanai, one of the Sandwich group; but Cassin (ibid. new edit. 1858, 172) refers it to his *Mohoa braccata* (Proc. Acad. Philad. vii. 1855, 440). I regret that I am not enabled to compare Cassin's description of the latter species, this volume of the Philadelphia 'Proceedings' being incomplete in our library.

19. *PSITTIROSTRA PSITTACEA* (Gmel.). (79.)

Parrot-billed Grosbeak, Lath. Gen. Synops. iii. 108. 3, t. 42.

Parroquet, Cook's last Voy. iii. 119.

Loxia psittacea, Gmel. Syst. i. 844; Lath. Ind. Orn. i. 371. 3.

Psittirostra psittacea (Gmel.), Temm. Man. d'Ornith. 2nd edit. i. lxx. 1820; Gray, Hand-l. i. 114.

Psittacirostra icterocephala, Temm. Pl. Col. 457.

We are in possession of the type of Latham's description of the male and upper yellow-headed figure. It was marked n. 79 (Sale Cat. 4270); and a habitat is given, Sandwich Islands. Temminck (Pl. Col. *l. c.*) states that he saw the two specimens in the collection of Sir A. Lever, and thought that they were doubtless collected during Capt. Cook's expedition. The fate of the other specimen figured by Latham is unknown to me. In the year 1840 a male, and a young male collected at Eneo, Oban, 1837, were acquired from M. Deppe, of Berlin. Even the older one differs from Latham's male bird, the middle of the breast and belly and the thighs being whitish.

20. MELIPHAGA PHRYGIA (Lath.). (83.)

Black and yellow Bee-eater, Lath. Gen. Synops. Suppl. ii. 154. 12; New Holland Birds, 13, pl. 4.

Merops phrygius, Lath. Ind. Orn. ii., Suppl. xxxiv. 7.

The specimen from the Leverian Museum (*Merops phrygius*, var.) was in bad condition, and therefore not introduced into the collection.

21. ANTHORNIS MELANURA (Sparrm.). (292.)

Mocking Creeper, Lath. Gen. Synops. ii. 735. 39 (Mus. Lever.), et Suppl. 129.

Certhia melanura, Sparrm. Mus. Carls. t. 5.

Certhia sannio, Gmel. Syst. i. 471; Lath. Ind. Orn. i. 296. 48.

Certhia olivacea, Forst. Descript. An. 79, et Icon. ined. 62.

The specimen (*Certhia sannio*), probably Latham's type, was rejected, being in bad state.

ANABATIDÆ.

22. SITTA PUSILLA, Lath. (277.)

European Nuthatch, var. C, Lath. Gen. Synops. ii. 651. 1.

Least Nuthatch, Lath. *ibid.* Suppl. 118. 9.

Sitta pusilla, Lath. Ind. Orn. ii. 263. 5.

Brown-headed Tody, *Carolina*, Sale Cat. n. 6191.

Latham says that he saw several specimens of this species at Mr. Humphries's, of Long Acre, but does not mention that a bird of this species was contained in the Leverian Museum.

LUSCINIIDÆ.

23. TATARE LONGIROSTRIS (Gmel.). (267, 268.)

T. corpore supra brunnescente olivaceo, uropygio (ob colorem marginum plumarum) flavescente, regione auriculari dorso concolori, tectricibus alarum superioribus majoribus et secundariis ultimis late flavo albido terminatis, remigibus reliquis margine angustissimo flavo, loris, superciliis et gastræo sulphurescenti-flavis (colore magis intenso quam in *Tatara* ex Otahiti), in gula et pectore parum olivaceo admixto, rectricibus mediis brunneis flavido terminatis, lateralibus utrinque 4-5 flavo-albidis, scapis concoloribus, rostro longo subcurvato, maxilla, exclusis marginibus, cornea, his et mandibula pallidis, pedibus flavo-corneis. Longit. 9", alæ 4", caudæ 3½", rostri a fronte 13"', a naribus 10¼"', a rictu 18"', tars. 15 (16?)''.

Differt a *T. otaitiensi*, Less.*, statura majore, rostro longiore subcurvato, corpore supra (ad uropygium usque) cum regione auriculari unicolori gastræo intensius flavo et rectricibus lateralibus utrinque 4-5 penitus albidis †.

Long-billed Thrush, Latham, Gen. Synops. iii. 67. 84 (Mus. Lever. from Eimeo).

Turdus longirostris, Gmel. Syst. i. 823; Lath. Ind. Orn. i. 352. 92.

Tatara longirostris (Gmel.), Gray, Birds Trop. Isl. Pacif. Oc. 14; Finsch et Hartl. Orn. Central-Polyn. 66 (partim); Gray, Hand-l. i. 194 (partim).

Hab. Eimeo.

A male (267, Large Flycatcher, then *Turdus longirostris*), probably Latham's type, and another specimen (268, Large

* Gray, B. Trop. Isl. Pacif. Oc. 14; *Tatara longirostris*, Finsch et Hartl. Orn. Central-Polyn. 66 (partim).

† In our specimen five of the rectrices of one side are entirely yellowish white, with the shafts of the same colour, on the other side four are similar and one with brown basal and whitish terminal half, the two median rectrices brown, one with a scarcely visible, the other with a 4-5" broad terminal whitish spot.

Flycatcher, f., then *philedon*) were, as in bad condition, not accepted for the collection.

We are, however, in possession of another specimen from Eimeo (contained in a different inventory of the year 1806), which was obtained through Herr von Fichtel, and which agrees perfectly with Latham's excellent description of his Long-billed Thrush. It was probably purchased at a dealer's or from a collection in London. Comparing this bird with the other specimens of *Tatare* in our museum, all from Tahiti, the differences, principally of size, seem to me so considerable that I can scarcely believe in their specific identity. The measurements of the five individuals of *T. otaitiensis*, Less., in our collection are as follows:—

	Length.	Wing.	Tail.	Bill from		Tars.
				gape.	nostril.	
	in. lin.	in. lin.	in. lin.	lin.	lin.	lin.
1. Purchased by Natterer.						
Tahiti	7 10	3 8	3 2	15	9	14
2. From M. Parzudaki.						
Tahiti	7 10	3 9	3 2	16	9 $\frac{1}{4}$	14
3. ? ?	8 0	3 8	3 3	15 $\frac{1}{2}$	9	14
4. M. { Novara Exp. M. }	8 3	3 10	3 4	16 $\frac{1}{2}$	9 $\frac{1}{4}$	14 $\frac{1}{2}$
5. M. { Zelebor	7 6	3 8	3 2	16	9	14 $\frac{1}{2}$

In all these birds the upperside is more or less variegated by yellowish margins to the feathers, the underside is of a very pale yellowish, the auricular region being of the latter colour, all the rectrices are brown, with whitish tips; only in no. 4 there are some immature lateral tail-feathers with white tips and yellowish inner webs.

My friends MM. Finsch and Hartlaub, in their excellent book on the fauna of Central Polynesia, have maintained with cogent arguments the identity of *T. longirostris* and *T. otaitiensis*; but could they compare the specimens cited above, which agree so remarkably with Latham's description, I believe they would also agree with me that there are two species, as Mr. G. R. Gray formerly (*Birds Tropic. Isl.*) arranged them*.

The species here described (*Turdus longirostris*, Gmel.) inhabits Eimeo; but according to the descriptions given of birds

* [But see Grandidier on the difference between the sexes in *Bernieria*, an allied genus from Madagascar. *Rev. Zool.* 1868, p. 50.—ED.]

from that island in the Bremen Museum, it seems that both species would occur there*.

To which species the birds in the possession of Sir Joseph Banks, said to have come from York Island, of which Latham makes mention, belong, cannot be decided.

TURDIDÆ.

24. *TURDUS FLAVIPES*, Vicill. (199, 200.)

A male (199, Thrush, Christians' Isle) is yet in the collection, but not the female (200).

25. *MIMUS ORPHEUS* (Linné). (202.)

Turdus orpheus, Sale Cat. 3603, Jamaica.

Apparently a young bird, with pale bill, not fully adult remiges, underside washed strongly with isabel.

Shaw's plate (Mus. Lever. p. 116) seems to represent another specimen.

26. *MIMUS CAROLINENSIS* (Linné). (134.)

Cat Flycatcher, Lath. Synops. iii. 353. 54.

Our specimen is a typical one, with red vent. Latham says that a bird of this species, which came from Kamtschatka (!), and was then in the Leverian Museum, differed in not having the vent red.

27. *COPSYCHUS SAULARIS* (Linné). (86.)

Male (*Gracula saularis*, from Bengal).

Latham, in describing this species (Gen. Synops. ii. 465, et Suppl. 91), made no mention of its presence in the Leverian Museum.

28. *CITTACINCLA MACROURA* (Gmel.). (138.)

Long-tailed Thrush, Lath. Gen. Synops. iii. 72, t. 39 (from Pulo Condore).

Turdus macrourus, Gmel. Syst. i. 820; Lath. Ind. Orn. i. 354, 100.

The bird from the Leverian Museum, probably the type of Latham's description and figure, is no longer in our collection.

* In the nearly related genus *Calamoherpe* two very closely allied species, viz. *C. arundinacea* and *C. palustris*, also inhabit the same countries.

PYCNONOTIDÆ.

29. *GARRULAX CHINENSIS* (Scop.). (257, 288.)

Le petit Geay de la Chine, Sonnerat Voy. Ind. ii. 188, t. 107.

Black-faced Thrush, Lath. Gen. Syn. iii. 37. 36 (China).

Lanius chinensis, Scopoli, Delic. Fl. et Faunæ Insubr. ii. 1786, 86.

Turdus shanhu, Gmel. Syst. ii. 814. 41.

White-eared Jay, Lath. Gen. Synops. Suppl. 83. 42.

Corvus auritus, Lath. Ind. Orn. i. 160. 25.

Turdus melanopsis, Gmel. Syst. ii. 829. 102.

Garrulax chinensis (Scop.), Gray, Hand-l. 281.

Male? (258); the other specimen (257, Sale Cat. 5943) was transferred to the duplicates in the year 1832. A female (?) called *Corvus auritus* (n. 27), was bought from Herr von Fichtel.

Latham (Syn. Suppl.) indicates that this species was contained in the Leverian Museum.

30. *TURNAGRA CRASSIROSTRIS* (Gmel.). (259, 260.)

Thick-billed Thrush, Lath. Gen. Synop. iii. 34, t. 37.

Tanagra capensis, Sparrm. Mus. Carls. t. 45.

Turdus crassirostris, Gmel. Syst. i. 815; Lath. Ind. Orn. i. 335. 30.

Loxia turdus, Forster, Icon. ined. 145, et Descr. An. 85.

Turnagra crassirostris (Gmel.), Gray, Birds N. Zealand, Ibis, 1862, 13.

Turnagra turdus (Forst.), Gray, Hand-list, i. 284.

Keropia crassirostris (Gmel.), Finsch, Vög. Neuseel., Journ. f. Ornith. 1870, 322.

The specimen yet in our Museum (male, 259, auct. 6834), is evidently the type of Latham's description of the male (Synop. *l. c.*); a female (260) was in bad state, and therefore not retained in the collection.

FORMICARIIDÆ.

31. *GRALLARIA BREVICAUDA* (Bodd.). (204.)

A specimen from Cayenne, Sale Cat. 5870.

Mentioned by Latham (Syn. iii. 86, 118) as being in the Leverian Museum.

TYRANNIDÆ.

32. HIRUNDINEA FERRUGINEA (Gmel.). (139.)

Ferruginous-bellied Tody, Lath. Gen. Synops. ii. 662. 11
(Lever. Mus., from Cayenne?).

Todus ferrugineus, Gmel. Syst. i. 446; Lath. Ind. Orn. i.
267. 11.

Hirundinea ferruginea (Gmel.), Pelzeln, Orn. Bras. 113;
Sclater, Ibis, 1869, pp. 195–198, t. 5. f. 2.

Latham's type (Sale Cat. n. 6013), from Cayenne?

CORVIDÆ.

33. STREPERA GRACULINA (Shaw)? (261.)

Corvus graculinus, White, Journ. Voy. New-S. Wales, 1790,
p. 251, pl. —.

Coracias strepera, Lath. Ind. Orn. i. 173. 21 (Ins. Norfolk).

Noisy Roller, Lath. Gen. Synops. Suppl. ii. 121.

Gracula strepera, Shaw, Gen. Zool. vii. 462.

Corvus strepera, Leach, Zool. Misc. ii. t. 86.

Strepera graculina (White), Gould, Hand-l. B. Austr. i. 168.

The bird marked *Corvus graculinus* was not in good condition, and therefore not preserved; it was perhaps the type of White's plate.

34. PERISOREUS CANADENSIS (Linné). (203.)

Cinereous Crow, Latham, Gen. Synops. i. 389. 23.

Black-headed Butcher-bird, Sale Cat. 3136.

Latham, *l. c.*, mentions the existence of a specimen of this species in the Mus. Lever.

35. CYANOCORAX CAYANUS (Linné). (82.)

The specimen, Sale Cat. 5491, probably that mentioned by Latham (*Cayenne Jay*, Gen. Synop. i. 388. 22), is no longer in the collection.

36. UROCISSA SINENSIS (Linné). (205.)

Long-tailed Jay of the Sale Cat. 3587.

Latham says nothing about a specimen being in the Mus. Lever.

37. *FREGILUS GRACULUS* (Linné). (128.)

This bird, (Sale Cat. 4267), was transferred to the duplicates in the year 1832.

STURNIDÆ.

38. *CREADION CARUNCULATUS* (Gmel.). (307, 308.)

Wattled Stare, Lath. Gen. Synop. ii. 9, t. 36 (Mus. Lever.).

Sturnus carunculatus, Gmel. Syst. i. 805; Lath. Ind. Orn. i. 324. 6.

Both specimens of the *Sturnus carunculatus* were, on account of their bad state, not retained; they were evidently the types of Latham's description and figures; and I suppose that they were collected by Forster.

ICTERIDÆ.

39. *NESOPSAR NIGERRIMUS* (Osburn). (195.)

Icterus ater, Natterer, MSS. in collect.

Icterus nigerrimus, Osburn, Zoologist, pp. 6661, 6714 (1859). Jamaica.

Nesopsar nigerrimus (Osburn), Sclater, Catal. Coll. 139.

Agelaius (*Nesopsar*) *nigerrimus*, Cassin, Proc. Acad. Philad. 1866, 12.

A specimen (Sale Cat. 587, var. *Oriolus minor*). America.

40. *AGELAIUS HUMERALIS* (Vig.). (274.)

A specimen marked Yellow-shouldered Titmouse, without indication of habitat.

It agrees with D'Orbigny's description (Sagra, Ornith. Cuba, 114), except that the colour of the body is not black, but greyish brown, on the upper parts, wings, and tail glossed with metallic green, the throat almost white, a few of the greater wing-coverts and many of the rectrices showing a narrow rusty margin. According to Cassin (Proc. Acad. Philad. 1866, 11) the females and young males of *A. humeralis* are stated to be black (as in *A. assimilis*, also from Cuba); a specimen in Mr. Lawrence's collection, which he regards as a young male of this species, is clear uniform black, the rufous of the shoulder beginning to appear. M. Gundlach,

however (Journ. f. Ornith. 1856, 14), says the younger birds are similar to the adults, but the colours are fainter. I therefore believe that our bird ought to be considered a young one.

PLOCEIDÆ.

41. HYPHANTORNIS CAPITALIS (Lath.). (76.)

Capital Tanager, Lath. Gen. Synops. Suppl. i. 162, t. 112.

Tanagra capitalis, Lath. Ind. Orn. i. 432, n. 44.

Hyphantornis capitalis (Lath.), Gray, Gen. 351; Hartl. Orn. W. Afr. 124.

Tanagra capitalis, Sale Cat. 4415.

Latham says that he met with a representation of this bird among the drawings of Sir Ashton Lever, but mentions also, before describing the bird, its existence in Lev. Mus. I believe, therefore, that our specimen is with great probability the type of Latham's description and plate.

42. AMADINA ERYTHROCEPHALA (Linné)? (276).

The specimen called "Sparrow of Paradise" could not be found either in the collection or in the catalogue, though it is inscribed in the old inventory. Possibly it was the Paradise Grosbeak mentioned by Latham (Gen. Synop. iii. 122, 19) as in the Mus. Lever.

43. HYPOCHERA CHALYBEATA, Müll.? (*nitens*, Gmel.). (275.)

Black Finch, in bad state, not retained.

TANAGRIDÆ.

44. SPINDALIS ZENA (Linné). (77.)

Orange Finch, Lath. Gen. Synops. iii. 276.

This bird is no longer in our Museum.

FRINGILLIDÆ.

45. ZONOTRICHIA ALBICOLLIS (Gmel.)? (271, 272.)

White-throated Finch, male and female, in bad condition, and therefore not preserved.

BUCEROTIDÆ.

46. BUCEROS RHINOCEROS, Linné. (70.)

The specimen from Sir A. Lever's Museum, which was said

to have come from Java, and probably the original of Latham's description (Gen. Synop. i. 343. 1), is no longer in the Vienna collection.

47. *BUCEROS CORONATUS*, Bodd. (289.)

Calao des Philippines, Buff. Pl. Enl. 873.

Pied Hornbill, Lath. Gen. Synops. i. 349, partim.

Buceros malabaricus β , Lath. Ind. Orn. i. 143. 6.

Buceros monoceros, Shaw, Gen. Zool. viii. 8.

This bird, called "*Buceros malabaricus* from East Indies," was given in exchange to the Museum at Copenhagen in 1861.

PSITTACIDÆ.

48. *PLATYCERCUS TABUENSIS* (Gmel.). (121.)

Tabuan Parrot, Lath. Gen. Synops. i. 214. 16. t. 7. Tongo-Tabboe and the other Friendly Isles in the South Seas.

Psittacus tabuensis, Gmel. Syst. i. 317; Lath. Ind. Orn. i. 88. 19, excl. var.

Psittacus atropurpureus, Shaw, Mus. Lever. pl. p. 142. (N. Holl.)

Platycercus tabuensis (Gmel.), Finsch, Papag. ii. 231.

The bird, Tabuan Parrot, from Tongo Tabboe, Sale Cat. 4747, is the type of Latham's and Shaw's descriptions and figures.

49. *PLATYCERCUS ULIETEANUS* (Gmel.). (126.)

Society Parrot, Lath. Gen. Synop. i. 250. (Ulietea, one of the Society Islands.)

Psittacus ulietanus, Gmel. Syst. i. 328; Lath. Ind. Orn. i. 103. 61.

Platycercus ulieteanus (Gmel.), Finsch, Papag. ii. 271.

Our specimen (called *Psittacus fuscatus*, then *P. ulieteanus*) is Latham's type from Ulietea. As Dr. Finsch remarks, this and a second from Tanna, one of the New Hebrides, in the British Museum, which was formerly in Bullock's collection, seem to be the only known individuals of this species.

50. *PLATYCERCUS NOVÆ-ZELANDIÆ* (Sparrrn.). (81.)

Pacific Parrakeet, Latham, Gen. Synop. i. 252. 56 (its locality is indicated, Otaheite).

Psittacus pacificus, Gmel. Syst. i. 329; Latham, Ind. Orn. i. 104. 65.

Sale Cat. n. 3510 is the type of the above description.

Dr. Finsch (Papag. ii. 273-284) writes that *Pl. pacificus* (Gmel.) and *Pl. cookii*, Gray, from N. Zealand, *Pl. aucklandicus*, Gray, from the Auckland Isles, *Pl. rayneri*, Gray, from Norfolk Isle, and *Pl. erythrotis*, Wagler, from Macquarie's Island, belong to one species, viz. *Pl. novæ zelandiæ*. I believe that this question is not yet satisfactorily solved; and thinking that any contributions tending to this end would be not unwelcome to ornithologists, I subjoin the measurements of the specimens in our collection:—

	Wing.	Tail.	Bill along the upper mandible.	Tarsus.	
	in. lin.	in. lin.	lin.	lin.	
M. from Van Allen's menagerie.	5 6	6 9	10½	9½	} <i>Pl. cookii</i> .
From Baron Hügel's voyage	5 4	6 9	12	9½	
Latham's type	5 0	5 8	8½	7½	} <i>Pl. pacificus</i> (Gmel.).
Novara exped. (Auckland, Dec.).	5 0	5 3	9½	8	
{ New Zealand, presented by	{ 4 3	{ 5 0	{ 6½	{ 7½	} <i>Pl. auck-</i> <i>landicus</i> .
{ Dr. Haast	{ 4 6	{ 5 3	{ 7	{ 7½	

51. SITACE HYACINTHINA (Lath.). (253.)

Psittacus hyacinthinus, Lath. Ind. Orn. i. 84. 5 (Mus. D. Parkinson).

Psittacus augustus, Shaw, Mus. Lever. ii. (1792) 57.

Sale Cat. n. 6288 is the type of Latham's and Shaw's descriptions, and of the plate of the latter. The bird was introduced into the Leverian Museum by the late Lord Orford, who purchased it living (Shaw).

52. TRICHOGLOSSUS PYGMÆUS (Gmel.). (273.) (Plate I.)

Pygmy Parakeet, Lath. Gen. Synops. i. 256. 60 (Otaheite?).

Psittacus pygmæus, Gmel. Syst. i. 330; Lath. Ind. Orn. i. 106. 72.

Trichoglossus? pygmæus (Gmel.), Pelzeln, Sitzgsber. d. k. Akad. d. Wissench. xx. (1856) 165; Gray, List Birds Brit. Mus. Psittacidae, 65; Gray, Birds Tropic. Islands, 33; Finsch, Papag. ii. 870.

Latham's type (Little Green Parakeet, *P. pygmæus*, Sale

Cat. n. 5795) is the only known specimen of this species. In the old inventory, Botany Bay is given as its habitat; but Latham says "it inhabits several of the islands in the South Seas." The specimen above described is said to have come from Otaheite.

Trichoglossus pygmaeus is, as Dr. Finsch remarks, nearly allied to *T. palmarum* (Gmel.), *T. placens* (Temm.), and similar species.

53. *NESTOR MERIDIONALIS* (Gmel.). (122.)

Southern Brown Parrot, Lath. Gen. Synops. i. 264. 70 (N. Zealand).

Psittacus meridionalis, Gmel. Syst. i. 333.

Psittacus nestor, Lath. Ind. Orn. i. 110. 85.

Psittacus australis, Shaw, Mus. Lever. pl. p. 87.

The type of Latham's description and Shaw's description and plate.

54. *PSITTACUS MADAGASCARIENSIS* (Less.), var. (94.)

Mascarine Parrot, Lath. Gen. Synops. i. 265. 72 (note).

Psittacus mascarinus, Linné; Lath. Ind. Orn. i. 111. 87.

Coracopsis mascarina (Briss.), Pelzeln, Verh. zool.-bot. Gesellsch. Wien, 1863, 934.

Mascarinus madagascariensis, Less. Traité, 189.

Psittacus madagascariensis (Less.), Finsch, Papag. ii. 306.

The bird from the Leverian Museum (Sale Cat. n. 5828), which is affected by partial albinism, was described by Latham as a variety of the Mascarine Parrot. Further details were given by Dr. Finsch and myself as above cited.

55. *PIONIAS MENSTRUUS* (Linné). (127.)

Blue-headed Parrot, Lath. Gen. Synops. i. 211. 107.

The Blue-headed Parrot, Sale Cat. n. 4945, was transferred to the duplicates in 1832.

56. *PSITTACULA PURPURATA* (Gmel.). (123.)

Purple-tailed Parakeet, Lath. Gen. Synops. i. 315. 121 (Br. Mus., Lev. Mus.).

Psittacus purpuratus, Gmel. Syst. i. 350; Latham, Ind. Orn. i. 132. 150.

Psittacula purpurata (Gmel.), Finsch, Papag. ii. 680.

The specimen from the Museum Leverianum is not in the

collection; nor was it included in the old catalogue, though it is enumerated in the inventory.

57. CALYPTORHYNCHUS BANKSI (Lath.). (311.)

Banksian Cockatoo, Lath. Gen. Synops. Suppl. 63, t. 109; Cook's Voy. ii. 18; Parkin's Voy. 144.

Psittacus banksii, Lath. Ind. Orn. i. 107. 76, excl. var.; Shaw, Gen. Zool. viii. 476, excl. var.

Psittacus magnificus, Shaw, Nat. Misc. ii. t. 50 (nec Mus. Lever.).

Sale Cat. n. 1097 is a younger bird according to Dr. Finsch's, or a female according to Mr. Gould's view.

As this specimen agrees very well with Latham's description and figure, there is some probability that it is Latham's type; but this naturalist mentions that the bird was in the collection of Sir Joseph Banks, who brought it with him from New Holland.

PICIDÆ.

58. CAMPEPHILUS MELANOLEUCUS (Gmel.). (252.)

Buff-crested Woodpecker, Lath. Gen. Syn. ii. 558, t. 25.

Picus melanoleucus, Gmel. Syst. i. 426; Lath. Ind. Orn. i. 226. 7.

Picus melanoleucus, Sale Cat. n. 1937 (a female from Surinam) is probably the type of Latham's description and plate.

CUCULIDÆ.

59. PIAYA PLUVIALIS (Gmel.). (297, 298.)

Sloane, Jamaica, t. 258. f. 1.

Rain-Cuckoo, Lath. Gen. Synops. ii. 536. 33 (cum syn.).

Cuculus pluvialis, Gmel. Syst. i. 411; Lath. Ind. Orn. i. 218. 37.

Hyetornis pluvialis (Gmel.): Sclater, Cat. Coll. 321; Cab. et F. Heine, Mus. Hein. ii. 80 (expos. synonym.).

Hyetomantis pluvialis, Cab. J. f. Orn. 1862, p. 253, note.

Piaya (Hyetornis) pluvianus, Gray, Hand-list, ii. 212.

Two specimens (Sale Cat. n. 35, last day, *Cuculus vetula*).

Not mentioned by Latham as contained in the Mus. Lever.

60. OXYLOPHUS GLANDARIUS (Linné). (264.)

Great Spotted Cuckoo, Lath. Gen. Synops. ii. 513. 3.

Sale Cat. n. 6077 (*Large Spotted Cuckoo*, Africa) was in bad preservation, and is no longer in the collection.

Latham describes a specimen from Gibraltar, but does not indicate that the bird was in the Mus. Lever.

61. EUDYNAMYS NIGRA (Linné). (141.)

A female (Sale Cat. n. 6095); no longer in the collection.

Not mentioned by Latham as in the Lever. Mus.

62. SCYTHROPS NOVÆ HOLLANDIÆ, Latham. (98.)

Psittaceous Hornbill, Phil. Bot. Bay, 165, c. fig.

Scythrops novæ hollandiæ, Lath. Ind. Orn. i. 141. 1.

Anomalous Hornbill, White's Journ. 142, c. fig.

Channel-bill, Lath. Gen. Synops. Suppl. ii. 96, t. 124.

It seems not improbable that our specimen is the type of the figure in White's Journal.

COLUMBIDÆ.

63. CARPOPHAGA, sp. (312.)

Large Pigeon, South Sea?; rejected, not being in a good state.

64. COLUMBA ——. (192.)

Mercury Pigeon; in bad condition, therefore not retained in the collection.

65. PATAGIENAS LEUCOCEPHALA (Linné). (250, 251.)

White-crowned Pigeon, Lath. Gen. Synops. iv. 616. 5.

Columba leucocephala, Linné, Lath. Ind. Orn. ii. 594. 5.

Sale Cat. n. 4478 (*Columba leucocephala*, 250) is perhaps the specimen mentioned by Latham as contained in the Mus. Lever.; another bird (251) was in bad condition, and therefore not accepted for the collection.

66. GEOPELIA STRIATA (Linné) (*sinica*, L.). (185.)

Sale Cat. n. 3605 (*Striated Turtledove*) was referred to the duplicates, 1832?

67. ZENAIDA AMABILIS, Bonap. (119, 120.)

Male (119; Sale Cat. n. 3131), *Cinnamon Dove*, Jamaica.

The female (120; Sale Cat. n. 5380, Jamaica) is no longer in the collection.

Does not seem to be mentioned by Latham.

68. *LEUCOSARCIA PICATA* (Lath.). (186.)

White-faced Pigeon, Lath. Gen. Syn. Suppl. ii. 268. 4.

Pied Pigeon, Lath. *ibid.* 2685.

Columba melanoleuca, Lath. Ind. Orn. ii. Suppl. lix. 1.

Columba picata, Lath. *l. c.* lix. 2.

A female (White-fronted Dove from New Holland), perhaps one of Latham's types.

69. *CALÆNAS NICOBARICA* (Linné). (111.)

Sale Cat. n. 4828.

PHASIANIDÆ.

70. *GALLUS BANKIVA*, Temm. (241, 242.)

Two English Game-Cocks, one with iron spurs, no longer in the collection.

71. *MELEAGRIS MEXICANA*, Gould. (71.)

American Turkey, Lath. Gen. Syn. iv. 676. 1 (only the description of the male).

Meleagris mexicana, Gould, P. Z. S. 1856, 61; Baird, Birds N. America, 614 & 618; Sclater, P. Z. S. 1863, 125.

The male from the Leverian Museum, which was said to have come from Georgia, agrees very well with Mr. Gould's description, but is inferior in size, its measurements being as follows—length 3' 2½", bill 2", wing 18½", tail 13", tarsus 5" 9"; but a comparison of the measurements given by Prof. Baird (*l. c.* 619) shows clearly that the dimensions vary to a considerable degree.

Another point wherein our specimen differs both from *M. mexicana* and *M. gallopavo*, consists in the primaries being uniform olive-brown, unadorned with white bars, the secondaries of the same colour, with a green gloss in the second half, and with a narrow white posterior margin; the inner webs of the secondaries are freckled with buff towards the margins.

I had a suspicion that the wings might have been taken from

another specimen; but a more accurate inspection proved such a supposition to be erroneous.

As our Museum has received a pair of the true *M. gallopavo* in exchange from the late Prince Neuwied, bearing the locality "Mexico," it seems that the latter species also occurs further south. Mr. Allen (Bulet. Mus. Comp. Zool. vol. ii. n. 3. 342) believes the Mexican Turkey to be not specifically different from the more northern bird.

TETRAONIDÆ.

72. *ROLLULUS CORONATUS* (Lath.). (101.)

Sonn. Vög. t. 100.

Lesser Crowned Pigeon, var. A, Lath. Gen. Synops. iv. 623. 10, t. 58.

Phasianus rouloul, Scop. Del. Flor. et Faun. Insubr. 93.

Phasianus cristatus, Sparrm. Mus. Carls. t. 64.

Columba cristata, Gmel. Syst. i. 774; Lath. Ind. Orn. ii. 596 et 597, var. β . n. 10.

Perdix coronata, Lath. Ind. Orn. ii. Suppl. lxii. 1.

Sale Cat. n. 6100, is the type of Latham's description and figure.

In the old catalogue of the Vienna Collection "Sumatra" was given as the locality of this specimen; but as Latham says that the bird in the Leverian Museum was met with by accident at a sale, without the least history annexed, this habitat is evidently wrongly assigned to this specimen.

73. *TURNIX GIBRALTARICUS* (Gmel.). (196.)

Gibraltar Quail, Lath. Gen. Synops. iv. 790. 37.

Perdix gibraltaria, Gmel. Syst. i. 766; Lath. Ind. Orn. ii. 656. 45.

Sale Cat. n. 6004, evidently Latham's type, is no longer in the collection.

74. *ORTYX CRISTATUS* (Linné). (87.)

Mentioned by Latham (Crested Quail, Gen. Syn. iv. 784. 26) as in the Leverian Museum.

75. *CACCABIS RUBRA* (Briss.). (95.)

Greek Partridge, var. A.

Guernsey Partridge, Lath. Gen. Syn. iv. 768. 12 (Br. Mus., Mus. Lever.), et Suppl. 220.

Perdix rufa, β , Lath. Ind. Orn. ii. 647. 12.

The specimen is without indication of habitat.

76. PEDIGECETES PHASIANELLUS (Linné). (310.)

Edwards, t. 117.

Long-tailed Grouse, Lath. Gen. Syn. iv. 732. 2, et Suppl. 212. 2.

Tetrao phasianellus, Linné, Gmel. Syst. i. 747; Lath. Ind. Orn. ii. 635. 2.

Female? Sale Cat. n. 5598 (Pin-tailed Grouse).

Latham does not say that a bird of this species was in the Leverian Collection.

STRUTHIONIDÆ.

77. RHEA AMERICANA, Lath.

A young bird.

TINAMIDÆ.

78. TINAMUS BRASILIENSIS, Lath. (103.)

Great Tinamou, Lath. Gen. Syn. iv. 724. 1.

Tinamus brasiliensis, Lath. Ind. Orn. ii. 633. 1.

Sale Cat. n. 6022 was transferred to the duplicates many years ago.

Latham mentions the existence of a specimen in the Museum Leverianum.

OTIDIDÆ.

79. OTIS, sp. (179.)

A skin of an *Otis*, called Barbary Bustard, was in bad condition, and therefore not received in the collection.

CHIONIDIDÆ.

80. CHIONIS ALBA (Gmel.). (90.)

White Sheathbill, Lath. Gen. Synops. v. 268. t. 89.

Chionis, Forst.; Temm. Man. d'Orn. Anal. cviii.

Vaginalis alba, Gmel. Syst. i. 705.

Vaginalis chionis, Lath. Ind. Orn. ii. 774. 1.

Our bird (called *Vaginalis australis*, and said to be from New Zealand) differs from Latham's figure in the circumstance that the warty excrescences of the face are less developed, as Latham mentions is the case in young birds.

HÆMATOPODIDÆ.

81. STREPSILAS INTERPRES (Linné). (278.)

Turnstone, Sale Cat. n. 5797. Adult.

Latham (Gen. Syn. v. 188. 37) gives a description, made probably from a specimen in the Museum Leverianum, which agrees in many ways with the above-cited bird; but the wing-coverts of the latter are not cinereous-brown, but ferruginous.

GRUIDÆ.

82. GRUS CANADENSIS (Linné).

Brown Crane, Lath. Gen. Synops. v. 43. 7.

Ardea canadensis, Lath. Ind. Orn. ii. 675. 7.

Specimen from N. America.

83. GRUS ANTIGONE (Linné). (67.)

Specimen from the East Indies.

84. SCOPS VIRGO (Linné). (304.)

Demoiselle Heron, Lath. Gen. Syn. v. 35. 2.

Ardea virgo, Linné, Lath. Ind. Orn. ii. 673. 2.

A specimen without habitat.

According to Latham this species was contained in the Leverian Museum.

ARDEIDÆ.

85. ARDEA PACIFICA, Lath. (301.)

Pacific Heron, Lath. Gen. Synops. Suppl. ii. 305. 20.

Ardea pacifica, Lath. Ind. Orn. ii. Suppl. lxxv. 2.

The specimen was marked in the catalogue *Ardea vittata*, not *A. pacifica*.

86. ARDEA CÆRULEA, Linné. (299.)

Blue Heron (Catesby), Lath. Gen. Synops. v. 78. 45 (Mus. Lever.).

Ardea cærulea, Linné, Lath. Ind. Orn. ii. 689. 48, excl. var. β .

Sale Cat. n. 6195 (Small Black Heron) is no longer in the collection.

87. *CANCROMA COCHLEARIA* (Linné). (74, 75).

Boatbill (*Cancr. cochl.* L.), Lath. Gen. Synops. v. 26 (Mus. Lever.), t. 76 (the male).

Crested Boatbill, var. B, *Brown Boatbill* (*C. cancrophaga*, L.), Lath. ibid. (Mus. Lever.) (the female).

Cancroma cochlearia, Linné, Lath. Ind. Orn. ii. 671. 1 (cum. var. β et γ); Shaw, Mus. Lever. p. 10, pl. (m. et f.).

Male (Sale Cat. n. 5140) and female (Sale Cat. n. 2229) from S. America, perhaps Latham's types, are no longer in the collection. They were also depicted by Shaw (Mus. Lever. 10).

CICONIIDÆ.

88. *MYCTERIA AUSTRALIS*, Lath. (Temm.?). (176.)

New-Holland Jabiru, Lath. Gen. Synops. Suppl. ii. 294. t. 138.

Ciconia australis, Temm. Linn. Trans. v. 34. 2; idem, Pl. Col. genre *Ciconia*, sp. 6.

Mycteria australis, Lath. Ind. Orn. ii. Suppl. lxiv. 1; Shaw, Nat. Miscell. t. 601.

The bird in our collection is probably Latham's type.

TANTALIDÆ.

89. *TANTALUS LOCULATOR*, Linné. (8.)

Specimen. America.

90. *GERONTICUS CAYENNENSIS* (Gmel.). (305.)

Courly verd de Cayenne, Buff. Pl. Enl. 820.

Cayenne Ibis, Lath. Gen. Synops. v. 107. 3.

Tantalus cayennensis, Gmel. Syst. i. 652; Lath. Ind. Orn. ii. 704. 3.

Sale Cat. n. 6178 no longer in the collection.

Not mentioned by Latham as existing in the Museum Leverianum.

91. *GERONTICUS CALVUS* (Gmel.). (109.)

Courly à tête nue, du Cap de bonne Espérance. Buff. Pl. Enl. 867.

Bald Ibis, Lath. Synops. v. 116. 16 (Br. Mus., Mus. Lever.).

Tantalus calvus, Gmel. Syst. i. 649; Lath. Ind. Orn. ii. 708. 17.

The bird, probably that mentioned by Latham (Gen. Synops. v. 116. 16), was in bad condition, and not placed in the collection.

RALLIDÆ.

92. *HYPOTÆNIDIA STRIATA* (Linné). (116, 117.)

Rallus philippensis striatus, Briss. Orn. v. 167, t. 14. f. 2.

Tiklin rayé, Buffon, Ois. ix. f. 72.

Rallus striatus, Linné, Syst. i. 262. 5; Gmel. Syst. i. 714; Lesson, Traité d'Ornith. 536; Blyth, Catal. Calc. Mus. 285, sp. 1671; Swinhoe, Ibis, 1863, 427 (egg), et P. Z. S. 1863, 321; Jerdon, Birds of India, ii. 726*.

Philippine Rail, var. C, Lath. Gen. Synops. v. 232.

Philippine Rail, var. A, Lath. Gen. Synops. v. 231. 4, t. 86.

Rallus philippensis, var. β et γ , Lath. Ind. Orn. ii. 756. 4.

Rallus gularis, Horsf. (secundum Blyth); ? Bernstein, Journ. f. Ornith. 1861, 190 (eggs).

Rallus indicus, Verreaux; Reichenbach, Rasores, t. 201. f. 2575, 2576.

Rallus pectoralis, Gray, Birds Tropic. Isl. 52 (partim); Finsch et Hartlaub, Ornith. Centr. Polyn. 157 (partim).

Hypotaenidia striata, Reich.; Bonap. Compt. Rend. xliii. (1856) 599; Schlegel, Mus. Pays-Bas, *Ralli*, 24.

Hab. Throughout India from the extreme south and Ceylon, to the foot of the Himalayas and the Punjab; extends through Burmah to the Malayan islands (*Jerdon*); Malacca (*Reichenbach*); Sumatra (*Blyth*); Java (*Lesson, Schlegel*); Cochinchina, China (*Schlegel*); Siam, Formosa (*Swinhoe*); Philippine Islands (*Brisson*); Luçon (*Schlegel*); Otaheite (*Latham*).

Two specimens from the Leverian Museum, viz. 116, Sale Cat. n. 5384 (*Rallus philippensis*, var. *otaheitensis*) and 117; the latter probably the original of Latham's description and figure.

* The dimensions given by Jerdon surpass in some particulars those of our specimen.

Both individuals agree very well together; their measurements are* :—Length 9" 3^{'''}, wing 4" 8^{'''}, tail 2" 1^{'''}, bill from gape 18^{'''}, from the frontal plumes 12–12½^{'''}, tarsus 19^{'''}, middle toe without nail 18^{'''}, tertiaries 3^{'''} shorter than the longest primaries.

H. striata is similar to the young male and female of *H. celebensis*, but differs in its inferior size, the slender tarsus, and longer toes. I am convinced that the *Rallus philippensis* of the older authors is a different species. Our collection is in possession of a specimen of the latter, which was obtained in the year 1815, in exchange, from the Paris Museum, as *Rallus philippensis* (Râle rayé des Philippines, Pl. Enl. 774), and which agrees very well with the figure of the Pl. Enl. I think it not impossible that it is the same individual which served as a model to Buffon.

The bird differs from *H. striata* in its by far greater size, much stouter tarsi, and shorter toes, the tertiaries equalling in length the longest primaries; the rusty red of the nape is not uniform, but streaked with dark brown, the feathers of the back are blackish brown, fringed with olivaceous, and adorned with very few white spots, these being also less numerous on the wings; the whole under surface has a tinge of yellowish. Length 11", wing 5" 4^{'''}, tail (incomplete) 1" 9^{'''}, bill from gape 18^{'''}, from the frontal feather 14^{'''}, tarsus 21^{'''}, middle toe without nail 17^{'''}.

The synonymy would stand as follows :—

HYPOTÆNIDIA PHILIPPENSIS (Linné).

Rallus philippensis, Briss. Orn. v. 163, t. 14. f. 1; Linné, Syst. i. 263, 7; Gmel. Syst. i. 714; Lath. Ind. Orn. ii. 756. 4 (excl. var.); Lesson, Traité d'Ornith. 536; ? Gray, Birds Tropic. Isl. 51.

Tiklin, Buffon, Ois. ix. 71.

Râle rayé des Philippines, Pl. Enl. 774.

Phillippine Rail, Lath. Gen. Synops. v. 230, 4.

? *Râle tiklin*, Quoy et Gaimard, Voy. Uranie, 35.

* The feet of n. 116 are wanting, and are replaced by those of some other gallatorial bird.

Hab. Philippine Islands (*Brisson*); Marianne Isl., Guam (*Quoy et Gaim.*).

A nearly allied but distinct species is represented by the bird designated by most authors, and formerly also by me in the Ornithology of the 'Novara,' as *Rallus pectoralis*, Cuvier. Pucheran has already shown (*Rev. de Zool.* 1851, 277) that Cuvier's and Lesson's bird (= *Rallus brachypus* (Swains.)) is very different from that introduced by Gould under this name; and I would therefore propose for the latter species the name "*australis*," on account of its habitat.

H. australis is in coloration very similar to *H. philippensis*, but even in the young bird marked with a buff collar; it has longer wings than *H. philippensis*, absolutely or comparatively shorter tarsi, and the tertiaries are considerably shorter than the primaries. The dimensions of the specimens in our Museum are the following:—

	Length.		Wing.		Tail.		Bill from frontal feather.	Tars.	Middle toe.	Tertiaries shorter than the primaries.
	in.	lin.	in.	lin.	in.	lin.	lin.	lin.	lin.	lin.
1. From M. Dufresne, 1815. Australia..	10	6	5	0*	2	6	13½	17½	15	4
2. M. } Without fur-	12	3	5	9	3	0	15	20	16	6
3. F. } ther date....	11	0	5	5	2	9	13	18	15	5
4. F. Novara Expedi- tion	10	6	5	6	2	11	12¾	18	14	11†
5. F. j. †	10	3	4	4	2	8	12½	18½	15½	6

* The feathers probably have not attained their full length.

† Perhaps not fully grown.

‡ This specimen, purchased from M. Parreys in 1833, is evidently very young: the wings are very short, the upper mandible is dusky, the colours are similar to those of the old bird; but the red of the nape and the white spots of the back appear little developed, the buff collar is pale, but broader, as in adult individuals. Whether the birds enumerated by Schlegel from the Philippines (*Cuming*) and from Celebes (*Forsten et Rosenberg*), and in like manner *Rallina philippensis*, Wallace (*P. Z. S.* 1863, p. 36), from Bourou and the islands eastward, belong to this or the foregoing species, I cannot decide.

It is also doubtful to what species the birds mentioned as *Rallus philippensis*, found on the Keeling or Cocos Atoll, in the Indian Ocean (*Gould, Voy. Beagle*, p. 33), are to be referred.

The synonymy would be:—

HYPOTÆNIDIA AUSTRALIS.

Rallus pectoralis, Gould, Birds Austral. vi. t. 76; Reichenb. Vög. Neuholl. 159, n. 478; idem, Naturg. Novit. t. cccv. f. 2465, 2466; Cassin, Unit. St. Expl. Exped. 303; Gray, Birds Tropic. Isl. 52 partim; Pelzeln, Orn. Nov. 134; Finsch et Hartl. Orn. Centr. Polyn. 157, partim, t. 3. f. 3 (egg).

Rallus philippensis, Peale, Unit. St. Expl. Exp. 222.

Hypotænidia philippensis, Bonap. Compt. Rend. xliii. (1856) 599; Schlegel, Mus. Pays-Bas, *Ralli*, 23; Gould, Handb. Birds Austral. ii. 334.

Rallus hypotænidia (Bonap.), Verreaux et des Murs, Rev. de Zool. 1860, 437.

Hab. Australia (*Gould, Peale*); Samoa, Feejee, Tonga Isles (*Peale*); New Caledonia (*Verr. et Des Murs*).

For comparison I add the dimensions of our specimens of the two nearly related species, *H. torquata* and *H. celebensis*.

Hypotænidia torquata (Linné).

	Length.	Wing.	Tail.	Bill from frontal feather.	Tars.	Middle toe.	Tertiaries shorter than the primaries. lin.
1. M. From M. Verreaux.	in. lin.	in. lin.	in. lin.	lin.	lin.	lin.	
Philippine Islands ..	12 0	6 0	2 0	19½	26	20½	3
2. M. From Paris Mu- seum?	12 0	5 9	2 0	16	25	18½	—

Hypotænidia celebensis (Quoy et Gaim.).

1. M. Gorontalo, July, coll. by <i>Rosenberg</i>	11 6	5 3	2 6	18	24	18½	10
2. F. Gorontalo, April, <i>Rosenberg</i>	10 9	4 10	2 6	14?	19	15½	10
3. M. j. Gorontalo, April, <i>Rosenberg</i>	10 9	5 0	2 6	14	19½	15½	10
M. ? Celebes? From the Austrian Expedit. to Eastern Asia	12 0	6 0	2 6?	18	24	18½	13

93. PORZANA, ? sp. (143, 144.)

Male and female (small Waterhens), were not received in the collection, being in bad preservation.

94. PORPHYRIO PARVUS (Bodd.). (303.)

Favorite de Cayenne, Buff. Pl. Enl. 897.

Favourite Gallinule, Lath. Gen. Synops. v. 256, 8 (in Mus. Lever.).

Fulica flavirostris, Gmel. Syst. i. 699.

Gallinula flavirostris, Lath. Ind. Orn. ii. 769, 10.

Sale Cat. n. 1414 (Waterhen) was given to the collection of the Gymnasium at Agram in the year 1854.

95. NOTORNIS? ALBA (White). (102.)

White Gallinule, Callam, Bot. Bay, 1783 (teste Gray); Phillips's Voyage to Bot. Bay, 273, cum fig. 1789; Latham, Gen. Synops. Suppl. ii. 327; Bennett, P. Z. S. 1869, 471.

Fulica alba, White, Journal of a Voyage to New South Wales (1790), 238, c. tab.

Gallinula alba, Lath. Ind. Orn. 768. 8; idem, Gen. Hist. ix. 428.

Porphyrio albus, Lath.; Temminck, Man. d'Ornith. ii. 701; idem, Pl. Col. genre *Porphyrio*, sp. 4; Steph. Gen. Zool. xii. 261; Gray, Ibis, 1862, 240 (with details from Latham's Gen. Hist.).

Porphyrio melanotus, Temm. (albino variety); Gray, Zool. Erebus and Terror, 19; idem, Gen. of Birds, 598.

Porphyrio melanotus, Temm., var.; Bonap. Compt. Rend. xliii. (1856) 599, (tabl. Grallæ).

Notornis? alba (White), Pelzeln, Sitzungsber. d. k. Akad. Wissensch. xli. (1860) 328; A. Newton, Ibis, 1866, 159 (note); Salvin, Ibis, 1871, 443.

White Bird, Hill, Lord Howe's Island, Sydney, 1870.

Porphyrio albus, Shaw; Gray, Hand-l. iii. Suppl. 344.

Our collection is in possession of White's type (*Fulica alba*, Norfolk Isl.); the identity of the bird is proved by White's remark in the preface to his book, that the birds from which the drawings were taken are deposited in the Leverian Museum.

In a letter on Lord Howe's Island (P. Z. S. 1869, p. 471) Dr. G. Bennett says that the White Gallinule figured in Phillip's 'Voyage to Botany Bay,' and found only in Norfolk and

Lord Howe's Islands, is now extinct, as it has not been seen recently on either of these islands. In Mr. Salvin's record of Mr. Edward S. Hill's paper on Lord Howe's Island (*Ibis*, 1871), mention is made of a white bird, like a Guinea-fowl, which, if not actually extinct, seems on a fair way to become so, and which is, as Mr. Salvin remarks, very probably the same as *Gallinula alba*, Lath. To Mr. A. Newton (*Ibis*, 1866) we owe the notice that, besides the specimen in the Imperial Museum at Vienna, there is a second in the Derby Museum at Liverpool, from Bullock's collection*.

ANATIDÆ.

96. PLECTROPTERUS GAMBENSIS (Linné). (173.)

The specimen, probably that figured by Lath. (*Gen. Syn.* vi. 452, t. 102), was transferred to the duplicates in the year 1832. It seems also to have been the original of Shaw's plate (*Mus. Lever.* 231, t. 56.).

97. ANSER CÆRULESCENS (Linné). (105.)

Blue-winged Goose, Edwards, t. 152; Lath. *Gen. Synops.* vi. 469. 28 (*Mus. Lever.*).

Anas cærulescens, Linné, *Syst.* i. 198. 12; Gmel. *Syst.* i. 513; Lath. *Ind. Orn.* ii. 836. 13.

Anser cærulescens (L.), Cassin, *Proc. Acad. Philad.* viii. (1856) 12; Schlegel, *Mus. Pays-Bas, Anseres*, 108.

Specimen from North America.

This Goose was frequently believed to be the younger bird of *Anser hyperboreus* (Pall.); and even Baird (*Rep.* 761) doubts the specific difference of the two birds, a difference which seems to me to hold good. Latham mentions that this species was in the Museum Leverianum; but his description seems to be taken from that of Edwards, with which our specimen agrees tolerably well.

98. BERNICLA JUBATA (Lath.). (145.)

Hawkesbury Duck, Lath. *Gen. Synops. Suppl.* ii. 358, pl. in titlepage.

Anas jubata, Lath. *Ind. Orn. Suppl.* lxi.

* Herr von Pelzeln has just forwarded us a drawing of this species, from which it is our intention to have a Plate prepared for our next Number.

Bernicla jubata, Steph. Gen. Zool. xii. 63.

Chlamydochen jubata (Lath.), Gould, Handb. Birds Austral. ii. 354.

This bird, from the Museum Leverianum (Red-winged Duck), perhaps Latham's type, is no longer in the collection.

99. CYGNUS ATRATUS (Lath.). (288.)

Transferred to the duplicates in 1832.

100. ANAS CRISTATA, Gmel. (137.)

Crested Duck, Lath. Gen. Synops. vi. 543. 81 (described from a plate of Sir Joseph Banks; species from Staatenland).

Anas cristata, Gmel. Syst. i. 540; Lath. Ind. Orn. ii. 870. 93.

Anas lophyra, Forst. Descr. Av. 340 (Terra Statuum).

Anas, n. 1, Purple-winged Duck, Sale Cat. n. 5591.

As Latham does not notice the specimen in the Museum Leverianum, our bird was probably a later acquisition, and perhaps from Forster's voyage.

101. DAFILA BAHAMENSIS (Linné). (114.)

Teal, *Surinam*, Sale Cat. n. 2572; not mentioned by Latham.

102. CLANGULA ALBEOLA (Linné). (136.)

Buffel-headed Duck, Lath. Gen. Synops. vi. 533. 75.

Anas albeola, L.; Lath. Ind. Orn. ii. 866. 86.

Gambo-goore, America.

ALCIDÆ.

103. LUNDA CIRRHATA (Pallas). (100.)

Specimen from Kamtschatka.

URIIDÆ.

104. BRACHYRAMPHUS MARMORATUS (Temm.). (80.)

A younger bird of this species (auct. n. 5366, *Uria marmorata*) differs from Latham's description and plate (Gen. Syn. vi. 336, t. 96) in having the plumage of lighter hue, and in the throat and its sides being nearly unspotted white.

PROCELLARIIDÆ.

105. PUFFINUS ÆQUINOCTIALIS (Linné). (256.)

Black Petrel, Lath. Gen. Synops. vi. 398. 3 (Mus. Lever.).

Our specimen, probably that mentioned by Latham as contained in the Mus. Lever., is no longer in our collection. It is also possible that the same bird was the original of the plate in White's Journ. Voy. New S. Wales, p. 251.

+ 106. *Puffinus tenebrosus*, Natterer. (254.)

P. corpore supra nigrescente brunneo, subtus albo: lateribus colli pectorisque plumarum limbis albis, tectricibus alarum anguste albo marginatis, tectricibus caudæ inferioribus lateralibus nigricantibus albo terminatis, rostro obscure corneo, maxillæ basi infra nares et mandibulæ parte inferiore flavescentibus, pedibus flavidis, tarsis solummodo linea anteriore et posteriore, digitoque externo extus obscuris. Longit. $12\frac{1}{2}''$, alæ $7'' 8'''$, ab apice rectricum ad finem secundariorum $2'' 6'''$; rectricum mediarum longit. $3\frac{1}{4}''$, lat. $9'''$; rectrices laterales $8'''$ breviores; tarsi longit. $1'' 5'''$, lat. $3'''$; longit. digiti externi $16'''$, unguis $2'''$, digiti medii $16'''$, unguis $3'''$, digiti interni $12'''$, unguis $2\frac{1}{2}'''$; rostri a fronte $11'''$, a naribus $9'''$, a rictu $17'''$.

Dusky Petrel, Lath. Gen. Synops. vi. 416. 23 (only the smaller specimen in the Mus. Lever.; said to have come from King George's Sound, on the American coast); Arctic Zool. Suppl. 73 (?).

Procellaria obscura, Gmel. Syst. i. 559 (partim); Latham, Ind. Orn. ii. 828, n. 24 (partim); Vieill. Gal. Ois. t. 301 (only the habitat from King George's Sound).

Puffinus tenebrosus, Natterer, Synops. MS.

Hab. King George's Sound, on the American coast (*Lath.*); Ins. Galéga (*Lafr.*)?

Similis *P. obscuro* (Gmel.)*, sed minor, rostro tenuiore et

+ * *Puffinus obscurus*, Gmel.

Dusky Petrel, Lath. Gen. Synops. vi. 416. 23 (Christmas Island); Arctic Zool. Suppl. 73?

Procellaria obscura, Gmel. Syst. i. 559; Lath. Ind. Orn. ii. 828. 24; Kuhl, Zool. Beitr. 147, n. 24, fig. 11 (Mus. Paris); Temm. Man. d'Orn. 2nd edit. ii. 808 (Mediterrania), iv. 510 (Bretagne, Picardie); Atlas du Man. tab.; Vieill. Gal. Ois. ii. 230, t. 301; Gould, Birds of Europe, t. 444; Schlegel, Mus. Pays-Bas, *Procellaria*, 30 (et *P. nugax* Bailloni, Bonap.) (Atl. Ocean, Bourbon).

Puffinus obscurus (Gmel.), Cuv. Reg. Anim. 1817, 516; Bonap. Synops. Birds Unit. St. 371; Audubon, Orn. Biogr. iii. 620 (southern coast of

breviore, alis longioribus, cauda longiore, magis gradata, tarsibus extus, exceptis lineis duabus, flavidis, plantis margine obscuro nullo, plumis colli et pectoris laterum albo marginatis;

a *P. nugaci* (Soland.), ex Australia, statura majore, colore notæ nigricante brunneo nec schistaceo nigro, loris brunneis nec albis, tarsibus extus, exceptis lineis duabus, flavis et plantis haud nigro limbatis differt*;

a *P. dichroo*, Hartl. et Finsch, statura majore, hypochondriis albis et pedibus non nigricantibus aut nigricantibus diversus.

Specimen, Sale Cat. n. 6079 (Petrel, from King George's Sound, N. America).

This bird, mentioned as different by Latham himself, was separated by Natterer in his MS. Synopsis as belonging to a different species, under the name *Puffinus tenebrosus*.

I add a translation of Natterer's MS. description (dated 19th May, 1839).

“*Puffinus tenebrosus* (from the Leverian Museum).

“In form and colour strikingly similar to *P. obscurus*, but smaller, with thinner and shorter bill, somewhat longer wings, and a little longer, more cuneiform tail. The outside of tarsus light-coloured only a little above the articulation of the toes outwardly, and the outer side of the external toe dark brown, the margins of the webs light-coloured, the claws also not so black as those of *P. obscurus*.

“On the entire side of the throat, from the ear as far as the side of the upper breast, the dark brown feathers are furnished with a broad white margin. *P. obscurus* has these margins only on the sides of the upper breast.

Unit. St., Gulf of Mexico); Gray, Gen. 647, et App. 29; Bonap. Consp. ii. 204; Baird, Rep. 1858, 835; Gray, Birds Tropic. Isl. Pacif. Oc. 55 (excl. syn.); Hartl. Fauna Madag. 84 (Bourbon, Mauritius, Madagascar).

Puffinus nugax, var. *bailloni*, Bonap. Compt. Rend. xli. (1856) 8; Tabl. Longip. sp. 80; idem, Consp. ii. 205 (Ile de France).

Puffinus bailloni, Bp.; Hartl. Fauna Madag. 84.

* For comparison with *P. obscurus* I have referred to a specimen (probably from the American coast) received in exchange from the Paris Museum in 1815, and another (somewhat smaller) from Madagascar, purchased by Natterer. Of *P. nugax* I have compared a specimen from New Holland, obtained from M. Verreaux.

“The first, second, and third series of upper wing-coverts with a terminal whitish margin.

“The bill is blackish brown, the basis of the upper mandible under the nostrils and the lower mandible on the under long shield lighter and verging to brownish. The entire under half of the lore, and from the margin of the upper mandible, in a straight line under the ear and upwards to the eye, dark brown-grey (in *P. obscurus* the under margin of the lore, and from there to the eye, white, behind the eye to the ear-region dark brown).

“The first of the remiges longest, on the right wing the first and second of equal length.

“Tarsus broad, laterally much compressed, almost to a cutting-edge.

“On the underside of the wing the dark brown margin on the forearm much narrower than in *P. obscurus*.

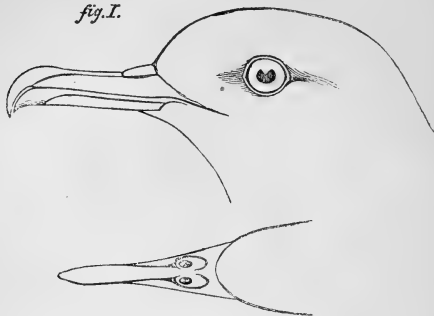
“Rectrices 12.

“Middle toe entirely light-coloured; no dark space on the web as in *P. obscurus*.”

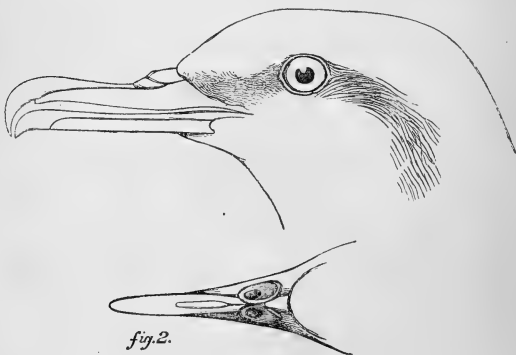
Measurements as above.

In the collection of the late Baron de la Fresnaye there was a *Puffinus* labelled “*Puffinus assimilis*, Gould, de l’île de Galéga,” which seemed to Natterer to be identical with his *Puffinus tenebrosus*, and of which he made (Falaise, 2nd October, 1840) the following description (translated from the German):—“The lore and upper half of the cheeks, or the ear-region, in a line from the angle of the bill, blackish brown, as the entire upper body. Remiges and rectrices darker, the great tectrices of the secondaries (*i. e.* the first row of upper wing-coverts) with a narrow white terminal margin. Under tail-coverts blackish brown, with narrow whitish apices, the long anal feathers white, the sides or loins dark blackish-brown, under wing-coverts white, feathers on the margin of the wing dark blackish-brown. The sides of the breast, reaching forward towards the middle, of the colour of the neck, but with whitish margins, quite scaly (*geschuppt*), which colour rises on the sides of the neck; where

the white meets with the dark, the colour on the sides of the neck and the breast is more greyish than on the back.

fig. 1.*Puffinus tenebrosus.*

“Fifth and second primaries of equal length; from the end of the first to the last secondaries 2" 8''' (?).

*fig. 2.**Puffinus obscurus.*

“Length 11"; wing 7" 6''', middle rectrices 3'', the outer 7½''' shorter; bill 1" 3½''', from the nostrils 9½''', from the front 1'';

tarsus 1" $3\frac{1}{2}$ "^m, its breadth $2\frac{1}{4}$ "^m; outer toe 1" $3\frac{1}{2}$ "^m, claw 2"^m; middle toe 1" 3"^m, claw 3"^m; inner toe 12"^m, claw $2\frac{1}{2}$ "^m."

The island of Galéga, which lies north-east of Madagascar, is indeed a very remote habitat from that indicated by Latham; but *Puffinus obscurus* is also found in the South Seas, in the Indian Ocean, and on both shores of the Atlantic.

I believe it also not impossible that Latham indicated erroneously King George's Sound on the American coast, and that King George's Sound in Australia was meant.

The dimensions of a specimen of *P. obscurus*, described by Natterer (19th May, 1839), are as follows:—

Length 13", wing 7" 6"^m, middle tail-feathers 2" 11"^m (their breadth 8"^m), the outer 5"^m shorter; from the end of the wing to the longest secondaries (in the folded wing) 2" 5"^m; bill, from angle of mouth 1" 7"^m, from front 1" 4"^m, from nostril 1" 1"^m; tarsus 1" $6\frac{1}{2}$ "^m (its breadth 3"^m); outer toe 1" 6"^m, claw 2"^m; middle toe 1" 5"^m, claw 3"^m; inner toe 1" 4"^m, claw 3"^m.

Rectrices 11.

Fifth primary the longest, second 1"^m shorter.

A very narrow margin on the fore end of the web obscure.

Puffinus dichrous, Hartl. et Finsch (Fauna Centralpolyn. 244), from McKean's Island (Phoenix group), of which there is a single specimen in the collection Godeffroy, seems very similar to *P. tenebrosus*, but smaller, with dark hypochondria, black bill, and blackish feet (only the interior side of the tarsus brownish, and the webs pale brownish). The accompanying sketches, made by Natterer, will show the shape of the bill of *P. tenebrosus*, from King George's Sound, and of *P. obscurus*.

107. DIOMEDEA EXULANS, Linné. (281.)

Chocolate Albatross, Cook, Voy. ii. 116. 150; Forst. Voy. i. 258; Parkins. Voy. 83, 84 (?); Lath. Gen. Synops. v. 308. 2 (Mus. Lever.).

Diomedea spadicea, Gmel. Syst. i. 568; Lath. Ind. Orn. ii. 790. 2 (excl. var. β , which belongs perhaps to *D. brachyura*).

Our specimen (Sale Cat. n. 37, "last day but two, *Diomedea exulans grisea*") agrees well with Latham's description, of which it is perhaps the type.

LARIDÆ.

108. LESTRIS PARASITICA (Linné). (89.)

Arctic Gull, Latham, Gen. Synops. vi. 389. t. 99 (Mus. Lever.).

Larus parasiticus, Linné, Lath. Ind. Orn. ii. 819. 15.

The bird, probably the type of Latham's description and plate, was transferred to the duplicates.

109. PAGOPHILA EBURNEA (Gmel.). (248, 249.)

Ivory Gull, Lath. Gen. Synops. vi. 377. 7 (Mus. Lever.).

Larus eburneus, Gmel.; Lath. Ind. Orn. ii. 816. 10.

248 (Sale Cat., last day, n. 25, *Larus eburneus*). It would seem to me probable that this bird is that mentioned by Latham as contained in the Museum Leverianum, were not the proportions different; for Latham says that the wings exceed the tail greatly, whereas in our individual the tail is a little prominent over the wings. The other specimen (249) was sent to Temminck for the Museum at Leyden.

PELECANIDÆ.

110. PHAETON ÆTHEREUS, Linné. (296.)

Common Tropic bird, Lath. Gen. Synops. vi. 685. 1 (Pr. Max., Lever. Mus.).

Phaeton æthereus, Linné, Lath. Ind. Orn. ii. 893. 1.

Sale Cat. n. 1399, a specimen with long tail-feathers; does not seem to be the type of Latham's description.

† 111. SULA PLUMIGULA, Jos. Natterer. (255.)

S. alba vertice et nucha ochrascentibus, plumis gulæ inter bases gnathidiorum in angulo acuto productis, dorso superiore, scapularibus majoribus, alarum tectricibus superioribus et plerisque inferiorum griseo brunneis, remigibus primariis, prioribus nigrobrunneis, subsequentibus et secundariis utroque vel uno pogonio cinereis, rostro pedibusque rubris? Longit. 1' 10", alæ 14", caudæ (incompletæ) 6¾", rostri a fronte 3" 2", tars. 1" 6", digiti medii sine ungue 2" 3".

Sula plumigula, Jos. Natterer, in Mus. Vind.

Hab. Nova Hollandia?

Sale Cat. n. 1840, in bad state; was marked in the collection with the locality New Holland?

The late Joh. Natterer, in his manuscript materials for a Synopsis of Birds (23rd January, 1840), says of this bird:—“A specimen, in very bad preservation, with only five tail-feathers—on one side three, on the other two, very much graduated; the total number of rectrices is therefore unknown. The white tail-feathers, and the uniformly brown upperside of the wings, and the upper part of the back, show conclusively that the bird is an old one. It was determined as *Pelecanus piscator*, from which it is very different in the following points. The skin of the throat is feathered forward, the feathers forming a point in it; the upper back, three fourths of the greater scapulars, upper and nearly all under wing-coverts obscure greyish brown.”

In his manuscript Joh. Natterer designated the bird *Dysporus*, without a specific name; the name “*plumigula*” is found on the label of the specimen and in the catalogue of the collection, and was probably given by Josef Natterer, the brother of the traveller, who also held an appointment in the Imperial Museum. Surely a species based on a single specimen, in bad condition, must rest very doubtful; but it is perhaps not useless to direct attention to further investigations on the point.

112. GRACULUS PUNCTATUS (Sparrm.). (107.)

Crested Shag, Cook's last Voyage (1783), i. 151.

Spotted Shag, Latham, Gen. Synops. vi. (1785) 602. 18, t. 104.

Pelecanus punctatus, Sparrm. Mus. Carls. i. (1786) t. 10; Lath. Ind. Orn. ii. 889. 19.

Pelecanus nævius, Gmel. Syst. i. 574.

The bird from the Mus. Leverianum, undoubtedly Latham's type, being in a bad state, was not inserted in the collection.

113. PELECANUS CONSPICILLATUS, Temm. (282.)

New-Holland Pelican, Lath. Gen. Hist. x. 402.

Pelecanus conspicillatus, Temm. Pl. Col. 276.

Pelecanus australis, Steph. Gen. Zool. xiii. i. 113.

A specimen which had no older label, is, without doubt, that from the Leverian Museum, and possibly the type of Latham's description, to which I have not had access.

114. PELECANUS TRACHYRHYNCHUS, Latham. (164.)

Rough-billed Pelican, Lath. Gen. Synops. vi. 586. 8 (Mus. Lever.); Phil. Trans. lxii. 419. 54; Fauna Amer. 17.

Pelecanus erythrorhynchus, Gmel. Syst. i. 571.

Pelecanus trachyrhynchus, Lath. Ind. Orn. i. 884. 8; Shaw, Mus. Lever. 211, c. tab.

It is not without doubt, but very probable, that the old specimen in our collection is that mentioned by Latham as contained in the Leverian Museum, and the original of Shaw's plate.

115. PELECANUS FUSCUS, Linné. (104.)

Brown Pelican, Lath. Gen. Syn. vi. 580. 3.

Pelecanus fuscus, Linné, Lath. Ind. Orn. i. 883. 3.

Sale Cat. n. 1411, from North America (Catal.).

This bird, which I believe to be from the Leverian Museum (though it is without label), is very young, and in bad condition.

116. TACHYPETES AQUILUS, Linné. (106.)

This specimen is in dark plumage, and seems to have been obtained from the American coast.

[To be continued.]

III.—*Notes from Archangel.* By EDWARD R. ALSTON,
F.Z.S., and JOHN A. HARVIE BROWN.

THE following notes, made during an excursion to the country round Archangel, are offered as an appendix to the fuller accounts of Herr Liljeborg (Naumannia, 1852, p. 87), Herr Forstmeister Goebel (Journal für Ornithologie, 1871, p. 20), and Herr Meves (Öfversigt af K. Vetensk. Ak. Förhandlingar, 1871, p. 731).

Various causes detained us longer in this country than we should have wished; and we did not leave St. Petersburg till the 8th June, having been delayed there for two days in

making the necessary preparations connected with our passports and "paderojna" (or posting-papers). We proceeded by steamer and canal-boat to Wuitegra (558 versts) *viá* the river Neva, Lake Ladoga, river Swir, and Onega canal. Thence we travelled in "tarantasse" or country carts, and in a steamer on the river Dwina to Archangel, 546 versts further, reaching our destination on the 15th June, where, having been provided with letters of introduction by our kind friend Mr. H. E. Dresser, we met with a most hospitable reception. Here, once for all, we may be allowed to express our warmest thanks for all the kindness we met with during our stay at Archangel. More especially are our acknowledgments due to Mr. John Shergold and to Mr. Charles Birse, Her Britannic Majesty's Consul. These gentlemen vied with one another in rendering us every assistance; Mr. Shergold had engaged collectors for us before our arrival, and Mr. Birse introduced us to the Messrs. Craemers; and to M. Piottuch, who gave us most valuable help in collecting. Such hospitality and kindness was shown to us on every side, that we never can forget our friends in the far north. We now proceed to give a short description of the country around Archangel.

The Dwina is a noble river, of considerable breadth, but very shallow. Below Archangel it divides into innumerable branches, and thus forms the great delta of islands which extend about 40 versts further, to the White Sea. It is navigable for river-steamers and flat-bottomed lighters for over 300 miles from its mouths; and almost all the grain shipped from Archangel comes down the river from the far-off central provinces of Russia. The Dwina teems with fish; and amongst these, perhaps, the most remarkable is the far-famed Sterlet (*Acipenser ruthenus*), which was formerly principally known as an inhabitant of the Volga. About 1861, however, a canal was formed in Vologda, connecting the head-waters of the Volga with those of the Dwina; and live sterlet may now be seen in numbers every market-day in Archangel. In St. Petersburg, we were told, this fish fetches three times the price of salmon.

The innumerable islands of the delta present very varied features. Some of them are composed of alluvial soil, and others of dry sand. They are covered in some instances with low tangled thickets of alder, in others with tall, straight, large-leaved birch. Some bear old pine-woods; some are overgrown with low open scrub; while the outer islands are for the most part sandy, and covered with short grass which is cut for hay, and round their edges waves the long sea-bent.

The mainland is on the whole more densely wooded. Behind the town, a damp moor stretches back to the Urus river, covered with Iceland and Reindeer moss, mingled with short shrubs of juniper, dwarf birch, stunted pines, and small clumps of alder and willow, and on every side grow great quantities of "maroushka" or cloud-berries. Here two families of Samoyedes have taken up their abode, and live by begging or working in the town, and feeding on the offal of the slaughter-houses, close to which they have pitched their camp of three filthy "chooms," covered with squares of birch-bark sewed together. Numbers of this curious race visit Archangel in winter; but all save these pauper families go further north in summer to find pasturage for their reindeer. At Waldushki, a village opposite Archangel on the south side of the river, the land gains an altitude of about 100 feet, and from here an extensive view can be obtained of the town and of the delta. Seen in the rich red glow of a northern sunset, all her gilded domes and minarets gleaming and changing in intensity of colour in the setting rays, Archangel appears to great advantage. Surely Mr. Hepworth Dixon cannot have stood on the heights of Waldushki on one of these glorious nights, and looked at the panorama stretched out beneath, and *then* found it in his heart to describe the town as "a camp of shanties," or the country around it as "a vast green marsh." Verily the good folks of Archangel may well be annoyed at having their picturesque and pretty town so maligned.

Making the town our head quarters, we undertook two trips to the outer islands of the delta, one to a village on the

river Ijma and to a secluded lake in the midst of tall pine-forest, one to Cholmogory, about 70 versts up the river from Archangel, one to Waldushki, and a sixth trip to Sujma, a village on the south shore of the White Sea, and distant from Archangel about 90 versts.

Having thus given a rough outline of the country, we will now proceed to mention the birds which came under our observation during our collecting-trips, adding as we proceed such observations upon the more interesting species as may suggest themselves upon a reperusal of our journals.

We have numbered in the list only such species as were procured by us in the Archangel district, or which came under our own observation there. Others, which are represented in the Museum or in private collections, or which we met with in our journey from St. Petersburg, are included under the headings of *Observations**.

We left the bar at the mouth of the Maimax Channel on the 3rd of August, and returned home round the North Cape.

1. *FALCO SUBBUTEO*. Not uncommon. A male Hobby was shot and eggs taken by us on one of the outer islands of the delta on the 26th June. The nest was that of a Hooded Crow; and the eggs, three in number, were deeply incubated.

Obs.—We saw *Falco æsalon* at Wosnesenskoi and *Falco tinnunculus* at Wuitegra and Kargopole. At the latter place *Falco vespertinus* was plentiful, perching on the fences and telegraph-wires, and flying along the road in front of us; we did not observe it ourselves at Archangel, but saw specimens in the Museum and in Herr Heinrich's collection. In the Museum there are also examples of *Falco gyrfalco* and *Falco peregrinus*.

2. *PANDION HALIAETUS*. No Ospreys were seen by us; but we visited an eyry, which was said, by our guide, to have been regularly occupied for the last ten years. This nest was a huge structure, evidently of great age, placed on the very

* We have followed Blasius's 'List of the Birds of Europe' both as regards arrangement and nomenclature.

top of a gigantic blasted pine—by far the largest tree we saw in Russia—and situated about 200 yards from the side of a woodland lake. Our guide said that he had seen the old birds there in the spring.

3. *BUTEO VULGARIS*. Buzzards were common, and were often seen circling over the town. We procured the young in down and an egg on the 7th July. A female obtained by us has the general plumage very rufous, especially the tail and feathers of the thighs.

Obs.—*Pernis apivorus* is represented by a specimen in the Museum, and *Buteo lagopus* was once seen sailing over the Swir river.

4. *HALIAETUS ALBICILLA*. The White-tailed Eagle is common on the Dwina: we saw it on several occasions, but never got within range. One which we watched for some time in the dusk of a northern midnight was much persecuted by a large Owl, probably *Ustula barbata*.

Obs.—Of *Aquila chrysaëtus*, we saw specimens in the Museum and in a private collection.

5. *MILVUS REGALIS*. Kites were observed at Cholmogory and elsewhere, usually near towns and villages. We did not obtain any specimens, but believe them to have been of this species, which was the one procured by Liljeborg and Meves.

Obs.—*Astur palumbarius* and *A. nisus* were represented by specimens in the Museum.

6. *CIRCUS CYANUS*. The Hen-Harrier was not uncommon, and was seen often in the evenings skimming, owl-like, over the level country.

7. *ÆGOLIUS BRACHYOTUS*. The Short-eared Owl appears to be the commonest species of Owl around Archangel in summer, and was the only one we obtained.

Obs.—In the Museum are examples of *Nyctale funerea*, *Ustula barbata*, *U. uralensis*, *Surnia passerina*, *S. ulula*, *S. nyctea*, and *Bubo maximus*. We once saw what we believed to be the Lap Owl; but we were assured that the various species of Owl are much more abundant later in the year.

We were told of no less than seventeen Snowy Owls having been shot by a gentleman in one afternoon.

8. *DRYOCOPUS MARTIUS*. We shot one Great black Woodpecker, and heard its loud laughing note on several occasions. Like the rest of the family, this bird may be easily brought within range by an imitation of its "tapping," produced by rapping on the stock of one's gun with a small stick.

9. *PICUS MAJOR*. Several were killed at Sujma, where they were very common in the pine-woods.

10. *PICUS MINOR*. A pair of Lesser Spotted Woodpeckers, with their nest and eggs, were obtained.

11. *APTERNUS TRIDACTYLUS*. One Three-toed Woodpecker was shot in a large pine-forest at Ijma Ozéro; its stomach contained ants and small beetles.

Obs.—In the Museum there are specimens of *Gecinus canus* and *Picus leuconotus*.

12. *CUCULUS CANORUS*. Very abundant.

Obs.—Of the Nightjar (*Caprimulgus europæus*) there are eggs in the Museum.

13. *CYPSELUS APUS*. The Swift was observed by us at Cholmogory.

14. *CHELIDON URBICA*. House-Martins were seen at St. Petersburg, Wuitegra, and at Archangel, in which latter place they met among the stone carvings of the Imperial barracks.

15. *HIRUNDO RUSTICA*. Seen at Wuitegra, and once at Archangel.

16. *COTYLE RIPARIA*. Extremely abundant, nesting in large colonies in the low steep banks of clay or sand. We took fresh eggs on the nights of 17th–18th June. These Sand-Martins appeared to us to be darker in colour than British specimens; but, unfortunately, none were preserved.

17. *MUSCICAPA GRISOLA*. The Spotted Flycatcher is common. We received a nest with eggs on the 17th June.

18. *LANIUS EXCUBITOR*. Common in some localities, but always shy and difficult of approach. This Shrike seems to prefer perching on the tops of the highest trees near the borders of the forest. Near Waldushki one was seen to chase a Hooded Crow, at which it made repeated dashes.

Obs.—One specimen of *Lanius collurio* is in the Museum.

19. *AMPELIS GARRULA*. This very beautiful species is common but local, both on the mainland and islands. We did not find it breeding, but met with it both in pairs and in flocks of from three to six. These small parties seemed to consist either of male or female birds exclusively; and, strange to say, all the latter had the breast very bare. No bird can be handsomer than the Waxwing as it springs from twig to twig of a sombre pine, now fluttering on the wing, now flirting its silky crest, constantly in motion, and ever and anon uttering its musical tremulous whistle. It is particularly fond of perching on the topmost twigs of the pine trees. A bird of the year is preserved in the Museum.

20. *PARUS BOREALIS*. Common, but not so abundant as in some districts of Norway.

21. *PARUS CRISTATUS*. We shot one in the forest of Gluboki, near Cholmogory, but saw no other specimens.

Obs.—The Museum contains one example of *P. sibiricus*, and also one of *Sitta europæa*.

22. *TURDUS PILARIS*. Very plentiful.

23. *TURDUS ILIACUS*. Very common in some localities. A young bird which we obtained is described in Dresser and Sharpe's 'Birds of Europe,' part xiii.

24. *TURDUS MERULA*. Once seen.

Obs.—In the collection of Herr Heinrich there is a specimen of the black-bellied variety of *Cinclus aquaticus*, and also one of *Oriolus galbula*, both of which are considered very rare birds in this district.

25. *RUTICILLA PHENICURA*. Redstarts are common, and nest in the gardens of the town.

26. *CYANECULA SUECICA*. The Bluebreast is apparently rare; we obtained one specimen, which was the only one seen.

Obs.—*Saxicola oenanthe* was observed only at Wuitegra and Kargopole, and seemed to be a scarce species.

27. *PRATINCOLA RUBETRA*. Common.

28. *SYLVIA HORTENSIS*. Common.

Obs.—*Sylvia cinerea* was heard not unfrequently at Wosnesenskoi and at Wuitegra.

29. *PHYLLOPNEUSTE SIBILATRIX*. Not very common.

30. *PHYLLOPNEUSTE EVERSMANNI*. A small Warbler, which we found very commonly around Archangel, is identified by Mr. Dresser with this eastern form. So far as we could observe, its notes and habits are very similar to those of our own Willow-Wren. We obtained the newly fledged young, but found no nests. Herr Radde considers its song almost finch-like.

31. *CALAMODYTA PHRAGMITIS*. The Sedge-Warbler was common in suitable localities, but was the only aquatic Warbler which came under our observation.

32. *MOTACILLA ALBA*. Common from St. Petersburg to Archangel, but not abundant.

33. *BUDYTES CINEREOCAPILLUS*. This Wagtail was exceedingly abundant, principally frequenting islands with low bushes interspersed with open ground. Young birds differ remarkably from the adults, being yellowish buff below, with a well-defined gorget of dark spots.

34. *ANTHUS CERVINUS*. The Red-throated Pipit was not common, but was obtained by us on the outer islands, and also close to the town, frequenting the same kind of ground as the last-mentioned species. It is very distinct from *Anthus pratensis*, though Blasius ('A list of the Birds of Europe') considers it only a variety.

35. *ANTHUS ARBOREUS*. One specimen procured.

36. *ALAUDA ARVENSIS*. The Sky-Lark was common in suitable localities. A specimen preserved is very rufous on the breast, as compared with British-killed specimens.

Obs.—*Otocorys alpestris*. This species is represented by one specimen in the Museum, where there is also a specimen of *Euspiza melanocephala* ♂; but the fact of the latter having been procured in the Archangel Government is unauthenticated, and must be regarded as very doubtful.

37. *EMBERIZA AUREOLA*. The Yellow-breasted Bunting is not found, or is extremely rare on the outer islands of the delta, according to our observation. Around Archangel, on certain islands, and higher up the river, it is extremely abundant, and is invariably to be found in hay-fields interspersed with low alder and birch bushes and overgrown with quantities of the broad-leaved *Veratrum album* mixed with horse-celery and long rank grass. So constantly is this the case, that whenever we noticed a patch of that weed, we always made certain of finding a colony of these birds. In this kind of ground it is extremely difficult to find the nest, all the more so because the female always runs some distance before taking wing; in one instance, we watched the female return to the nest, and found it to be quite six yards from the spot whence we had originally started her. Even when the birds were shot, and dropped amongst the long grass, it was next to impossible to find them without tearing up, or cutting away, the grass around. The birds perched on the tall stems and broad leaves of the *Veratrum*, and, when disturbed, uttered rapid notes of alarm, somewhat resembling those of the Whinchat, but softer; and the males often flew close round us when their mates were killed. At other times, however, they evinced considerable shyness, and soon came to learn the deadly meaning of the reports of our stick-guns.

We found several nests of this Bunting; but only one of them contained eggs. They were placed on the ground, and were simply composed of thin wiry grass circularly disposed, some having a few horse-hairs as lining. One which we took on the 7th July, containing five eggs, is now before us; it was placed on a dry raised bank in a marshy opening in an

alder-thicket, under the shelter of the broad leaves of a plant of *Veratrum album*; and nearly all the others which we examined were similarly situated. Of this nest both birds were procured: the male (now before us) is not in perfectly mature plumage, the chestnut collar not being complete; we subsequently found other males breeding in the same immature state. An excellent series of figures of the head of this species, in its various plumages, is given in Radde's 'Reisen in Ost-Sibirien,' vol. ii. pl. iv. All the nests we found on the 13th and 14th July had newly hatched young; but we obtained one fully fledged bird on the latter date, and others soon after.

38. *EMBERIZA CITRINELLA*. The Yellow Bunting was very abundant, and more generally distributed on the islands and mainland than most other species.

39. *EMBERIZA RUSTICA*. The Rustic Bunting is certainly much rarer than the next species. Those we procured were found in marshy pine-woods, and in openings in the forests. We had few opportunities of studying its habits. Its call-note resembles that of its congeners.

40. *EMBERIZA PUSILLA*. This pretty little Bunting is a very common species, but apparently somewhat locally distributed. It frequents both pine-woods of large growth and thickets of underwood, but seems to prefer young woods with a mixture of pine, fir, alder, and birch. These birds were exceedingly tame at all times, but more especially so when their young were in the vicinity. We often heard their sweet low song, more resembling the warbling of some *Sylvia* than of an *Emberiza*, which was generally poured forth from the top of a tree; they had also a low cry of alarm, which may be expressed by the words "tick, tick, tick" repeated at intervals of about a second. We did not find any nests, but obtained the young in several stages.

41. *EMBERIZA SCHÆNICLA*. Very common and pretty generally distributed.

Obs.—*Plectrophanes calcarata* and *P. nivalis* are represented

by specimens in the museum. *Passer montanus* we identified at Kargopole, but we did not meet with it at Archangel.

42. *PASSER DOMESTICUS* was abundant in Archangel and in the villages.

43. *FRINGILLA CŒLEBS*. The Chaffinch was not very plentiful, but was observed by us at Wosnesenskoi, Wuitegra, and at Archangel; at the latter place it was much valued as a cage-bird.

44. *FRINGILLA MONTIFRINGILLA*. Bramblings were common, but not so abundant as in some parts of Norway.

45. *ÆGIOTHUS RUFESCENS*. Perhaps the most abundant species of land bird in the Archangel district is the Lesser Redpole, which is to be found in all kinds of situations, frequenting alike pine and hard-wood forests, and breeding plentifully in the gardens in the town. We obtained nests containing fresh eggs during the whole time of our stay.

Obs.—*Chrysomitris spinus* is represented in the museum.

46. *CARPODACUS ERYTHRINUS*. The Scarlet Bullfinch is not very abundant in the Archangel district; and, curiously, we never met with the old males there, the only one we saw being at the side of the Onega canal. We found the females frequenting low underwood; they are lively birds, constantly in motion, and have a cry closely resembling that of the Greenfinch.

47. *CORYTHUS ENUCLEATOR*. This is a very abundant species in some localities, but was only obtained by us at Sujma. Two Pine-Grosbeaks, which we brought home alive and placed in the Zoological Gardens, were fed upon canary-seed and hemp-seed, but on board ship took kindly to oats, of which our cargo was mainly composed. These birds were very rapidly losing their red plumage, the yellow appearing in patches on the head and back, and this by means of a regular moult.

48. *PYRRHULA RUBICILLA*. We only obtained one specimen, which seems to belong to the larger continental race (*P. coccinea*, De Selys).

49. *LOXIA CURVIROSTRA*. One common Crossbill only was shot, and not preserved. No others were observed by us; but they were said to be abundant in some places.

Obs.—We did not meet with *Loxia leucoptera*; but there is one in the museum. We were told that these birds are abundant during some seasons and are sold alive in Archangel; other years very few are to be obtained.

50. *CORVUS MONEDULA*. Jackdaws were very common. The grey of the nape was much clearer and better marked in all those we saw in Russia than it usually is in British specimens; and in some the mark seemed almost white.

51. *CORVUS CORAX*. Very common close to Archangel. A pair of Ravens were nesting in the town itself, and large numbers are attracted to the neighbourhood (like the Samoyedes) by the proximity of the town slaughter-houses. Rows of these birds might be seen sitting, after a good meal, on the tops of the slaughter-houses, and exhibiting a fearlessness very different from the wariness they display on a wild mountain-side.

52. *CORVUS FRUGILEGUS*. The Rook is considered very rare by the inhabitants; but we observed a considerable number consorting with Hooded Crows near Cholmogory, and one of our party killed two specimens.

53. *CORVUS CORNIX*. The Hooded Crow is extremely abundant; in fact the "Verone" is one of the most characteristic birds of the district. Another name for the Hooded Crow is the "Russian Nightingale."

54. *PICA CAUDATA*. The Magpie is not very abundant. We observed it at Cholmogory.

Obs.—There is one specimen of *Corvus corone* in Herr Heinrich's collection, and also one specimen of *Nucifraga caryocatactes*.

55. *PERISOREUS INFAUSTUS*. The Northern Jay is common, and was generally seen by us in small flocks or family parties in the pine-woods. Very quaint-looking birds are these Northern Jays, with the *nez retroussé*, their bushy heads, and

fluffy plumage. They generally perch close to the trunk of a pine, and mount up in cork-screw fashion, hopping from branch to branch, in search of beetles, which seem to constitute their principal food. They will carry off a heavy shot, and when mortally wounded cling to the branches with great tenacity. We found one empty nest, built principally of lichens, placed close to the stem of a pine, not more than eight feet from the ground.

Obs.—One specimen of *Columba palumbus* was seen at Wui-tegra, and another at Kargopole.

56. *LAGOPUS ALBUS*.—The Willow-Grouse is very common, frequenting principally the pine-woods, where long narrow strips of marshy ground, covered with cotton-grass and cranberries, and studded with alders and willows, run at intervals parallel with one another. We do not remember an instance of meeting with Willow-Grouse in any other kind of ground.

57. *TETRAO UROGALLUS*. Of this species we obtained the young in down.

58. *TETRAO TETRIS* is not apparently a very abundant species. We obtained the young.

59. *TETRASTES BONASIA*.—This beautiful species does not appear to be so very abundant in the neighbourhood of Archangel, and is only found there in certain localities. We were informed that Hazel-Grouse are much more plentiful further to the north and east; and the great numbers of this delicious game-bird which arrive at St. Petersburg later in the season, though sent from Archangel, are not, we believe, obtained in the first instance near Archangel, but at some distance from the town. The very peculiar whistle of the "Raibchick" is imitated by the Russian sportsman on a small instrument made of a quill, and the bird thus seduced within range; but the principal destruction is by means of ingeniously laid snares of horse-hair.

Obs.—In the museum is a specimen of *Syrrhaptes paradoxus*.

60. *ORTYGION COTURNIX*. At Sujma we saw two Quails in

the flesh, which were brought in by a peasant, but which were too far gone for preservation.

61. ORTYGOMETRA PORZANA. The peculiar "whuit, whuit" of the Spotted Crake first attracted our attention as our canal-boat crept slowly through the great marshes between Wosnesenskoi and Wuitegra. We afterwards procured both old and young in down at Waldushki; and at many other localities this curious cry sounded in the still nights, and was taken up and replied to on every side. This must be a very abundant species, especially in the great marshes above mentioned.

Obs.—*Crex pratensis* was heard at Wuitegra and at Wosnesenskoi. Though we did not meet with it at Archangel, an imitation of its cry was readily recognized by our boatmen.

62. SQUATAROLA HELVETICA. Grey Plovers in full breeding-plumage were procured out of a flock of five on one of the outer islands, on the 22nd of June. Our boatmen said they were very rare there and do not breed.

63. CHARADRIUS PLUVIALIS. Golden Plovers were common in some localities, especially on some large moors in the neighbourhood of Sujma.

64. ÆGIALITIS HIATICULA. Not an abundant species. We found it breeding on the sandy outer islands.

Obs.—*Strepsilas interpres* is represented in the museum.

65. HÆMATOPUS OSTRALEGUS. Oystercatchers were very abundant on the outer islands, and also at Cholmogory.

66. TOTANUS GLOTTIS. The Greenshank is not common, and we only observed it at two different localities.

67. TOTANUS GLAREOLA. The Wood-Sandpiper was very common in the same kind of ground as that frequented by the Willow-Grouse, viz. marshy ground in the pine-woods. We did not succeed in finding the nest, but obtained the young in down.

Obs.—In the museum are specimens of *Totanus fuscus* and *T. ochropus*.

68. ACTITIS HYPOLEUCA. We met with the common Sand-

pipper first at Suja, on the Dwina, and afterwards in great numbers on the banks of the Ijma river, where it was more numerous than the next species; yet we never once met with it on the islands of the delta. It seems to be a common species, but very locally distributed.

69. *XENUS CINEREUS*. The Terek Sandpiper is very abundant on the delta of the river Dwina; and we met with it both on the sandy islands of the outer group, and on the closely wooded ones nearer to Archangel. We took eggs from the time of our arrival, on the 15th of June, on to the end of the month; and the young were obtained in all stages. By the 21st of July the young birds of the year were going in flocks. We were much struck by the arboreal habits of this species, which perches freely upon bushes or low trees, and runs along the branches with great ease, uttering a rapidly repeated cry of alarm, which may be expressed by the words "tluk, tluk, tluk." When first started, or when flying from place to place, or dashing in and out amongst the alder thickets, the more musical double note is uttered, whence its Russian name of "Kuleek"*.

The nest is simply a slight saucer-shaped hollow in the ground, lined with chips of wood and bits of thick reed, and is placed in open marshy parts of the alder thickets, by the sides of "Kourias" or creeks, or in the sand amongst bent grass.

The eggs in many instances closely resemble those of *Actitis hypoleuca*, but are a little larger. They bear no resemblance whatever to the eggs of *Limosæ*; indeed all this bird's habits, motions, cry, and quick, darting, erratic flight show its affinities with the Sandpipers, and not with the Godwits. The length of bill in different individuals varies greatly, as is the case in *Tringa cinclus*, *Numenius arquata*, and other Waders. The young soon take on the dark markings on the back which are so conspicuous in the adult birds; and these can be traced in the nestling of a few days' age. The young birds have the

* "Kuleeki" is the name applied by the natives to all kinds of Sandpipers, but most directly to the Terek Sandpiper. The accent is on the second syllable.

legs and feet of a pale orange-colour; in the adult they are of a dull olive-green. The full-grown birds of the year retain the yellowish margins of the feathers of the upper parts.

Obs.—In the museum are specimens of *Limosa rufa* and *L. ægocephala*. The latter appears remarkable for its great size—its dimensions in English inches being, tarsus 3·8, tibia nearly 2·8, middle toe 2·12, bill 4·87, wing from carpal joint 9·8.

70. *PHILOMACHUS PUGNAX*. Ruffs and Reeves were very abundant, especially on the outer islands. We obtained eggs on the 22nd and 26th of June, nests having been found both in marshy ground and in sand amongst bent. Young birds with slight traces of down remaining on the neck were obtained on the night of 16th–17th July.

71. *TRINGA SUBARQUATA*. We bought a Curlew Sandpiper in full summer plumage in the Archangel market on the 18th of June, but did not meet with it on the islands.

72. *TRINGA MINUTA*. One Little Stint in full summer plumage was shot on the 21st of June, on an island where numbers of the next species were nesting. We searched diligently in the hope of finding it breeding, and identified every nest we could find, but failed in discovering another specimen of the rarer species.

73. *TRINGA TEMMINCKI*. This pretty little Wader is plentiful on the outer delta, and breeds also sparingly on some of the inner islands. On the 28th of June we took several nests of eggs, much incubated, shooting the birds from four of them; two of these incubating birds proved on dissection to be males.

We had good opportunities of observing the interesting habits of Temminck's Stint, and especially of the way in which it rises and hovers with raised wings about 15 feet from the ground, uttering at the same time a low trilling note. This habit was well known to our boatmen; and Nikolai, when he wished to indicate this species to us, would hold out his arms, vibrating the fingers, and imitating the cry of the bird to perfection.

The nests were not difficult to find by watching the bird's return. They were simple hollows in the sand sparingly lined with dry grass, and generally placed in the shelter of overhanging tufts of sea-bent. In no case did we find a nest more than twenty yards from high-tide mark; and most of those we saw were much nearer the sea. Two nests were found in the wrack left by some unusually high tide. The birds were very tame, often tripping along the wet sand and feeding unconcernedly within a few yards of where we were standing.

Obs.—*Calidris arenaria*. There is one specimen of the Sanderling in the museum.

74. *TELMATIAS GALLINAGO*. One Common Snipe was seen close to the town, but none were procured.

75. *TELMATIAS MAJOR*. Great Snipe were not observed by us in great numbers, as they had not yet begun to flock to their autumn feeding-grounds in the islands. Family parties, however, were met with in marshy woods; and young were obtained with the down only partially replaced by feathers.

76. *NUMENIUS ARQUATA*. Curlews were common. We observed this species repeatedly perching on low bushes, and even on the very summit of high trees, especially on the open ground in the neighbourhood of Sujma, where they were very plentiful: in Scotland we have very seldom seen this bird alight on a tree.

77. *GRUS CINEREA*. The first examples of this fine bird which we met with were paired birds, and were feeding within 200 yards of the canal which leads through the great tract of marsh between Wosnesenskoi and Wuitegra, on the south shore of Lake Onega. Afterwards in the Archangel market we procured two young Cranes, and saw birds both at Cholmogory and on the outer islands, but did not succeed in shooting any specimens. The skeleton of one of the birds we obtained is now in the museum of the University of Cambridge.

78. *ANSER CINEREUS*. We saw Grey Lag Geese in the market; and a large flock of Grey Geese seen in the distance on one of the outer islands probably belonged to this species.

Specimens of wild Geese which we saw in the market had the left wing amputated at the carpal joint. We were informed that the peasants did this, owing to some superstitious motive, before bringing the birds to the market. Subsequently, however, we saw a *left* wing in a peasant's house which was used for sweeping out the oven*.

Obs.—Specimens of the following species were in the Museum, viz. *A. segetum*, *A. albifrons*, and *Bernicla leucopsis*.

79. RHYNCASPIS CLYPEATA. Abundant.

80. CYANOPTERUS QUERQUEDULA. We obtained specimens in the market, but did not observe it on the islands.

81. QUERQUEDULA CRECCA. Plentiful on the outer islands.

82. ANAS BOSCHAS. Common.

83. DAFILA ACUTA. Very abundant. This species and the Shoveller appeared to be the two commonest species of Duck at this season in the delta. We obtained several Pintails' nests, and also the young in down.

84. MARECA PENELOPE. Common. We found no nests, but procured the young birds.

85. GLAUCION CLANGULA. Only one Golden-eye was seen on the outer islands.

Obs.—In the Museum the following species were represented:—*Chaulelasmus strepera*, *Fuligula ferina*, *F. nyroca*, *F. marila*, *F. cristata*, *Harelda glacialis*.

86. CEdEMIA FUSCA. Velvet Scoters were seen on the Neva at St. Petersburg in June, and large flocks were observed on the south shore of the White Sea in the end of July.

87. CEdEMIA NIGRA. A female Common Scoter accompanied by her young ones was seen on the Swir river on the 9th of June. Afterwards it was obtained at Waldushki, and seen in immense numbers on the White Sea in July.

Obs.—There is a specimen of *Mergus albellus* in the Museum; and *Mergus castor* and *Mergus serrator* were seen on

* The Faroese also use birds' wings for brushes; but they sew the two wings together, back to back.

the river Swir; but we did not meet with any of these on the islands of the delta.

88. *STERNA HIRUNDO*. This was the only Tern observed by us in the district. One pair of birds laid two eggs in a nest from which we had previously taken four eggs of *Xenus cinereus*. This species was abundant on the outer islands, and also further up the river at Cholmogory.

Obs.—*Chroicocephalus minutus*. A few examples of this lovely little Gull were observed on the Swir river; but we saw none near Archangel, where we expected to find them breeding; nor did our boatmen seem to know the bird. There are specimens in the Museum.

89. *CHROICOCEPHALUS RIDIBUNDUS*. The Black-headed Gull was only seen at Cholmogory, where a flock of about forty individuals frequented a small shallow pond behind the town.

90. *LARUS CANUS*. Very common, especially on the outer islands.

91. *LARUS ARGENTATUS*. Common.

92. *LARUS FUSCUS*. Common.

93. *LARUS MARINUS*. Common, but breeding in single pairs, not in colonies.

Obs.—There is a specimen of *Lestris pomatorhina* in the Museum.

94. *EUDYTES SEPTENTRIONALIS*. The Red-throated Diver is very abundant on all suitable islands; and we obtained both eggs and young birds.

95. *EUDYTES ARCTICUS*. Even more abundant than the last, and often seen flying in flocks of a dozen or more. Further to the north great numbers of Black-throated Divers are killed by the Samoyedes for the sake of the skin of the neck, of which very handsome muffs and trimmings for ladies' dresses are made.

Obs.—One specimen of *E. glacialis* was seen on the Swir river,

96. COLYMBUS AURITUS. We saw large Grebes on several occasions, but never near enough for certain identification. In all probability they belonged to this species, which we saw both in the Museum and in private collections.

IV.—On a new Species of Little Bittern from China.

By ROBERT SWINHOE, F.Z.S. &c.

(Plate II.)

THE *Ardetta* figured by v. Schrenk (Reisen im Amurlande, Vögel, t. xiii.) as the young of *Ardetta cinnamomea* has long been a puzzle to me. *A. cinnamomea* is a very common summer bird in the south of China, and, knowing it in every phase of plumage, I found it impossible to associate with it v. Schrenk's bird. What, then, could the Amoorland bird be? for no species could cross to the north of China without occurring in China itself. The doubtful bird was not *A. sinensis*; with that also I was well acquainted. I could not settle the question; and it passed out of my mind until the other day, when a bird identical with v. Schrenk's figure was brought to me—a beautiful bird, with its back all starred with white.

The question solved itself at once. In my catalogue of the birds of China (P. Z. S. 1863, p. 321) mention is made under *A. sinensis* of a hybrid between it and *A. cinnamomea* procured at Amoy. I obtained only a single specimen; and this so combined the characters of the two species, that I unhesitatingly put it down as a hybrid, though Mr. Gould protested at the time that it was a good species. Quite recently, whilst at Shanghai, I saw several of the same birds over a marsh close enough to distinguish them distinctly, and with the aid of Chinese boys I secured three sittings of their eggs composed of three eggs each.

The adult is a beautiful bird, which, combined with the striking character of the immature dress (no common feature amongst birds), suggests the name *Ardetta eurhythmia* for this species. I now describe it as follows:—

ARDETTA EURHYTHMA, sp. n. (Plate II.)

Ardetta cinnamomea, juv., v. Schrenk, Amurl. Vögel, t. xiii. fig. 3, p. 447.

Ardetta (hybrid), Swinh. P. Z. S. 1863, p. 321.

Supra lætè castanea, pileo versus frontem et cauda paulo nigricantioribus; capitis lateribus dorso concoloribus: subtus isabellina, gula et abdomine imo albicantibus; stria mediana gulari a mento ad pectus fusco-brunnea: alis plumbeo-nigris, rectricibus internis apicibus albicantibus, extima in pogonio externo flavicante: tectricibus humeralibus, alula spuria externe, et tectricibus attingentibus castaneis: tectricibus alarum reliquis flavo-cinerascentibus: alarum tectricibus inferioribus et campterio albis, hoc flavo tincto: rostro viridescenti-flavo, culmine obscure brunneo: iride flava: long. tota 11 poll., alæ 6, caudæ 1·8, tarsi 2, dig. med. cum ungue 2·1, rostri a rictu 2·3.

Hab. Amoy, Shanghai, China.

This bird is easily distinguished from *A. cinnamomea*, in that the plumage of that species is wholly tinged with cinnamon. The most noticeable difference is in the wings, which, in the new bird, have the primaries dark plumbeous and the coverts for the most part greyish buff. *A. sinensis*, on the other hand, has the head and tail dark plumbeous and the back dark buff instead of chestnut. This latter bird, too, is smaller in all its dimensions, and has a much more slender bill.

V.—On the Nidification of certain Indian Birds. Part II.

By ANDREW ANDERSON, F.Z.S.

EUDYNAMYS ORIENTALIS.

As the history of birds breeding parasitically is of considerable interest, and the habits of the Koel do not appear to have been sufficiently studied by Indian ornithologists, I am desirous of recording the result of my own observations on the subject.

The only information we possess concerning the domestic economy of this bird is extremely meagre, if not incorrect. The late Dr. Jerdon appears to have been led into error in supposing that this Cuckoo "lays* one egg (only) in each

* Cf. 'Birds of India,' vol. i. p. 343.

Crow's nest, and mostly, but not always, destroys the eggs of the Crow at the time of depositing her own ;” but he is correct in stating that the nest of the Common Crow (*Corvus splendens*) is the one almost exclusively used as a nursery for the foundlings,—this, however, not because the Koel can be said to have any partiality for this Crow in particular, but because the other species (*C. culminatus*) does not lay simultaneously with herself. I firmly believe that if both species nested at the same time, they would be equally in demand as foster-parents. *C. culminatus* lays, as a rule, in February and March ; and I have sometimes, though rarely, seen them do so as late as May and June ; *C. splendens*, on the other hand, does not generally commence to build till June, which suits the Koel to a nicety.

Subjoined is a list of the Koel's eggs taken in my presence at Futtehghur during the year 1871 :—

No. 1. Three Koel's and four eggs of *C. culminatus*, 27th May. This nest was built in a tree at my garden gate, and was watched by me in course of construction. I frequently observed male and female Koels darting in and out of this shady tree, and during the heat of the day sitting in close proximity to, and on terms of perfect friendship with, the rightful occupants of the nest. On the 24th May the nest contained one Crow's and one Koel's egg ; on the 25th I was agreeably surprised at finding that each species had laid a second egg ; but on the following day, the 26th, I was amazed when my tree-climber from aloft reported that both birds had again done their duty. On the 27th I removed the contents of the nest, which contained the number above stated. The Crow on this occasion was on her nest, and the man who went up informed me that one of the small eggs (meaning the Koel's) was placed above the other six, forming, as it were, the corner tier.

The following eggs and young Koels were all taken from the nests of *C. splendens* :—

No. 2. Two Koel's and one Crow's egg, 8th June—all perfectly fresh.

No. 3. One Koel's and one Crow's egg, 19th June—all perfectly fresh.

No. 4. One Koel's and two Crow's eggs, 19th June—all perfectly fresh.

No. 5. Three Koel's and six Crow's eggs, 19th June. I think two Crows must have laid in this nest; for three of their eggs were of *one type* and quite fresh, while the other three were well incubated, and appeared to be the produce of another pair.

No. 6. One Koel's and three Crow's eggs, 23rd June—the former perfectly fresh, the latter well incubated.

No. 7. One Koel's and three Crow's eggs, 23rd June; the Crow's were on the point of hatching, while the intruded one appeared to have just been laid.

No. 8. One Koel's and three Crow's eggs, 5th July. In this case the Koel's egg was on the point of hatching, while those of the Crow were quite fresh.

No. 9. One Koel's and one Crow's egg, 9th July—both apparently laid that day.

No. 10. One Koel's and one Crow's egg, 9th July—both apparently laid that day; but the latter was found broken in the nest.

No. 11. Two young Koels and three young Crows, 25th August.

No. 12. Three young Koels and three young Crows, 28th August.

Before drawing any conclusions from the above data, I would observe with reference to nest No. 1, that the fact of *C. culminatus* laying in May was as exceptionally late for that bird as it was early for the Koel. I am consequently led to infer that these three Koel's eggs were the produce of one bird. What still further strengthens this supposition is the result of numerous post-mortems made by me; for I lost no time in examining the ovaries of as many birds as could be procured, with a view of ascertaining whether I was correct in my surmise.

It is quite clear that *C. culminatus* is easily imposed upon, and seems to be alike unaware of and indifferent to the deception practised on her; for I never once observed the above pair attempt to drive away the Koels from the tree on which they had built. *C. splendens*, on the other hand, is thoroughly

alive to the trickery; and there is hardly a day, during the breeding-season, that Koels may not be seen making their escape from trees, hotly and unrelentingly pursued by one or more Crows of this species. I have twice rescued female Koels from the hands of these marauders, once on the ground when the victim was in the act of being mobbed by a horde of Crows, and on another occasion when the bird flew into the veranda of my house for protection.

But the curious thing in connexion with this subject is that the *male* Koel is just as often the object of attack as the female; and I have frequently observed both sexes flying out of the same tree simultaneously, though in opposite directions. From this it may be inferred that some strange instinct guides a male bird to the tree along with the female when she is about to deposit her eggs, the object presumably being to attract the attention of the rightful occupants of the nest while the egg is being laid. On one occasion a Koel dropped her egg on the ground whilst beating a rapid retreat; and on another I extracted an egg which was ready for exclusion, from the oviduct of a bird I shot as she emerged from a tree. The Crow was following about a yard behind, and had evidently driven away her enemy before she had time to accomplish the deed.

Summing up the evidence before us, the following facts may be deduced:—

1st. That the same Koel may lay a number of its eggs in the same nest. I infer this much from having found three eggs in nest No. 1, which may be apportioned to one bird.

2nd. That she does not *wittingly* eject the eggs of the foster-parent; and that when there is a deficiency in the normal number, it is in all probability due to *accident*, owing to the Koel's hurried movements. Nest No. 1, again, supports this theory; for *C. culminatus* had in this case laid her usual number undisturbed.

3rd. That *C. culminatus* is easily duped, while her cunning congener, *C. splendens*, is fully aware of the deception.

4th. That when the female Koel is about to intrude her egg, she is frequently accompanied by a male bird.

5th. That it is a common occurrence to find several Koel's eggs as well as young ones in the same nest—the produce of one or more parents.

The eggs of this Cuckoo have certainly a very corvine appearance, and are well adapted to represent miniature eggs of the foster-parent. All those in my collection are of one type, and may be described as thickly blotched and spotted with reddish brown on a dark green ground, somewhat confluent at the obtuse end. They vary, however, in size and shape, the longest measuring $1.4 \times .9$, the smallest $1.1 \times .9$. Five, generally, and perhaps sometimes six, is the number of eggs laid by this bird.

The young birds leave the nest in August, and are very helpless for fully two months afterwards. While young Crows follow their parents as soon as they can fly, young Koels seldom leave the tree on which they have taken a stand, and are completely at the mercy of their foster-parents, demanding more food and attention than their legitimate offspring.

It is a mistaken idea to suppose that the "female* Koel watches the nest in which she has deposited her egg" &c.; for, according to my experience, she does not evince the slightest anxiety for her progeny, and clearly delegates the care of her young to the foster-parents. I never once observed these "foundlings" receive the slightest attention from their "vagrant" parents.

The crop of a young bird recently examined contained slugs, earthworms, and garbage. That the young of a bird which is purely frugivorous in its habits should be reared and nourished on carrion food, is one of the most remarkable facts in connexion with the economy of this Cuckoo †.

* Cf. 'Birds of India,' vol. i. p. 344.

[† Mr. Layard, in his "Notes on the Ornithology of Ceylon" (Ann. & Mag. Nat. Hist. ser. 2, 1854, xiii. p. 451), gives a brief account of the breeding of this species in Ceylon. It would appear to breed much earlier there than in the N.W. provinces of India, viz. in February and March, and to lay its eggs indiscriminately in the nests of both *Corvus splendens* and *C. culminatus*.—ED.]

VI.—*Addenda to the Avifauna of India.* By EDWARD BLYTH, F.Z.S., Hon. Memb. As. Soc. Beng.

IN the Zoological Society's Gardens, Regent's Park, there is now a fine specimen of *Acridotheres mahrattensis* (Sykes) of Southern India, as distinguished from *A. fuscus* of Northern India and Burma; and both species may there be seen alive in adjacent cages. Not only are the irides of *A. mahrattensis* white, and those of *A. fuscus* yellow (as duly noticed by Jerdon), but the bill of the former is wholly yellow, and the median tail-feathers are more broadly tipped with white, in which latter particular it again differs from the very nearly allied *A. cinereus* of Celebes (figured by Lord Walden in the 'Transactions of the Zoological Society,' vol. viii. pl. 10). Furthermore, both in *A. mahrattensis* and *A. cinereus* the short frontal crest is conspicuously less developed than in *A. fuscus*. They must accordingly henceforward rank as sufficiently distinguished species.

There is a *Palæornis* in the same collection, said to have been received from Kashmir, which is certainly a mistake; and I find three specimens of the same race in the British Museum, obtained in the Tenasserim provinces. The living bird is labelled *P. melanorhyncha*, Wagler. As seen together with three living examples of *P. ponticerianus*, its distinctness as a species is sufficiently manifest to the eye, more so than would appear from description. The cap is bluish grey, without any of the ruddy tinge which is always seen in the other; and it is partly bordered on the sides of the neck by a strip of red feathers of the same colour as the breast, which is a good distinguishing character. Moreover the irides are conspicuously white, whereas in the other they are dark. To the black colour of the bill I attach no importance, unless the specimen should prove to be a male; for in several kindred species the bill is black in the female sex, but never in the male, so far as observed hitherto. The same extension of the red colouring to the border of the grey cap is likewise seen in the large *P. derbianus* (P. Z. S. 1850, pl. xxv.)*.

* I see that in the Journ. As. Soc. Beng. 1872, p. 279, Mr. V. Ball states that in the female of *Palæornis erythrogenys*, nobis, "the moustache is deep

In a specimen of *Coracias garrula* obtained in Kashmir, a trace of intermixture with *C. indica* is very discernible in the plumage, showing that the latter interbreeds with *C. garrula* to the westward, as it does with *C. affinis* to the eastward. A similar hybrid Roller is noticed by Mr. Bell among some birds captured on the Red and Arabian Seas (Proc. As. Soc. Beng. 1870, p. 249).

A Jackdaw in the same collection, from Kashmir, has the distinguishing crescentic mark assigned to *Corvus collaris* tolerably well pronounced.

Mr. W. E. Brooks is of opinion that *Sylvia curruca* should be expunged from the list of Indian birds, as he supposes that the larger *S. affinis*, nobis, has been mistaken for it. Several specimens, however, obtained by myself above the tideway of the river Hugli were undistinguishable from British examples, and I have only seen *S. affinis* from Upper and Southern India. The two differ only in size, and in this much less than do the sexes of *Chætornis striatus*, *Megalurus palustris*, or the Australian *Cinclorhamphus cruralis*. *Sylvia jerdoni*, nobis, is distinguished by its conspicuously longer bill from the European *S. orphea*.

In Lower Bengal I have seen many dozens of specimens of *Rallus indicus*, nobis (*japonicus*, Schlegel), but never the true *R. aquaticus*; but Mr. Gould has several examples of the latter from other parts of India, and not any of the former. Hence it is probable that the more eastern form does not range westward of the valley of the Lower Ganges, but is elsewhere replaced in India by the western form, as *Erythrosterna leucura* (of Nipal, Lower Bengal, Assam, and Burmah) is re-

green, not black as in the males." Surely a green moustache indicates the young bird, as in the Malayan *P. longicaudatus*, supposed by me at one time to constitute a particular species, which I named *P. viridimystax*. At a late auction at Stevens's were sold a pair of *P. erythrogegens*, with red and black upper mandible respectively; and certainly my impression is that the presumed female had black moustachial marks. Together with them were sold three specimens of *P. caniceps*, nobis, two of them with red and one with black upper mandible. Where procured, I could not learn; but previously only two examples of *P. caniceps* had been recorded.

placed over India generally by *E. parva*—the *Ralli*, however, being permanently resident, whilst the *Erythrosterne* are winter visitants only.

There appear to me to be two races hitherto confounded under *Grus cinerea*, both of which would seem to occur in Europe, but (so far as I have seen) only one of them in India. They differ much in extent of development (however old the bird, and in both sexes alike) of the crimson nude skin upon the head. In the Indian race this is confined to a narrow band crossing the vertex, whereas in the other it extends over the whole occiput and is somewhat peaked behind. There is a specimen of each form at present in the Zoological gardens. Not long ago, also, there were two specimens I then assigned to *G. canadensis*, which appeared to me to be of different races, a larger and a smaller. The larger (a male) had the crimson nude skin upon the head developed to exactly the same extent as *G. americana*, whereas in the smaller (a female, which still survives) it is continued much further backward. I have merely called attention to these diversities, which I have remarked for many years past in several specimens assigned alike to *G. cinerea*.

What is the meaning of the name *gingalensis* as applied to the small Hornbill peculiar to Ceylon which is so designated? I rather suspect that it originated in a misprint for *cingalensis*.

VII.—*Fragmentary Notes on the Guacharo or Oil-Bird* (*Steatornis caripensis*). By Dr. JAMES MURIE, F.L.S. &c.

I MUST refer the reader to the 'Personal Narrative' of Baron Alexander von Humboldt for a vivid description of this remarkable bird in its native caverns, and other strange particulars connected therewith. The memoirs and notices of P'Herminier*, Johannes Müller†, Sclater‡, and others contain much con-

* Nouv. Ann. du Mus. 1834, p. 321; Ann. Sci. Nat. 1836, p. 60; and Rev. et Mag. Zool. 1849, p. 321.

† Monatsb. Berlin, 1841, p. 172; and his Archiv f. Anat. 1842, p. 1.

‡ P. Z. S. 1866, pp. 125, 127, 130.

nected with its systematic place, anatomical structure, &c. My memoranda, as the title intimates, are but fringes to the warp and woof of its history. An adult specimen passed through my hands a few years ago; but I was only able to examine it exteriorly. The notes I made thereon have this value, that they are scrupulously exact, and may hereafter be useful to others investigating this odd form, as in some minutiae they do not coincide with previous statements. I make no comments or comparisons, the data being too trifling to justify positive deduction.

Coloration.—The whole of the upper surface of the body, wing-coverts, secondaries, and tail are of a rich chestnut-brown—each individual feather, however, being barred or mottled, faintly or otherwise, according to the situation. The underparts are lighter in hue, especially the throat and axillary regions; but the same body-tint pervades the whole. Upon the back of the head, the throat, and the thorax the feathers possess each a double marking of white. These are in elliptical or transversely elongated patches, each white patch being surrounded by a narrow line of black. In the axillary region and sides of the thorax this gives a greyish tinge to the feathering, because of the bicolour patches being more plentifully distributed. The abdominal feathers are of a rich cinnamon-colour; they nevertheless, although partially hidden, have five white linear markings on the rachis of each feather.

On the wing-coverts there are six or seven very distinct and well-defined white spots with black margins, each as large as a threepenny-piece. The outermost two are in advance of the others. The four outer primaries and two outer secondaries present an external row of white spots; in the others there is an indistinct barring of brown edged with black. On the inner side of the vane of the remaining secondaries are more or less clear markings of white, brown, and black. The inner half of each wing-feather is much darker than its outer half.

Every tail-feather has successive brown and black bars throughout, the brown being broadest beyond the middle of the tail. The two outer tail-feathers are distinguished by

six small white finger-marks, situated upon their external borders. The under surface of the tail is altogether lighter-coloured than the upper surface; but the opposite is the case with the wings.

The bill is of a rich brown tint. Feet and legs flesh-coloured and without scales or feathering.

The large round pupil of the eye is dark blue; the iris, only a narrow ring, in contrast is of a deep brown.

Weight.—In this specimen the fresh body weighed but six and a half ounces.

Admeasurements.—Greatest stretch of the wings 32 inches; tail from root to its free end $6\frac{1}{2}$ inches; from the tip of the beak to the rump 11 inches, the neck being outstretched and the tape passed in a straight line. The head and beak, taken in the median line, by external measurement, are 3 inches, but appeared only $2\frac{1}{2}$ inches when using a pair of callipers. Beak barely $1\frac{1}{2}$ inch long.

Pterylosis.—Rectrices ten; primaries ten; secondaries eleven or twelve. The third and fourth primaries are the longest, the remainder graduated. Tail fan-shaped. Oil-gland large, bare, and possessing a long, filiform, featherless nipple. All the feathers throughout the body, and more notably those of the tail and wing, are acuminate. There are no powder-down patches. Very many light downy feathers, however, are present—some parts, for example the external aspect of the thighs, being almost destitute of other longer feathers.

Legs and feet.—The legs are completely devoid of feathering and of scales, the only cuticular appendage being a few downy hairs, which are situated near the feet and chiefly above the posterior toe. The skin hangs loosely, the flesh shining through and producing their pale and characteristic colour.

Length of tibia 1·8 inch, of the tarsus 1 inch. The three anterior digits are subequal in length, the middle one displaying a slight advantage. Length of the middle digit minus the claw 1 inch, the nail increasing it by 0·4 inch. The direction of the front toes is nearly straight forwards and pa-

rallel to each other, whereas the short hind toe (0·4 inch without the nail) is set at right angles inwards; but it freely bends backwards.

From the dorsal surface of each anterior toe there are about a dozen rudimentary, soft and small, transverse, brownish pellicles or scale-like bodies. These are hardly worthy of the name of scutellæ, so slight is their differentiation from the adjoining skin.

It is very evident from the construction of the parts that this bird does not support itself on its toes, as do most birds, but, on the contrary, rests chiefly on the tarsi. The plantar surface of the foot is pale-coloured, and studded with minute, soft, but elevated hexagonal scales. The claws are slightly curved, scooped out inferiorly, without being pectinated.

Head.—Viewed in profile this has some resemblance to the head of a Sparrowhawk, long and prominent rictal bristles, however, detracting from the likeness. Superiorly, or from above, it appears wedge-shaped; whilst from the front or facially the aspect inclines to what is presented by the *Cariama*. The eye is only of moderate size, nay, even relatively small. Around the orbit is a wide and partially bare space, which is ordinarily somewhat hidden by the feathering of the eyelid. The rictal bristles or, rather, long dark-brown hairs are twelve in number on each side.

The beak is sharply curved and with a fair-sized tooth beneath and in front of the nostril. The nostril has an elliptical figure, widest in front, and obliquely set upwards and forwards: it is situate 0·4 inch from the beak's root. The culmen presents a gothic-like arch, and proximally is about an inch in transverse diameter.

The mandible, of only moderate strength and shallow, slightly overlaps the beak as far as the nostril, and thence is hidden by it. At the mandibular angle is a short tuft of moustache-like hairs, shorter than the rictal ones. There is a wide bare space on either side of the inframandibular median line; and the feathering of the throat comes up with sharp acumination.

VIII.—Notes on a supposed new Species of Prion.

By THOMAS H. POTTS, F.L.S.

A SHORT time since, amongst some birds which arrived at the Canterbury Museum from Foveaux Straits, were specimens of a *Prion* which, upon a careful inspection, could not be referred to either *P. turtur* or *P. vittatus*.

This wanderer over the Southern Pacific Ocean does not appear to be entitled to any special claim on the score of rarity; it is known to the Maories of Ruapuke as the Paréra. Although the familiar name of the Grey Duck (*Anas superciliosa*) is spelt Pārera, it must be understood that the two names are pronounced by the natives differently, as the accents used are intended to indicate.

This *Prion* breeds in holes on Papatea, or Green Island, near Ruapuke, in Foveaux Straits; descriptions are given below of the adult bird, the young, and the egg.

In considering this species it is to be noted that the bill is of remarkable size; it is considerably longer than the head, it is much broader than that of *P. vittatus*; the pectinated apparatus of the upper mandible is very fully disclosed. Of the primaries the first is quite as long as, even if it has not the advantage when measured against the second quill; the total length exceeds that of *P. vittatus* by some inches. Should ornithologists deem this bird to be a new species, it is proposed to call it *Prion australis*, as one of its breeding-places or stations is at, or near, our southern boundary.

PRION AUSTRALIS, n. sp. “Paréra;” Southern Prion.

Diagnosis of adult:—

Head dark bluish grey, mottled sparingly with black; ear-coverts rather slaty blue, bounded above and below irregularly with white or yellowish white; upper surface bluish grey; scapulars clouded with slaty black; upper tail-coverts tipped with the same, under surface white; under tail-coverts white lightly tinged with delicate ash grey; quill-feathers, of which the first two are longest and of about equal length, outer web black, inner web white more or less stained with ash-grey; tail bluish grey tipped with black; chin naked, the skin

marked with narrow furrows of angular form arranged in regular order, angle within angle. Bill longer than the head, measures in length from gape to point 1" 9^{'''}, greatest width of bill 11^{'''}, tarsus 1" 5^{'''}, middle toe and claw 1" 6^{'''}, wing from flexure 8", tail 4", total length 14" 3^{'''}.

The young, taken from the nest November 25, clothed entirely with a dense covering of dark smoky grey down, lightest in colour on the neck and under surface; pectination of the upper mandible undeveloped; the length of the bill from gape to point 1", greatest width 4^{'''}. The eggs, which give out a rancid submusky odour, are white, oval in form, and measure 2" through the axis, with a breadth of 1" 6^{'''}.

Ohinitahi, New Zealand.

June 7, 1872.

IX.—*Descriptions of new Species of Nectarinia, Sitta, and Parus from Persia and Baluchistan.* By WILLIAM T. BLANFORD, C.M.Z.S.

1. NECTARINIA (ARACHNECHTHRA) BREVIROSTRIS, sp. nov.

N. affinis N. asiaticæ, sed minor, rostro brevior, pileo dorsoque maris viridioribus, feminae notæo magis griseo.

Long. tot. 4·5, alæ 2·2, caudæ 1·4, tarsi 0·6, rostri a fronte 0·54, a rictu 0·67 (poll. Angl. et dec.). Femina vix minor. Long. tot. 4·25, alæ 2·1, caudæ 1·25.

Hab. in Baluchistan, circa Jalk, Dizak, Bampur, &c.

Male in breeding-plumage.—Upper plumage, with the sides of the head and neck, very dark glossy metallic green, passing more or less into purple; in freshly moulted specimens almost as purple as in *N. asiatica*, but usually much greener; lores black, ear-coverts with less gloss than the adjoining parts. Wings and their larger coverts hair-brown, tail-feathers black with a faint purplish gloss, and sometimes, but not generally, with narrow pale tips. Chin, middle of throat, and upper breast rich metallic purple, with a shade of steel-blue, the latter separated by a narrow pectoral band, not always well marked, of copper-red, from the still darker bluish purple of the lower breast, abdomen, and under tail-coverts. On the flanks behind the axil is the tuft of yellow and scarlet

feathers characteristic of the group to which this species belongs.

The male in non-breeding plumage resembles the female, except that it has the usual purple stripe from throat to vent, the rest of the underparts being pale grey, whilst the wings and tail are rather darker than in females, and there is a tinge of purple gloss on the smaller wing-coverts and rectrices.

Female.—Above, greyish brown, quills and wing-coverts hair-brown with pale margins, tail blackish brown, all the outer tail-feathers tipped with whitish, the amount being largest on the outermost feathers, on which it extends some distance up the outer web. Lower parts greyish white, with more or less pale yellow on the breast and throat, little or none on the chin and abdomen.

The measurements above given were taken from specimens in the flesh. The species may be easily distinguished from *N. asiatica* by its shorter bill.

Besides the locality above mentioned, this form may inhabit Arabia, as I saw a Sun-bird closely resembling it at Maskat, on the Arabian coast, near the entrance to the Persian Gulf, in December. Unfortunately I did not obtain specimens.

2. *SITTA RUPICOLA*, sp. nov.

? *S. syriaca*, Ehr. apud Filippi, Viag. in Persia, p. 346 (nec Ehrenb.).

S. syriacæ, Ehr., similis (sive *S. neumayeri*)*, sed minor, fascia nigra oculari plerumque angustiore et brevior, et præsertim rostro pedibusque multo gracilioribus facile distinguenda.

Long. tot. 6, alæ 3, caudæ 1·9, tars. 0·9, pedis 1·7, rostr. a fronte 0·8, a rictu 1.

* [Until the publication of the fourteenth part of Messrs. Sharpe and Dresser's 'Birds of Europe' (Nov. 1872) this name had very properly been consigned to stand as a synonym of the far preferable title of *S. syriaca*. It is true that Michahelles described the bird in 'The Isis' for 1830, some years before it was characterized in Temminck's Manuel d'Orn. He, however, did not think fit to latinize the uneuphonious specific name he selected, and, moreover, after saying that the bird was called *Sitta syriaca* in the Berlin Museum, he did not hesitate to commit a breach of common courtesy in setting aside a good name ready made to his hand.—ED.]

Hab. in montibus Persicis præsertim in Elburz saxa scopulosque frequentans.

Upper parts slaty grey, the inner and basal portions of all the rectrices, except the centre and outer pairs, blackish; a narrow black stripe from the base of the bill on each side through the lores and above the ear-coverts to the side of the nape, varying somewhat in breadth and length, but less developed than in *S. syriaca*; chin and throat white, the same but less pure on the breast; abdomen and lower tail-coverts dull pale rufous, the colour becoming gradually darker towards the vent; iris dark brown; bill blackish, except below near the base, where it is pale grey, almost white; legs horny grey, soles pale and slightly yellowish.

Of this small Rock-Nuthatch four specimens were collected by me in the Elburz mountains, north of Tebran, where this species was common, and one at Kohrúd, north of Ispahan; a sixth specimen was obtained by Major St. John, R.E., near Shiraz, in Southern Persia, where the large pale race of *S. syriaca*, named *S. tephronota* by Mr. Sharpe, is common. The specimens of *S. rupicola* from Kohrúd and Shiraz are much paler in colour than those from the Elburz mountains.

3. PARUS PHÆNOTUS, sp. nov.

P. atro affinis, sed major, capite toto, præter nucham albam maculaeque laterales pallide flavas (? interdum albas), nitente nigro; dorso olivascenti-brunneo, uropygium versus pallescente; alis caudaque umbrinis, pennarum marginibus dorso concoloribus; tectricibus alarum majoribus atque intermediis ad apices albo punctatis; gula nigra; pectore sordide albo, postice et ad latera fulvescente; abdomine hypochondriisque fulvis.

Long. alæ 2·7, caudæ 1·85, tarsi 0·77, rostri a fronte 0·4.

Hab. in quercetis haud procul ab urbe persica Shiraz (*St. John*).

Whole head and neck glossy black, except the white nuchal spot and the usual lateral patches occupying the cheeks, ear-coverts, and sides of the neck, which are yellowish white or pale yellow, perhaps becoming pure white in old birds; back olive-brown, becoming paler and more rufous upon the rump; wings and tail hair-brown, the feathers with paler margins,

and the median and greater wing-coverts tipped with rather small whitish spots, forming a double wing-bar; chin and throat black; breast white, not very pure, and passing gradually into the fulvous or isabelline tint of the flanks and abdomen; lower wing-coverts nearly white, slightly tinged with fulvous.

Three specimens were collected in the oak-forests near Shiraz, in Southern Persia, by Major St. John, at an elevation of from 5000 to 7000 feet above the sea.

In size this bird is intermediate between the European *P. ater* and the large *P. bokharensis*, Licht. (Evers. Reise von Orenburg nach Bokhara, p. 131). It may easily be distinguished from all described forms of the group of *P. ater* by its brown back.

4. PARUS (CYANISTES) PERSICUS, sp. nov.

P. cæruleo affinis, sed coloribus omnibus obscurioribus; dorso griseo-olivaceo; pectore abdomineque pallide isabellino-flavis; apicibus albidis tectricum alarium majorum, fasciam transversalem præbentibus, latioribus; rostro minore.

Long. alæ 2·55, caudæ 2, tarsi 0·65, rostri a fronte 0·3.

Hab. cum præcedente in quercetis prope urbem Shiraz (*St. John*).

Crown of the head dull verditer blue; forehead, sides of the head (except a black line from the base of the bill through the eye to the nape), and a narrow band uniting the supercilia round the back of the head white; nape dull dusky blue, with a small whitish spot behind it, separating it from the olive-grey back, which becomes rather lighter-coloured and greener on the rump; quills dusky brown, the secondaries and basal portion of the primaries with dull blue edges, terminal portion of the primaries narrowly edged with white; wing-coverts dull blue, the greater coverts and the last secondaries broadly tipped with white, the former making a well-marked wing-bar, much broader than in *P. cæruleus*; tail dull blue above, bluish grey beneath, the outermost pair of feathers with white margins externally, except near the tip; chin white and black mixed; throat dull black; breast and

abdomen yellowish buff, with a line of dusky black feathers down the centre of the lower breast, middle of abdomen whitish.

Four specimens of this new Tit were obtained by Major St. John in the oak-forests of Southern Persia, near Shiraz. *P. cæruleus* is said by De Filippi to occur and breed at Kazvin, west of Tehran, in Northern Persia (Viag. in Persia, pp. 211, 346). I had not the good fortune to obtain specimens. It would be well to compare skins from Northern Persia with those now described.

X. *Description of a new Species of Cormorant from the Chatham Islands.* By WALTER L. BULLER, Sc.D., F.L.S., &c.

PHALACROCORAX FEATHERSTONI, sp. nov.

Diag.—Pileo et collo undique indigotico-nigris, fronte et occipite conspicuè cristatis, collo postico filamentis albis paullò dilatatis ornato : dorso summo cum scapularibus et tectricibus alarum olivascenti-brunneis, plumis nigro conspicuè apicaliter maculatis, tectricibus minimis sordidè indigotico-nigris : dorso postico, uropygio et supra-caudalibus indigotico-nigris : remigibus nigricanti-brunneis, secundariis extùs canescentibus : caudâ nigrâ : subtùs pulchrè canescens, abdomine imo cum subcaudalibus subalaribusque indigotico-nigris : iride canâ viridi reticulatâ : rostro saturatè brunneo : pedibus aurantiacis.

Head, upper portion of neck, and the whole of the nape, with the vertical and occipital crests, shining indigo-black ; sides and hind part of neck ornamented with scattered filamentous white feathers, having the tips produced and somewhat spatulate ; the shoulders, mantle, and upper surface of wings olivaceous brown, glossed with green, each feather marked with a conspicuous terminal spot of black ; back, rump, and upper tail-coverts, as well as the small wing-coverts, dull indigo-black ; quills blackish brown, the secondaries greyish on their outer webs ; tail black ; lower part of fore-neck, breast, and middle portion of abdomen beautiful grey ; sides of the body, flanks, under surface of wings, lower abdomen, and under tail-coverts indigo-black. Irides grey

streaked with green; bill dark brown; legs and feet orange-yellow. Length 22 inches; wing, from flexure, 9; tail 4; culmen 2·2; tarsus 1·6; longest toe and claw 3·25.

Hab. Chatham Islands (*H. Travers*).

A more detailed description, together with a coloured plate, of this beautiful species will appear in the forthcoming part of my 'Birds of New Zealand.'

XI.—Notices of some recently published Ornithological Books.

IN the April number of last year's volume of 'The Ibis' we gave a short account of several ornithological books then in course of preparation. We now propose briefly to draw attention to such of the promises then held out as have been redeemed during the autumn of the past year.

Captain Shelley's 'Handbook to the Birds of Egypt'* makes a handsome volume in large octavo of 342 pages, illustrated by fourteen coloured lithographs by Keulemans. The greater portion of the work is occupied by the detailed account of the birds inhabiting Egypt between the Mediterranean Sea and the Second Cataract and between the Arabian and Libyan deserts; but there is also a chapter of introductory matter, and some concluding remarks on birds said to occur in Egypt, but apparently upon questionable grounds. Each species is briefly described, and a reference given to some well-known illustrated work. Want of space prevents us entering upon a few critical remarks which suggest themselves; we will merely add that our attention has been called to the possible identity of *Turdus sharpii* with *T. isabellinus* of Bonaparte. There is nothing in *T. sharpii* at variance with the description of *T. isabellinus* in Bonaparte's 'Iconographie des Pigeons;' and as to the plates in that work, we know from experience how little reliance can be placed upon their accuracy. Reference to the type in the Berlin Museum would set the question at rest.

Mr. Gurney has also finished his task in editing and arran-

* A Handbook to the Birds of Egypt. By G. E. Shelley, F.G.S. &c. London: 1872. Large 8vo, pp. 342, 14 plates. (Van Voorst.)

ging Andersson's 'Notes on the Birds of Damaraland'*, making a very important addition to the literature on African birds. The number of species mentioned is 428, a large number when the character of the country is taken into consideration. Andersson's notes chiefly refer to the localities where he found each species, the colours of the soft parts, as well as the general habits and food. Mr. Gurney has worked out the nomenclature and synonymy; he has also added a number of useful notes of comparison with allied forms, distribution, &c. The work is full of accurate and valuable information; and ornithologists are to be congratulated that Mr. Gurney has been able to publish these Notes, imperilled by the lamented death of their author. In the employment of minute generic subdivision Mr. Gurney has, we think, gone further than a close attention to the *definition* of genera will allow; but this is a matter which must ere long force itself upon the more serious attention of ornithologists. We also feel constrained to enter our protest against some of the generic names adopted. We are far from indorsing the views of those who would admit only such names as have a so-called classic derivation, but *Kaupifalco* and *Hagedashia* are altogether too barbaric!

Dr. Buller has issued four out of the five parts of his work on the birds of New Zealand†, the last instalment consisting of two parts in one.

These parts contain an account of a number of interesting species, including *Notornis mantelli*, of which a good illustration is given. To nearly every species mentioned a very full life-history is supplied; amongst them we would draw special attention to Mr. Potts's account of the habits of *Anarhynchus frontalis*. Our readers will be well acquainted with this singular form from the plate accompanying Mr. Harting's excellent paper on "Rare or little-known Limicolæ," published

* Notes on the Birds of Damaraland and the adjacent countries of South-west Africa. By the late Charles John Andersson. Arranged and edited by John Henry Gurney. London: 1872. 8vo, pp. 394, 3 plates. (VanVoorst.)

† A History of the Birds of New Zealand. By Walter Lawry Buller, Sc.D. &c. London and New Zealand: Dec. 1872. 4to, plates.

in 'The Ibis' for 1869, p. 304. The bill of this bird is turned to the right; and, singularly enough, Mr. Buller finds that, correlated with this character, the black pectoral of the male bird is unsymmetrical, being wider on the right- than on the left-hand side of the bird. Mr. Potts tells us that the bird obtains its food by probing under stones for the insects lurking beneath. It would appear that the peculiarly shaped bill would only be an efficient weapon for obtaining food in this way so long as the bird walked one way round the stone, *i. e.* bearing to the off side or from west to east! The wider portion of the pectoral band would thus be always next the stone, and more hidden than the narrower or left portion. Has running round stones always the same way been the cause which enabled those birds which practised it to survive and transmit this habit to their offspring? and has their success been further promoted by the tendency to reduce the exposed side of their pectoral band, a secondary sexual character? Or has the process been reversed and the protection given to those birds which ran one way round stones, keeping the prominent portions of their pectoral bands from sight, tended to produce the curvature of the bill? The development of both characters seems to hang upon the birds acquiring the habit of running only one way round stones. We hope Mr. Potts will watch these birds closely, and let us hear more of them and their singular habits*.

We have mentioned this singular feature in *Anarhynchus* at length; but the rest of these two parts are full of interesting matter.

Mr. Elliot has finished his work on the Phasianidæ†; and a very complete monograph he has made of it. The issue of

* Instances of asymmetry in the structure of birds are very rare. We can only recall the formation of the ear in some Owls—for instance Tengmalm's Owl (*Nyctale tengmalmi*), well described by Collett, P. Z. S. 1871, p. 739. This may be produced by the constant habit of catching sound by always throwing the same ear forwards. The skull of the Woodpeckers is also unsymmetrical, arising perhaps from the birds' being right- or left-handed workmen.

† A Monograph of the Phasianidæ or Family of the Pheasants. By D. G. Elliot, F.L.S. &c.

the final part was somewhat delayed* in order to include illustrations of the two fine discoveries by Mr. Swinhoe near Ningpo, in China, which he described as *Phasianus ellioti* and *Pucrasia darwini* in the 'Proceedings' of the Zoological Society for April 1872. Mr. Elliot has spared neither pains nor expense in producing this by far the best of his works, and he deserves that every success should attend his enterprise.

We spoke of the same author publishing a monograph of the "Birds of Paradise." The first part † has just been issued, and gives promise of being a fit companion to the Phasianidæ. The plates are to our eye a little wanting in brilliancy, and the birds look flat; but they of course far excel any thing of the kind yet published on this family. Is it possible to depict adequately these marvellous birds?

The limits of the *Paradisiidæ* are not at present very well understood, as several other groups of birds seem to approach them. Mr. Elliot includes with them the Bower-birds (*Chlamydodera*); how far he is justified in so doing remains to be seen.

Messrs. Sharpe and Dresser continue the issue of their 'Birds of Europe' ‡ with probably as much speed and regularity as the subject will admit. Fourteen parts have now reached us; and we have every reason to hope that the undertaking will be successfully carried through. The articles in some of the latter parts have been treated more concisely, with, we venture to think, great advantage to the work. All possible attention should be paid to this important point.

Mr. Harting has given us a useful little work § on British

* The date of the issue of this part is given, doubtless by an oversight, as March 1872. It should have been October, in which month it really saw the light.

† A Monograph of the *Paradisiidæ*, or Birds of Paradise. By D. G. Elliot, F.L.S. &c. Published, for the Subscribers, by the Author. Part i.

‡ A Handbook of the Birds of Europe, including all the species inhabiting the Western Palæarctic Region. By R. B. Sharpe, F.L.S. &c., and H. E. Dresser, F.Z.S. &c. London: 4to.

§ A Handbook of British Birds, showing the distribution of the resident and migratory species in the British Islands, with an Index to the records of the rarer visitants. By J. E. Harting, F.L.S. &c. London: 1872. 8vo, pp. 198. (Van Voorst.)

birds, wherein he has separated the resident and regularly migrant species from the rarer stragglers. The former are treated almost entirely as to their distribution, whilst of the latter references are given to all the recorded instances of their occurrence within the limits of the British Islands. Mr. Harting has not instituted any investigations as to the authenticity of the records in question concerning the latter, but left that to others, merely directing them where to begin. Yet we fancy there is room for the exercise of a good deal of of judicial spirit when we call to mind how the recorded instances of the Harlequin Duck and Black Woodpecker in the British Islands melted like snow before a summer's sun under Mr. Newton's and Messrs. Sharpe and Dresser's inquiries. At the end of the work we have a new list of British birds, which will also be useful to those studying the birds of our islands. But such a systematic arrangement as there employed, in these times, cannot but be of an ephemeral nature.

XII.—Letters, Announcements, &c.

The following letters, addressed "To the Editor of 'The Ibis,'" have been received:—

SIR,—While at Shanghai lately, I paid a visit to Père Heude, of the French Jesuit Mission established at Sikawei, a village about $5\frac{1}{2}$ miles from Shanghai. This venerable gentleman is told off to collect the materials for a Natural-History Museum, which the priests propose to set up, illustrating the natural products of the province of China wherein their field of work has fallen. The worthy father had visited me some months ago at Ningpo, and had invited me to inspect his birdskins during the month of August, should I happen then to be in Shanghai, as it is during that month that the priests from all the country round gather, for a vacation, at their headquarters. I looked over the collection with great interest, and will now state what to me were novelties.

1. A charming little *Hierax*, probably the *H. sericeus*, Gray. He says he saw a pair sitting together, and shot one, taking it for a Finch until he picked it up.

2. A Falcon of the size of a female Kestrel, but of the plumage of a Banded Saker Falcon. A great beauty!

3. A *Nettapus* Goose, about a third larger than *N. coromandelicus*, coloured a good deal like it, but with a broad collar on the lower neck = *N. coromandelicus* of "David's list" (seen, but not procured).

4. *Paradoxornis*, with the curiously shaped and compressed bill of this group, but with the hind parts of *Parus biarmicus*—a gem of a curiosity.

He had a pair of *Erythropus amurensis*, shot off a nest, in which there was also another pair of the same species.

He had, of rare species, *Ægialitis hartingi*, mihi, in winter plumage, which, he says, is common about Nanking, and *Chamarrhornis leucocephalus*.

I wanted him to give me descriptions of his novelties for publication in 'The Ibis;' but he seemed to fear a superior, who claimed all his discoveries for the glory of his own country and for the special glory of the Jesuit Mission. I hope he may not be forestalled in priority of description.

Père David was here for a month some time back. He visited a brother priest up country, and brought back some good things. He had a *Ceryle lugubris* and an *Ægialitis hartingi* (summer). He is now away at Peking, whence he is going to travel in Shense Province.

Yours, &c.

ROBERT SWINHOE.

Ningpo, August 21, 1872.

SIR,—Besides the seven species mentioned in my letter of 5th December 1871 ('Ibis,' 1872, p. 199) as additional to Mr. Saunders's 'List of the Birds of Southern Spain,' I am able to add the following:—

8. *CIRCUS PALLIDUS*, Sykes. Swainson's Harrier.

I have seen specimens from the vicinity of Seville. It occurs also in Morocco; there is a specimen thence in the Norwich Museum.

9. *RUTICILLA MOUSSIERI*, Olph.-Gall.

I saw a male of this species close to Tarifa, in October, by the side of the road. Unluckily, I was riding along without a gun, some way in advance of my baggage, so could not secure it. Of course I do not consider that *seeing* a bird is sufficient evidence to include it in a list, and should have left it out; but as since, at Tangier on the 14th March, 1872, I obtained a fine adult male, killed close to the shore, evidently on passage (*Saxicola œnanthe* and *S. aurita* were then passing in some numbers), there is little doubt that this bird would have also crossed to the Spanish side of the straits, and that it is, though rarely, found in the south of Andalusia. The late M. Favier, whose MS. notes, I am happy to say, I have succeeded in purchasing, mentions "one killed near Tangier in 1848;" he calls it "*erythrogastra*;" but his description and measurements sufficiently identify it as a male *R. moussieri*. He adds that "they migrate to Europe and return in October, but are excessively rare."

10. *FICEDULA PALLIDA* (Gerbe).

Obtained near Gibraltar, is more abundant on the African side, and is one of the latest birds to arrive. I sent a specimen to Dr. Tristram for identification.

11. *LINOTA RUFESCENS* (Vieillot). Lesser Redpole.

Very scarce, in the winter only, in Andalusia. It has been obtained in Morocco.

12. *PHALAROPUS FULICARIUS* (Linn.). Grey Phalarope.

One killed at the Laguna de Janda, between Cadiz and Tarifa, on 29th November 1871.

13. *FULIGULA MARILA* (Linn.). Scaup Duck.

Once, Bay of Gibraltar, winter of 1870-71.

+ 14. *LESTRIS BUFFONI*, Boie. Buffon's Skua.

Extremely rare, has been obtained twice in winter in the Straits, but not in adult plumage.

+ 15. *THALASSIDROMA LEACHI* (Temm.). Fork-tailed Petrel.

Rare in winter, according to M. Favier occasionally found dead on the sea-shore; he mentions having picked up six at one time.

16. *PODICEPS RUBRICOLLIS*, Latham. Red-necked Grebe.

Obtained in the Straits in winter. I saw two specimens from Tangier so young that they must have been bred in the vicinity. M. Favier asserts that they breed at Ras Dowra, in Morocco; but I did not obtain any there.

† 17. *PODICEPS CORNUTUS*, Gm. Slavonian Grebe.

Very scarce in the Straits in winter; I have seen three or four specimens. Possibly they may be found among the great numbers of Eared Grebes (*P. auritus*) which are seen in winter in the Bay of Gibraltar, and which nest in numbers in the Spanish and African lagoons.

L. HOWARD IRBY.

Army and Navy Club,
October 2, 1872.

Lilford Hall, Oundle, October 3, 1872.

SIR,—During my visit to the south of Spain last spring, I fell in, near Seville, with a Short-toed Lark, which I at once recognized as distinct from the ordinary *Calandrella brachydactyla*, from which species it is distinguished by its greyer shade of colouring as well as its distinctly striped upper surface and breast. Mr. Sharpe, to whom I submitted my specimens, has come to the conclusion, after careful comparison, that the Lark is not new, but is *C. reboudia* in full breeding-plumage.

I was also so fortunate as to obtain, on the 3rd of May, in the Coto de Doñana, a male example of *Numenius hudsonicus*.

I am, &c.

LILFORD.

Marldon, Totnes,
December 4, 1872.

SIR,—In my letter of the 9th September last (printed in 'The Ibis' for 1872 at p. 472) I spoke of the Imperial Eagle of Spain under the title of "*Aquila imperialis*;" this I did because I considered that the specific distinction between the eastern and western Imperial Eagles, though rendered highly probable by the remarks of Mr. Howard Saunders, published in the 'Proceedings' of the Zoological Society for

1871, at p. 37, remained nevertheless an open question till a still larger series of skins had been examined.

Through the kindness of Mr. H. E. Dresser and other ornithological friends, I have quite recently had the opportunity of examining a larger series of these Eagles than I had previously seen, including some splendid Indian Eagles lately presented to the Norwich Museum by Mr. W. E. Brooks and Mr. A. Anderson; and I am now quite satisfied that Mr. H. Saunders was right in considering the Imperial Eagle of the Spanish peninsula specifically distinct from its more eastern congener; but as both species are, I understand, likely to be figured and described before long in Messrs. Sharpe and Dresser's 'Birds of Europe,' it will be needless for me here to recapitulate the distinctions which exist between them.

The Spanish bird will stand as *Aquila adalberti* of L. Brehm*, while the more eastern species should bear its oldest synonym (that under which its immature plumage was figured and described by J. G. Gmelin) of *Aquila mogilnik*. This species is found in South-eastern Europe, whence it extends eastwards to China; and it also occurs in India, Egypt, and Abyssinia; but the geographical boundary between its western range and the eastern range of *Aquila adalberti* is still undetermined.

Aquila bifasciata, Gray, is a third allied but distinct species, of which I have never seen specimens except from India. This species (though not in adult plumage) is well figured by Dr. J. E. Gray in his 'Illustrations of Indian Zoology from the collection of Major-General Hardwicke,' and has been recently described in the 'Proceedings of the Zoological Society' for 1872, at p. 502, by Mr. W. E. Brooks, and at p. 619 by Mr. A. Anderson†; but there is one plumage of this Eagle to which neither of these naturalists has referred, and which I therefore think it well briefly to notice. The general appearance of the bird in this stage agrees with Dr. Gray's plate above referred to, with the following exceptions:—

* *Vide* Ibis for 1865, p. 359, second footnote.

† I may mention that the species referred to in both these papers under the name of "*Aquila crassipes*, Hodgson," is *Aquila mogilnik*.

The entire undersurface from the vent to the sternum is transversely barred with alternate bands of white and stone-coloured brown, each band being from a quarter to half an inch in breadth; the tibiæ are also barred with similar transverse bands, but much more narrowly; and many of the feathers on the lower portion of the sternum have white points, forming small angular spots on that part of the plumage.

I am yours &c.,

J. H. GURNEY.

SIR,—In the July number of 'The Ibis' a letter appears from Dr. Buller on the genus *Hieracidea*, in which he says, "with regard to the data furnished in Captain Hutton's catalogue (Cat. N. Z. Birds, Wellington, 1871) I would simply remark that there is no evidence whatever of the sex having been in a single case determined by dissection." As this implies a doubt as to my scientific honesty, I should feel much obliged to you if you would allow me also to make a few "simple remarks" in reply.

My catalogue was drawn up, as stated in the introduction, chiefly from the collection of 273 birds' skins purchased from Dr. Buller by the New-Zealand Government; and the measurements of *H. novæ-zealandiæ* were taken from his own specimens in that collection, from those obtained by Mr. H. Travers, an experienced collector, who always ascertains the sex of his specimens by dissection, and marks them, and from a pair shot together in the mountains of the South Island, and forwarded to this museum by Mr. Huddleston, so well known for the success that has attended his efforts to introduce birds into the Province of Nelson.

Of these there can be no doubt as to the correctness of the sexes of both Mr. Travers's and Mr. Huddleston's specimens, and I never had any doubt about Dr. Buller's before; but as he says that there is no evidence of the sex having been determined in a single case, and as he must have been perfectly aware that the measurements of five of the birds were from his own specimens, I will not venture to contradict him; for he must know best about his own birds. However, just

for the sake of comparison, I will give the measurements of three of his birds together with the others in this museum. His two other specimens being fastened up in cases, I cannot get at them to remeasure them. I must, however, in fairness state that there is a possibility of my having made a mistake with the sexes of Dr. Buller's birds; for although the sign commonly used to denote "female" is correctly placed, that used for "male" is turned upside down (ϱ). Seeing that all his male birds were marked in the same way, and that he had also placed it in a similar manner in the list of his birds that he supplied to Dr. Hector, I naturally thought that it was simply a mistake caused by his slight acquaintance with the signs ordinarily used by naturalists, and that he had intended to express "male" by it; but, after his explanation in 'The Ibis,' I fancy that it may have been a private mark of his own intended to mean "sex undetermined."

Table of Measurements of *H. novæ-zealandiæ*.

Collector.	Wing.	Tail.	Culm., base of cere to tip.	Tarsus.	Mid toe and claw.	Hind toe and claw.
1. Buller, ad. ♀	10·95	7·6	1·2	2·35	2·45	1·65
2. Huddleston, ♀ ad.	11·75	8·2	1·1	2·4	2·85	1·85
3. Travers, ♀ ad.	11·8	8·6	1·2	2·6	3·0	1·9
4. Travers, ♀ ad.	11·2	8·0	1·2	2·45	2·75	1·65
5. Huddleston, ♂ ad.	10·0	7·8	1·03	2·25	2·35	1·4
6. Travers, ♂ ad.	10·0	7·4	1·05	2·3	2·35	1·45
7. Buller, juv. ♂ [sic]	9·6	6·9	·95	2·05	2·25	1·2
8. Buller, juv. ♀ [sic]	9·8	6·9	·9	2·15	2·27	1·3
<i>H. novæ-zealandiæ</i> } ♂ ..	11·25	8·25	1·2	2·5	2·75	1·75
From Buller's book } ♀ ..	11·5	8·5		2·75		
<i>H. brunnea</i> } ♂ ..	9·0	6·5	·85	2·25	2·3	1·3
From Buller's book } ♀ ..	11·0	8·0		2·5		

I will make no comment on these measurements further than to observe that the four birds marked as males have all slender legs and toes, while all those marked females have their legs and toes far more robust; and the same is the case with the other two of Dr. Buller's specimens already mentioned, marked in his list ad. ♂ [sic] and juv. ♀ respectively—that is, supposing the first sign to mean male.

Of these birds those supplied by Messrs. Travers and Huddleston all came from the South Island. Where Dr. Buller's birds came from I cannot say; for not a single bird in his collection has either date or locality upon it.

Both Dr. Finsch and Dr. Buller seem inclined to laugh at me for attaching any importance to such a trivial character as the slenderness of a Hawk's legs. By Dr. Buller, however, it seems to be only a "worthless character" (Birds of N. Z. p. 4) when used by me; for three pages further on in his book (*l. c.* p. 7), in his observations on *H. brunnea*, he says, "This species closely resembles *H. novæ-zealandiæ*, but is decidedly smaller, and has more slender legs and claws." Dr. Finsch, on the other hand, does not appear to find fault with me so much for mentioning this character (for he must be aware of what is well known to every falconer, that the Tiercel has always more slender legs than the Falcon) as for being so foolish as to measure dried legs. But, I would ask him, in what other way would he endeavour to convey to his readers an impression as to the amount of difference between the legs of the two? Every naturalist knows that measurements of all kinds are to be taken with considerable latitude; and why Dr. Finsch should object to my measuring the circumference of legs because they may vary in size, while he gives such elaborate tables of measurements, all of which are variable, I cannot understand. The fact is, that the legs of dried skins do not shrink so very unequally (which is the main point), and the limits between measurements due to variation in size of living birds are far wider than those due to the shrinking of the skin on the tarsus.

I still adhere to my opinion that the male of *H. novæ-zealandiæ* can be easily distinguished from the female by its more slender legs; and Dr. Buller's book has not yet converted me to the opinion that that "worthless character," slenderness of legs, is the chief characteristic of *H. brunnea*.

F. W. HUTTON.

Colonial Museum, Wellington.

September 6, 1872.

In the last volume of 'The Ibis' (p. 153) we confessed our inability to find the original reference to *Cyanocephalus wiedi*, Bp. We have since discovered it in a small brochure published by Bonaparte in Florence in 1842, and called "Osservazioni sullo stato della zoologia in Europa in quanto ai Vertebrati nell' anno 1840-1841, lette li 27 Settembre alla terza riunione degli Scienziati Italiani da Carlo Luciano Principe Bonaparte," &c.

In speaking casually (p. 17) of *Gymnorhinus cyanocephalus*, Wied, he says:—"L'ultima delle quali costituisce un genere a sè, per cui mi veggo costretto a proporre il nome di *Cyanocephalus* come generico, quello datogli dal fondatore trovandosi già impiegato." No characters are given.

We may here add a further reference to Bonaparte's writings which has escaped Dr. Coues's search, who, in reviewing the literature of the subject, in an exhaustive memoir on the Spheniscidæ, recently published in the 'Proceedings of the Academy of Natural Sciences of Philadelphia' (1872, p. 170 *et seq.*), writes as follows:—

"1850-56. BONAPARTE, —? I do not know where this author has treated of the Penguins; and none of the authorities quoted give any reference. According to quotations, he has instituted a genus *Eudyptila* upon *Aptenodytes minor*, Forst., and has renamed the two species of *Aptenodytes* that Gray named *fosteri* and *pennanti*, calling them *imperator* and *rex* respectively. There is no excuse whatever for this."

The reference is evidently to the 'Conspectus Ptilopterorum Systematicus,' appended to the 'Tableaux paralléliques des Pélagiens ou Gaviæ,' published in the 'Comptes Rendus' for 1856, xlii. p. 775.

In this Conspectus the Spheniscidæ are divided into two subfamilies—Spheniscinæ and Dasyrhamphinæ, the former being again subdivided into Aptenodyteæ, with the following genera—1. *Aptenodytes*, 2. *Eudyptila*, 3. *Chrysocoma*, and 4. *Pygoscelys* and Spheniscæ with the genus *Spheniscus*,—the latter containing the Dasyrhamphæ with the single genus *Dasyrhamphus*.

Eudyptila (of which no characters are given) contains

E. minor (Forst.) and (doubtfully) *E. undina* (Gould), which is the same species.

We think, however, that Bonaparte must be acquitted of altering Gray's names *Aptenodytes forsteri* and *A. pennanti*; for he adopts those names, and merely writes under the former, "*imperator* auct.," as explaining that this is the species commonly known as the "Emperor;" so also under *A. pennanti* he writes "*rex* auct.," the "King Penguin" of authors.

Prof. Schlegel ('Mus. des P. B., Urinatores,' p. 3), seems to have fathered these two names upon Bonaparte. Even Gray takes the above view with respect to them. He omits them in his 'Hand-list' (iii. p. 99), though we see, from an inspection of the copy of Bonaparte's paper formerly in his possession, that his attention had been called to the point.

We may further take this opportunity of calling Dr. Coues's attention, and that of our ornithological brethren generally, to an important paper on the Alcidae, recently published by Prof. J. F. Brandt in the 'Bulletin de l'Académie Impériale des Sciences de St. Pétersbourg,' 1870, pp. 449-497—which has hitherto escaped our notice, as well as that of the contributors to the 'Zoological Record.' This paper has been rearranged in octavo to form part of the seventh volume of the 'Mélanges Biologiques' (pp. 199-268). The memoir itself appears to be very complete, as it contains descriptions of and references to all the species of this family, twenty-one in number. Each genus is also characterized. We may add that the celebrated *Sagmatorhina lathamii*, Bp., about which such various opinions have been held, is here discussed and referred to the young of *Lunda cirrhata*. We have taken an opportunity of examining the type specimen of *Sagmatorhina* in the British Museum with reference to this point, and have no doubt as to the correctness of Prof. Brandt's conclusion.

THE IBIS.

THIRD SERIES.

No. X. APRIL 1873.

XIII.—*On the Birds in the Imperial Collection at Vienna obtained from the Leverian Museum.* By A. VON PELZELN.

[Concluded from page 54.]

PART II.

Birds not obtained directly from the Museum Leverianum.

THE names of those birds marked with an asterisk were contained in the same inventory as the preceding; but the birds are said to have been obtained from dealers. They were probably bought by dealers at the auction, and afterwards purchased by Herr von Fichtel.

The remaining birds were purchased from Herr von Fichtel and inscribed in a separate inventory. As in a few cases it is said expressly in the catalogue that the specimens were from the Museum Leverianum, and as other birds seem with the greatest probability to have been derived from the same source, I think it useful for greater completeness to enumerate these also.

VULTURIDÆ.

117. SARCORAMPHUS GRYPHUS, fem. (51.)

I have already spoken of this bird (*anteà*, p. 16), which is doubtless from the Leverian collection.

118. GYPOHIERAX ANGOLENSIS (Gmel.). (152.)

Angola Vulture, Pennant, *Tour in Wales*, 228, t. 19; Lath. Gen. Synops. i. 18. 14.

Falco angolensis, Gmel. Syst. i. 252.

Vultur angolensis, Lath. Ind. Orn. i. 7. 17; Shaw, Mus. Lever. iv. p. 153, pl.

According to Latham this bird was described by Pennant from the fine collection of birds at Bryn y Pys, the seat of Richard Parry Price, Esq. There were two of them, which came from Angola. They were, says he, "very restless and querulous, and more active than is usual with this sluggish race." These, Latham continues, "are now finely preserved in the Leverian Museum;" and it seems that the specimen bought by Herr von Fichtel is one of these birds, and perhaps the type of Shaw's figure. Our individual agrees pretty well with Latham's and Shaw's descriptions and the figure; but the great remiges are white, as represented in Shaw's plate, and not black tipped with white, as erroneously described by Latham and Shaw.

+ *119. IBYCTER FORMOSUS (Lath.). (269.)

Red-throated Falcon, female, Latham, Gen. Synops. Suppl. 26. 82 (nec t. 9. f. 82).

Falco formosus, Lath. Ind. Orn. i. 38. 92 (solum femina).

Ibycter formosus (Lath.), Pelzeln, *Uebers. Geier u. Falken*, 1862, 13.

It is possible that this is the specimen described by Latham (Syn. Suppl.), which came under his inspection among a collection of birds brought from Cayenne.

120. BUTEO LINEATUS (Gmel.). (36.)

Our specimen agrees in general with Latham's description of his Barred-breasted Buzzard (Gen. Syn. i. 56. 36), which is taken from a bird in the Mus. Lever.; but there are not two but five white bars on the rectrices, and the unspotted space of the quills measures only $1\frac{1}{2}''$.

*121. ICTINIA PLUMBEA (Lath.). (255.)

Spotted-tailed Hobby, Lath. Gen. Syn. i. 106. 92.

Falco plumbeus, Lath. Ind. Orn. ii. 49. 118.

There is in our collection a bird from Cayenne, which is either from the Leverian Museum or, more probably, was acquired in 1815 from M. Verreaux, and which agrees well with the description quoted above. Latham's type was in the collection of Miss Blomefield.

122. *ASTUR NOVÆ-HOLLANDIÆ* (Gmel.). (5.)

New-Holland White Eagle, Lath. Gen. Syn. i. 40. 18 (communicated by Dr. J. R. Forster).

Falco novæ-hollandiæ, Gmel. Syst. i. 264; Lath. Ind. Orn. i. 16. 22.

Falco albus, White, Journ. Voy. New S. Wales; 250. c. tab.

A specimen in white plumage is perhaps the type of White's description and plate; another (5), which, according to the catalogue, was of the normal coloration, is no longer in the collection.

STRIGIDÆ.

*123. *STRIX CASTANOPS*, Gould. (182.)

A specimen from New Holland.

CAPRIMULGIDÆ.

*124. *PODARGUS MEGACEPHALUS* (Lath.). (184.)

Great-headed Goatsucker, Lath. Gen. Syn. Suppl. ii. 265. 8.

Caprimulgus megacephalus, Lath. Ind. Orn. Suppl. lviii. 3.

Wedge-tailed Goatsucker, Lath. Gen. Hist. vii. 368?

This bird was called in the inventory *Caprimulgus crassirostris*.

*125. *ÆGOTHELES NOVÆ-HOLLANDIÆ* (Lath.). (131.)

Crested Goatsucker, Phill. Bot. Bay, t. p. 270.

Caprimulgus novæ-hollandiæ, Lath. Ind. Orn. ii. 588. 18.

Caprimulgus cristatus, Shaw in White's Voy. 241, pl.

New-Holland Goatsucker, Lath. Gen. Synops. Suppl. ii. 261.

Caprimulgus cristatus, Lath. Ind. Orn. ii. Suppl. lviii.

Bristled Goatsucker, Lath. Gen. Hist. vii. 342.

*126. *MACRODIPTERYX LONGIPENNIS*, Cuvier. (68.)

Caprimulgus macrodipterus, Afzel. Descr. Sierra Leone, t. ; Lath. Ind. Orn. Suppl. lix.

Caprimulgus longipennis, Shaw, Nat. Misc. t. 265.

Leona Goatsucker, Lath. Gen. Synops. Suppl. ii. 264. 8.
Africa.

*127. *ANTROSTOMUS CAROLINENSIS* (Gmel.). (198.)
N. America.

*128. *CAPRIMULGUS?* (222.)
From Dalrymple Bay; not retained in the collection.

CYPSELIDÆ.

*129. *CHÆTURA CAUDACUTA* (Lath.). (92.)
Needle-tailed Swallow, Lath. Gen. Synops. Suppl. ii. 259. 3.
Hirundo caudacuta, Lath. Ind. Orn. ii. Suppl. lvii. 1.
? *New-Holland Swallow*, Lath. ibid. 259. 4.
? *Hirundo pacifica*, Lath. Ind. Orn. ii. Suppl. lviii. 2.

It seems to me probable that a specimen from Dalrymple Bay is the type of Latham's *Hirundo caudacuta*.

HIRUNDINIDÆ.

130. *PETROCHELIDON ALBIVENTRIS* (Bodd.). (17.)
Cayenne. Not mentioned by Latham as existing in the
Mus. Lever.

CORACIADÆ.

131. *EURYSTOMUS ORIENTALIS* (Linné).
No longer in the collection. Latham says nothing of the
presence of a bird of this species in the Leverian Collection.

MEROPIDÆ.

132. *MEROPS BADIUS*, Gmel. (43.)
No longer in the collection.

*133. *MEROPS ORNATUS*, Lath. (212.)
Variiegated Bee-eater, Lath. Gen. Synops. Suppl. ii. 155.
16, t. 128.

Merops ornatus, Lath. Ind. Orn. ii. Suppl. xxxv. 11.
A young bird from Botany Bay.

GALBULIDÆ.

134. *GALBULA PARADISEA* (Linné). (56.)
A specimen called *Alcedo paradisea*, from Cayenne or Su-

rinam. According to Latham this species was represented in the Leverian Collection.

MELIPHAGIDÆ.

135. MYZOMELA SANGUINOLENTA (Lath.). (217.)

Botany Bay (*Certhia*, sp.).

*136. ACANTHORHYNCHUS TENUIROSTRIS (Lath.). (148.)

Slender-billed Creeper, Lath. Gen. Synop. Suppl. ii. 165. 22, t. 129.

Certhia tenuirostris, Lath. Ind. Orn. Suppl. xxxvi. 5.

Male?

137. MELIPHAGA NOVÆ-HOLLANDIÆ (Lath.). (20, 34.)

New Holland Creeper, White, Journ. Voy. New S. Wales, p. 186, pl.

Certhia novæ-hollandiæ, Lath. Ind. Orn. i. 296. 49.

The specimen, perhaps White's and Latham's type, is no longer in the collection.

*138. PTILOTTIS FLAVIGULA, Gould. (220†.)

Dalrymple Bay, Tasmania.

139. PROSTHEMADERA NOVÆ-ZEELANDIÆ (Gmel.). (57.)

New-Zealand Creeper, Brown, Illustr. 1776, 18, t. 9 (from a stuffed specimen in the possession of Marmaduke Tunstall, Esq.); Forst. Voy. i. 519.

Poë Bee-eater, Cook's Voy. i. 48. 150; Lath. Gen. Syn. ii. 682. 17 (Mus. Lever.).

Merops novæ-seelandiæ, Gmel. Syst. i. 464.

Merops cincinnatus, Lath. Ind. Orn. i. 275. 18.

Male (n. 3, *Merops cincinnatus*). New Zealand.

*140. ANTHOCHÆRA INAURIS, Gould. (150.)

Male? (*Merops carunculatus*). Erroneously entered with the locality New Zealand.

† There is in our collection a specimen of *Ptilotis carunculata* (Gmel.), which agrees well with Latham's description of the individual without orange-colour under the throat (Gen. Synops. ii. 7. 33), and which may perhaps have been in the Leverian Museum. Our bird also corresponds well with Forster's description (Descr. An. 165), except that the dimensions are smaller. I believe it not improbable that it was obtained during Cook's Voyage. The old catalogue gives Tongataboo as its habitat.

141. ANTHOCHÆRA CARUNCULATA (Lath.). (34.)

Female or young; no longer in the collection.

*142. TROPIDORHYNCHUS CARUNCULATUS (Lath.)? (279.)

Erroneously designated as from Otaheite.

Another specimen (*Merops*, n. 1), bought by Herr von Fichtel, does not appear to be that figured by White (Journ. Voy. New S. Wales, 190, t.).

*143. MANORHINA MELANOPHRYS (Lath.). (229.)

Black-browed Thrush, Lath. Gen. Synops. Suppl. ii. 185. 24.

Turdus melanophrys, Lath. Ind. Orn. ii. Suppl. xlii. 15.

Female? (August, 1802). New Zealand.

144. MELITHREPTUS LUNATUS (Shaw). (41.)

Certhia lunata, Shaw, Vieill. Ois. Dor. ii. t. 61 (drawing from the living bird in the collection of Mr. Shaw, and description furnished by Mr. Parkinson); Shaw, Gen. Zool. viii. 224.

Evidently a younger bird than that represented in Vieillot's work.

*145. Gen.? Sp.? (223.)

Certhia, from Dalrymple Bay; not retained in the collection.

DENDROCOLAPTIDÆ.

146. OXYRHAMPHUS FLAMMICEPS (Temm.). (26.)

Brazil.

147. DENDROORNIS PARDALOTUS (Vieill.). (28.)

Cayenne—called (Levaill. Prom. 1807, t. 30) *Oriolus picus*.

*148. DENDROPLEX PICUS (Gmel.). (227.)

Cayenne.

149. SITTELLA CHRYSOPTERA (Lath.). (16.)

Orange-winged Nuthatch, Lath. Gen. Synops. Suppl. ii. 146. 3, pl. 227.

Sitta chrysoptera, Lath. Ind. Orn. ii. Suppl. xxxii.

A specimen from New Holland, perhaps the type of Latham's description and figure in the Suppl. ii., with which I have not been able to compare it.

MENURIDÆ.

*150. MENURA SUPERBA, Davies. (286.)

A female or young male (*Parkinsonia superba*), agreeing with Vieillot's figure (Ois. Dor. ii. t. 16), but without the loose ends of the tail-feathers, and with 16 not 14 rectrices.

TROGLODYTIDÆ.

151. CYPHORHINUS MUSICUS (Bodd.). (14.)

Cayenne. Not mentioned by Latham as existing in the Mus. Lever.

LUSCINIIDÆ.

152. MALURUS CYANEUS (Gmel.). (58.)

Motacilla cyanea, Ellis, Narrative Voy. performed by Capts. Cook and Clerke, 1776-1780, 22; Gmel. Syst. i. 991. 165 (incl. var. β).

Superb Warbler, Lath. Gen. Synops. iv. 501. 137.

Sylvia cyanea, Lath. Ind. Orn. ii. 545. 142.

Motacilla superba, Shaw, in White's Journ. Voy. New S. Wales, 256, pl. (upper figure); idem, Nat. Misc. i. t. 10.

A specimen marked *Sylvia cyanea*.

Latham says that this species was in the Museum Leverianum, and gives a figure of a specimen which does not agree with our bird, which seems more similar to the individual from the collection of Sir Joseph Banks, alluded to by Latham, and to the figure in White's Journal (upper figure). Latham's figure and description seem, according to the measurements and the habitat, perhaps to belong to *Malurus longicaudus*, Gould; and if this supposition should be corroborated, the name of "*cyaneus*" must be transferred to the latter species, and for the other the next oldest denomination, *i. e.* *superbus*, Shaw, would stand.

153. MALURUS LAMBERTI, Vig. et Horsf. (156.)

Male; New Holland.

154. TATARE LONGIROSTRIS (Gmel.). (10.)

Of the specimen from Einco I have already spoken under n. 23 of this paper.

155. PETROICA ERYTHROGASTRA (Lath.). (15.)

A specimen (*Muscicapa erythrogastra*), apparently a male, badly prepared, was transferred to the duplicates.

TURDIDÆ.

*156. GEOCICHLA RUBECULA, Gould. (118.)

A specimen from Java (?); no longer in the collection.

PYCNONOTIDÆ.

*157. CINCLOSOMA PUNCTATUM (Lath.). (210, 211.)

Punctated Thrush, Lath. Gen. Synops. Suppl. ii. 187. 32.

Turdus punctatus, Lath. Ind. Orn. ii. Suppl. xlv. 23.

158. GARRULAX SINENSIS (Scop.).

Female (*Corvus auritus*, n. 27) already mentioned under n. 29.

Male and female from Dalrymple Bay.

DICRURIDÆ.

*159. CHIBIA HOTTENTOTTA (Linné). (100.)

This specimen, not mentioned by Latham in his description of the Hottentot Crow (Gen. Syn. i. 380. 10), was formerly labelled *Edolius setaceus*, Natterer.

ARTAMIDÆ.

*160. OCYPTERUS, sp.? (221.)

Dalrymple Bay; this bird was not placed in the collection.

*161. PTILONORHYNCHUS HOLOSERICEUS, Kuhl. (219.)

Female (or young?), from Dalrymple Bay, shot in April 1802. Iris black.

ORIOOLIDÆ.

162. ORIOLUS VIRIDIS (Lath.). (33.)

Female (?); no longer in the collection.

FORMICARIIDÆ.

*163. GRALLARIA VARIA (Bodd.). (129.)

Latham does not say that a specimen of the King Thrush (Gen. Synops. iii. 89. 122) was in the Leverian Museum.

164. PITHYS RUFIGULA (Bodd.).

No longer in the collection.

MUSCICAPIDÆ.

*165. MYIAGRA NITIDA, Gould. (224.)

Red-breasted Tody, Lath. Gen. Synops. Suppl. ii. 147,
female.

Todus rubecula, Lath. Ind. Orn. ii. Suppl. xxii.

Male from Dalrymple Bay.

166. SAULOPROCTA MOTACILLOIDES (Vig. et Horsf.). (23.)

Specimen (23), under the name *Turdus volitans*, from New
Holland.

167. TCHITREA PARADISI (Linné). (28.)

This bird is no longer in the collection.

*168. GRAUCULUS MELANOPS (Lath.). (157.)

Black-faced Crow, Lath. Gen. Synops. Suppl. ii. 116.

Corvus melanops, Lath. Ind. Orn. ii. Suppl. xxiv. 1.

This specimen not in the collection.

TYRANNIDÆ.

*169. ATTILA RUFIGULARIS, Pelzeln. (140.)

Thamnophilus xanthopygus, Jos. (?) Natterer, in Collect.

Attila rufigularis, Pelzeln, Zur Ornith. Bras. 96 et 170.

Habitat not given.

170. ELAINEA MARTINICA (Linné). (40, 26?)

Muscicapa martinicana cristata, Briss. Orn. ii. 362, t. xxxvi. 2.

Gobe-mouche huppé de la Martinique, Buff. Ois. v. 249;

Pl. Enl. 568. f. 1.

Muscicapa martinica, Linné, Syst. i. 325. 3; Gmel. Syst.

i. 930; Lath. Ind. Orn. ii. 483. 62.

Martinica Flycatcher, Lath. Gen. Synops. iii. 352. 52.

? *Muscicapa albicapilla*, Vieill. Ois. Am. Sept. i. 66 (St.

Domingo), partim (viii. t. 37).

Myiobius martinicus (Linné), Gray, Gen. Birds, 249, sp. 27.

Tyrannula martinica (L.), Bonap. Consp. i. 190; Cassin,

Proc. Acad. Philad. 1860. 375 (St. Thomas).

Elainea riisii, Sclater, P. Z. S. 1860, 313 (St. Thomas); A. Newton, Ibis, 1860, 307; Sclater, Catal. Collect. 217; Gray, Hand-list, i. 352 (St. Thomas, Barbadoes); Sclater, P. Z. S. 1870, 834.

No longer in the collection †.

171. PITANGUS SULPHURATUS (Linné). (31.)

Cayenne?

COTINGIDÆ.

172. TITYRA CAYANA (Linné). (12.)

A female from Cayenne, no longer in the collection.

Latham in his Synopsis only speaks of the existence of an old male in the Mus. Lever.

*173. COTINGA POMPADORA (Linné)? (226.)

Grey Shrike, Lath. Gen. Synops. i. 184. 36 (female or young).

Ampelis cinerea, Lath. Ind. Orn. i. 367. 11.

A bird from Cayenne, named *Lanius*, sp., and *Coracina cinerea*, which is not to be found in our collection, belonged probably to this species.

174. CHIROMACHERIS GUTTUROSA (Desm.). (32.)

Black-capped Manakin, Edwards, Lath. Gen. Synops. iv. 521. 4, et var. partim (Br. Mus., Lever. Mus.).

Pipra manacus, Linné; Lath. Ind. Orn. ii. 556. 6, partim. Brazil.

LANIIDÆ.

*175. COLLURICINCLA SELBII, Jardine. (215, 216.)

Young male and female (*Lanius*, sp.), both from Dalrymple Bay.

*176. CRACTICUS TORQUATUS (Lath.). (152.)

Clouded Shrike, Lath. Gen. Synops. Suppl. ii. 73. 10.

Lanius torquatus, Lath. Ind. Orn. ii. Suppl. xviii. 4.

Specimen called *Lanius curvirostris*, var. seu nova species.

† A specimen marked *Muscicapa martinica* has been recently found; but it does not belong to this species, being a young bird of *Pachyrhamphus polychropterus* (Vieill.).

*177. *FALCUNCULUS FRONTATUS* (Lath.). (151.)

Frontal Shrike, Lath. Gen. Synops. Suppl. ii. 75. 14, t. 122.

Lanius frontatus, Lath. Ind. Orn. ii. Suppl. xviii. 8.

*178. *PARDALOTUS STRIATUS* (Lath.)? (155.)

The specimen, marked *Pipra striata*, was in bad condition, and therefore not placed in the collection.

*179. *PACHYCEPHALA GUTTURALIS* (Lath.). (154.)

The bird named in the inventory *Muscicapa pectoralis* belonged probably to this species; it is no longer in our Museum.

CORVIDÆ.

180. *PERISOREUS INFAUSTUS* (Linné). (4.)

Siberian Jay, Lath. Gen. Synops. i. 390. 26.

Siberia (*Corvus sibiricus*).

Latham says nothing of the existence of a specimen of this species in the Museum Leverianum.

ICTERIDÆ.

181. *XANTHOSOMUS ICTEROCEPHALUS* (Linné). (30.)

Cayenne?

PLOCEIDÆ.

*182. *TEXTOR PANICIVORUS* (Linné)? (133.)

A bird with the designation *Loxia panicivora* was transferred to the duplicates in 1806.

*183. *ESTRELDA BELLA* (Lath.). (149.)

Black-lined Grosbeak, Lath. Gen. Synops. Suppl. ii. 198. 16.

Nitid Grosbeak, Lath. ibid. 198. 17. t. 131.

Loxia bella, Lath. Ind. Orn. ii. Suppl. xlvi. 8.

Loxia nitida, Lath. Ind. Orn. ii. Suppl. xlvii. 9.

Male?

*184. *ESTRELDA TEMPORALIS* (Lath.). (218, 19.)

Temporal Finch, Lath. Gen. Synops. Suppl. ii. 211. 15.

Fringilla temporalis, Lath. Ind. Orn. ii. Suppl. xlviii. 4.

Specimen 19 (*Fringilla temporalis*), from New Holland, was bought by Herr von Fichtel; the other (*218) was not retained in the collection.

*185. *AMADINA GUTTATA* (Shaw). (147.)

Spotted Grosbeak, Lewin, *Birds New Holl.* t. 9.

Loxia guttata, Shaw, *Mus. Lever.* vi. (1796) 47. pl.

? *White-headed Finch*, Lath. *Gen. Synops. Suppl.* ii. 210.
t. 132.

Fringilla leucocephala, var., Lath. *Ind. Orn.* ii. *Suppl.* xlvi.

l. var.

Shaw's plate is taken from a bird in the Leverian Museum ;
but our specimen does not seem to be the same.

TANAGRIDÆ.

186. *EUPHONA LICHTENSTEINII* (Cabanis). (23.)

? *Golden Tanager*, Lath. *Synops.* iii. 239. 35, partim (*Mus. Lever.*).

? *Tanagra violacea*, Linné; Lath. *Ind. Orn.* ii. 429. 33,
partim.

Female or young (*Tanagra violacea*) from Cayenne. The
bird in the collection does not agree with Latham's description
of the female, and is in such a state of preparation that I
believe that the old specimen has been replaced by some more
recently acquired bird.

COLIIDÆ.

*187. *COLIUS STRIATUS*, Gmel. (99.)

Specimen (*C. senegalensis*?) not mentioned by Latham.

RAMPHASTIDÆ.

188. *PTEROGLOSSUS VIRIDIS* (Linné). (3.)

Green Toucan, Lath. *Gen. Synops.* i. 131. 9 (*Brit. Mus., Lever. Mus.*).

Ramphastos viridis, Lath. *Ind. Orn.* i. 138. 9.

Female? (n. 1), from Cayenne.

PSITTACIDÆ.

*189. *PLATYCERCUS FLAVIVENTRIS* (Temm.). (214.)

Dalrymple Bay, Tasmania.

*190. *BROTOGERYS TUIPARA* (Gmel.). (124.)

Red-fronted Parrot, Lath. *Gen. Synops.* i. 308. 115 (no
specimen in the *Mus. Léver.*).

Golden-winged Parrakeet, Lath. *ibid.* 309. 116 (Mus. Lever.).

Latham's short description of the Golden-winged Parrakeet does not agree well with our specimen.

191. *BROTOGERYS VIRESCENS* (Gmel.). (3.)

Specimen from Cayenne? (*Psittacus virescens*); given to the Zoological Museum at Troppau, Silesia, May 1859.

Latham (Gen. Synops. i. 244. 43) indicates that this specimen was in the Mus. Lever.

192. *DOMICELLA TAITIANA* (Gmel.). (29.)

This bird is no longer in the collection. According to Latham this Parrot was contained in the Leverian Museum.

*193. *TRICHOGLOSSUS CONCINNUS* (Shaw). (309.)

Psittacus concinnus, Shaw, Nat. Misc. iii. (1789) t. 87.

Pacific Parrot, var., Phill. Voy. Bot. Bay, 155, pl.

Psittacus australis, Lath. Ind. Orn. i. 104. 66.

Crimson-fronted Parrot, Lath. Gen. Synops. Suppl. ii. (1802) 87; *idem*, Gen. Hist. ii. (1822) 181, cum varr. A, B, C.

Psittacus pacificus, Shaw, Gen. Zool. viii. 419.

Botany Bay.

*194. *TRICHOGLOSSUS DISCOLOR* (Shaw). (158.)

Psittacus discolor, Shaw in White's Voy. 263, t.; Lath. Ind. Orn. ii. Suppl. xxi. 6; Shaw, Gen. Zool. viii. 466.

Red-shouldered Parrakeet, Phill. Voy. Bot. Bay, 269; Lath. Gen. Synops. Suppl. ii. (1802) 90.

Our specimen differs somewhat in coloration from the plate in White's Voyage.

*195. *TRICHOGLOSSUS PUSILLUS* (Shaw). (153.)

Psittacus pusillus, Shaw, White's Journ. Voy. N. S. Wales, 1790, 262; Lath. Ind. Orn. i. (1790) 106. 71.

This bird does not agree well with the plate above quoted.

*196. *PONIAS MELANOCEPHALUS* (Linné). (125.)

This specimen is evidently that described by Latham (Gen. Synops. i. 305. 112) as differing a little from the author's description; in the black colour of the bill and the whitish ashy breast and belly this bird resembles Edwards's pl. 169.

- *197. CALYPTORHYNCHUS SOLANDRI (Temm.). (146a, 146b.)
Psittacus banksii, varr. β et γ ? Lath. Ind. Orn. i. 107. 76
 β , γ ?
Psittacus magnificus, Shaw, Mus. Lever. 1796. 17.
Banksian Cockatoo, var. A, Lath. Synops. Suppl. ii. (1802)
 63, et var. B.

Two males; it seems to me not probable that either of them was the original of Shaw's plate.

PICIDÆ.

- *198. CAMPIAS, sp. ? (228.)
 Cayenne (*Picus*, sp.; *P. passerinus*, juv.).
 199. CELEUS CINNAMOMEUS (Gmel.). (9.)
 Pl. Enl. 524, male.
Ferruginous Woodpecker, Lath. Gen. Synops. ii. 592. 42
 (Mus. Lever.).
Picus cinnamomeus, Gmel. Syst. i. 428; Lath. Ind. Orn. ii.
 240. 45.

Our specimen agrees very well with Latham's description of the female, and seems to be his type.

- *200. CELEUS MULTICOLOR (Gmel.). (91.)
 Male, from Cayenne?
 Latham, in his description of the Black-breasted Woodpecker (Gen. Synops. ii. 593. 43), does not mention a specimen in the Museum Leverianum; perhaps this specimen was a later acquisition.

201. MELANERPES FLAVIFRONS (Vieill.). (12.)
 This specimen is no longer in the collection.

CUCULIDÆ.

- *202. CUCULUS PALLIDUS (Lath.). (208, 209.)
Pale Pigeon, Lath. Gen. Synops. Suppl. ii. 270.
Columba pallida, Lath. Ind. Orn. ii. Suppl. ix. 5.
 Adult male from Botany Bay, and young bird from Dalrymple Bay.
 *203. CUCULUS FLABELLIFORMIS, Lath. (207.)
Fan-tailed Cuckoo, Lath. Gen. Synops. ii. 138. 11, t. 126.

Cuculus flabelliformis, Lath. Ind. Orn. ii. Suppl. xxx. 6.

From Dalrymple Bay, Tasmania; perhaps Latham's type.

I have not been able to compare the plate.

204. CUCULUS IMPERATUS, Gould.

Botany Bay (*Cuculus*, sp.).

COLUMBIDÆ.

205. LEPTOPTILA RUFAXILLA (Rich. et Bern.). (11.)

Brazil?

CRACIDÆ.

*206. ORTALIDA MOTMOT (Linné). (300.)

Cayenne (*Phasianus motmot*).

PHASIANIDÆ.

207. POLYPECTRON CHINQUIS (Temm.). (55.)

Pavo tibetanus, Briss. Orn. i. 294, t. xxviii. A, f. 2; Linné, Syst. i. 268; Gmel. Syst. i. 731; Lath. Ind. Orn. ii. 617. 4.

Chinquis, Buffon, Ois. ii. 385.

Iris Peacock, Lath. Gen. Synops. iv. 673. 3 (descr. nec synonym.).

Thibet Peacock, Lath. Gen. Synops. iv. 675. 4.

Pavo bicalcaratus, Lath. Ind. Orn. ii. 617. 3, partim; Shaw, Mus. Lever. (1792) 73, pl.

Pavo tibetanus, Lath. Ind. Orn. ii. 617. 4.

A male bought through Herr von Fichtel, is expressly said in the catalogue to be from the Museum Leverianum. It is certainly the specimen mentioned by Latham (*Iris Peacock*, Gen. Synops. iv. 657. 3) as contained in the Museum Leverianum (though the description there seems copied from Brisson), and the type of the description of the male of the so-called *Pavo bicalcaratus*, and of Shaw's description and plate.

“These birds (male and female) are indigenous to China, from whence they have been brought alive into England, and were for some time in the possession of Dr. James Monro. The male is now in the Museum Leverianum in the finest preservation.”—LATHAM.

208. LOPHOPHORUS IMPEYANUS (Lath.). (54.)

Impeyan Pheasant, Lath. Gen. Synops. Suppl. 208. 11, t. cxiv. (specimens of the male bird in the Leverian Museum).

Phasianus impeyanus, Lath. Ind. Orn. ii. 632. 11.

Phasianus curvirostris, Shaw, Mus. Lever. iii. 191, plate.

Male; no longer in the collection.

TETRAONIDÆ.

*209. TETRAO CUPIDO, Linné. (96.)

Male from Canada?; transferred to the duplicates.

*210. TETRAO, sp. (325.)

Grouse from North America; in bad state and therefore not retained in the collection.

211. COTURNIX CHINENSIS (Linné). (21, 227.)

Male and female.

STRUTHIONIDÆ.

212. DROMÆUS NOVÆ HOLLANDIÆ (Lath.). (50.)

Young bird.

TINAMIDÆ.

*213. TINAMUS VARIEGATUS (Gmel.). (97.)

Latham does not mention the presence of a specimen of this species in the Leverian Museum.

HÆMATOPIDÆ.

214. HÆMATOPUS UNICOLOR, Forst. (*H. fuliginosus*, Gould). (35.)

New Holland.

ARDEIDÆ.

*215. ARDEA NOVÆ HOLLANDIÆ, Lath. (321, 41.)

White-fronted Heron, Phill. Bot. Bay, 163, pl.; Lath. Gen. Synops. Suppl. ii. 304.

Ardea novæ hollandiæ, Lath. Ind. Orn. ii. 701. 88.

One specimen (321) may possibly be Latham's type; the other (41) was bought from Herr von Fichtel.

*216. *ARDEA SCAPULARIS*, Illig. (315, 316.)

Two specimens from Cayenne; one of which (315) was transferred to the duplicates in 1832. Latham (Gen. Synops. v. 68. 30) says that this species was represented in the Museum Leverianum.

217. *TIGRISOMA BRASILIENSE* (Linné).

Specimen from Cayenne, possibly that mentioned by Latham (Gen. Synops. v. 62, 25) as contained in the Muscum Leverianum. Transferred to the duplicates.

218. *NYCTICORAX VIOLACEUS* (L.). (39.)

Cayenne; not indicated by Latham as being in the Mus. Lever.

PLATALEIDÆ.

219. *PLATALEA AJAJA*, Linné. (8.)

Latham (Gen. Synops. v. 16. 2) mentions no specimen from the Mus. Lever.; his description and plate seem to be based on that of Brisson.

The bird is no longer in the collection.

TANTALIDÆ.

220. *IBIS RUBRA* (L.) (53.)

Latham (Gen. Synops. v. 106. 2) remarks that this species was in the British and in the Leverian Museums.

SCOLOPACIDÆ.

*221. *NUMENIUS PHÆOPUS*, Linné, var. *hudsonica*. (270.)

Hudsonian Curlew, Lath. Gen. Synops. Suppl. 243. 11.

Numenius hudsonicus, Lath. Ind. Orn. ii. 712. 7; Baird, Rep. 744; Schlegel, Mus. Pays-Bas, *Scolop.* 100.

Numenius phæopus, L.; Pelzeln, Zur Ornith. Brasil. 308.

Cayenne.

The differences between *N. phæopus* and *N. hudsonicus*, as exposed by Schlegel *l. c.*, seem to me not sufficient for specific separation, especially in a Wader of so wide a geographical distribution.

222. *RECURVIROSTRA RUBRICOLLIS*, Temm. (42.)

Avosetta, Damp. Voy. iii. 123, pl. f. 3 (Sharks' Bay, New Holland).

American Avoset, Lath. Gen. Synops. v. 295. 2, t. 92, partim (Mus. Lever.).

Perhaps the specimen n. 28 is that mentioned by Latham as being in the Leverian Collection.

RALLIDÆ.

*223. *RALLUS MACULATUS*, Bodd. (142.)

Cayenne?; the bird agrees very well with Pl. Enl. 775.

*224. *ARAMIDES CAYENNENSIS* (Gmel.). (313.)

Cayenne.

According to Latham this species was contained in the Museum Leverianum.

*225. *TRIBONYX MORTIERI*, Du Bus. (197.)

Dalrymple Bay, Tasmania.

PARRIDÆ.

*226. *HYDROPHASIANUS CHIRURGUS* (Scopoli). (262.)

Young or in winter plumage; from Bengal.

ANATIDÆ.

227. *NETTAPUS ALBIPENNIS*, Gould. (37.)

Female or young bird. In the inventory no habitat was given. In the collection it is indicated as "*India orientalis*," but probably only on account of the former descriptions of *Anas coromandeliana*.

Besides this specimen, we are in possession of a male and female of *N. albipennis* from New Holland, purchased (1846) from Herr Parreyss.

*228. *DENDROCYGNA AUTUMNALIS* (Linné). (314.)

Female, Cayenne; no longer in the collection.

According to Latham this species was represented in the Museum Leverianum.

229. AIX GALERICULATA (Linné). (52 a et 52 b.)

Male and female ; the male does not appear to be the original of Shaw's plate (Mus. Lever. 89).

230. ANAS SUPERCILIOSA, Gmel. (7.)

Supercilious Duck, Lath. Gen. Synops. vi. 497. 45 (from the drawings of Sir Joseph Banks ; New Zealand).

Anas superciliosa, Gmel. Syst. i. 537 ; Lath. Ind. Orn. ii. 852. 51.

Anas leucophrys, Forster, Drawings, n. 77 ; idem, Descr. An. 93 (New Zealand).

Specimen from New Holland ; no longer in the collection.

PROCELLARIIDÆ.

*231. DIOMEDEA EXULANS, Linné. (283.)

An adult white Albatros without label is probably the specimen of the inventory.

LARIDÆ.

*232. STERNA FULIGINOSA, Gmel. (213.)

A specimen in the collection agrees very well with Latham's description of the Sooty Tern (Gen. Synops. vi. 352) ; but it is not certain whether it is really the same as that from Dalrymple Bay, mentioned in the inventory.

*233. GYGIS CANDIDA (Sparrm.). (84, 85.)

Two specimens, on which Latham seems to have based the description of his White Tern (Gen. Synops. vi. 363. 17, et Suppl. 266).

Latham says it "inhabits Christmas Island and other parts of the South Seas, seen also off the island of St. Helena." It is probable that our birds are from the former island.

PLOTIDÆ.

*234. PLOTUS NOVÆ-HOLLANDIÆ, Gould. (293.)

Male, Botany Bay ; no longer in the collection.

PELECANIDÆ.

235. GRACULUS SULCIROSTRIS (Brandt). (38.)

Carbo sulcirostris, Brandt, Bullet. Acad. St. Pétersb. iii. 56 (habitat unknown).*Phalacrocorax sulcirostris*, Brandt; Gray, List Birds Brit. Mus. iii. (1844) 185 (habitat unknown); Gould, Birds Austral. vii. t. 67.*Haliæus sulcirostris*, Bonap. Consp. ii. 178.*Haliæus (Microcarbo) stictocephalus*, Bonap. Consp. ii. 178.*Graculus sulcirostris*, Schlegel, Mus. Pays-Bas, *Pelecani*, 1863, 13 (Australia?, Borneo, Amboina, Halmahera).*Phalacrocorax stictocephalus* (Bonap.), Gould, Hand-b. B. Austral. ii. 495.*Carbo squamatus*, Mus. Vindob. MS.

New Holland.

236. GRACULUS MELANOLEUCUS (Vieill.). (37, 6.)

A specimen from New Holland in our Museum is probably that mentioned in the inventory.

XIV.—*On a new Species of Barbet from Western India.*

By Capt. J. HAYES LLOYD.

By the kindness of Mr. R. B. Sharpe I have had an opportunity of inspecting the collection of Megalæmidæ in the British Museum; and I find, as I have long suspected, that the small green Barbet of Western India is distinct from the *Megalæma viridis* of Malabar and Southern India, being distinguishable by its greater size and more pronounced markings. In the Messrs. Marshall's monograph of the Capitonidæ, reference is made under *M. viridis* (the colour of the bill of which, by the way, is given correctly in the letterpress, but wrongly in the plate) to a bird obtained by Col. Sykes in the Deccan, the dimensions of which were too large for *M. viridis* and too small for *M. caniceps*. To any one possessing local knowledge the locality quoted must sound vague; but I have little doubt that Col. Sykes's bird was the species of

which I am now writing, and that it was obtained in the Mawuls, a tract of hilly country dividing the Deccan from the Western Ghauts, I therefore propose to distinguish the small green Barbet of Western India as

MEGALÆMA SYKESI, sp. nov.

Description.—Very similar to *M. viridis*, but the brown of the head and nape paler, with a coppery gloss, the feathers of the head pale-edged, those of the nape with pale central streaks; throat whitish; breast and sides of neck whitish, each feather broadly margined laterally with dark brown; wing-coverts unspotted. Bill horny brown.

Dimensions.—Length 9 inches, wing 4·3, tail 3.

This species is abundant in most of the mountainous wooded tracts of Western India. I have obtained it in the Peint and Soorungun districts, which border the Khandesh Dangs, all along the Western Ghauts, and on the summit of Matheran and other detached hills in the Konkan, everywhere to the exclusion of *M. viridis*, which seems to bear the same relationship to *M. sykesi* that *M. zeylanica* does to *M. caniceps*.

How far south *M. sykesi* extends I am unable to say.

11 The Grove, Highgate.

January 24, 1873.

XV.—Note on the *Pyrranga roseogularis* of Cabot.

By P. L. SCLATER, M.A., Ph.D., F.R.S.

(Plate III.)

IN 1847 Dr. Samuel Cabot, of Boston, published in the "Boston Journal of Natural History"* a description of a new species of Tanager, of the genus *Pyrranga*, which he had procured in Yucatan, "on the road from Chemax to Yalahao, on the 5th of April, 1842," and proposed to call *P. roseogularis*.

In 1856 (as already mentioned, P. Z. S. 1857, p. 6) I had the pleasure of examining this unique specimen at Boston,

* Boston Journ. of Nat. Hist. v. p. 416 (1847).

through the kindness of Dr. Cabot, and came to the conclusion that it belonged to a species distinct from any then known to me. Time has rolled on, and our acquaintance with Central American ornithology has greatly increased; indeed it may be almost said that there is now hardly any portion of the tropics of which the bird-life is better known to us; yet I believe no further information has yet reached us concerning the *Pyrranga roseogularis*. I have therefore great pleasure in reproducing a figure of this *rara avis*, taken from the typical specimen by Mr. Ridgway. The original coloured drawing was sent to Mr. Salvin by Prof. Baird, with a suggestion that it would be desirable to publish it. Prof. Baird states that the drawing is perhaps a little stiff, but that the details are rigidly correct.

Mr. Ridgway adds to his drawing a full description of the typical specimen, which I think it desirable to give *in extenso*.

C. PYRRANGA ROSEIGULARIS.

Sp. Char.—Prevailing colour brownish ashy, darker on the dorsal region, where it has a faint reddish cast, and paler on the lower parts. Lores, eyelids, cheeks, and breast with a dingy yellow tinge; ashy beneath, deepest across the jugulum and along the sides, palish on the abdomen. Whole pileum (from bill to nape, and down to the upper edge of the lores and auriculars), wings, upper tail-coverts, and tail, dusky purplish red, in marked contrast with the ashy tints. Whole throat dilute vermilion or rose-pink; lining of wing and crissum a paler shade of the same; tibia tinged with pinkish. Wing 3·05, tail 2·75, bill from nostril ·45, its depth ·40, breadth ·35, tarsus ·80.

I trust that this notice will result in some further information being obtained concerning this interesting bird. It is singular that Dr. Arthur Schott during his scientific mission to Yucatan does not seem to have come across it*.

* See Report on his Bird-collections by Mr. Lawrence, Ann. Lyc. N. Y. ix. p. 198 *et seq.*

XVI.—*On a new Chinese Owl of the Genus Ketupa.*

By R. SWINHOE, H.M. Consul at Ningpo.

ON the 12th of November, while seated at breakfast, a countryman walked into the room with a pair of huge dead Owls, and put them on the floor before me. They wore the rich buff colour and had the general appearance of the Eagle Owl; and I took them for that species, until my eye caught the bare feet, and I saw that they were of the genus *Ketupa*. I think this grand species well worthy of the name *magnifica*.

KETUPA MAGNIFICA, n. sp.

Bill deep bluish black, lighter at the base, which is concealed by protruding feathers. Inside of mouth pale yellowish flesh-colour. Rim of eyelid deep purplish brown; iris fine orange-yellow. Exposed portion of tarse and toes dingy, with a tinge of clay-colour, yellowish on terminal scutes of toes; claws bluish black, fading to light leaden at their bases.

General plumage rufous buff, and black. Feathers at the base of upper mandible of the bill between the eyes pure white, ending in black *vibrissæ*; facial disk rufous, ending in the same way; a semicircle at the back of ear of small white feathers; feathers of the crown black, with broad buff margins narrowing to the tips, with occasional spots of the same on the black; ear-tufts formed of unequal feathers, longest $3\frac{1}{4}$ inches. Dorsals black, with broad basal buff margins, and a few spots of buff (sometimes of white), increasing in size and frequency on the scapulars. Rump brownish buff, with large spots of black and buff. Tail black, with six (including the broader apical) rufous bands. On the scapulars and wing-coverts the spots and edgings begin to turn into bands, which on the quills are more regular and broader, though disconnected by the intervention of the stems of the feathers, and not evenly transverse, and the portions on the inner webs often browner in hue. Axillaries buff, with a few long drops of black. Chin white leading downwards to a large white roundish patch which occupies nearly the whole breast; a wash of buff with dark streaks divides the chin from the breast-spot, the feathers of the last being

streaked centrally with long black drops bordered with buff. The rest of lower parts rufous buff, each feather with a long central drop of black, pointed at base and thickening towards tip, the feathers on the belly having their buff sides banded with a paler hue of their colour, which does not extend across their central black. Crissum with narrower *striae*. Downy covering of tarse buff, whitish at back and low down near toes.

The female looks rather larger than its male, and is perhaps an inch longer; but I find no appreciable difference in the other measurements. The male has more white behind the ears, and a larger white breast-patch; and its tarse is plumed for a greater length; but the fine down with which it is clothed seems to wear off.

Measurements of the female :—Length 25 inches; wing very much arched, across arc 16·75, pressed flat 17½; in rounded state 3 inches short of tail-tip; 3rd to 6th primaries equal and longest; 1st 3·4 shorter than the longest; 2nd 1·2 shorter than the same. Tail rounded, of twelve softish hog-backed feathers, 9½ long; outer ·75 shorter than centrals. Tarse 3·3 long, feathered with down for 2 inches in front, a little lower behind, and ¼ inch less on sides. Middle toe 1·8, its claw 1·1; outer toe 1·5, its claw 1·05; inner toe 1·7, its claw 1·35; hind toe 1·2, its claw 1·1.

The male has the tarse feathered in front to within ·75 inch of where it meets the toes, at the back to ·25.

Dissection.—Thighs and belly and lower part of sternum with thick layers of white fat. Intestines and stomach also imbedded in fat. Lobes of liver small and thick. Stomach of female heart-shaped, empty; epithelium thick and rugose, and slimed with a dark olive-green juice. Intestines long, thick, and white; cæca about 1·50 from rectum, about 3 inches long, of uniform thickness throughout, and about half that of intestine; cloaca globular. A large oblong cluster of eggs.

Stomach of male crammed with bones and other remains of fishes, the largest about 4 inches long. Proventriculus 1½ inch long, ·75 thick at the chest. Testes ·25 long, oval, and orange-

yellow. Tongue about .8 long, shaped like a broad arrow, rounded and split at tip, its back horny, as also edge of front half, which is thin and turned up; central surface velvety and thick; back angles edged and dotted with horny papillæ. Sternum of female rather longer than that of male, shaped much like that of the Harfang or Snowy Owl (Cuv. An. King. Lond. 1849, p. 175).

This species is more nearly related to *Ketupa flavipes* (Hodgs.) than to the other two known species, both in the markings of its upper plumage, and in the plumed state of its shanks; but it differs from all in its bill and claws being black instead of yellowish. The pair were procured on a branch of this river, about fifty miles distant to the south-west, where the country is mountainous, with dark woody ravines, and bush-covered rocks jut out into the water. Freshwater crabs and small fish abound; and I presume it is after these they wade with their naked feet and partially exposed legs. But the winter is at hand, and the cold has driven the crabs into hibernation; it is, then, on fish that they now chiefly subsist, as the maw of the male proves. But how can they procure them? Their rough and aculeate soles will hold fish well enough, when they have got them between their claws; but I do not think so clumsy a foot could catch a darting minnow. The head must be immersed for such a purpose, and during his search for food the bird must get very wet. Our winter evenings are foggy and raw, and Owls' feathers are difficult to dry. Perhaps he contents himself with other food when crabs are in bed for the winter, and the time is not propitious for fishing!

Ningpo, November 28th, 1872.

XVII.—*Ornithological Notes from the Argentine Republic.*

By WILLIAM BLACKSTONE LEE, B.A.

FROM February till July 1871 I was staying at an "estancia" on the frontier of the Indian territory, about eleven leagues from Frayle Muerto and four or five from the small camp-village of Saladillo. On landing at Buenos Ayres I found it

would be very inconvenient to get to my destination in Entre Rios on account of the civil war then going on, and in the Hotel de la Paix I met two gentlemen who told me they were going up country to their "estancia" near Frayle Muerto, and most kindly asked me to accompany them. The journey is not very interesting; the river from Buenos Ayres to Rosario is generally clothed on both sides with a jungle of long grass and thick scrubby trees, the home of quantities of large Storks and Herons and wildfowl of several kinds. Now and then a carpincho appeared on the banks or in the water; but this was the only beast to be seen; and altogether the journey is certainly monotonous. From Rosario the railway runs to Cordova; and Frayle Muerto is about halfway. The country is of course perfectly flat; and the only things to be seen in the way of wild animals are a few deer and Ostriches. On the banks of the river at Frayle Muerto there is some rather pretty wood; but this disappears directly you leave the banks, and out towards my friends' "estancia" the only trees are occasional small patches of scrubby brushwood scattered often at distances of several leagues from each other over the endless flat plains. These scrubby trees are chiefly algarroba and quebracho, the former being the best firewood I ever saw; but so little wood is there that all our firewood had to be brought from Frayle Muerto, about thirty-five miles distance. A river runs just below the "estancia;" but there is no wood along its banks, only a strip of long grass on each side, some two or three hundred yards wide, in which the pumas take refuge after supping on the sheep of the "estancia." Occasionally, but much more rarely, a jaguar made his appearance. One was killed the Sunday before I got there, and one two or three years before. They were said to be plentiful some twenty or thirty leagues further along the river. We used to ride out with as many dogs as we could collect, and beat along the banks for these animals; but I never saw a jaguar, and only shot one puma. Deer and Ostriches were plentiful, but shy. During the greater part of my stay here the river was almost dry; but we had a little rain at last; and then there were plenty of Ducks and Blue-winged Teals, and not unfrequently Geese and Swans—

the former white, with black tips to the wings—the latter white, with black necks. A small reddish Grebe was also common. All over the camp the “small Partridge” was very abundant; and in the long grass by the river there were always some “big Partridge.” These two birds are the only ones in the country that remind one of game, and are not bad shooting, but very dry and tasteless. The larger bird is about the size of a hen Pheasant, and rises very like one; the small is in size about halfway between a Partridge and a Quail*. Over the grass by the river there were always Harriers (*Circus cinereus*) beating along with Eagles and Chimangos. These latter and the Caranchos were of course always to be seen wherever there was a carcass. On the whole the variety of birds here was small, as one would expect from the utter absence of wood. Besides Geese, Swans, Ducks, and Partridges, I shot the following birds, which have been identified for me by Messrs. Sclater and Salvin from the skins which I brought home:—

1. GERANOÆTUS MELANOLEUCUS.

A bird which I thought might be the female of this species came and sat on the chimney one night, where I shot it. It was just the same size, and the cere and legs the same colour, but the plumage dark brown, with barred markings. The natives, however, assured me that they had seen both parent birds at a nest in the same blue plumage; so perhaps this was a young bird.

2. CIRCUS CINEREUS.

Very common, a most graceful bird; the brilliant yellow of the eyes and legs is very striking.

+ 3. HYPOTRIORCHIS FEMORALIS.

Not uncommon.

4. TINNUNCULUS SPARVERIUS.

Very common.

5. PHOLEOPTYNX CUNICULARIA.

To be seen everywhere on the plains.

* [No doubt Tinamous—the larger *Rhynchotis rufescens*, the smaller *Nothura maculosa*.—ED.]

6. STURNELLA DEFILIPPII.

Not so common, and generally in larger flocks.

7. PSEUDOLEISTES VIRESCENS.

Common in small flocks.

Besides these I observed a bird something like a Golden Plover in shape and size, but with plumage more like a Sandpiper, called by the natives "Chorlito." Two kinds of Dove:—one like a very small Turtle Dove, roosting in the scrubby bush; the other a blue Pigeon with small white spots, about the size of a Dovecote Pigeon, which only appeared now and then, in flocks. I also noticed a Woodpecker (*Colaptes agricola*) at a small wood about six miles from Frayle Muerto, and another (*Chrysophilus cristatus*) close to Frayle Muerto—at the former place also the Scissor-bird, Widow bird, and a little bird smaller than a Robin, with a most brilliant red head and breast, called by the natives "Sangre pura." I forgot to mention among the river-birds a roseate-coloured Spoonbill, and a long-legged black-and-white Plover.

From July 1871 to February 1872 I was in the province of Entre Rios, on the banks of the Gato, about seven or eight leagues north-west of Gualeguaychu. The river here has a belt of wood on each side; and there are also considerable clumps of trees scattered here and there over the campo. The surface of the ground is much more undulating; and this, with the much greater extent of woods, makes the country more interesting than the country about Cordova. Deer are very scarce, and Ostriches not very common; Carpinchos very plentiful along the river; there are no pumas or jaguars. One of these latter, however, was lassoed during my stay, at the time of a flood, about ten or twelve leagues off. The floods come down very suddenly; and any beast that has taken up his quarters in the thick wood, which in the turns of the river is often almost impenetrable, is often forced out by the water into the open plains.

In the woods on the banks of the Gato I shot specimens of

the following species, which have been likewise identified by Mr. Sclater and Mr. Salvin.

1. PROGNE CHALYBEA.

This Swallow is very common.

2. CYANOCORAX PILEATUS.

This bird is common in the woods ; and one generally knows its whereabouts by its noise. It is not easy to procure good specimens, as the feathers are fine and loose, and the bright yellow breast and belly show the smallest stain of blood.

3. TYRANNUS MELANCHOLICUS.

Common. The species, however, most frequently met with is a larger bird with a brown back, yellow breast, and a black stripe through the eye, about as large as a Thrush ; it may generally be seen near water, sitting on an overhanging bough and uttering at intervals a loud shrill cry.

4. DRYMORNIS BRIDGESI*.

This species is very common. It is said by the natives to suck the eggs of poultry ; but I rather doubt this statement.

+ 5. CERYLE TORQUATA.

This Kingfisher is not very often met with. Its loud note *kek-kek-kek* is sure to catch the ear if one happens to fly past, so that it is not likely to escape observation ; but I have not seen many specimens.

6. CERYLE AMERICANA.

I do not think this species is rare ; but at the same time I saw very few specimens, not more than three or four.

+ 7. CERYLE AMAZONA.

This species is very common.

8. CAMPEPHILUS BOLÆI (Wagl.).

This species is comparatively rare. It taps on the trees

* [*Nasica bridgesi*, Eyton, Contr. Orn. 1849, p. 130, pl. 38: *Drymornis bridgesi*, Eyt. l. c. 1852, p. 23 = *Nasica gracilirostris*, Burm. La Plata-Reise, ii. p. 446. Of this bird we have also received skins from Mendoza (Weiss-haupt). These are marked as being *Dendrocolaptes brunneiceps* of the Mus. of Santiago.—P. L. S. & O. S.]

much louder than any other Woodpecker, and can be heard a long way off. I found on dissection that it is the female which has the head entirely red.

9. *CHRYSOPTILUS CRISTATUS*.

One of the commonest birds to be met with in the woods near Gualeguayehu.

10. *PICUS CACTORUM*.

This is a very pretty and a very common little bird. It and *C. cristatus* are more numerous than *C. agricola*; but all three species are frequently to be met with, while *C. boiæi* is always scarce. The "capitan" (head man) of one of my friends, on being shown *C. boiæi*, recognized the bird at once as having been seen by him on one occasion only, a year or two previously, when he was struck by the black body and brilliant red crest; but he has never again met with it.

11. *COLAPTES AGRICOLA*.

This Woodpecker is quite common, and is generally seen in open ground. It is often found hopping about over the grass in little parties of three or four.

12. *HYDROPSALIS TORQUATA*.

This bird may often be seen in the woods on summer evenings; but it is difficult to procure a good specimen, as one must get near to distinguish the species, and then the shot often spoil the beautiful tail-feathers.

13. *NYCTIDROMUS ALBICOLLIS*.

14. *PODAGER NACUNDA*.

Neither of these is uncommon; and they may be found in much the same localities as *Hydropsalis torquata*. There is a larger kind of Night-jar which sometimes gets up in flocks off the camp when one is riding in the daytime; it has a large white patch on the wings.

15. *BOLBORHYNCHUS MONACHUS*.

One of the commonest birds in the country. I noticed three kinds of Parrots during my stay, viz. this species, a smaller variety, of a brighter green colour, and a rather larger bird, with an orange and red patch on the breast. The

latter I often met with in the province of Cordova, but am not aware of having seen it in Entre Rios.

+ 16. *ROSTRAMUS SOCIABILIS*.

So far as I know, I only procured one specimen of this species. It flew overhead by itself as we were lying on the grass. The species appeared to be unknown to every one who saw it; but this evidence is not worth much, as hardly any one in the country took any interest in natural history. I believe, however, from my own observation, that this and *Geranospiza cærulescens* are very rare.

The *Geranospiza* is such a remarkable-looking bird that even a native would have noticed it.

17. *ACCIPITER ERYTHROCNEMIS*.

One specimen of this bird was shot by my companion. I am not aware of having seen any others, but think it would be a very likely bird to escape observation.

+ 18. *GERANOSPIZA CÆRULESCENS*.

Of this bird I never saw but one specimen, which I shot; and on showing it to one or two natives, they said they had never seen one like it; nor had my friend, who had been in the habit of shooting for several years in the country. The crop was full of bits of the unfledged young of some bird; and as there were nests of Parrots and Caranechos near, I have no doubt they supplied the victims. The slate-coloured plumage, orange-red legs, bright yellow eyes, and long brightly coloured tail make this a very handsome bird.

19. *TINNUNCULUS SPARVERIUS*.

This is another most beautiful little Falcon, and one of the commonest birds in the country.

+ 20. *HYPOTRIORCHIS FEMORALIS*.

A beautiful and most graceful Falcon, reminding one strongly both of the Peregrine and the Hobby, especially the latter, though its wings are not quite so long as those of the Hobby. This bird is not uncommon, and is oftener seen at some distance from the woods than any other Hawk I have mentioned.

21. *ASTURINA PUCHERANI**.

In a walk through the woods one was tolerably sure to see two or three specimens of this bird. It has a very heavy flapping flight, and may be recognized by this peculiarity, and by the very rounded shape of its wings. It is nearly always to be seen perched on the very top of a tree, its blackish head contrasting very distinctly with its light-coloured breast. The very pale amber-colour of the eyes is unlike that of any other Hawk that I know. I once found a small snake in the crop, and on another occasion some whitish stuff which stank most abominably.

†22. *BUTEO PTEROCLES*.

This species appears in immense flocks, remaining for a few days, and then disappearing entirely for weeks. I have seen the sky quite full of these birds; and on one occasion, having shot several, I found their crops full of grasshoppers.

†23. *URUBITINGA MERIDIONALIS*.

This bird is not at all rare. It is readily known by the red plumage and the great breadth of the wings.

24. *GERANOÆTUS MELANOLEUCUS*.

This bird is very common wherever I have been in the Argentine Republic and in the Banda Oriental. It may nearly always be seen soaring over the campo. It will feed on any dead carcass; and I have also found its crop full of grasshoppers. Why it should be called a "Sea-Eagle" I cannot imagine.

! 25. *HARPYHALIAÆTUS CORONATUS*.

There were generally one or two of these about the country; but I seldom saw more of them together. The first I saw killed had been feeding on some dead sheep, and was shot by a friend of mine. It was a female bird and very savage. We had to get a heavy log, and, having knocked the bird over backwards, put the log across her breast and pressed it down on each end. Her strength of grip was very great. The wounded bird showed great courage, with crest erect, striking at every thing near her.

* *Sci. et Salv. Ex. Orn.* p. 177, pl. lxxxix.

26. BUBO VIRGINIANUS.

This large bird is not uncommon. I shot two specimens and saw one or two others; and it was well known.

27. OTUS BRACHYOTUS.

I only got one specimen of the Short-eared Owl, and am not aware of having seen any others; but I do not fancy that it is rare.

+ 28. SCOPS BRASILIANUS.

I shot one of this species, and saw no others; but it is of course an unlikely bird to be met with, not only from its being an Owl, but from its small size.

29. PHOLEOPTYNX CUNICULARIA.

This bird may be seen all over the campo. It seems always to frequent the biscacho holes in the Argentine Republic.

30. ARDEA SIBILATRIX.

This species is decidedly scarce. I only had a chance of getting two specimens, male and female, both of which I was fortunate enough to secure.

+ 31. BUTORIDES CYANURUS.

I only procured one or two specimens of this bird, and believe it to be scarce.

32. PARRA JACANA.

I shot this bird on a large swampy laguna some four leagues from where I was living, and it may be common in such places; but I never met with it on the lagunas near home, which were much smaller.

+ 33. ERISMATURA DOMINICA.

I got one specimen of this bird, and am not aware of having seen any others. The long stiff tail-feathers seemed to me peculiar. It is a very expert diver; and I watched it in a deep part of the river diving and remaining under water a long time on each occasion.

The above notes only apply to the banks of the Gato, seven or eight leagues from Gualeguaychú; and such birds as *Ardea sibilatrix* or *Butorides cyanurus* may very likely be commoner

along the larger rivers, the Gato being a good deal smaller than the river one crosses to get from it to the town.

In addition to the three Woodpeckers I have mentioned, I also saw on two occasions another species, apparently rather smaller than *Chrysoptilus cristatus*, but marked with large patches of black and white. I also noticed very large Storks with white breasts and black wings, a bluish grey Heron, a bird the natives call Jacá, about the size of a Turkey, with two sharp spurs on each wing; and occasionally I think I saw in Cordova a small black Vulture, which I afterwards saw often in the Banda Oriental, and which the natives call "Cuervo." Of course Caranchos, Chimangos, and Teroterros or Spur-winged Plover swarmed everywhere. The egg of the latter is very like that of the Pewit.

Snipes I don't think I ever saw in Cordova; but I shot two or three in Entre Rios, and my companion said he once had a decent morning's shooting at them. The Widow bird and little "Sangre Pura" were very common about the Gato, and of course a great variety of other small birds; but I only attempted to collect the Hawks, Owls, Woodpeckers, and Kingfishers; and I think I must have got nearly all there were to be found in that part.

XVIII.—*Descriptions of six new Species of West-African Birds.* By Captain G. E. SHELLEY.

1. SCOPS ICTERORHYNCHUS, sp. nov.

Above tawny-brown, finely pencilled with dark brown; a few of the feathers of the forehead are nearly white, with black shafts; those of the crown are palest towards their centres, especially the ones forming the ear-tufts; and all are triangularly barred with narrow wavy streaks of dark brown; the feathers of the face above the eyes are buff, their ends narrowly edged with dark brown; those in front of the eyes have a rather more rufous tinge; and those on the cheeks and ear-coverts are similar in colour to the crown, but of a looser texture; the frill of feathers round the face, towards the chin, is buff, with black ends fading into brown at their extremities.

The feathers of the back are partially barred with arrow-headed spots narrowly edged with dark brown. Tail tawny-brown, partially barred towards the centre of the feathers with a shade of paler brown, these bars imperfectly edged with black. Wings similar in colour to the back; a few feathers on the shoulders (smaller scapulars) have their outer webs buffy white, with two or three distinct black bars; and one or two of the middle scapulars are similarly marked; the primaries have on their outer webs five or six broad creamy white bars, most perfect on the outer primaries; the inner web of the primaries and both webs of the secondaries are barred with blackish brown, the intermediate tawny bars fading into white towards the basal portion of the inner webs, more especially of the secondaries. The lesser coverts are similar to the back, but a shade darker; the primary coverts are barred with brownish black and buffy white, and a few of the larger coverts have a broad white bar on their outer webs. The throat and under surface of the body are brownish buff, the feathers similarly marked to those of the back, with the white and dark brown more distinct on the chest. Tarsi buff narrowly barred with brown; claws yellow, shaded with black towards their tips. Beak yellow.

Entire length 7·5, culmen 1·00; wing, carpus to tip, 5·25; tail 3·20, tarsus 0·85.

Hab. Fantee: collected by Governor Ussher.

2. *DRYODROMAS NIGRICEPS*, sp. nov.

Entire upper part of the head, lores, cheeks, and ear-coverts black, washed with slaty grey. Back and lesser wing-coverts yellow; upper tail-coverts slaty grey. Wings black, with a narrow grey edging to a portion of the greater primaries; outer web of the scapulars and secondaries edged with yellow. Tail slaty black with obsolete bars, and all the feathers broadly tipped with white, which colour runs some way down the exterior web of the outer one. Chin, throat, and underparts white, washed with yellow on the sides of the breast and flanks. Beak black; tarsi and feet brownish flesh-colour. Irides hazel.

Entire length 3·4, culmen 0·45 ; wing, carpus to tip, 1·80 ; tail 1·55, tarsus 0·65.

Hab. Abouri in Aguapim.

The description is taken from a single specimen, which I shot on the 22nd of February 1872, in the thick foliage of a large tree ; it was active in its habits, which resemble those of the Willow Warbler.

3. BRADYORNIS MODESTA, sp. nov.

Entire upper parts uniform hair-brown. Wings and tail brown, with narrow pale edgings to the feathers ; inner web of the quills partially edged with rufous buff. A patch in front of the eyes nearly white ; sides of the head and neck pale hair-brown. Underparts white shaded with hair-brown on the breast ; flanks, thighs, and under tail-coverts shaded with more rufous brown ; under wing-coverts and edges of the interior web of the quills rufous buff. Beak brown, paler towards the base of the lower mandible ; tarsi and feet brown ; irides brown.

Entire length 6·2, culmen 0·55 ; wing, carpus to tip, 3·3 ; tail 3, tarsus 0·85.

Hab. Abokobi.

The description is taken from a single specimen shot by myself on the 26th of February 1872, in a clearing in the middle of thick underwood, where it was perched on a bare twig, like a common Flycatcher.

4. HYPHANTORNIS SUPERCILIOSUS, sp. nov.

a. Breeding-plumage.—Centre of the forehead and crown black, the feathers towards the nape being edged with olive-yellow ; a broad yellow eyebrow commences at the nostril, where it is shaded with umber-brown and extends behind the ear-coverts ; cheeks, portion of the ear-coverts, chin, and upper part of the throat black. Nape and back yellowish olive, with brown centres to the feathers, shading into hair-brown on the rump and upper tail-coverts. Wings and tail brown, the feathers narrowly edged with brownish buff. Under surface of the body golden-yellow, with a deeper shade towards the throat, and shading into brownish buff on the

abdomen, thighs, and under tail-coverts; outside of the thighs shaded with darker brown; under wing-coverts brownish buff. Beak black, shaded with horn-colour on the mandible; tarsi, feet, and claws pale brown.

Entire length 4·9, culmen 0·6; wing, carpus to tip 2·5; tail 1·8, tarsus 0·75.

b. Winter plumage.—Centre of the forehead and crown black shading into brown on the nape; a broad brownish buff eyebrow commencing at the nostril, where it is shaded with rufous; feathers in front of the eye, upper part of the ear-coverts, and a few feathers on the chin black. Back and upper tail-coverts brown, with pale edges to the feathers. Wings and tail dark brown, feathers narrowly edged with brownish buff. Underparts brownish buff, fading almost into white on the centre of the abdomen and shaded with rufous on the throat, sides of the head, flanks, and thighs; a few of the feathers tinged with yellow, showing the coming breeding-plumage; under wing-coverts rufous-buff. Beak horn-colour; lower mandible shaded with buff, and with a large buff patch towards the gape. Tarsi, feet, and claws flesh-brown.

Specimen *a* is probably in nearly full breeding-plumage, the brownish buff of the thighs and under tail-coverts being possibly the remains of the winter dress. This specimen is in Mr. R. B. Sharpe's collection, and was given him by Mr. W. Wilson Saunders. *b* comes from Accra, where it was shot in the beginning of March 1872, and is now in my own collection.

5. LAGONOSTICTA POLIONOTA, sp. nov.

Very nearly allied to *L. rubricata* of South Africa.

Centre of the forehead, crown, and nape slate-colour faintly tinged with ruby-red; sides of the forehead and head ruby-red, the basal portion of the ear-coverts slaty grey. Back and wings slaty brown; upper tail-coverts bright ruby-red; tail black, the basal half of the outer webs of the feathers washed with ruby-red. Chin, throat, and underparts ruby-red, with the centre of the abdomen, thighs, and under tail-coverts black washed with slate-grey towards the chest; a few

white specks on the sides of the chest. Beak slaty grey; tarsi, feet, and claws slaty brown, irides dark brown.

Entire length 3·70, culmen 0·45; wing, carpus to tip, 2·00; tail 1·50, tarsus 0·50.

An immature specimen has the nape, back, and wings washed with yellowish brown, no white specks on the sides of the chest; lower parts of the chest and abdomen yellowish-brown sparingly mottled with ruby-red.

The descriptions are taken from three specimens collected by myself at Cape-Coast Castle on the 6th of March.

This species is nearly as abundant as *L. rufopicta*, which it resembles in its habits, being met with in small flocks at the edge of thick brushwood, and often feeding on the paths, especially the wider ones, or in the clearings.

6. CALANDRELLA BUCKLEYI, sp. nov.

Forehead, crown, and back of the neck rufous brown, each feather with a central stripe of brownish black; back and scapulars dark brown, with paler edges to the feathers; rump nearly uniform brown, shading into rufous on the upper tail-coverts, the two centre ones of which are elongated and have a brownish black stripe down their centres. The tail has the two centre feathers rufous, with a nearly black stripe down their centres, of varying thickness; outer feather and outer web of the next one rufous buff, the former having the inner web partially edged with brownish black; remainder of the tail brownish black. Wings brown, the feathers edged with buff; most of the wing-coverts shading into brownish black towards their extremities, which have a partial bar of rufous with a broad buffy white edging. Sides of the head mottled with dark brown, border of the ear-coverts uniform buff. Underparts buff, palest on the chin, throat, and centre of the abdomen, and shaded with yellowish rufous on the front of the chest, flanks, and tail-coverts; the feathers on the front of the chest have a more or less perfect brown spot at their ends. Beak brownish flesh-colour, shading into dark brown towards the culmen and end of the lower mandible; tarsi, feet, and claws flesh-colour; irides brown.

Entire length 5.00, culmen 0.50; wing, carpus to tip, 2.80; tail 2.00, tarsus 0.85, hind toe 0.25.

Hab. Accra.

The description is taken from three specimens shot close to Accra by Mr. T. E. Buckley and myself. In this part of the country it is by no means uncommon. We always met with it singly or in pairs on the sandy plain, which is much interspersed with bushes; it was never observed to mount in the air, but flew rather in a Pipit-like manner for a short distance when disturbed. A fourth specimen, in Mr. Sharpe's collection, was killed at Accra in May.

XIX.—*Notes on the Ornithology of Sardinia.*

By A. B. BROOKE, F.Z.S.

HAVING paid four visits to the Island of Sardinia, during which I devoted much attention to its ornithology, I am in hopes the following remarks, based almost entirely upon personal observation, may prove of some interest. My visits, which extended over the greater part of the months March, April, May, June, November, and December, of the years 1869, 1871, and 1872, were exclusively confined to the south-west corner of Sardinia, which contains an area of about one sixth of the whole island, and is isolated from the remaining portion by the large flat plain which runs in a north-westerly direction from Cagliari to Oristano, a distance of nearly seventy miles. This plain, which has an average breadth of from seven to ten miles, remaining, as it does, in a great degree uncultivated, owing to its excessive unhealthiness, forms a marked feature in the physical geography of the island, with which are connected, as can be easily imagined, many zoological facts of considerable interest. In the uncultivated parts it is covered with a dense undergrowth, four or five feet in height, composed principally of cistus, myrtle, privet, heather, and lentiscus. In this sea of cover are found the haunts of very many of the smaller Warblers, the harsh grating call-notes of *Melizophilus sardus*, *Curruca melanocephala*, and *Sylvia conspicillata* becoming in early summer mornings, if

possible, tedious from their incessant repetition. It is also here that *Otis tetrax*, the only Bustard as yet discovered in Sardinia, finds a congenial home, its unrelaxing watchfulness and wildness rendering it a task of some difficulty to secure specimens in such a stronghold. In winter the plain is the favourite hunting-ground of many of the Raptores,—hares, rabbits, Partridges, and the dead or sickly individuals of large flocks of sheep and goats (which are fed there during that season) affording them constant food. To the north and south of the plain the mountains rise gradually, those on the north forming the high chain of the Geimargentu, those on the south the less elevated range of Monte Limas. The scenery of the latter range is wild and picturesque to an extreme, possessing a character peculiar to itself. The lower slopes of the mountains are covered with forests of ilex, and cork trees of vast age and growth. These decrease in size as a higher elevation is attained, becoming dwarfed and stunted into mere pigmy shrubs, which frequently present the most eccentric shapes, their irregular arms being covered with long pendent moss. In some instances the summits of the mountains, which reach 4000 feet, are overgrown with forest continuous with that which clothes the valleys and slopes; but more generally they are bare, rounded in form, and covered with grass and herbs, which possess a considerable aromatic fragrance. The valley of Monte Marno intersects the Monte Limas range, dividing it into two very nearly equal parts. Immediately to the north of this valley the mountains are broken up into thousands of jagged pinnacles, varying in height from 100 to 500, or perhaps 1000 feet, which jut up bare and naked from the rich forests surrounding their bases. These form the last refuge of the Mouflon in this range; and I trust that for some years to come the species may, amongst these in many places impracticable fastnesses, defy extinction. In the lower forests are found very diminutive races of the Wild Boar and Red Deer, the same law which I shall have occasion to allude to as affecting the avifauna of the island having apparently laid its mark upon the larger mammalia with still clearer impress.

Round Cagliari and Oristano lie numerous large brackish lagoons, of which Scaffa and Quarto, at Cagliari, and S. Giusto, at Oristano, are the most important. These, in winter, are the haunts of large flocks of Flamingos and innumerable Ducks and Waders of different species. My time, however, was, I regret to say, too short to do justice to either of these most interesting localities. At Cagliari there is a good local museum containing a very fair collection of the birds of the island. It is, however, nearly useless, being in miserable disorder, and only open for a few hours twice a week; and although I several times asked permission to remain a little longer, or to have the cases opened, I was never allowed to do so.

In order to make these notes as easy of reference and as perfect as possible, I have in a large measure adopted the nomenclature of Professor Blasius in his 'List of the Birds of Europe,' and have, where my own experience fails me, borrowed information from Count Salvadori's excellent list of the birds of Sardinia, published in vol. vi. "degli Atti della Società Italiana di Scienze Naturali," in 1864, and also from Signor Gaetano Cara's older work, 'Ornithologia Sarda,' published in 1842—the only other treatise connected with the subject with which I am acquainted being Cetti's ancient work published at Sassari in 1766.

My best thanks are due to Mr. R. B. Sharpe for the kind trouble he has taken in advising me with respect to many points which I have submitted to his consideration, and also to Signor Gaetano Cara, of Cagliari, for the courteous kindness shown to me by him during my stay there.

1. GYPS FULVUS.

This Vulture is by no means uncommon, is resident, and breeds in the island. Their appearance, however, in some localities is uncertain, many days passing without one being seen. In Sardinia they are far from bold, but are extremely shy and suspicious; and I have frequently seen them refuse to be attracted by the most tempting pieces of meat, after having soared round once or twice, and failed to satisfy them-

selves of the perfect safety of the locality. The greatest number I ever recollect having seen together was on one occasion near Oristano, when I counted about eighty soaring over a dead carcass. For a long time previously I had been watching them floating in from all quarters, at a great height, with marvellous rapidity. Both this and the following species seem to have a habit of resorting, night after night, to the same place to roost. One of these roosting-spots I visited. It was on the top of a bare tolerably isolated hill, between 3000 and 4000 feet in height. The highest point was composed of a cluster of precipitous rocks, with a few old stunted ilices growing along their face. Both in the rocks and trees there were evident signs of large numbers of Vultures resorting to this place to roost; and the goatherd who accompanied me told me he had frequently seen as many as thirty or forty fly out whilst passing with his goats early in the morning. On that occasion I remained till after dark, but only one bird came; this, no doubt, was on account of my visit being during the breeding-season, when the old birds were busy attending on their young, and the cock bird was probably roosting in the vicinity of the nest.

2. VULTUR MONACHUS.

This species is, I think, the commonest Vulture in Sardinia, one or more of these magnificent birds being constantly in sight, floating round at various heights, often looking like a mere dot against the sky. A nest I found, as late as the 1st of June, was built high up in the mountains, on the very top of an old stunted ilix, forming a large shallow platform, about 5 feet long by 4 broad. It was roughly composed of dried sticks of considerable size, and lined with a little goat's-hair; most of the latter, however, was probably the remnants of the food brought to feed their young. Numerous leg-bones &c. lying about testified to the ample manner in which this had been effected. There was only one young bird in the nest, covered with a very dark brown down; the primaries and tail-feathers, just beginning to show, were nearly quite black; its legs, which were very large in proportion to its body, were a

dirty white faintly tinged with pale lemon-colour. There were two or three other nests close by, from which the young birds had flown, suggesting the idea that this species is in the habit of nesting in small parties. The nests can be easily seen from a long distance by ascending the mountains, as on looking down over the forests they appear like large flat platforms, always being placed on the very summits of the trees. The rapidity with which these birds can devour the remains of a dead sheep or bullock is extraordinary. On one occasion I had placed the skinned carcass of a moderate-sized sheep in an open vineyard surrounded by thick cover, in hopes of attracting some birds of prey. I had sat by it for several hours without any thing having perceived it, and, getting tired of waiting, moved away 200 or 300 yards. I had scarcely done so when a common Kite (*Milvus ictinus*), flying by, caught sight of the meat, and, after soaring round once or twice, lit; he was hardly down when a Cinereous Vulture appeared at a great height, rapidly descending in circles, which became smaller and smaller as he neared the ground; he was followed in quick succession by two Ravens, another Kite, another Cinereous Vulture, and an Eagle (*Aquila bonellii*, I think), which latter, however, did not light, but kept soaring round and round. In the mean time I stalked to the spot as quickly as possible, and managed to kill a Vulture, and then, to my surprise, on looking at the sheep, found literally nothing left but the clean-picked ribs, backbone, and head. I feel quite sure that I am over the mark when I say six or seven minutes was the outside limit of the time the Vultures were on the ground, and one bird not more than half that time. The one I shot was a fine old female, weighing $16\frac{1}{4}$ lbs.; the weight of a male I afterwards shot was only 15 lbs.; the length of the female in the flesh was 41 inches, from carpal joint to end of wing 30 inches. Vultures do not appear to begin to hunt very early in the morning, but wait until the sun is well up; and few are to be seen during the extreme heat of the day, which seems to show that they rest at that time. Their power of going without food must be very great, as it is improbable that a comparatively small island like Sardinia supplies enough

dead carcasses to give each bird a meal every day. These birds hunt over an enormous extent of country; the pace with which they soar through the air, when going from one point to another, can only be realized from the inconceivable rapidity with which they pass out of sight on a clear day when flying at great heights.

3. GYPAETUS BARBATUS.

This noble bird is decidedly common, a pair being in possession of every separate range of hills, which they appear to regard as their own territory, and from which they are seldom to be found far distant. They are generally seen single or in pairs; but now and then I have observed three, and on one occasion four, together. As a rule they are most decidedly mountain-birds; but occasionally a single bird may be seen hunting over the plains and cultivated lands, not flying more than 100 yards high. The nest of one found on the 18th of April, was built on a broad ledge of a precipitous cliff about 300 feet high, within 20 feet of the top, and was completely sheltered from the severity of the weather by a large overhanging piece of rock. After some trouble I discovered a way by which, with a little care, I managed to get on to the ledge, much to the discomfort of the solitary inmate, a young nestling, covered as yet with a pale yellowish brown down (figured in 'Birds of Europe,' Sharpe and Dresser, part 15). The nest itself was an accumulation of dried sticks with a cup-shaped hollow in the middle, and had evidently been used for years. In it, and on the surrounding ledge, were great quantities of the leg-bones and feet of goats &c., and a part of a fox's lower jaw; these being in all stages of putrefaction, the smell was abominable. The old female, on my first visit to the nest, sat extremely close, and, although I was standing over her within 7 or 8 yards, would not leave her young until I fired a shot, upon which she dashed off, dropping almost perpendicularly, and was out of range before I could fire. She flew over the valley and lit on a high projecting rocky pinnacle, upon which I could see her through the telescope, sitting quietly watching all my proceedings.

She returned to the nest shortly afterwards, on my having retired to a little distance. Wishing to secure a specimen, I managed to obtain a difficult but unsuccessful shot as she repeated the same manœuvre. The male bird was in sight when I first found the nest, but disappeared almost immediately, and did not return.

4. *AQUILA CHRYSÆTUS*

is the commonest Eagle in the island. A nest found on the 21st of April was built on a grassy ledge of a small precipice, and contained two eggs. One was addled; but the other was just beginning to chip; so I took it home and had it hatched under a hen; but unfortunately the young bird died in less than a week, from having been overfed during my absence. The weight of the old female, which I shot, was 11 lb. 9 oz.; her crop was full of mutton in a high state of decomposition.

5. *AQUILA BONELLII*.

Common. I have seen these birds repeatedly hunting over the plain and round the "stagnos" of Oristano. They are also abundant in the mountains.

6. *HALIAETUS ALBICILLA*.

I never met with this bird myself; but it is mentioned in both Cara's and Salvadori's catalogues, the latter having seen one near Cagliari. I found what I took to be a nest of this species on the island of Vacca, off the S.W. corner of Sardinia; it was very large, and built on the point of a precipice immediately overhanging the sea. This was on the 5th of May; and the young birds had flown.

7. *PANDION HALIAETUS*

is stated not to be uncommon along the sea-shore. I saw none during the winter. The nest above mentioned might have belonged to this species.

8. *CIRCAETUS GALLICUS*.

These birds seem to be rare on the island, only visiting it during their migration; and I cannot find any mention of their having been discovered breeding. I saw one on the 8th of

April near Villacidro, flapping slowly and heavily over the ground, not more than 100 yards off; and afterwards I saw two more in the vicinity of St. Antioco, but never met with it elsewhere. This Eagle is generally one of the first summer migrants to appear at Genoa; and some years they pass over this place in very considerable numbers, arriving as early as the end of March.

9. *BUTEO LAGOPUS.*

There is one specimen of this bird, stuffed, in the museum at Cagliari, which Cara mentions as having been killed near Iglesias in the winter of 1834.

10. *BUTEO VULGARIS.*

Very common, breeding in the large forests. I was greatly struck with the small size of all the Sardinian Buzzards I saw, both alive and dead, compared with continental ones. The measurements of a male taken in the flesh, killed on the 8th of March, were as follows:—Length 18·5, wing 13·7, tarsus 3·3, culmen 1·1. Their chief food in Sardinia consists of lizards, beetles, &c., occasionally varied with young rabbits. Once I remember seeing one of these birds hovering for a considerable time, head to wind, like a common Kestrel.

11. *MILVUS ICTINUS.*

Very common. A pair in the habit of regularly hunting round Villacidro were the terror of all the old fowl-women in the town, and, in spite of every precaution, frequently proved too quick for them, and carried off chickens from before their very door.

12. *MILVUS MIGRANS.*

There is one specimen, stuffed, in the museum at Cagliari, which I was assured positively by Signor Cara had been killed in the island. I myself, however, neither procured nor saw this bird in a state of nature.

13. *FALCO PEREGRINUS.*

Very common, breeding in the inland cliffs and along the sea-coast, in both of which localities I have seen their nests. These birds struck me as being very much smaller than continental ones.

Since writing the above, my friend, Mr. R. B. Sharpe, has communicated to me his opinion that the specimens procured by me in Sardinia are distinct from the Peregrine Falcon of continental Europe, and has done me the honour to name the species after me (Ann. & Mag. Nat. Hist. January 1873, p. 21).

14. FALCO SAKER.

There is an immature Falcon in the museum at Cagliari, which Salvadori, in a note at the end of his list, refers to this species. It was killed on the banks of the "stagno" of St. Gilla in February 1842; and Cara mentions having received two other specimens. I was not able to satisfy myself with respect to this bird, owing to the careful manner (before mentioned) in which all the cases in the museum were kept locked, and the specimens stowed one behind the other in inextricable confusion.

15. FALCO BARBARUS.

I shot a pair of these Falcons on the island of Vacca, on the 5th of May 1871. They were immature birds, male and female, and had a peculiar worn and faded look, caused, I think, by bad health, as on opening them I found a number of some species of entozoon in their stomachs, which I see was also the case with two Barbary Falcons shot by Mr. Salvin in the Atlas Mountains (Ibis, 1859, p. 184). At the time I took them for a pair of young unhealthy Peregrines, but afterwards, being puzzled by them, showed them, amongst others, to Messrs. J. H. Gurney, Gould, &c., who agreed in considering them the true *F. barbarus*.

The measurements of my birds do not agree entirely with those given by Mr. Salvin, the female being $15\frac{1}{2}$ inches in length, and the male 15, whereas his birds measured respectively $13\frac{1}{2}$ and 13 inches. In length of wings they agree with Mr. Salvin's bird, the Sardinian specimens thus appearing *much shorter-winged birds* in proportion to their length*.

* [The difference is more apparent than real, the total lengths in our specimens having been taken from the skins.—ED.]

16. FALCO ELEONORÆ.

“Toro” and “Vacca,” two barren uninhabited twin rocks, rising precipitously out of the sea, off the S.W. corner of Sardinia, form perhaps the principal headquarters of these beautiful Falcons in the Mediterranean. Vacca (which I visited) lies eight miles from the Sardinian coast, and two miles south of the small thinly inhabited island of “St. Antioco.” Its length is about a quarter of a mile, its breadth not quite so much. “Toro” is, I believe, rather the larger island of the two, and is situated seven or eight miles further south. Owing to the extreme difficulty of landing, except in the calmest weather, these islands are seldom visited, and then only by fishermen, who occasionally land to dry their nets.

The precipitous cliffs of “Vacca,” especially those on the east side of the rock, are the favourite haunts of the Eleonora Falcon; and here they pass the entire year and breed. It was early in May when I explored these cliffs; and although this Falcon is not supposed to breed until much later in the year, yet I feel almost certain that they were nesting at the time of my visit. If this be not so, I do not know how to account for the large number of birds (about twenty or twenty-five pairs) that I found continually on the rock during the day-time persistently returning and flying into the same holes, and that after having been fired at, *and wounded*, as was the case with several individuals. The manner also in which they flew in circles, screaming over my head, exhibited a similar annoyance to that displayed by Peregrines when their nest is disturbed. I also fancied several times that I heard the young birds squealing in their nests. I tried unsuccessfully to make this certain by reaching the breeding-holes, but found that it was absolutely impossible without the ropes and tackle necessary for such an undertaking. On the top of the cliffs I found numerous chosen places where the Falcons picked their prey previously to carrying it to their young. The remnants consisted solely of the remains of *Insessores*, which must have been obtained on the opposite shores of Sardinia, as the only species observed by me on Vacca was the common Wheatear (*S. œnanthe*), of which I

saw a solitary pair. The stomachs of all the Eleonora Falcons examined by me (four in number) also contained the remains of small birds. Two old males that I obtained were in their beautiful adult dark slaty-blue plumage. A third, a young male, probably of the previous year, differed from adult females in the much darker colour of its breast, and also in the colour of its feet, which were of a decided orange-yellow, instead of the pale yellow faintly tinged with green characteristic of the old female bird. The wings of the four specimens, as they lay before me in the flesh, reached almost exactly level with the end of their tails, not extending beyond.

17. *FALCO SUBBUTEO*.

I only once saw this bird, in April, hawking high in the air for flies &c. over a nearly dried-up river-course. I think it is merely a bird of passage.

18. *FALCO VESPERTINUS*.

Passes annually in spring.

19. *FALCO ÆSALON*.

A winter visitor, during which season it is not uncommon.

20. *FALCO CENCHRIS*.

I found a pair of these birds breeding in the high rocks behind Villacidro in company with great numbers of the common Kestrel during the month of May. They are not common, and this is the only occasion on which I observed them. They are very easily distinguished from *F. tinnunculus* by their cry, which is quite different, being much shorter, consisting of only three notes. In the stomach of a male I found the remains of a lizard and several grasshoppers.

Canon Tristram informs me he observed a few pairs breeding on the south-east coast in 1856.

21. *FALCO TINNUNCULUS*.

Extremely common all the year round. Their principal food during the summer is locusts; and I have watched them flying into their nests, eight and ten at a time, each bird holding a locust in its claws. The amount of good they must do in thus helping to lessen one of the greatest curses of the island

is incalculable. They are also very fond of lizards; and the crop of one which I killed in March was crammed with their remains, both large and small.

22. *ASTUR PALUMBARIUS.*

Very common. One day, when stalking Moufflon, I came suddenly upon an old female in a wild rocky gorge, engaged picking a Woodpigeon she had just killed; instead of leaving it, as I expected, she gave one look of defiance over her shoulder, seized it in her claws, and dashed off down the mountain, gliding and steering her way through the thick forest in the most marvellous manner. Another, a young male, which I shot, was on the point of taking a three-quarter-grown rabbit. This bird had the remains of a Short-toed Lark (*Calandrellabrachydactyla*) in his stomach. Two males weighed respectively 1 lb. 6 oz. and 1 lb. 4 oz. I mention these apparently insignificant details, as I believe that all facts tending to show that *permanent* differentiation of form that has been effected by isolation consequent upon an island life (even though that differentiation consists in many instances in a large change as to size accompanied by but slight changes of coloration) may lead, if carefully recorded and followed out, to fresh light being thrown upon some questions of the highest zoological interest.

23. *ACCIPITER NISUS.*

Not very common, and I have only observed them during the winter.

24. *CIRCUS ÆRUGINOSUS.*

Very common about the plain; and round the neighbourhood of Oristano these Harriers swarm. A nest I found in the end of April was built in the middle of a reedy marshy lake, placed halfway up the stems of the reeds, just clear of the water; the bottom was formed of rough coarse sticks, and the interior of dried matted rushes, in some cases with their roots attached, the egg lying carelessly in the middle. Out of all the numbers that passed under my notice, I never observed any, excepting in the dark brown plumage with the

yellow head, a few showing buff markings, more or less, on the scapulars &c.

25. *CIRCUS CYANEUS*.

During the winter Hen-Harriers are tolerably common about the plains and "stagnos;" but I never remember seeing them in the summer, and I think few, if any, remain at that season.

26. *CIRCUS CINERACEUS*.

There are two specimens in the museum at Cagliari, an adult and an immature bird.

27. *CARINE NOCTUA*.

Common all the year round. The Little Owl seems to inhabit mountains and plain alike, on the former frequenting the rocks, on the latter the old stunted ilex, cork trees, &c.

28. *SCOPS GIU*.

A few remain all the year round; but their numbers are considerably increased during the summer. I have seen specimens killed near Oristano early in March. They are very common in the oak forests in the mountains; and their monotonous cry is to be heard on a still night from all quarters. A pair took up their abode in the old deserted bishop's palace at Villacidro, and used to issue forth every evening at dusk, from which time their note could be heard uninterruptedly all the night through.

29. *ASIO OTUS*.

Not common. There are two specimens in the museum at Cagliari.

† 30. *ASIO ACCIPITRINUS*.

There are several specimens in the museum. Salvadori found them not uncommon in January in the salt-works near Cagliari.

31. *ALUCO FLAMMEUS*.

Common all the year round.

[To be continued.]

XX.—*On the Genus Platystira and its Allies.* By R. BOWDLER SHARPE, F.L.S., F.Z.S., &c., Senior Assistant, Zoological Department, British Museum.

(Plate IV.)

By all students of African ornithology the genus *Platystira* is admitted to be full of perplexities; and any attempt at a monographic revision of it must be a step in the right direction. I have taken some pains to examine large series of these birds, contained principally in the national and my own collections; and by rejecting all statements which seem to be at all open to doubt, I trust that I shall be able to place the genus on a satisfactory footing, and so assist future research. Any record rejected by me as untrustworthy at the present time will easily be reinstated afterwards, if found to be correct; or, on the other hand, my verdict will be confirmed by subsequent observation.

The late Mr. G. R. Gray, in his 'Hand-list' (vol. i. p. 329), admitted thirteen species which he considered to belong to *Platystira*, placing them under the subgenera *Platystira*, *Batis*, *Diaphorophya*, *Myiophila*, *Lanioturds*, and *Stenostira*. I have never seen the type of *Myiophila*; but it can scarcely be separable from *Diaphorophya*, and is, I suspect, the same as *D. blissetti*. The last two species placed by Mr. Gray in *Platystira*, viz. no. 4951, *P. plumbea*, and no. 4952, *P. semipartita*, I can hardly allow within the limits of the genera now to be considered. No. 4951 is a *Parisoma*; and no. 4952 is not a *Stenostira*, but may be referable to *Cassinia*, where Dr. von Heuglin places it. The consideration of these two genera I must leave for a general paper on the African *Muscicapidæ*.

Key to the Genera.

- a. Wing less than double the length of tail.
 - a'. Eye surrounded by an erect wattle 1. *Platystira*.
 - b'. No eye-wattle.
 - a''. Wing short, falling short of the tail by more than the length of the culmen; beak flattened 2. *Batis*.
 - b''. Wing very long, reaching to the tip of the tail, or not falling short of it by the

- length of the culmen; beak rather compressed 3. *Lanioturdus*.
 b. Wing more than double the length of tail 4. *Diaphorophya*.
 c. Tail equal to wing 5. *Stenostira*.

Genus 1. PLATYSTIRA.

Platysteira (lege *Platystira*), Jard. & Selby, Ill. Orn. ii. Addenda (c. 1830): type *P. cyanea*.

Key to the Species.

- a. Vertical line of white down the wing.
 a'. Forehead black, like the crown 1. *cyanea*.
 b'. Forehead white 2. *albifrons*.
 b. No white at all on wing 3. *peltata*.

1. PLATYSTIRA CYANEA.

Gobe-mouche à collier du Sénégal, Briss. Orn. ii. p. 370, pl. xxxvi. fig. 1, ♀ (1770).

Gobe-mouche à gorge rousse du Sénégal, Buff. Pl. Enl. v. pl. 567. fig. 3, ♀ (1778).

Muscicapa cyanea, P. L. S. Müller, Syst. Nat. Suppl. p. 170 (1766); Cassin, Proc. Phil. Acad. 1864, p. 256.

Collared Flycatcher, Lath. Gen. Syn. ii. pt. 1, p. 330, ♀ (1783).

Muscicapa melanoptera, Gm. Syst. Nat. i. p. 939 (1788).

Platyrhynchus collaris, Hahn u. Küst. Vög. aus Asien, &c. Lief. xx. Taf. 1 (1822); Bonn. et Vieill. Enc. Méth. ii. p. 836, ♀ (1823); Jard. & Selby, Ill. Orn. i. pl. ix. fig. 1, ♂ (1830).

Platyrhynchus melanoleucus, Bonn. et Vieill. Enc. Méth. ii. p. 835, ♂ (1823).

Platyrhynchus desmaresti, Jard. & Selb. Ill. Orn. i. pl. ix. fig. 2, ♀ (c. 1830).

Platysteira collaris et *desmaresti*, Jard. & Selby, Ill. Orn. ii. Addenda (c. 1830).

Platystera lobata, Swains. B. of W. Afr. ii. p. 49 (1837); id. Monogr. Flyc. p. 187, pl. xxii. ♀ (1837); Jard. Contr. Orn. 1849, p. 8.

Platystira melanoptera, Hartl. Orn. W. Afr. pp. 93, 272 (1857); Cass. Pr. Philad. Acad. 1859, p. 50; Hartl. J. f. O.

1861, p. 169; Finsch, J. f. O. 1869, p. 335; Sharpe, Ibis, 1869, p. 189; id. P. Z. S. 1870, p. 567; Shelley & Buckley, Ibis, 1872, p. 287.

Platysteira cyanea, Gray, Hand-l. of. B. i. p. 329; Sharpe, Cat. Afr. B. p. 44 (1871); id. P. Z. S. 1871, p. 610.

Adult male. Upper surface deep glossy blue-black, with a very slight greenish shade, inclining to grey on the rump, where the feathers are long and fluffy; the nape indistinctly mottled with whitish, only seen on disarranging the feathers; wing-coverts glossy black like the back, the median ones white, forming a distinct bar across the wing; quills greyish black, the primaries outwardly margined with a narrow whitish line, broader and more conspicuous on the outer secondaries, whence it is continuous with the alar bar described above, the inner secondaries glossed with dark green, one or two of the longer ones just tipped with whitish; upper tail-coverts and tail-feathers glossed with dark rifle-green above, blackish below, all the feathers tipped with white, becoming broader on the outer rectrices, and forming a conspicuous lateral border on the outermost ones; sides of the face like the upper surface of the body; cheeks and entire under surface of the body pure white, with a conspicuous band of blue-black across the breast, the flank-feathers long and silky; tibial plumes black, tipped with white; under wing-coverts as well as the bases of the primaries white, the small outer coverts glossy blue-black, with a little spot of white below the carpal bend of the wing; bill black; feet (in skin) blackish; wattle over the eye semicircular in form and bright scarlet in life. Total length 4·8 inches, culmen 0·7, wing 2·5, tail 2·0, tarsus 0·75.

Adult female. Above dusky cinereous, with a slight gloss of greenish, the rump lighter; quills and tail as in the male, the white edgings very broad and conspicuous; chin white; throat and breast deep maroon, bordered below with a narrow band of glossy black; rest of the under surface white; under wing-coverts white, and the wing-lining a little lighter than in the male; eye-wattle a little paler than in the male.

Young male. Resembles the old female in the colour of the upper parts and in having more or less maroon on the throat.

As this gradually disappears the black pectoral band makes its appearance; thus specimens are met with in every change of plumage, as regards the amount of rufous on the throat. Immature birds, however, may always be told by the fulvous edgings to the wings and wing-coverts; the underparts are dusky white, the flanks conspicuously greyish.

One specimen now before me seems to indicate that the very young birds of this species must have a mottled plumage, as the upper surface has remains of rusty cross-barrings, while the under surface is entirely whitish, with tinges of rufous on the upper breast.

Hab. West Africa, from Senegambia to Gaboon.

This is one of the commonest and best-known species of the genus; but it was some time before the sexes were properly understood. It is also one of the oldest known; for it is described and figured by Brisson, and again by Buffon. The latter, I suspect, has made up and coloured his figure from the old plate and figure of Brisson; for it is to be noticed that they *both* omit the white chin, which is rather conspicuous in the female.

Specimens examined.

Mus. Brit.—*a, b, c.* West Africa, purchased. *d.* West Africa (*Sir Andrew Smith*). *e.* Fantee (*J. Gould*).

Mus. R. B. S.—*a-g.* River Gambia, purchased. *h.* River Gambia (*E. L. Layard*). *i.* Sierra Leone (*L. Fraser*). *j.* Accra (*Sintenis*; cf. *Finsch, l. c.*). *k, l.* Fantee (*Aubinn*). *m, n.* Sweet River, Gold Coast, Dec. 30, 1870, and Connor's Hill, Cape Coast, Nov. 12, 1870 (*H. T. Ussher*). *o.* Yancoomassie, Gold Coast, Dec. 1871 (*H. F. Blissett*). *p, q.* Cape Coast and Elmina, May 1872 (*H. F. Blissett*). *r, s.* Cameroons (*A. Crossley*, cf. *Sharpe, l. c.*).

2. *PLATYSTIRA ALBIFRONS*, sp. n.

Platysteira melanoptera, Sharpe, P. Z. S. 1869, p. 566 (nec Gm.).

Similar to *P. cyanea*, but a little more glossy blue-black, and distinguished by its white forehead. Total length 4·8 inches, culmen 0·6, wing 2·35, tail 2·0, tarsus 0·75.

Hab. Angola.

Specimens examined.

Mus. J. J. Monteiro.—*a.* Angola (*J. J. M.*). *b.* River Loge, Angola (*J. J. M.*; cf. Sharpe, *l. c.*).

3. *PLATYSTIRA PELTATA.*

Platystira peltata, Sundev. Öfv. Vet. Akad. Förh. 1850, p. 105; Layard, B. S. Afr. p. 142; Gray, Hand-l. of B. i. p. 329 (1869).

Adult male. Above rifle-green, the lower back and rump rather more greyish; wing-coverts rifle-green like the back; quills blackish, primaries margined with grey, the secondaries with rifle-green; tail black, glossed with greenish above, just tipped with white; sides of face and pectoral band rifle-green; rest of under surface white, the flanks shaded with greyish; axillary tuft rifle-green; under wing-coverts white, the edge of the wing rifle-green; eye-wattle scarlet; bill black; feet brown; iris yellow. Total length 4·9 inches, culmen 0·6, wing 2·55, tail 2·2, tarsus 0·8.

Adult female. Similar to the male, but more grey on the back; the entire throat and upper breast dark rifle-green, the chin and a spot on the fore part of the cheeks white.

Hab. Lower Caffraria (*Wahlberg*); Zambesi (*Kirk*).

This is a very distinct species of *Platystira*, taking the place of *P. cyanea* in South-eastern Africa. The male approaches somewhat to that of *P. cyanea*, but may always be distinguished by the absence of white on the wing; the female, however, differs at a glance in having the throat and upper breast rifle-green instead of chestnut.

Specimens examined.

Mus. Brit.—*a, b, ♂ ♀.* Zambesi (*Dr. Kirk*).

Genus 2. *BATIS.*

Batis, Boie, Isis, 1833, p. 880: type *B. capensis*.

Key to the Species.

Males:—

- a.* Flanks rufous 1. *capensis*.
b. Flanks white mixed with black.
a'. With a white nuchal spot.

ear-coverts, and extending down on each side of the neck so as to form a border to the grey head; the rest of the back olive-brown, the rump irregularly mottled with white, which shows more conspicuously on the disarrangement of the feathers; upper tail-coverts glossy greenish black, with a white tip; least wing-coverts olive-brown like the back, the greater ones darker, the medium and the inner greater coverts bright orange-rufous; quills dark brown, the inner secondaries tipped with white, the outer secondaries broadly edged with orange-rufous, continuous with the coverts, which are similarly coloured; tail black, with a very slight greenish gloss, the feathers more or less broadly tipped with white, the outer feathers margined externally with a broad white line; entire throat and sides of neck pure white; fore part of chest black, forming a very broad pectoral band, slightly tinged on the sides with olive-brown, some of the lower feathers slightly margined with white; centre of belly and under tail-coverts white; sides of body bright orange-rufous; tibial plumes blackish; under wing-coverts white, the outermost small coverts brown; bill and feet black; iris yellow. Total length 3.9 inches, culmen 0.5, wing 2.2, tail 1.65, tarsus 0.65.

Adult female. Forehead and eyebrow whitish, but otherwise very similar to the male on the upper parts. Underneath white, with a patch of orange-rufous occupying nearly the whole of the throat; upper part of breast and sides of body rich orange-rufous; deepening into rust-colour on the pectoral band.

Young female. Entirely olive-brown above, and having the rufous on the under surface much paler. In one specimen in my collection the bird is assuming the grey head, and the pectoral band is becoming deep rusty as in the adult.

Hab. Cape Colony and Natal.

Both sexes of this species are easily recognizable by their rufous flanks.

Specimens examined.

Mus. Brit.—*a, b.* Cape of Good Hope. *c.* Cape Colony (*S. Afr. Mus.*). *d.* Cape Colony (*Rev. H. J. Philipps*). *e.* Cape Colony (*Reginald Warren*). *f.* Natal (*T. Ayres*).

Mus. R. B. S.—*a, b*, ♂ ♀. S. Africa (*E. L. Layard*). *c, d*, ♂, ♀. Knysna, Dec. 19, 1865, and Jan. 31st, 1866 (*C. J. Andersson*). *f*, ♂. Swellendam (*Cairncross*). *g*, ♀. Grahams Town (*E. L. Layard*). *h, i*, ♂ ♀. Grahams Town, Jan. 1870 (*T. C. Atmore*).

2. *BATIS SENEGALENSIS.*

Le Gobe-mouche à poitrine rousse du Sénégal, Briss. Orn. ii. p. 374, pl. xxxvii. fig. 2 (1760); Buff. Pl. Enl. v. pl. 567. fig. 1 (1788) = ♀.

Le Gobe-mouche à poitrine noire du Sénégal, Briss. Orn. ii. p. 375, pl. xxxviii. fig. 3 (1760); Buff. Pl. Enl. v. pl. 567. fig. 2 (1788) = ♂.

Muscicapa senegalensis, Linn. S. N. i. p. 327 (1766, ex Briss. ♂, ♀).

Le Gobe-mouche à bandeau blanc du Sénégal, Buff. Hist. Nat. Ois. p. 528, ♂ ♀ (1788).

Senegal Flycatcher, cum var. A., Lath. Gen. Syn. ii. pt. 1, pp. 328, 329 (1783).

Platyrhynchos velatus, Bonn. et Vieill. Enc. Méth. ii. p. 835 (1823).

Muscylvia senegalensis, Less. Compl. Buff. viii. p. 386 (1837).

Platystira succincta, Licht. Nomencl. p. 20 (1854).

Platystira senegalensis, Hartl. Orn. W. Afr. p. 93 (1857); Gray, Hand-l. i. p. 329 (1869); Heugl. Orn. N. O. Afr. i. p. 447 (1870); Finsch & Hartl. Vög. Ostaf. p. 317 (1870); Sharpe, Ibis, 1870, p. 480; id. Cat. Afr. B. p. 43 (1871).

Adult male. Crown of the head and nape dusky greyish black; forehead and eyebrow white, produced backwards so as to form a border to the crown, and joining on the nape, forming a conspicuous white nuchal spot; lores and sides of the face, including the eye and the ear-coverts, glossy black, extending down each side of the neck to the limits of the white nuchal patch; back greyish, with the slightest tinge of ashy brown on the interscapular region, the white bases to the scapulars and rump showing through and producing a slightly mottled appearance; upper tail-coverts glossy black; wing-coverts black, the median and inner greater ones broadly tipped

with white, so as to form a conspicuous alar bar; quills brown, the secondaries darker and more inclining to blackish, the outer ones bordered with white, forming a narrow white line continuous with the alar bar above mentioned; tail-feathers black, obsoletely tipped with white, the two outermost feathers broadly bordered and tipped with white; under surface of body white, with a broad pectoral band of glossy blue-black feathers, the flanks also mottled with black; under wing-coverts black, the lower ones and the inner lining of the quills white; bill and feet black. Total length 3·8 inches, culmen 0·5, wing 2·2, tail 1·6, tarsus 0·65.

Adult female. Differs from the male chiefly in having the pectoral band deep chestnut instead of black; a slight tinge of rusty colour is also apparent below the nuchal spot.

Young. Immature birds generally have the wing-coverts tinged with rusty. Young males at first resemble the old female, and afterwards gradually assume the black band on the breast. A specimen from Casamanze in my collection resembles the adult male except in having the back clear brownish grey, with a decided fulvous tinge on the interscapular region. Another bird, still younger, in the museum is olive-brown above, darker on the head, where it is beginning to get black; all the black parts of the plumage are much tinged with brown, and the white markings obscured by a wash of pale rusty fulvous; the outer tail-feather is obliquely white towards the tip.

Hab. W. Africa, Senegambia to the Gold Coast; N. E. Africa, Sennaar (*Mus. Brit.*).

Buffon, in the 'Planches Enluménées,' seems to have borrowed his figures from those of Brisson, and to have copied that of the female so badly as to render it almost unrecognizable.

My list of synonyms is very meagre compared with the long array usually credited to this species; but I believe that they are at least trustworthy. The so recent recognition of two species in North-eastern Africa precludes me from drawing up a proper account of their geographical range in that part of the continent; but my impression is, that the true *B. senegalensis* is a more southern bird; for I have seen many

specimens from Bogos Land, all referable to *B. orientalis*, while the British Museum contains a pair from Sennaar, purchased of Herr Parreyss. These are the true *B. senegalensis*; and it is probable that the bird obtained by Captain Speke in the Somali country (cf. Ibis, 1860, p. 247) was also of this species. On the west coast it ranges from Senegambia to the eastern parts of the Gold Coast.

Specimens examined.

Mus. Brit.—*a*. River Gambia (*Rendall*). *b, c*. W. Africa (*L. Fraser*). *d, e*. Sennaar.

Mus. R. B. S.—*a*, ♂. Casamanze (*Verreaux*). *b*. Accra (*J. Smith, e don. G. E. Shelley*). *c*, ♂. River Volta (*H. T. Ussher*).

Mus. G. E. Shelley.—*a*, ♀ *imm.* Abouri (*G. E. S.*).

3. *BATIS ORIENTALIS.*

Platystira pririt, Blanf. Geol. & Zool. Abyss. p. 345 (1870); Finsch, Tr. Z. S. vii. p. 247 (1870).

Platystira affinis, Finsch, Tr. Z. S. vii. p. 315 (1870).

Platystira orientalis, Heugl. Orn. N. O. Afr. i. p. 449 (1870).

Adult male. Crown of the head and back grey, more or less clear, but not blackish; a broad white eyebrow extending backwards till it joins the nape, forming a nuchal spot; sides of face from base of bill inclosing the eye and the ear-coverts black, extending on each side of the nuchal spot; back grey, the outer scapulars black, with concealed white bases, the rump also slightly mottled with white, where the bases to the feathers show through; upper tail-coverts glossy black; wing-coverts black, the median and inner greater coverts broadly tipped with white; quills greyish black, the primaries narrowly edged with whitish, the outer secondaries very broadly bordered with white; tail-feathers deep black, slightly tipped with white, the two outer ones also broadly bordered with white for nearly a quarter of their length; under surface of body white with a broad pectoral band of glossy blue-black, the flanks sparingly streaked with black; tibial plumes black; under wing-coverts black, the tips of the lower ones and inner

linings of quills white; bill and feet black; iris yellow. Total length 4 inches, culmen 0·5, wing 2·05, tail 1·65, tarsus 0·65.

Adult female. Resembles the male, but has the pectoral band chestnut instead of black.

Young female.—Similar to the adult, but having the white eyebrow, the nuchal spot and margins of the wing-coverts and quills tipped with rust-colour.

Hab. N. E. Africa, Abyssinian coast-land, the warmer parts of Abyssinia, Sennaar, Takah, Kordofan, and the country of the White Nile (*Von Heuglin*); Bogos Land (*Blanford, Jesse, Esler*).

It is difficult to distinguish this form from *B. senegalensis*, as the shade of grey on the head varies very much as to its depth of colouring. I am by no means sure that it is not referable to a seasonal plumage of the latter bird, as some of the West-African specimens exhibit a slight greyish tinge on the black head.

As Dr. von Heuglin suggests, this species has doubtless often been confounded by authors with the true *B. senegalensis*; and it may therefore be the bird thus named by Rüppell and himself in their respective lists of N.E. African birds; but as I do not see how this can be proved without an actual examination of specimens, I prefer to omit the references, instead of referring to them with a repeated query. Von Heuglin seems to have found the species pretty generally distributed; but I have only seen specimens from Bogos, where it appears to be by no means rare.

Specimens examined.

Mus. Brit.—*a*, ♂. Near Magen, Feb. 18, 1868 (*W. T. Blanford*). *b*, ♀. Ailat, June 28, 1868 (*W. T. B.*).

Mus. R. B. S.—*a, juv.* Waliko, July 27, 1868 (*W. Jesse*). *b, c*, ♂, *d, e*, ♀. Achor, Bogos Land (*Esler*).

Mus. G. E. Shelley.—*a*, ♂. Achor, Bogos (*Esler*).

4. *BATIS MOLITOR.*

Muscicapa molitor, Hahn & Küst. Vög. aus Asien, &c., Lief. xx. fig. 2 (1822).

Platystira pririt, Cab. Mus. Hein. Th. i. p. 59 (1850); Grill,

Zool. Anteckn. p. 26 (1858); Gurney, Ibis, 1860, p. 210; Hartl. Orn. Madag. p. 45 (1861); Gurney, Ibis, 1862, p. 156; Kirk, Ibis, 1864, p. 319; Schl. & Poll. Faun. Madag. p. xiv. (1866); Gray, Handl. B. i. p. 329 (1869); Finsch & Hartl. Vög. Ostaf. p. 314 (1870); Sharpe, Cat. Afr. B. p. 44 (1871); Gurney, in Anderss. B. Dam. Ld. p. 131 (1872).

Platystira melanoleuca, Licht. Nomencl. p. 20 (1854).

Platystira molitor, Licht. ut suprâ.

Adult male. Above dull bluish grey, the nape whitish, and the rump also mottled with white; a narrow line from the base of the bill over the eye, running as far as the hinder part of the eye, but not joining the nape, white; lores, feathers above and below the eye, ear-coverts, and sides of upper neck deep black, extending down the back to the limit of the nuchal spot; wing-coverts and scapulars black, the least coverts slightly margined with whitish, the medium and inner greater ones broadly tipped with white, forming a conspicuous alar bar; quills dark brown, very narrowly edged with whitish, the secondaries black, more broadly margined, so as to form a line continuous with the wing-band; upper tail-coverts and tail black, slightly tipped with white, the penultimate feather a little more broadly, the outermost altogether white on the external web; cheeks, sides of neck, and under surface of the body white, with a broad pectoral band of glossy black; thighs black; flanks also mixed with blackish; under wing-coverts black, the lower ones and those along the bend of the wing white; bill and feet black; iris yellow. Total length 5·3 inches, culmen 0·5, wing 2·5, tail 2·2, tarsus 0·73.

Adult female. Above similar to male, but differing below. Under surface white, sides of body mixed with grey: a patch in the centre of the throat and a pectoral band deep chestnut.

Hab. From the eastern districts of the Cape Colony to the Zambesi. Found also in Damara Land.

Specimens examined.

Mus. Brit.—*a, b*, ♀. Tette (*Livingstone*). *c*, ♀. Shupanga (*T. Kirk*). *d*. Natal.

Mus. R. B. S.—*a*. S.E. Africa. *b, c, d*, ♀. Eland's Post,

S.E. Africa (*T. C. Atmore*). *e.* South Africa. *f.* Elephant Vley, Sept. 5, 1859 (*C. J. Andersson*). *g, h, ♂, i, ♀.* Ovaquenyama, May 25th, June 1st and 4th, 1867 (*C. J. A.*). *j.* Natal. *k.* Zambesi (*Meller*).

5. *BATIS PRIRIT.*

Le Gobe-mouche pririt, Levaill. Ois. d'Afr. iv. p. 38, pl. 161 (1805).

Muscicapa pririt, Vieill. N. Dict. d'Hist. Nat. xxi. p. 486 (1818).

Muscipeta senegalensis, Less. Traité, p. 385 (1831).

Platystira pririt, Gray, Gen. of B. i. p. 257 (1846); Bp. Consp. i. p. 322 (1850).

Platysteira affinis, Wahlb. Öfv. k. Vet. Akad. Förh. Stockh. 1855, p. 214; id. J. f. O. 1857, p. 3; Gray, Hand-l. B. i. p. 329 (1869); Sharpe, Cat. Afr. B. p. 43 (1871); Gurney in Anderss. B. Dam. Ld. p. 181 (1872).

Platysteira senegalensis, Mont. P. Z. S. 1865, p. 95.

Adult male. Indistinguishable from *B. molitor* in colour, but a little smaller.

Adult female. Above clear bluish grey, the rump mottled with white; sides of neck and nuchal spot clear orange-buff; a narrow superciliary line of white from the base of the bill; lores, feathers round the eye, ear-coverts, and sides of upper neck black; wings and tail as in *B. molitor*; throat and entire breast clear orange-buff; abdomen and under tail-coverts white; flanks mixed with blackish; thighs black; bill and feet black. Total length 3·8 inches, culmen 0·5, wing 2·2, tail 1·7, tarsus 0·7.

After mature consideration I have come to the conclusion that Wahlberg's *P. affinis* is really the true "Pirit" of Levaillant, as represented in his plate; for the female agrees precisely, except in the black tibiæ not being represented, doubtless an omission on the part of the artist.

B. pririt seems to be a more western bird than *B. molitor*, as it has not yet been found in Natal or South-eastern Africa, while the Zambesi bird is also *B. molitor*. On the west coast it extends to Benguela, whence Mr. Monteiro has a specimen

(*P. senegalensis*, Hartl., l. c.) which I have myself examined. What the bird from Gaboon mentioned by Dr. Hartlaub (J. f. O. 1861, p. 169) may be, I am unable to say.

Wahlberg describes his *B. affinis* as smaller than *P. molitor*. I therefore add the measurements of some specimens for comparison:—

No.	Sex.	Locality.	Authority.	Length of wing.
a.	♂	S.E. Africa.	Mus. R. B. S.	2·3
b.	♂	Eland's Post.	T. C. Atmore.	2·55
c.	♂	Ovaquenyama, June 4, 1867.	C. J. Andersson.	2·35
d.	♂	do., June 1, 1867.	do.	2·35
e.	♂	Swakop River, Jan. 31, 1864.	do.	2·15
f.	♂	Elephant Vley, Sept. 5, 1859.	do.	2·3
g.	♂	Damara Land.	do.	2·15

As the females of *B. pririt* measure also 2·15 in the wing, we may suppose that the two males above measured are really of this species; but I see no other point of distinction.

I am not aware of any other instance in ornithology of two birds being quite different as regards the females, the males being difficult to distinguish.

Specimens examined.

Mus. Brit.—a, ♂, b, ♀. Damara Land (C. J. Andersson).

Mus. R. B. S.—a, ♂. Swakop River, Jan. 31st, 1864 (C. J. A.). b, c, d, ♀. West of Tjobis, April 3rd, 1865; near mouth of Swakop River, April 12th, 1865; Otjimbique, July 7th, 1866 (C. J. A.). e. Colesberg (*Ortlepp*). f. South Africa.

Mus. J. J. Monteiro.—a. Benguela (J. J. M.).

6. *BATIS MINIMA.*

Platystira minima, J. & E. Verr. Rev. et Mag. de Zool. 1855, p. 219; Hartl. Orn. W. Afr. p. 95 (1857); id. J. f. O. 1861, p. 169.

Adult. Above cindery black, the lower back and rump slightly mottled with white; no perceptible nuchal spot; lores white; sides of the face black like the crown; entire throat

and sides of neck white; a broad pectoral band of cindery black, rather more ashy in shade; rest of under surface white, the flanks varied with greyish black; under wing-coverts white; wing black, the quills slightly inclining to brown, the median and inner greater coverts white, as also the margins to the inner secondaries, forming a continuous bar of white down the wing; tail black, the outermost feather white along the outer web at the tip, running round on to the inner web, the two next slightly tipped with white; bill black; feet blackish brown; iris yellow. Total length 3·5 inches, culmen 0·45, wing 1·85, tail 1·3, tarsus 0·5.

Young. Similar to the adult, but browner, and having a few of the feathers on the head and back margined with buffy white.

Hab. Gaboon.

Specimens examined.

Mus. Brit.—*a, ad.* Gaboon (*Verreaux*).

Mus. R. B. S.—*a, juv.* Gaboon (*Verreaux*).

Genus 3. LANIOTURDUS.

Lanioturdus, Waterhouse, App. Alex. Exp. Int. Afr. p. 264 (1833): type *L. torquatus*.

Moquinus, Bp. C. R. xlii. p. 820 (1856): type *L. torquatus*.

LANIOTURDUS TORQUATUS.

Lanioturdus torquatus, Waterhouse, App. Alex. Exp. Int. Afr. p. 264 (1838); Bocage, Journ. Acad. Lisb. ii. p. 42 (1868); Sharpe, Cat. Afr. B. p. 43 (1871).

Platystira albicauda, Strickl. Contr. Orn. 1852. p. 144.

Moquinus tandonus, Bp. C. R. xlii. p. 820 (1856).

Moquinus albicaudus, Bp. Rev. et Mag. de Zool. 1857, p. 52, pl. 5.

Platystira torquata, Gray, Hand-l. B. i. p. 329 (1869); Gurney in Anderss. B. Dam. Ld. p. 132 (1872).

Adult male. Head black, including the lores and ear-coverts, the latter produced backwards along the sides of the neck; forehead and superciliary streak (not extending beyond the eye), cheeks, throat, sides of neck, and a large nuchal patch

white; back dark grey, the rump mottled with white; upper tail-coverts black; tail pure white, the two central feathers longitudinally marked with black; upper wing-coverts black, the primary coverts white at tip, as also the inner greater coverts, which form a conspicuous patch on the wing; quills black, tipped with white, the secondaries more broadly, the primaries white at base of inner web, and the outer ones also white at base externally; across the breast a conspicuous band of black; centre of the body white, the sides of the breast and flanks grey; tibial plumes white varied with black; a tuft of axillary plumes under the wing white; under wing-coverts black, the lower ones tipped with white; edge of the wing white; bill almost black; feet very dark brown, with a whitish or lead-coloured tint about the joints; iris greenish yellow. Total length 5·5 inches, culmen 0·7, wing 3·3, tail 1·6, tarsus 1·2.

Hab. Damara Land (*Andersson*); Biballa (*Anchieta*).

This bird, though not far removed from *Platystira*, is certainly not congeneric with any of the members of that genus or with *Batis*. It is of robust form, with a much thinner and more compressed bill, and has extraordinarily long wings, reaching almost, if not quite, to the tip of the tail. This character presents the bird with quite a peculiar aspect.

Specimens examined.

Mus. Brit.—*a.* Damara Land (*Andersson*). *b, c, d, e.* Damara Land (*C. J. Andersson*).

Mus. R. B. S.—*a, b, c.* Otjimbinque, Damara Land, June 22nd, July 29, and Oct. 1st, 1866 (*C. J. Andersson*). *d, ♂.* Biballa, Feb. 1868 (*Anchieta*).

Genus 4. DIAPHOROPHYA.

Diaphorophyia, Bp. C. R. xxxviii. p. 653 (1854): type *D. castanea*.

Agromyias, Heine, J. f. O. 1860, p. 133: type *D. castanea*.

Myiophila, Hartl. Orn. Westafr. p. 95 (1857): type *D. concreta*.

Stiphromyias, Heine, J. f. O. 1860, p. 133: type *D. concreta*.

Clavis specierum.

a. Abdomen white.

- | | |
|--|-----------------------|
| a'. Rump white or greyish | 1. <i>castanea</i> . |
| b'. Rump uniform with the rest of the back | 2. <i>blissetti</i> . |
| b. Underneath entirely orange-rufous | 3. <i>concreta</i> . |

1. DIAPHOROPHYA CASTANEA.

Platystira castanea, Fraser, P. Z. S. 1842, p. 141; Gray, Gen. B. i. p. 257 (1846); Allen & Thoms. Exp. Niger, ii. p. 498 (1848); Fraser, Zool. Typ. pl. 34. fig. 2 (1849); Bp. Consp. p. 322 (1850).

Platystira leucopygialis, Fraser, P. Z. S. 1842, p. 142; Gray, Gen. B. i. p. 25 (1846); Allen & Thoms. Exp. Niger, ii. p. 499 (1848); Fraser, Zool. Typ. pl. 34. fig. 1 (1849); Bp. Consp. p. 322 (1850); Strickl. Contr. Orn. 1851, p. 163; J. & E. Verreaux, Rev. et Mag. de Zool. 1851, p. 309; id. *op. cit.* 1855, p. 418; Hartl. Orn. W. Afr. p. 95 (1857); Cass. Pr. Philad. Acad. 1859, p. 50; Hartl. J. f. O. 1861, p. 169; Gray, Hand-l. B. i. p. 329 (1869); Sharpe, Ibis, 1870, p. 480; id. P. Z. S. 1871, pp. 133, 610; id. Cat. Afr. B. p. 43 (1871).

Diaphorophya leucopygialis, Bp. C. R. xxxviii. p. 353 (1854).

Agromyias leucopygialis, Heine, J. f. O. 1861, p. 133.

Adult male. Crown of head and nape, as far as the centre of the back, and wing-coverts glossy blue black; cheeks, ear-coverts, scapulars, lower back, and rump pure silky white; quills black, white at the base of inner web, the secondaries very narrowly margined with white externally near the base; upper tail-coverts and tail glossy black; under surface of body entirely pure white, with a broad blue-black band across the breast; under wing-coverts externally black, the lower ones margined with white; axillary tuft white; bill black; feet brown; iris yellow, eye-wattle bright scarlet. Total length 3.4 inches, culmen 0.5, wing 2.3, tail 1.0, tarsus 0.65.

Adult female. Totally different from the male. Above chestnut, the rump greyish varied with white; head bluish grey; quills brown, externally margined with chestnut; tail blackish; chin white; cheeks, throat, and breast chestnut; a little spot of white under the eye; rest of under surface silky

white, the flanks greyish; outer under wing-coverts chestnut; axillary tufts white.

Young male. Chestnut like the old female, but having the head, back, and chest mixed with black, indicative of the adolescent plumage.

Hab. W. Africa, from the Gold Coast to Angola: Fernando Po.

MM. Verreaux consider that the male in black plumage with the white collar round the neck is the fully adult; but I believe that the bird with entirely black head and neck is really in the fully mature state. I am induced to believe this by the fact of a young bird, still retaining traces of its chestnut plumage, showing evident indications of the white collar. An adult bird in fully black plumage, with a broad white collar, also retains traces of chestnut on the wing-coverts. MM. Verreaux also state their conviction that Fraser's *P. leucopygialis* is really the old male, and that his *P. castanea* is the young female; but I believe Fraser's bird to be quite adult in both instances.

Specimens examined.

Mus. Brit.—*a*, ♂ *b*, ♀. Clarence, Fernando Po (*Fraser*: types of species). *c*. Gaboon (*Verreaux*). *d*. Ashantee (*J. Gould*).

Mus. R. B. S.—*a, b, c*, ♂ ♀, *d*, ♂ *juv.* Fantee. *e, f, g*, ♀. Fantee (*H. T. Ussher*). *h, i*, ♂, *j, k*, ♀. Cameroons (*A. Crossley*). *l*, ♂. Gaboon (*Du Chaillu*). *m*. Angola (*C. J. Hamilton*).

2. DIAPHOROPHYA BLISSETTI. (Plate IV. fig. 1.)

Diaphorophya blissetti, Sharpe, Ann. N. H. (4) x. p. 451 (1872).

Platystira concreta, Hartl. J. f. O. 1861, p. 169.

Adult. Above dark rifle-green, slightly metallic, the tail much brighter and more metallic, the rump-feathers white at the base, showing more plainly when the plumage is disarranged; wing-coverts rifle-green, a little more metallic than the back; quills blackish, externally margined with metallic green, more especially the secondaries; throat rifle-green,

slightly metallic; a tuft of feathers occupying the cheeks and sides of the neck bright chestnut; under surface of body white, the flanks streaked with greyish; under wing-coverts black, axillary tuft white; bill black; feet brownish. Total length 3·5 inches, culmen 0·6, wing 2·15, tail 0·95, tarsus 0·75.

Young. Entirely grey above, the tail with a slight metallic green gloss; underneath white, the cheeks bright orange-rufous, and the fore neck washed with the same colour.

Hab. Gold Coast.

The typical specimen in the British Museum is apparently a female, or a younger bird than the one described and figured, as it is not so brightly coloured and has the back greyish.

Specimens examined.

Mus. Brit.—*a.* Fantee (*A. Swanzy*: type of species). *b, juv.* Ashantee.

Mus. R. B. S.—*a.* Wassaw, Gold Coast (*H. F. Blissett*).

3. DIAPHOROPHYA CONCRETA.

Platysteira concreta, Hartl. J. f. O. 1855, p. 360; Gray, Hand-l. of B. i. p. 330 (1869).

Myiophila concreta, Hartl. Orn. Westafr. p. 95 (1857); id. J. f. O. 1861, p. 169.

Stiphromyias concreta, Heine, J. f. O. 1860, p. 133.

Above cinereous, with somewhat of a greenish, slightly metallic, gloss; underneath bright but deep orange-rufous, the chin and throat paler and yellowish; tail uniform with the back; lores black, marked with a small white spot; the bare skin round the eye red; under wing-coverts white; bill black, much broadened at the base; tail very short, scarcely passing the folded wing; feet brown. Total length 3" 3^{'''}, beak 5³/₄"^{'''}, wing 2" 1^{'''}, tail 8¹/₂"^{'''}, tarsus 8^{'''}. (*Hartlaub*.)

Hab. Gold Coast (*Mus. Lugd.*).

I have not had the pleasure of personally examining this species, which from the proportions of its wings and tail would fall, under my arrangement, into the genus *Diaphorophya*. I cannot help suspecting that a comparison of the types would prove its identity with my *D. blissetti*; and this suggestion is

strengthened by the fact that soon after the publication of the 'Ornithologie Westafrika's,' when the recollection of the species would be tolerably fresh in his mind, Dr. Hartlaub identified a bird in the British Museum as his *Myiophila concreta*, which is certainly referable to my *D. blissetti*. I have therefore, with some feeling of confidence, added the genera *Myiophila* and *Stiphromyias* as synonyms of *Diaphorophya*. How far this confidence is justified will be decided some day or other; and though Dr. Hartlaub does not think the identity of the two species at all probable, I must confess that I expect to find them ultimately the same. On the other hand it must be noticed that we have apparently two sexes of *D. blissetti* in the Museum, one having a glossy green, the other a greyish back, and that they both possess the red tufts on the side of the head.

GENUS 5. STENOSTIRA.

Stenostira, Cab. & Bp. in Bp. Consp. i. p. 316 (1850): type *S. scita*.

Empidivora, Reich. Av. Syst. Nat. pl. lxxviii. (1850): type *S. scita*.

STENOSTIRA SCITA.

Le Gobe-mouches mignard, Levaill. Ois. d'Afr. iv. pp. 14, 154 (1805).

Muscicapa scita, Vieill. N. Dict. d'Hist. Nat. xxi. p. 474 (1818).

Muscicapa tenella, Licht. Verzeichn. Vög. Kaffernl. p. 12 (1842).

Platystira longipes, Swains. Monogr. Flyc. p. 185, pl. xxi. (c. 1837); Layard, B. S. Afr. p. 143 (1867).

Platystira scita, Gray, Gen. B. i. p. 256 (1846); id. Hand-l. of B. i. p. 330 (1869).

Stenostira scita, Cab. & Bp. in Bp. Consp. i. p. 316 (1850).

Adult male. Above greyish, a little paler on the rump; wings black; the least wing-coverts greyish like the back, with a vertical line of white extending the whole length of the wing, beginning at the outer median coverts; tail black, the outermost feather white, the penultimate white for its apical

half, and the next one with a little less white towards the tip; a narrow superciliary line of white from the base of the forehead to the hinder ear-coverts; cheeks and ear-coverts black; a narrow cheek-stripe and chin white, the latter with a delicate blush of rose-colour; lower throat and chest greyish; lower breast, abdomen, and under tail-coverts white, with a beautiful blush of rosy on the former; outer wing-coverts whitish, the outermost ones slightly shaded with grey; tibial plumes black; bill and feet black; iris black. Total length 4·5 inches, culmen 0·5, wing 2·25, tarsus 0·8.

Hab. South Africa, from the region of Nel's Poort to the Transvaal Republic.

The above description is taken from a beautifully prepared skin of Professor Wahlberg's, received by me in exchange from the Stockholm museum. Another specimen in my collection, obtained by Mr. Atmore on the Orange River, is a little browner above and not so brightly coloured anywhere. It is probably the female.

Specimens examined.

Mus. Brit.—South Africa.

Mus. R. B. S.—*a*, ♂. Transvaal, Aug. 4, 1843 (*Wahlberg*).
b. Orange River (*T. C. Atmore*).

Supposing that my estimate of the number of species of *Platystira* and *Batis* turn out to be correct, the geographical distribution of the birds treated of in the present paper bears out the natural subdivisions into which I have divided the African continent (*cf.* P. Z. S. 1870, p. 320).

Subregio abyssinica.—Peculiar species 1: *B. orientalis*.
B. senegalensis occurs also.

*Subregio mosambicana**.—No species at all known to occur as yet.

Subregio capensis.—Peculiar genera 2. Peculiar species 6: *Platystira peltata*, *Batis capensis*, *B. molitor* (said to occur in Gaboon?), *B. pririt*, *Lanioturdus torquatus*, *Stenostira scita*.

* The Zambesi district does not belong to this subregion, as from a study of the collections in the British Museum, I find its affinities lie rather with the avifauna of the Cape.

Subregio guineensis.—Peculiar genus 1. Peculiar species 7: *Platystira cyanea*, *P. albifrons*, *Batis senegalensis*, *B. minima*, *Diaphorophya castanea*, *D. blissetti*, *D. concreta*.

Subregio madagascariensis.—*P. molitor* is stated to have been met with on the West Coast by Bojer in 1829, but has never been obtained since.

XXI.—On an apparently new Species of Hornbill from Angola.

By D. G. ELLIOT, F.L.S., F.Z.S., &c.

BUCEROS SHARPII.

Bill without casque, but the maxilla swollen into a prominent ridge, broad and corrugated at the base, becoming narrow at the anterior portion, and gradually falling into the outline of the culmen. The base, which ends abruptly about half an inch above the head, has four rather deep plaits. The mandible is rugged and creased nearly to the end, with the cutting portion serrated. The culmen and tips of bill yellowish horn-colour; a broad stripe for about two thirds the length of the maxilla and nearly all the mandible (save the tip above mentioned) black. Base of maxilla beneath the nostril, and spot on base of mandible, yellowish white.

Head covered with a long crest; feathers of cheeks and throat also long and loose; all these parts, together with the back, black, with a bright greenish lustre. Primaries black. Secondaries, with the exception of the three innermost ones, white for three fourths their entire length, greenish black at base; the innermost ones same colour as the back. Under wing-coverts, lower part of breast, under tail-coverts, rump, and legs pure white. Tail—the two median feathers black for their entire length, without any white; the ones next to the median on either side white from half their length from the tip, remaining portion like the central ones; the lateral feathers pure white for their entire length, with the exception of the outermost ones, which have the basal half of the outer webs black. Total length 21 inches, wing 11, tail $9\frac{1}{4}$.

The above description is taken from an adult male specimen

from Angola in the collection of Mr. R. B. Sharpe, who kindly placed it in my hands for examination and description; and I have much pleasure in bestowing his name upon this species, as a mark of esteem, as well as in recognition of the valuable services he has rendered to ornithology.

In the collection of the British Museum are two specimens of *B. sharpii*, from the Gaboon and Congo respectively. One I judge to be an adult male; and it differs from the specimen just described by having the entire bill yellowish white, with only a trace of black on the central portion of the maxilla near the cutting-edge, and tending upwards in the direction of the base, but not reaching the nostril. The tail is like that of the type; but the outer feathers are entirely white, only the central ones and those immediately succeeding having any black upon them. This specimen is from the Gaboon.

The third example, from the Congo, is perhaps a female. It is much smaller than the others; the mandible is only slightly ridged, with a few black spots where the ridges are found in the other two specimens; the upper portion of the maxilla near the base black. The feathers of the tail are coloured like those of the Gaboon bird, save a black spot that is seen upon all, near the base, but not reaching to it.

Buceros sharpii belongs to a very well-marked group of the great family Bucerotidæ, to which the term *Bycanistes*, Cabanis, has been applied, and contains, so far as is known, six species, including the present one. Although in their general appearance all the species closely resemble each other, yet each presents sufficient characters to distinguish it easily from its relatives.

The largest is

1. *B. CRISTATUS*, Rüppell, from Abyssinia; distinguished by having the wings entirely black, the tail black, with the exception of the extreme base and an apical band, which are white; a spotted crest and enormous casque.

2. *B. CYLINDRICUS*, Temm. West Africa. Resembles the first but is smaller; crest unspotted; secondaries pure white

from one-third their length from the tips, and the tail also white with a broad black band nearly in the centre.

3. *B. SUBCYLINDRICUS*, Sclater. Western Africa? Resembles *B. cylindricus*, but has fully one half of the secondaries white, crest spotted, and median tail-feathers black for their entire length.

4. *B. BUCCINATOR*, Temm. South Africa. Crest slightly spotted. Secondaries black tipped with white; and tail-feathers, except median, also white for about an inch and a half from the tip. All these four species have high casques in both sexes, those of the males projecting forward in a point nearly the entire length of the maxilla.

I should place next, as being slightly larger in size, the

5. *B. SHARPII*, Elliot. Gaboon to Angola, West Africa. Bill strongly ridged on the culmen at base. Secondaries, excepting the three outermost ones, pure white. Tail pure white, with the exception of the median feathers, which are black, and the ones next to them, which have their bases also black.

6. *B. FISTULATOR*, Cassin. Fantee. Tail black, a narrow line at the base and the lateral feathers tipped with white. Secondaries black, except for about an inch and a half from their ends, which is white.

XXII.—*Note on Homochlamys luscinia, Salvad.*

By T. SALVADORI, C.M.Z.S.

AMONG some birds which the Count Turati, of Milan, has sent me lately, I found a specimen of *Calamoherpe canturiens*, Swinh. The name was written on the label in Mr. Swinhoe's handwriting, so that I think there can be no mistake in the exact determination of the specimen, which at the first sight I recognized to belong to my *Homochlamys luscinia*. The only difference is in the colour of the bill, which in Swinhoe's specimen is of a horny brownish, while in mine it is yellowish. This is of small moment, as in dried specimens kept for a

long time the bill very often loses its dark colour and becomes whitish or yellowish. There is no doubt, therefore, that the specific name *luscinia* must sink to a synonym, but at the same time the new genus *Herbivox*, lately established by Swinhoe for the same bird and two other allied species, will be superseded by *Homochlamys*, which was published by me in 1870.

I add the synonyms.

Genus *HOMOCHLAMYS*, *Salvad. Atti R. Acc. delle Sc. di Tor. v. p. 510 (1870).*

Herbivox, *Swinh. P. Z. S. 1871, p. 353.*

HOMOCHLAMYS CANTURIENS.

Arundinax canturiens, *Swinh. Ibis, 1860, pp. 52, 131, 357.*

Lusciniopsis canturiens, *Swinh. Ibis, 1861, pp. 32, 328.*

Calamoherpe canturiens, *Swinh. Ibis, 1863, p. 306, 1867, p. 418, 1870, p. 345; and P. Z. S. (1863) p. 294.*

Calamodyta canturiens, *G. R. Gray, Hand-l. i. p. 207, sp. 2933 (1869).*

Homochlamys luscinia, *Salvad. l. c. p. 511 (1870).*

Malacopteron luscinia, *Finsch, MSS.; Salvad. l. c.*

Herbivox canturiens, *Swinh. P. Z. S. 1871, p. 353.*

Mr. Swinhoe also includes *Salicaria cantans*, *Temm. et Schlegel*, and *Arundinax minutus*, *Swinh.*, in the genus *Herbivox*. If these are really congeneric with *H. canturiens*, they will stand as *Homochlamys cantans* and *Homochlamys minutus*.

Regarding the proper place which the genus *Homochlamys* should hold in the avium systema, it will be noticed that *Finsch* and I have considered *H. luscinia* to belong to the *Timaliidae*, while *Swinhoe* refers the genus to the *Calamodytinæ*, which, I think, are much more allied to the *Timaliidae* than to the *Sylviidae*.

Zoological Museum, Turin.

February 25th, 1873.

XXIII.—*On the Upupidæ and their Relationships.*

By Dr. JAMES MURIE, F.L.S. &c.

(Plates V., VI., & VII.)

I. *Retrospect, embodying researches and opinions concerning the Hoopoes.*1. *As grouped in conjunction with or near the Hornbills.*—

Some five and thirty summers have come and gone since Mr. Gould originally suggested the relationship of the Hoopoes to the Hornbills, an idea which took root and fructified under its foster-parent, Mr. Blyth. With the observations and remarks of the latter, then, I propose to approach the group. When treating of the "Buccroides, or the Hornbill and Hoopoe tribes," Mr. Blyth* introduces his topic by a succinct résumé of the reasons which have caused him to look upon these as two allied tribal families. The skeleton, he conceives, separates them from the Cantores, as do the digestive and vocal organs. The heart-shaped tongue, the elongation of the beak, and the fetid liquid fæces show agreement between the Hoopoe and Hornbill. Their first plumage resembles that of the adult, and is not renewed till after the following breeding-season. They are equally Old-World groups, and possess only ten tail-feathers. He then proceeds to treat of the special characteristics of the Appendirostres (Hornbills), and subsequently reverts to the Arculirostres (Hoopoes). Of the latter he particularizes points in the sternal formation, alludes to the stomach as a membranous bag, short widish intestines destitute of cæcal appendages, and infers from these characters and from the smaller number of rectrices that they must be separated from the Certhiadæ, Promeropidæ, &c. Mr. Blyth further goes on to show that the intelligence of the Hoopoe, its lively energetic manners, its Lark-like gait, its habit of striking with the bill, together with the structure of the latter, its cœnodactyle foot (*i. e.* outer and middle toes only basally united), and propensity to climb, like the Woodpecker, all carry it away from the Hornbills, and probably from all other Syndactyli. He appears to have watched

* Mag. of Nat. Hist. (Charlesworth's) New Ser. 1838, vol. ii. p. 589.

and studied carefully the habits of the bird in question, and brings together within a short compass much information, quoting Temminck, Bechstein, the Bishop of Norwich, Smith, Selby, Buffon, and the Earl of Derby. To peculiarities and inferences from habits I shall again take occasion to refer.

The most original researches of Nitzsch* mark an epoch in bird-lore; and one never turns over a page of his investigations into plumage without feeling his debtor. He refers three genera to his family Lipoglossæ, viz. *Buceros*, *Upupa*, and *Alcedo*. These agree in the absence of an after-shaft on the contour-feathers, and in the feathered tip of the oil-gland, but differ in tract-distribution and in other characters of plumage. Ten rectrices connect the two former; twelve distinguish the latter, as does a dense downy covering of the integument. The feather-tracts in *Upupa* are narrow, resembling *Galbula* in this respect; the dorsal tract is uninterrupted, but, dividing into two limbs, encloses an elliptical spinal space; the neck below has posteriorly furcate lines with broader pectoral offshoots; the main lines abdominally run back to near the anus. Remiges 20, the 1st small, the 2nd equal to the 7th, 3rd, 4th, and 5th longest. The oil-gland is peculiar and composed of two halves. In the ♀, at the breeding-season, and in the nestlings a disagreeably odoured blackish fluid obtains in the gland. There is a broad snow-white skin at the angle of the mouth in the young, in which respect they resemble the Passerinæ and not the Picariæ. He observes of *U. africana* and *U. erythrorhyncha* (= *Irrisor*) that, except that the former possesses 19 remiges, the 4th, 5th, and 6th longest, the pterylographic characters coincide with those of *U. epops*.

The Hoopoe, in the eyes of Nitzsch, seems to have been a more than usually interesting form; for he worked out its internal anatomy with some care in a memoir, which, after his demise, Giebel† wisely gave to the world. Anatomical work by such

* 'Pterylographie,' the English edition of which is that at my command: Ray Soc. 1867.

† Zeitschrift f. d. ges. Naturwiss. Halle, 1857, Band x. p. 236. In vol. xi. (pl. i. fig. 34) of the same publication Giebel gives an outline of the Hoopoe's tongue in comparison with other forms.

an able ornithologist might well bear a full translation; but for my purpose it is enough to cull the more important points. Of the muscular system, he records that it is uncommonly Passerine in kind, taken as a whole, with, however, some distinctions. The disposition of the tendons and bony grooves predisposes the similitude above stated. He describes the short triangular tongue and the presence of a pair of glands at the sides of the chink of the glottis. There is no crop; the stomach is saccular and soft; cæcal diverticula are absent; a single left carotid artery alone obtains. Other features of the lungs, liver, kidneys, nasal glands, &c. are passed in review.

Bonaparte* held views widely distinct from Strickland on this subject, inasmuch as, whilst apparently regarding the Hoo-poe as affine to the Hornbill, he threw apart the Irrisors. Concerning the former the arrangement adopted runs—Musophagidæ, Upupidæ, Bucerotidæ, Rhamphastidæ, Leptosomidæ, Cuculidæ. His Upupidæ embraces two genera, *Upupa* and *Fregilupus*, the first with three and the second with but one species. In another section come the families Cœrebidæ and Promeropidæ, then the family Irrisoridæ, and subfamily Irrisorinæ, containing the genera *Irrisor*, *Rhinopomastus*, and *Falculia*; then the families Epimachidæ and Paradiseidæ.

Upon purely osteological data, Mr. Eyton† makes a family of the Bucerotidæ; and this contains three subfamilies—the Momotinæ, Upupinæ, and Bucerinæ. *Irrisor* he takes no notice of; but his short characters of the cranium &c. of *Upupa* (*U. epops*) are explicit enough—though, quoting others, I dispense with them.

Huxley's grand Balaclava charge at the birds‡ led him to toss the Upupidæ among Coccoyomorphæ, with group “c, the second, third, and fourth toes turned forwards, the first backwards.” He does not seem to have given much attention to *Upupa*, his remark thereon being confined to the following terse sentence:—“Here the postero-external angle of the

* Conspectus Generum Avium.

† Osteologia Avium, 1867, p. 59.

‡ P. Z. S. 1867, p. 447 and p. 467.

palatine is elongated into a slender pointed process. The septum is ossified and unites with the maxillo-palatines, which form a transverse bony rafter across the palate."

Several other writers incidentally refer *Upupa* to the Horn-bill family; but it is not necessary to refer to them.

2. *Considered in the light of a distinct group.*—Under the present section I may as lief refer to the able paper of Mr. Strickland*—though, according to his own showing, the Upupidæ as consistently belong to the next. He first gives reasons wherefore the genus *Irrisor*, Less., ought to be adopted, and then compares agreement and differences between *Upupa* and *Irrisor*. The Hoopoe's ground-habits are opposed to those of the arboreal *Irrisor*; but notwithstanding this and contrast in the plumage, he sees close links of affinity between them. The similarity in the structure of their beak and tongue, he holds, is important. The lower mandible is solid, not grooved for the reception of a lengthened tongue as in the Nectarinidæ. Both upper and lower mandible coincidently in the Hoopoe and *Irrisor* have apically and superficially a peculiar grooving, single, however, in the former, and double in the latter bird. They both nidificate in hollow trees. Wings similar, primaries graduated, 4th and 5th longest. There is a certain counterpart in the white patches on the remiges and rectrices, although the style of colouring and difference in the form of the tail suggest generic and, occasionally, specific importance. With the feet he admits a difficulty, though he thinks these neutralized by beak &c. He places *Upupa* and *Irrisor* in juxtaposition, family Upupidæ, subfamilies Upupinæ and Irrisorinæ.

In reply to the question of the position of Upupidæ he remarks:—"They certainly are a very insulated group, forming what in geology would be termed a *remote outlier*; and it is not easy to say to which of the more continental masses they most nearly approximate." He considers them to be remote from the South-American family Certhiidæ, the likeness being only one of analogy. He concludes, "this question can-

* "On the structure and affinities of *Upupa*, Linnaeus, and *Irrisor*, Lesson," Trans. Brit. Assoc. 1843, also Ann. Nat. Hist. vol. xii. p. 238, and collected works, "Memoirs," 1858, p. 418.

not, I think, be answered satisfactorily till more facts are collected respecting the food, habits, and anatomy of this group and of others with which it may be compared. It may, however, be conjectured that they are allied in one direction by means of *Epimachus* or *Astrapia* to the Paradiseidæ, and in another by *Merops* to the Alcedinidæ, as shown in Ann. Nat. Hist. vol. vi. pl. 8*, and as originally suggested by Vigors in Linn. Trans. vol. xiv. p. 466. In a third direction they are perhaps connected through *Lamprotornis* with the Corvidæ.”

L’Herminier has been credited with having characterized the Hoopoes by sternal formation; but in my search through his articles in the ‘Comptes Rendus’ and ‘Annales’ I failed to discover definite statements thereon. I may say, however, that his “Recherches sur l’appareil sternal des oiseaux” I could not lay hands on in our London libraries, the memoirs appended in the footnote having alone been examined by me †.

M. Blanchard ‡ observes that the Hoopoes constitute a very restricted group, but so markedly characteristic that it is impossible to join them to other types. Their sternum only distantly resembles that of other birds, the Finches to wit. In his description of the sternum he points to its elongation and high keel, which quite posteriorly has a little (triangular) flattening continued forwards some distance. The keel anteriorly is rounded or arched; a salient episternal process or nipple-shaped rostrum surmounts it, having a most singular perforation at its root. The interior is shorter than the ex-

* Map of the Alcedinidæ, wherein *Upupa* is included, and in the above assigned position.

† “Recherches sur la marche de l’ossification dans le sternum des oiseaux,” &c., Comptes Rendus (1836), vol. iii. p. 12; Ann. Sci. Nat. vi. p. 107; Comptes Rendus (1837), iv. p. 565; Ann. Sci. Nat. (1837) vii. p. 181. Since the above sentence has been in print Mr. Salvin has laid before me for inspection L’Herminier’s memoir above alluded to. Therein (p. 60) the Eopsides (17th family) connect the Picidæ and Passeres; but so distinctive does L’Herminier consider the sternum of *Upupa*, that he separates it from the latter, giving rank accordingly. He concludes, “Les huppés d’une part, les promérops de l’autre, appartiennent à cette famille, à laquelle peut-être se rapportent aussi les tichodromes, les épi-maques et les picucules.”

‡ Annales des Sciences Naturelles, 1859, 4th ser. tom. xi. p. 111.

terior; a large pneumatic foramen is situate mesially forwards, a marked elevation bounding it anteriorly. In general contour there is a certain middle compression with regular curved sides. The coracoid facets are salient, with deep gutters, and are continuous but for the perforated rostral septum. The large obtusely pointed and obliquely set costal processes have a backward tilt and five rib-facets. There are only a pair of deep xiphoid notches, the external processes having enlarged tips; and he specially calls attention to two pointed denticles at the posterior margin of the middle piece. Basing judgment on the posterior sternal configuration, excepting the two denticles above spoken of, according to Blanchard it agrees directly with the Finches; but anteriorly there are striking differences. The development of the keel inclines to Finches, but there are other points in perfect contrast; in the Hoopoe the rostrum is obtuse, in the Passeraux acuminate.

In allusion to *Irrisor* he mentions that the skeleton examined by him was in bad condition, but sufficient in his opinion to justify assigning to this genus close affinity to *Upupa*. His remarks on the sternal characters I shall not quote, as further on I treat of this and other bones not hitherto described. Blanchard names the genera *Fregilupus*, *Lamprolophos*, *Rhinopomastus*, and *Falculia* as having great interest from probable relationship to the Hoopoes and Irrisors; but their osteology he was ignorant of.

The superior rank and isolated character of the Hoopoes have been indorsed by another excellent naturalist and countryman of the above, Prof. Alphonse Milne-Edwards*. Reserving for a future communication his reasons for adopting the subjoined classification, he thus subdivides the Passeres:—1. Acorninæ (=Oscines, Bonap.); 2. Epopsinæ; 3. Ocyptilinæ (=Cypselidæ, &c.); 4. Syndactylinæ; 5. Dyscampterinæ (=Musophagidæ); 6. Trogoninæ; 7. Phlœodrominæ (=Picidæ, Rhamphastidæ, &c.). Respecting the Hoopoes he urges, “Les Epopsinæ ont été parfaitement caractérisés par Lherminier, ils ne renferment que le genre Huppe, auquel M. Blanchard a adjoint les Irrisors.”

* Oiseaux Fossiles, tom. ii.

Almost every segment of the skeleton of the Hoopoe has been descanted on by Milne-Edwards with a certain brevity as to characteristics compared with the Aedorninæ. I shall avail myself of his labours, inasmuch as they may abbreviate my own, adding, however, in another section such osteological items as he has omitted or cursorily touched on. The subjoined is a free translation, and in a different order from his paragraphs. The paging after each quotation refers the reader to the original; the subsidiary headings are my own.

Skull.—In the Hoopoes, which on account of the form of the beak have been classed with Promerops by most zoologists, the osteological characters furnished by other parts of the cranium are, on the contrary, very different. The occiput, in place of being uniformly rounded, is bilobed, and the longitudinal depression which separates them into two portions is continuous anteriorly with the frontal depression. The interorbital region is very large; but the supramandibular parts are still more so, and the descending branch of the lachrymal bone detaches itself in a remarkable manner. The nasal orifices commence near to the frontals on the superior aspect of the beak, and afterwards descend obliquely upon its sides; instead of being single, as ordinarily, they are divided into two portions by a transversely oblique lamina. As in the Aedornines, the temporal grooves are very shallow and the occipital crests feebly indicated (p. 360).

Sternum and Shoulder-girdle.—The remarks of Blanchard on these parts, already given, may supplant what Milne-Edwards curtly says thereon (pp. 334, 340, 343, 346).

Humerus.—It differs much from that of the Aedornines: one never observes the median tubercle for the insertion of the long extensor of the manus; and the supracondylar tuberosity, when it exists, is not surmounted by a little projection. These latter points suffice to characterize the humerus of the Hoopoes, which besides resembles much that of the Aedornines.

Ulna.—This is very lengthened and rather slender. It presents a certain resemblance to that of the true Passeres, but it is distinguished by diminished prominence of the mus-

cular impressions and tubercles for the insertion of the large wing-feathers. The olecranon process is long and conical, and the articular carpal extremity is much less in size (p. 352).

Metacarpus.—An intermetacarpal apophysis is absent (p. 356.)

Pelvis.—The anterior portion is much flattened, and the vertebral gutters, open their whole length, are much enlarged anteriorly by following the internal curvature of the ilia; the iliac fossæ are remarkably small. The cotyloid segment is large and short; there is a small median sacral crest; and the ilio-sciatic surfaces bulge slightly above the supraischiatic crests; the latter are salient and present behind their foramen a small denticular crest. The ischial blades spread out but slightly; and their postexternal angle, marked by deflected outside, is prolonged only to a very moderate extent. The body of the anterior sacral vertebra is furnished below with a median crest; and the renal fossæ are completely confluent (p. 321).

Femur.—Very short, and its extremities are comparatively narrow. The inferior condyles have a flattened character. Lastly the femoral head is almost sessile.

Tibia.—In the Epopsines (that is to say, the Hoopoes and the Irrisors) the tibial crests superiorly have little prominence; the shaft is cylindrical, its inferior extremity enlarged, but remarkable on account of the small development of its condyles. Finally, there appears only a trace of groove for the digital extensors, which run under a tendinous bridge; and this, tardily ossified, is always narrow and diminutive (p. 312).

Tarso-metatarsæ.—The foot is constructed upon a different plan from that of the Aedornines. The tuberosity is ampler, and perforated by a single tendinous foramen. The knuckle of the internal toe, in place of conforming to the plan of the others, is thrust slightly backwards. The inferior end is large, open, and approaches close to the digital condyles (p. 303).

3. *Where and wherefore ranged with the Sparrow Tribes*.—Among authorities the names of Linnæus and Brisson take us back quite a century, to the infancy of systematic ornitho-

logy. In the 12th edition of the 'Syst. Nat.' we find the Picæ containing *Trochilus*, *Certhia*, *Upupa*, *Glaucopis*, *Buphaga*, *Sitta*, &c., a subsection with gressorial feet including *Buceros*, *Alcedo*, &c. Brisson* puts *Upupa* and *Promerops* in his birds of the 7th order—"le bec menu, et un peu courbé en arc;" and before it come the Beef-eaters and Starlings, and after it the Swallows. Illiger's† *Ambulatores* comprise *Angulirostres* (*Alcedo*, *Merops*), *Suspensi* (*Trochilus*), *Tenuirostres* (*Nectarinia*, *Tichodroma*, and *Upupa*), and *Pygarrhichi* (*Certhia*, *Dendrocolaptes*). Vieillot‡ puts the *Epopsides* as the 23rd family of this Tribe, *Anisodactyles*, after *Anthomyzes* (*Colibri*), and before the *Pelmatodes* = Bee-eaters and Kingfishers. Koch§ adopts as orders *Picus*, *Sitta*, *Alcedo*, *Certhia*, *Upupa*, *Coracias*, *Oriolus*, *Corvus*. Cuvier|| under his *Tenuirostres* ranges *Upupa*, *Promerops*, and *Epimachus*. These come after the Rollers and Birds of Paradise, and precede the *Syndactylii*. Temminck's¶ order *Anisodactyles*, in which *Certhia*, *Tichodroma*, and *Upupa* find place, was followed by the *Alcyones* *Merops* and *Alcedo*. Latham's** *Picæ* nearly corresponds with that of writers of the period. With Wagler†† *Epimachus* and *Upupa* come after the Toucan &c., and before the *Piapec*. Lesson's‡‡ family "Les Upupées" contains of genera *Epimachus* (*Ptiloris*), *Falcinellus*, *Promerops*, *Upupa*, *Fregilupus*, *Fregilus*, and *Corcorax*.

In his classification of birds§§ Mr. Swainson places *Upupa* between *Promerops* and *Epimachus*, the three forming his subfamily *Promeropidæ*, which follows the Humming-birds (*Trochilidæ*), and precedes the Paradise-birds (*Paradisædæ*), the whole constituting a family of the tribe of *Tenuirostres* (*Suctorial birds*). He remarks, "the Hoopoes (*Promeropidæ*) betray so close a resemblance to the Bee-eaters,

* 'Ornithologie.' tome ii. p. 453. † *Prodromus*, 1811.

‡ *Dict. d'Hist. Nat.*

§ *System der Baierischen Vögel, Zoologie, von Karl Ludwig Koch*, 1816. || *Règne Animal*.

¶ *Manuel d'Ornithologie*, 1820, 2nd ed. pt. i. p. 414.

** *History of Birds*, 1822. †† *Systema Avium*, 1827.

‡‡ *Traité d'Ornith.* vol. i. p. 319.

§§ *Cabinet Cyclopædia*, vol. ii. p. 143, and p. 331.

that there can be no reasonable doubt of their affinity." He further says that the Grand Promerops of New Guinea, inhabiting the same regions as the Paradise-birds, from analogy, may be thought to unite that beautiful family with the Hoopoes.

In the well-known 'Genera of Birds,' (1849), George Gray assigns the Upupidæ location as a group of the Tenuirostres, in proximity to the Meropidæ and Promeropidæ. His 'Handlist of Genera and Species of Birds,' 1869, pt. i., shows a slight alteration, inasmuch as the Galbulidæ intervene between the Upupidæ and Meropidæ. In his Upupidæ there are three groups—1. Upupinæ, 2. Irrisorinæ, 3. Epimachinæ. The first contains *Upupa*; the second, *Irrisor*, with the rejected subgenera *Lamprolophus*, *Cyanepops*, *Scoptelus*, and *Rhinopomastus*; the third gathers under its fold *Ptilornis* (and the discarded subgenus *Craspedophora*), *Epimachus* (*Seleucides* and *Semioptera*), and *Falculia*.

In the 'Ornithologiska System'* of Professor Sundevall the Oscines ambulatores contain three:—1. Paradisides; 2. Epimachides; 3. Corvides. As genera in No. 2 there are *Epimachus*, *Irrisor*, *Rhinopomastus*, *Arachnothera*, and *Upupa*. The same author, 'Svenska Foglarna' (1856), groups subsidiarily by foot-structure, and looks upon the Hoopoe as allied to the Larks. My attention, furthermore, has been called by Dr. Sclater to a still more recent work† of Sundevall's. The publication in question is as yet incomplete; but that published contains sufficient for my present purpose. The order Oscines holds precedence and place. First come the series Laminiplantares, divided and subdivided into cohorts, phalanxes, families, and genera. Its cohorts are Cichlomorphæ [Thrushes], Conirostres [Finches], Coliomorphæ ‡ [Crows], Certhiamorphæ

* In K. Vet. Akad. Handl. Stockholm, 1835.

† *Methodi Naturalis Avium disponendarum tentamen; Försök till Fogelklassens Naturenliga Uppställning*: Stockholm, 1872.

‡ In ignorance of Professor Sundevall's having already adopted the term Coliomorphæ for the Crows (as a group), I used the self-same term in recognition of the peculiarities and aberrance of the genus *Colius* (see 'Ibis,' July, 1872, p. 278). Priority resting with Sundevall, I herewith cancel my use of the name, and propose instead the term ΠΑΜΠΡΟΔΑΚΤΥΛÆ = "having all four toes in front" (παμ = πᾶς, *omnis*; πρὸ, *antè*, vel *præ*; δάκτυλος, *digitus*), for the Coliine group.

[Creepers], Cinnyrimorphæ [Sunbirds], Chelidonomorphæ [Swallows]. The second series Scutelliplantares has for cohorts Holaspideæ [Larks and Hoopoes], Endaspideæ [Tree-runners], Exaspideæ [Tyrant Shrikes and Todies], Pycnaspideæ [Chatterers], Taxaspideæ [Bush-Shrikes and Lyre-bird]. By this collocation Sundevall clearly throws apart the Irrisors and Hoopoe, still associating the former with the Crows and Paradise-birds, the latter with the Larks.

M. Le Baron de la Fresnaye* also regarded *Upupa* as having affinities with the Larks, but more strongly connected with *Upucerthia*, *Irrisor* belonging to the Sunbirds. Enough has been said to show how diverse are the opinions of ornithologists† on this subject.

II. *Additional data, structural and otherwise, bearing on the Upupidæ and pseudo-genera.*

1. *Upupa*.—My copious allusions to and quotations of prior labours on the common Hoopoe, both as to its exterior and interior, plainly debar me from having much to say thereon. Withal a few points may bear annotation, and a word on *U. minor* may be of interest.

As regards *U. epops*, specimens examined on my own account indorse Nitzsch's pterylographic remarks. In one adult ♂ I specially noted primaries 10 (5th the longest), secondaries 8, rectrices 10. Oil-gland large, broader than long, and tipped with a considerable bunch of feathers. No trace of powderdowns. Viscera, excepting length of gut, agreeing with what has been related.

Of vertebræ there are 12 to the neck. The 13th bears a tiny riblet, and therefore may be reckoned along with the dorsal ;

* P. Z. S. 1840, p. 124.

† I may further observe that Drs. O. Finsch and G. Hartlaub (Von der Decken's 'Reisen in Ost-Afrika,' vol. iv.) place the Hoopoes, Promerops, and Creepers among the Tenuirostres. Their Upupidæ comprise *Upupa*, viz. *U. epops* and *U. africana*; *Irrisor*=*I. erythrorhynchus*, *I. minor*, *I. cyanomelas*, and *I. aterrimus*. They moreover do not recognize five species of *Irrisor*,—*I. sibilator*, Vieill., *I. caudacutus*, Vieill., *I. lamprolophus*, Wagl., *I. cæruleus*, Vieill., and *I. cyaneus*, Vieill.

including it and a rearward one partially anchylosed with the ilia, 7 necessarily belong to the back. There appear to be about 10 vertebral elements coalesced into the sacral piece, and behind that 6 caudal vertebræ. In this light the spinal formula would be C. 12, D.-L. 7, S. 10, Cd. 6=35.

Eyton tabulates 11, 8, 10, 6 to the same species.

The anterior riblet is slender, styliiform, 0·2 inch long. The 2nd rib, with better-defined head and offshoot to transverse process, has a length of 0·6 inch; its apex free. The 3rd, 4th, 5th, and 6th costæ bear median recurrent processes. These are wanting in the 7th and 8th, the latter rib being very slender and shorter than that which precedes. 3rd to 7th ribs have a sternal union; midway between the recurrent and transverse processes the same ribs broaden out considerably.

I may specially call attention to the great length of the slender pubic rod, and to the terminal tail-vertebra, the spinous process of which is very high and tapering.

The quadrate bone is also worthy of note; the limbs only moderate as to length. The upper articular or tympanic limb is distinguished by being longitudinally deeply guttered on its external border, a condition by no means of common occurrence. The lower articular or mandibular superficies, as more ordinarily is the case, presents three condylar knuckles; these, however, are nearly on the same plane, or with only very shallow sulci indeed between. Thus the two outer are in a manner fused together and form a backward scroll, while the single inner is laterally compressed and very narrow towards its junction with fellows.

The tongue-bone or hyoid comprises its usual avine elements. The arrow-headed or Λ -shaped tongue-pieces apically are cartilaginous; the posterior terminal forks osseous. The middle continuous piece (glosso-, basi-, and urohyals) has a long tapering dagger-outline slightly expanded and indented for the articulation of the posterior side rods (ceratohyals). What markedly denotes the hyoid of *U. epops* from that of *U. minor* is not only a relative elongation of the median segments, but its anterior end tapers, whereas in the latter it is more expanded and cleft (compare figs. 61, 62, Pl. VII.).

Lengths of the bones of the extremities of the adult female Hoopoe (*U. epops*, shown in Pl. V.) in inches and decimals:—

	Humerus.	Ulna.	Metacarpus.	Mid phalanges.	Tot. length.
Wing	1·4 inch,	1·85	0·8	0·55	4·6
	Femur.	Tibia.	Tarso-metatars.	Mid-toe phalanges.	Tot. length.
Leg	0·95 inch,	1·5	0·9	0·8	4·15

Through the goodness of Prof. Alfred Newton I am enabled to describe, compare, and, I believe, for the first time figure the sternum and shoulder-girdle* of the South-African Hoopoe, *Upupa minor* (Gmel.). It distinctly exhibits variation from the common European species, whilst stamped with a like generic type.

Bearing in mind the distinctive characteristics of parts in that of *U. epops* as expounded by Blanchard (*anteà*, p. 185), I may state of the breast-bone of *U. minor*, that relatively it is a shade narrower, the slenderer xiphoid processes less horizontally placed, and the interior surface by no means so shallow. The posterior notches (xiphoid spaces) are a trifle greater and show no signs of forming foramina. The keel, with similar curvilinear outline, is most decidedly deeper throughout. As to the rostrum, perforation † at its base between the coracoid grooves and in these gutters themselves, the tendency to change is appreciable, but difficult to define. The bones of the shoulder-girdle, including furcula, are not so strong in *U. minor* as in *U. epops*; but it is noticeable that while the scapula in each is of equal length, the coracoid of the former is both considerably shorter and less expanded inferiorly.

The tongue-bones of *U. minor* I have already incidentally mentioned.

* No 776a, Newton's MS. Osteol. Cat.

† In allusion to this foramen Mr. Parker (Ray. Soc. Monog. 'Shoulder-girdle and Sternum in the Vertebrata,' 1868), speaking of *Buceros albirostris*, observes:—"In the latter species we have a beautiful morphological character—namely, a fenestra, tending to cleave the rostrum off from the rest of the entosternum—a character better developed in *Upupa*, and very constant in most of the Gallinæ." p. 173. (See his pl. xiii. fig. 15, of fledgeling *U. epops*.)

According to the researches of Messrs. Sharpe and Dresser*, made upon a large collection of European, African, and Asiatic birds, there are but five good species, to wit, *Upupa epops*, Linn., *U. indica*, Layard, *U. longirostris*, Jerd., *U. africana*, Bechst., and *U. marginata*, Peters. As regards specific differences and validity thereof the subject is not one for me to notice; nor does their capital *résumé* of the Hoopoe's migrations and habits strictly fall within the limits of the present paper. My old colleague, Mr. Bartlett, also relates to me many interesting observations on his part, which space compels me to omit. He believes *Upupa* to be related to some forms of the Bucerotidæ, if external characters, habits, &c., are to be relied on.

2. *Irrisor*.—In a living state, from the accounts of travellers, and in the skin, this purely African group is fairly known. The sternum likewise has been said to approach that of *Upupa*; but in other respects, skeletally and anatomically, their structural peculiarities have been a desideratum. It was with no small degree of pleasure, then, that I received from Mr. Sharpe material, though scanty in kind, enabling me indubitably to establish their relationship to the Hoopoes, a point hitherto rather inferred from limited data than absolutely proved. The adage of raining and pouring, in my case, applied; for almost as soon as the above was acquired, there came to hand from Prof. Newton additional bones, the species and sex in each case being authenticated; Sharpe's having formed part of Mr. Jesse's Abyssinian collection adds to accuracy.

By consulting Pl. VI. and comparing it with Pl. V., the eye at a glance will perceive the similitude and discrepancy marking the individual bones of the two genera.

The skull of the Red-billed Irrisor (*I. erythrorhynchus*) being injured behind, the occipital contour is necessarily faulty, although my restored outline, I venture to say, is pretty near the truth. In rough measurement the bill from tip to prefrontal suture (hinge-joint in some birds) is twice the length of the cranium from the latter point backwards. This agrees tolerably well with what obtains in *Upupa*, its fore

* A History of the Birds of Europe, Part vii. Oct. 1871.

region having the advantage, in the figured specimens—although in a second skull of *I. erythrorhynchus* I have found the præmaxillæ quite, if not fully, as long as in the Hoopoe. Be this as it may, the rear cranial segment containing the brain of *Irrisor* is relatively wider, though about the same height, as in *Upupa*. The frontal sulcus is shallower, almost obsolete; hence the vertex is all but wanting in the bilobation peculiar to the Hoopoe, and so far resembles that of the Bee-eaters. The breadth of the prefrontal region by inscooping of the orbits is narrower than in either form compared, and vastly different from the condition extant in the Bucerotidæ. The præmaxillæ carry their basal width more forwards than in *Upupa*; but the shape of the beak otherwise is not unlike, that of *Irrisor* inclining to greater deflexion. The shape and position of the narial aperture and presence of supraorbital foramen almost agree in the two genera, the latter perforation, however, being smaller in *Irrisor*. In both the nasal septum is ossified, and the maxillo-palatines, with somewhat firm spongy bone, fill the body of the mouth below. A median process pouts towards the postnares, but is not sunk and grooved as in the Alcedinidæ and Meropidæ. The horizontal palatal plates are of moderate breadth, and have long postexternal spinous processes. The continuation of the palate-bones forward are more raised and outwardly tilted, leaving therefore a deeper superficial maxillo-palatine depression. Save this and a less spongy condition of the maxillary region generally, the baso-cranial formation in *Irrisor* and *Upupa* are well nigh identical. I must not omit to remark, though, that *Irrisor* is distinguished by possessing stouter pterygoids; and these are not only wider at their anterior ends, but do not meet; the postinternal palatine angles likewise are 0.1 inch short of union.

As regards the quadrate bone, the auditory limb wants the characteristic gutter of that of *Upupa*. The orbital limb tapers more, and the mandibular knuckles are more pronounced, there likewise being an accessory cusp to the inner one. The vacuity of the orbit is somewhat less rotund in *Irrisor*; but in ossification of the interorbital septum, solder-

ing of the tear-bone (lachrymal) with the præethmoid process, and brevity of the so-called zygomatic process, no sure line of demarcation can be drawn between it and *Upupa*.

The lower jaw complies in general outline &c. with that of the Hoopoe; the posterior and internal articular processes are less pronounced; and by a short grooving of the upper surface of the posterior end of the symphysis we have indication of slight lengthening and lodgment therein of the tongue.

The sterna of three species examined by me (*I. senegalensis*, *I. erythrorhynchus*, and *I. aterrimus*) differ *inter se*, and, while bearing the family stamp of *Upupa*, gradually diverge from that genus.

In *I. senegalensis* the notches are converted into small foramina, and the xiphoid bars peak outwards, thus giving greater posterior breadth to the sternum, which even mesially is wider. The keel is by far shallower, with a straighter free margin, sharper and less rounded, and wider emargination forwards. Rostrum narrower, pointed, and less deflexed. The basal rostral aperture, however, is very manifest, but the tuberosity above not so dominant. *I. erythrorhynchus* has a breast-bone like that of *Upupa*, inasmuch as the notches are open though reduced. In keel &c. it is like its *confrère*; but there is duplicity of the interior pneumatic foramina, and these are situate laterally. This same specimen of Prof. Newton's bears additional value on account of the xiphoid cartilages (*c*, fig. 28) being *in situ*. From their disposition we recognize that by their ossification the notches are readily connected into foramina, and the median indented posterior border produced, as obtains in *I. erythrorhynchus* (figs. 26-27). Moreover part of the middle cartilage, ossified and dried, is what, I presume, Blanchard accentuates as the denticle peculiar to the sternum of *Upupa*; for in my specimens a tiny bit of dried cartilage was alone present at the spot indicated. The shoulder-girdle and sternum of the Black Irisor (*I. aterrimus*) is smaller and more delicate than the preceding. The notches are deeper, xiphoid bars pedate, a bifid tuberosity above rostrum; the latter is very short, and the emargination below and production of keel almost perpendicular. In these particulars therefore it manifests Passerine tendency.

In all the three above-mentioned species of the genus the scapula more or less agrees, viz. is straightish or very slightly curved. There is no backwardly developed episternal process to the furcula, though a tiny elevation marks the inferior union of the clavicles; the upper end (so-called præcoracoid) presents a flattened discoid expansion as in *Upupa*. The coracoid is short, with a moderate shaft, its inferior end (epicoracoid) broad and outwardly expanded. At the superior extremity there is a full development of the inner extra process (mesocoracoid of Parker), and consequently a deep groove between it and the head of the bone; in *Upupa* an ossific bridge converts this into a foramen.

Irrisor erythrorhynchus, ♂.

	Humerus.	Ulna.	Metacarpus.	Mid phalanges.	Tot. length.
Wing	1.2 inch,	1.6	0.75	0.6	4.15

	Femur.	Tibia.	Tarso-metatarsæ.	Mid-toe phalanges.	Tot. length.
Leg	0.9 inch,	2.0	0.9	1.15	4.95

As respects the humerus of *I. erythrorhynchus*, its inferior internal condylar tuberosity is longer than in *Upupa*. The ulna and other bones of the wing agree, difference of size being taken into account.

The tibia, a longer bone with enlarged extremities, is kindred in pattern to that of the Hoopoe. The tubercle below, bony bridge, and fibular projection are all there; but it is distinguished by a greater prominence of the head, defined pouting tuberosity, and longer knife-like supero-inner ridge—all tantamount to increased grooving of the muscular impressions.

The construction of the tarso-metatarsæ is of exceeding interest; in it we find a repetition of those characters which distinguish and, indeed, isolate *Upupa* from other birds. *Irrisor*, notwithstanding, has points intimating commencement of divergence. The calcaneal eminence is pronounced and deeply grooved. There are two foramina at its root; but the head is wider transversely than in *Upupa*. The tendinous grooves of the shaft are better marked, and this gives greater angularity to the bone. The knuckles of the inferior end are deeply

scooped, and the inner one longer ; and, lastly, the metatarsal ossicle with which the hind toe articulates is lengthened compared with *Upupa*.

The digits have the ordinary number of phalanges, the distal claw-bearing ones stronger and with greater curvature than in the Hoopoe.

I have examined the pterylosis, which substantiates Nitzsch's observations. Concerning the toes I find there is adherence of the basal innermost phalanges ; and the bones of same, as in the Hoopoe, have a certain coadaptation of curvature fitting the one to the other.

3. *Rhinopomastus*, &c.—In this form, irrespective of coloration of plumage, I recognize points which seem to substantiate its generic separation from the preceding. Its osteology I shall briefly advert to ; for in most particulars, size excepted, it agrees with *Irrisor*.

The wing-bones require no comment. The tibia has shallower musculo-tendinous grooves ; is likest therefore *Upupa*. The tarsal ridges are weaker than in *Irrisor* ; the inferior articular knuckles and the hind-toe metatarsal ossicle agree. The head of the tarsus is pushed a grade further from *Upupa* and *Irrisor* in the minor prominence of the postcalcaneal eminence and shallowness of its sulcus, and in breadth to antero-posterior depth of the head. The following are the absolute lengths of the limb-bones in this specimen:—

Rhinopomastus cyanomelas, ♂.

	Humerus.	Ulna.	Metacarpus.	Mid phalanges.	Tot. length.
Wing	1·0 inch,	1·25	0·5	0·4	3·15

	Femur.	Tibia.	Tarso-metatars.	Mid-toe phalanges.	Tot. length.
Leg	0·7 inch,	1·2	0·8	0·75	3·45

The configuration of the skull has sensibly altered from that of *Irrisor*, deflexion and tenuity of the præmaxillæ being marked and simulating what obtains in *Drepanus* and like genera. This curvature is very apparent in the lower mandible ; and this bone has its postarticular angle almost vertical. The brain-section of the cranium is full, globose, and without

longitudinal sulcus. The prefrontals and interorbital area are relatively broader than in *Irrisor*, and altogether higher, while evidence of suture with the bill and production of premaxillary splints is obliterated. The small nostril has no groove behind leading to supraorbital foramen—the representative of the latter being reduced to a speck. The palatine formation essentially agrees; but the spongy maxillo-palatines and ossified nasal septum are well nigh flush with the anterior palatine bars. The post-inner palatine angles are narrowed, leaving greater space between them and the long delicate external retrocurrent spines. The knuckles of the quadrate are more rounded and prominent than in *Irrisor*.

I subjoin a series of calculations affording evidence that the ratio of the bones of the limbs present a certain agreement among themselves, but yet differ in the three genera. *Irrisor* has proportionally the greatest tibia, and *Rhinopomastus* the relatively longest tarso-metatars to metacarpus. In proportion of entire leg to wing they both exceed *Upupa*.

	<i>Upupa</i> <i>epops</i> , ♀.	<i>Irrisor</i> <i>erythrorhynchus</i> , ♂.	<i>Rhinopomastus</i> <i>cyano-melas</i> , ♂.
Ulna to humerus	132 : 100	133 : 100	125 : 100
Metacarpus to humerus	57 : 100	62 : 100	50 : 100
Mid digit to humerus	39 : 100	50 : 100	40 : 100
Tibia to Femur	157 : 100	222 : 100	171 : 100
Tarso-metatars to femur	94 : 100	100 : 100	114 : 100
Mid anterior toe to femur	84 : 100	127 : 100	107 : 100
Humerus to wing	30 : 100	27 : 100	31 : 100
Ulna to wing	40 : 100	38 : 100	39 : 100
Metacarpus to wing	17 : 100	18 : 100	15 : 100
Mid digit to wing	12 : 100	14 : 100	12 : 100
Femur to leg	22 : 100	18 : 100	20 : 100
Tibia to leg	34 : 100	40 : 100	35 : 100
Tarso-metatars to leg	20 : 100	18 : 100	23 : 100
Anterior mid toe to leg	18 : 100	23 : 100	22 : 100
Femur to humerus	60 : 100	75 : 100	70 : 100
Tibia to ulna	83 : 100	125 : 100	95 : 100
Tarso-metatars to metacarpus	111 : 100	120 : 100	160 : 100
Mid ant. toe to mid dig. of wing	145 : 100	191 : 100	187 : 100
Leg to wing	94 : 100	119 : 100	109 : 100

4. *Fregilupus*.—Of this remarkable form Prof. Schlegel* uses words to this effect:—The species, *F. madagascariensis*, has become so rare at the island of Réunion (Bourbon) that it has not been heard of for a dozen years. Coastwards it is destroyed; but report says that it still exists in the interior forests. Old Creoles state that at one time they were common, stupid, and easily killed with a stick. It is there known by the name of Hoopoe. Whether suggested by this local name or otherwise, some ornithologists, Bonaparte for instance, have ranged it among the Upupidæ. Later writers, however, George Gray for example, more judiciously placed it in the neighbourhood of the Sturnidæ. Its proper location it is not my intention at present to enter on, my object alone being to give succinct and good reasons for its separation from the Upupidæ.

I understand that no skin of the form in question exists in this country, and that the only skeleton is that in the possession of Professor Newton at Cambridge. The kindness of this gentleman, then, in forwarding the precious specimen† for my examination, I duly appreciate.

Osteologically the points of departure from *Upupa* and *Irisor* are trenchant. The keel of the sternum is relatively shallower, and anteriorly sharper; the rostrum deeply forked, large, and sharply upturned; the whole sternum is broader; xiphoid spaces longer; costal processes very high and broad. Furcula with a large inflected process or interclavicle. Scapula curved; coracoid long, narrow, and relatively slender. Pelvis with narrowed deflected ilia in front and proportionally wide behind; ischia remarkably long, their pointed tuberosities little short of the pubes. Postfrontal and occipital regions of skull full and rounded; the former relatively narrower, the latter with greater width to height; there is a large interorbital vacuity; narial orifice large, long, and elliptical; a stout vomer present, truncated in front and cleft behind;

* Recherches sur la Faune de Madagascar et de ses dépendances d'après les découvertes de François P. L. Pollen et D. C. Van Dam. Mammif. et Ois. par H. Schlegel. Leyden, 1868. Part 2, p. 104.

† Labelled *Fregilupus varius* ♂, Réunion (J. P. Verreaux), No. 974a, Newton's MS. Osteol. Col.

septum of nares unossified; no union of maxillo-palatines, and a large palatal cleft. Leg-bones long, the tarsus unusually so; two outer toes cleft to the root. Tongue long, narrow, pointed, and lies in a groove in symphysis of mandible.

Whatever supposed affinity *Fregilupus* bears to *Upupa* from tenuirostral character, thus we see, breaks entirely down by skeleton-evidence.

5. *Falculia*.—My study of *F. palliata*, another of those curious Madagascar forms, is unfortunately limited to a stuffed specimen in the British Museum, and to literature on the bird. Judging from the shape, more particularly the depth of the bill, from the relatively narrowed condition of prefrontals and cranial contour, from the structure of the foot with elongate tarsus (other than plumage &c., discoursed on by ornithologists), I certainly agree with those who deny its having close affinity to the Hoopoes. It is quite possible that it may veer towards the preceding, *Epimachus*, or the next to be mentioned; but at all events outward character of itself precludes association with the Upupidæ. I must refer the reader to Geoffroy St.-Hilaire's original description*, and to Schlegel's account†, where the young and sexual differences and the habits of the bird are dwelt upon.

6. *Heteralocha*.—The anomalous Huia Bird of New Zealand has been referred by its original describer, Mr. Gould‡, by Cabanis§, G. Gray||, Sundevall¶, and others to the neighbourhood of the Crows, and in close proximity to the Starlings, though suggestions as to its alliance with the Hoopoes have not been wanting (to wit Gray**). In the latest monograph on the birds of New Zealand, Mr. Buller urges the latter position; and accordingly *H. acutirostris* (*Neomorpha*, Gould) is consigned to the Upupidæ††. The nidification of this bird is unknown;

* Mag. de Zool. 1836.

† *Op. cit. supra*, p. 105, pl. 33.

‡ P. Z. S. 1836, p. 144; Birds of Australia, iv. pl. xix.

§ Mus. Hein. Th. i. p. 218.

|| Hand-list of Birds, ii. p. 22.

¶ Meth. Nat. Avium dispon. tent. p. 40.

** "Birds of N. Zealand," Ibis, 1862, p. 217.

†† From a conversation with Mr. Buller I learn that his opinion is changed as regards the affinities of *Heteralocha* since the publication of Pt. i.; and his introduction rectifies this (Hist. of Birds of New Zealand, p. xvii.).

but some of its habits, well told by Mr. Buller, certainly recall peculiarities of the Hoopoes and Hornbills. On the other hand, possession of wattles, the remarkable difference in length of the beak in the sexes, &c. weaken even exterior characters where these are relied on for interpretation of relationship.

The strongest evidence that its construction is unlike that of *Upupa* and *Irrisor* is given by its anatomy. Mr. Garrod's* recent investigation shows that coracomorph and not coccygomorph type prevails. According to him the dorsal feather-tract does not enclose an ephippial space; remiges nineteen; rectrices twelve; uropygium naked. Tongue elongated, triangular, slightly bifid apically. There are two short cæcal appendages, and a single left carotid artery. A forwardly truncate and posteriorly cleft vomer obtains; the maxillo-palatines do not meet; the nasal septum is unossified, the prepalatines leave an open wide cleft. Other points are noted; but the above in themselves are sufficient to prove attributes at variance with what pertains to the Upupidæ.

III. *Disposition of the Upupidæ weighed by their organic build.*

1. *To the Larks.*—That so great an authority as Sundevall, under the present phase of ornithology, should see fit to conjoin the Hoopoes with the Alaudinæ, and separate the former from groups truly allied, receives explanation from the false assumption of single characters being the test of systematic relation. A resemblance in tarsal scutella, and even terrestrial habit, may coexist in two forms (adaptations to certain phases in modes of life, or scintillations of a once common attribute) without these overruling the more stable organic whole as related to kindred and descent. I am willing to cede every scrap of vantage-ground to the worthy Swede, to acknowledge earth-loving habit, proneness to grovel in the dust, their crest, tenuous beak, long shank, elliptical space in spinal feather-tract, and plantar scutella, as numerical testimony that the Hoopoe has points in common with one or other of the Larks.

* P. Z. S. 1872, p. 643.

But that these should overmatch characteristics of colour of egg, nest-building, number of rectrices, of oil-gland, vocal organs, song, tongue, cæca, sternum and shoulder-girdle, pelvis, relation of wing to leg-bones, perforate condition of head of tarsus, construction of base of skull, &c. I can by no means admit. Yet the Larks and Hoopoes differ widely in all these respects. These structures are coadapted to organic function, and of necessity evince propinquity of type. To fling such evidence to the winds, as Sundevall's late arrangement proposes, shakes my confidence entirely in its worth.

2. *To the Creepers and Sunbirds.*—As in the last, with these forms outward resemblances have too long swayed ornithologists in assigning a close proximity of *Upupa* to the Certhiadae and Nectariniidae. The moment we go more than skin deep the skeletal structure reveals a want of harmony between these forms and *Upupa* and its true allies. The usually long slender beak of the Creepers and Sunbirds deceives as to their Hoopoe relationship. This point kept in abeyance, I have but to repeat what has been affirmed of the Alaudinae, to show that in a whole mass of particulars they have no common tie. In the case of *Certhia* and *Nectarinia*, moreover, they have not the advantage of likeness in plantar scutella, pterylosis, or terrestrial habit, though their beak-elongation suggests analogy.

3. *To the Starlings and Crows.*—What affinity there is between the Corvine group and the Upupidæ has never been weightily insisted upon by reason of intense similarity in outward aspect. Neither the beak nor feet of the former suggest such deceptive likeness as in the preceding groups. Strickland's hint of filtration through *Lamprotornis* has but an outer garb of cogency; for even our subsequent group 4 might stand between. As what I have to say concerning them applies equally to the present, the latter are thus twofold removed in consanguinity.

4. *To the Rifle-birds and Birds of Paradise.*—If *Seleucidés albus** be accepted as one (*Epimachinae*) and *Paradisea papu-*

* For the use of a skeleton of this bird I am indebted to Prof. Newton. It bears his MS. Osteol. Cat. No. 793a. The Bird of Paradise I refer to is the skeleton in the gallery of the British Museum.

ana (Paradiseidæ) typical of the other, I can satisfactorily dispose of these as not being of nearest kin to the Upupidæ. In *Seleucides*, whilst the elongate præmaxilla is not unlike that of *Irrisor*, it yet differs most materially at the root, and especially depression at junction with prefrontals. There is a large interorbital fenestra. The palate is passerine, *i. e.* stout vomer and non-union of maxillo-palatines, therefore palatal cleft wide. Pterygoids long and slender. The mandibular symphysis is deeply grooved for the reception of a very long, delicate, tapering tongue, and the postarticular angle of the lower jaw truncate. Tongue-bones unusually long. There is an episternal process to the furcula; sternal rostrum large and furcate; keel sharp forwards; middle much longer than external xiphoids. Pelvis narrow anteriorly. Leg-bones of great length; four upper tarsal perforations for tendons, and other skeletal differences. In *Paradisea* most of these points in the body and limbs bear out within certain limits the contrast exhibited by *Seleucides*. The skull of *Paradisea*, moreover, as to general shape, and particularly premaxillary and mandibular peculiarities, is far more unlike that of the Upupidæ. Nitzsch has long ago shown there is a vast difference in their pterylosis. If, moreover, we supplement geographical distribution, habit, &c., distinction and separation from *Irrisor* and *Upupa* is abundantly warranted in the face of Sundevall's union.

I may here observe there is great difficulty in proving what Passerine approaches nearest to the Upupidæ; as regards the Syndactylæ the problem is easier.

The resemblances between *Promerops*, *Upupa*, and *Irrisor* in the form of the beak and, partly, tail have suggested their close alliance to many ornithologists. This similarity in outward aspect, however, is contra-indicated by their skeleton, which differs trenchantly. In Plate VII. I have delineated the skull and certain of the bones of *Promerops* as contrasted with *Rhinopomastus*. My notes thereon I reserve for another communication, as also the summary of characters distinguishing the Epopomorphæ, their insertion in this paper being deemed too lengthy.

5. *To the Bee-eaters, Kingfishers, Rollers, and Motmots.*—Nitzsch's Lipoglossæ certainly combines *Alcedo* with *Upupa* through pterylosis; but even in this respect important contrast obtains. Giving plumage all due importance, the above four groups, though Desmognathous (united maxillo-palatines and slender anteriorly pointed vomer as in *Upupa*), still exhibit trenchant separation. Their breast-bone is four-notched; and its shoulder-girdle and part of wing-bones manifestly show other morphological changes. The proportional length of limb-segments, difference in construction of the tibia, tarsus, and greater syndactylism, the shape and disposition of the nares, orbital, mandibular, and tongue-bone parts, and a host of such like osteological data are unlike. They usually have twelve rectrices and double carotid arteries, tongue and internal viscera departing in type; and in egg, nidification, habits, food, &c. (and still more so the Rollers and Motmots), they do not coincide sufficiently to award them claim of nearest relationship. I must say, however, that in outline of skull, and particularly disposition of bill and palate, species of *Merops* and *Alcedo* offer more than a mere passing likeness.

Such characters are aberrant lines which approach similarly tangentially specific ones (videttes) of the Hoopoe group without closest alliance necessarily supervening.

6. *To the Hornbills.*—Lastly, what in exterior appearance can be more opposed to each other than such a great unwieldy horned bird as the Rhinoceros Hornbill (*Buceros rhinoceros*) and the graceful Hoopoe? Yet patient inquiry leads apace to trace the steps of graduation. Admitting that exuberance of casque and many other external characteristics of the above-mentioned Hornbill can hardly be reconciled with the idea of family relationship to the Hoopoes and Iridopis it cannot be gainsaid that the Bucerotidæ present extremes. When *Toccos* is reached, size and outward peculiarities dwindle till we have a form in which can be recognized semblance to certain of the Upupidæ. There is still a gap; but the very manifold structural agreements and adaptations thereof to habits &c. are strong evidence of congruity. Reiteration of what has been well told by others is superfluous; it suffices

to say that economy in general, pterylosis, geographical distribution in part, and anatomy taken all in all, turn the scale in favour of the Hornbills as the group bearing the closest relation to the Hoopoes and Irrisors. Their palatal and premaxillary condition &c. vary; but withal this does not detract from the proposition as above expressed, neither does it militate against the notion that certain of the Bee-eaters and Kingfishers throw off spurs of affiliation towards the Upupidæ.

I have spoken of a gap, and I shall trespass on the readers of 'The Ibis' by suggesting what probably may fill it—the missing link. The *Cryptornis antiquus* (Gervais), a fossil form discovered in the gypsum near Paris (tertiary formation of geologists), was originally referred by Laurillard* to the Kingfishers, species of *Alcedo*. M. Gervais† afterwards adjudged to it Cuculine affinity, and designated it *Centropus antiquus*. Alph. Milne-Edwards's‡ researches in the same field led to his regarding it as more closely allied to the Hornbills, and therewith adopting for it the generic title *Cryptornis*. The latter author bases affinity chiefly on tarsal formation and proportion of some of the wing- to leg-bones. The first four lines of the accompanying Table are those of Milne-Edwards; the succeeding three similar calculations are mine.

	Tarse.	Tibia.	Humerus.	Cubitus.
<i>Cryptornis antiquus</i>	100	168	184	198
<i>Centropus philippinensis</i> .	100	150	96	80
<i>Centropus affinis</i>	100	148	96	82
<i>Tockus erythrorhynchus</i>	100	174	164	200
<i>Upupa epops</i>	100	166	155	205
<i>Irrisor erythrorhynchus</i> .	100	222	133	177
<i>Rhinopomastus cyanomelas</i>	100	150	125	156

Acknowledging the justness of Milne-Edwards's inference from proportions of limb-segments, I, moreover, may remark that the tarso-tibial relations of *Upupa* to *Cryptornis* are even closer than that of *Tockus*, though the wing is a remove fur-

* Dict. d'Hist. Nat. Atlas, Ois. fos. pl. 2.

† Paléont. franç., 2nd ed. p. 409, pl. 49, fig. 1.

‡ Oiseaux fossiles, vol. ii. p. 371, Atlas, pl. 175.

ther. Studying the fossil remains in question, from delineations given, and particularly Milne-Edwards's admirable representation, it seems to me that the contour of the orbitocranial portion of the skull, the positive and negative evidence of a long, shallow, straight, pointed bill, and what is present of the rami of the lower mandible, all point as much, if not more, to *Upupa* and *Irrisor* than to the same parts in *Toccus*. The tarsal structure is quite as near *Irrisor* as the latter. When I add that likewise the ribs, even though imperfect, and unusual elongation of pubis (of the latter I presume the rod-like bone thrown rearwards out of place), show further likeness, I believe I am justified in looking upon *Cryptornis* as an extinct ornithic bridge betwixt the Bucerotidæ and Upupidæ.

Whilst speaking of fossils I may mention that certain fragmentary remains of long limb-bones, described by Milne-Edwards, are shown to be identical with those of *Upupa*. *Limnatornis paludicola*, Milne-Edwards, is another form believed by him to approach the Upupidæ; and *Laurillardia longirostris* evinces osteological affinities with *Merops*, *Promerops*, and *Cryptornis*. The paucity and imperfect nature of the material, however, is such that, although it permits recognition of bones as nearest to those of certain living groups, restorations advantageous for systematic purpose are less secure.

IV. *Final Considerations on the Hoopoe.*

The conclusions arrived at by me thoroughly substantiate by osteological data Strickland's juxtaposition of *Upupa* and *Irrisor*. Moreover his subfamilies Upupinæ and Irrisorinæ fitly serve to distinguish certain differentiation of character possessed by each—though, if an increased value of rank is assigned the Hoopoes, Upupidæ and Irrisoridæ must be used. In the former I recognize but one genus, *Upupa*. The Irrisoridæ contain two tolerably well-defined genera, *Irrisor* and *Rhinopomastus*, although it is possible further research among the fossil specimens may bring out others akin to these or the preceding.

I, likewise, am satisfied that Prof. Alph. Milne-Edwards's estimate of the value of the osteological characters of the group,

entitling them to a separate rank, is worthy of adoption among ornithologists. The Epopinæ or Epopomorphæ would thus be segregated from Huxley's group of Coccygomorphæ, but in a linear arrangement still follow the Bucerotidæ as nearest allies. It is true I have endeavoured to show the passage-form which may break down the line of demarcation. It is highly probable that some corresponding extinct bird may yet be found blending Upupine or Irrisorine characters with Passerine, and that in this way our present grouping may fall to nought. The formation of the group Epopomorphæ must therefore be regarded only as a temporary expedient in the attempt to comprehend the natural classification of birds.

DESCRIPTION OF THE PLATES.

PLATE V.

Skeletal segments of Hoopoes, viz. a female adult specimen of *Upupa epops*, Linn. (figs. 1 to 22), and three views (figs. 23 to 25) of the sternum of a male *Upupa minor*, Gmel., the latter drawn from a specimen in the osteological collection of Prof. Newton of Cambridge, and numbered 706a in his MS. catalogue. Figs. 5, 6, 19, and 21 are enlarged two diameters; all the rest are, as near as may be, of natural proportions.

- Fig. 1. A side view of the cranium.
 Fig. 2. Lower mandible, also in profile.
 Fig. 3. Skull, seen from above.
 Fig. 4. Palatal surface of the skull.
 Fig. 5. Under articular aspect of the left quadrate bone, magnified two diameters.
 Fig. 6. The same quadrate bone on its outer surface, magnified two diameters.
 Fig. 7. Occipital aspect or back view of the skull.
 Fig. 8. The lower jaw, seen from above or orally.
 Fig. 9. The furcula or united clavicles, from in front: *pcr*, præcoracoid expansion.
 Fig. 10. Under surface of the breast-bone.
 Fig. 11. The articular upper end of the arm-bone.
 Fig. 12. The same bone, viz. left humerus, its posterior face.
 Fig. 13. Its lower articular extremity.
 Fig. 14. Inner aspect of the remainder of the bones of the left wing.

Letters applicable to the above figures run:—*n*, nostril; *sof*, supra-orbital foramen, a bony plate dividing it from the anterior nares; *p*, posterior, *e*, exterior, and *i*, inner quadrate knuckles, articulating with lower mandible; *ol*, orbital limb; *g*, groove on auditory limb of quadrate.

- Fig. 15. Spine from the dorsum backwards, the pelvis, ribs, and shoulder-girdle attached: 1 & 2, foremost two free ribs; *pu*, pubis.
- Fig. 16. Upper or dorsal aspect of the pelvis.
- Fig. 17. The right femur or thigh-bone, from behind.
- Fig. 18. Shank, viz. right tibia (*t*) and fibula (*f*), from in front.
- Fig. 19. Ankle-joint or upper articular surface of tarsus, about double natural size.
- Fig. 20. The right tarso-metatars, its posterior aspect: *m*, metatarsal element.
- Fig. 21. Inferior knuckled end of the same bone, but magnified two diameters.
- Fig. 22. Bones of the right foot, seen from the inside: I., II., III., IV., digits respectively.
- Fig. 23. Side view of the sternum of the South-African Hoopoe, *Upupa minor*.
- Fig. 24. Interior (or upper) surface of the same bone.
- Fig. 25. Outline or foreshortened anterior view of the same sternum. (No. 766a, Newton's MS.)

Letters referring to the three preceding:—*r*, rostrum; *f*, foramen at its root; *p*, process surmounting it for attachment of the coracoid ligaments; *cog*, coracoid groove; *cp*, costal process; *ex*, external xiphoid bar; *pn*, pneumatic foramen; *k*, keel.

PLATE VI.

Various bones of species of *Irrisor*, of natural size, save figs. 36, 37, 44, and 47, which are enlarged about twice their real dimensions.

- Fig. 26. Ventral surface, sternum of *Irrisor senegalensis*.
- Fig. 27. Interior of the same breast-bone.
- Fig. 28. Under view, sternum of *Irrisor erythrorhynchus*. No. 627a, Newton's Osteol. Cat.; specimen forwarded him by the late Mr. Andersson from Damaraland.
- Fig. 29. Furcula or united clavicles of the same specimen.
- Fig. 30. Foreshortened anterior view of the sternum of *I. erythrorhynchus*. (No. 627a, Newton's Osteol. Cat.)
- Fig. 31. Sternum of *I. senegalensis* in profile.
- Fig. 32. Shoulder-girdle belonging to the above.
- The lettering used in *Upupa*, Pl. V., applies to the the same parts in the foregoing, with the addition of:—*pn*, pneumatic foramen; *xf*, xiphoid foramen; *s*, scapula; *cl*, clavicle; *ep*, epicoracoid.
- Fig. 33. Skull, from above, of an *Irrisor erythrorhynchus* ♂, specimen collected by Mr. Jesse (Abyssinian Expedition) at Kokai, 12th July, 1868. Specimen referred to by O. Finsch, Trans. Zool. Soc. vol. vii. p. 226, under *b* (No. 683). Occipital area in outline.
- Fig. 34. Upper surface, mandible of the same specimen.

- Fig. 35. Lower basal view of said skull: *m x p*, maxillopalatine.
 Fig. 36. Outer surface, left quadrate, magnified two diameters.
 Fig. 37. Under articular aspect of the left quadrate bone, magnified two diameters.
 Fig. 38. Profile of cranium, same ♂ *I. erythrorhynchus*.
 Fig. 39. Its mandible, side view.
 Fig. 40. Part of the right humerus (lower end) of the *I. erythrorhynchus* from Kokai.
 Fig. 41. Inferior articular extremity of the same.
 Fig. 42. Remainder of wing-bones in connexion: *u*, ulna; *r*, radius.
 Fig. 43. Tibia (*t*) and fibula (*f*) of the same bird.
 Fig. 44. Enlarged drawing, upper articulation of tarso-metatars, magnified two diameters.
 Fig. 45. Right tarso-metatars, from behind, natural size.
 Fig. 46. Bones of the right foot and tarso-metatars: *i*. to *iv.*, digits.
 Fig. 47. Diagrammatic representation of the inferior or distal end of the tarso-metatars of ♂ *Irrisor erythrorhynchus*, double natural dimensions.

PLATE VII.

Osteology in part, and the exterior feet-characters, of genera of the Upupidæ, and of *Promerops*, representative of the Promeropidæ. Figs. 56, 57, 67, 69, and 70 are magnified, the others of natural dimensions.

- Fig. 48. Upper surface of the skull of *Rhinopomastus (Irrisor) cyanomelas* ♂, spec. ex Mus. Sharpè (labelled, Ojimbique, June 17, 1866).
 Fig. 49. Upper surface of the skull of *Promerops caffer* from South Africa, also a donation from Mr. R. Bowdler Sharpe.
 Fig. 50. Inferior or palatal aspect of the cranium of *Rhinopomastus cyanomelas*.
 Fig. 51. Similar view of the cranium of *Promerops caffer*.
 Fig. 52. Side view of the skull of *Rhinopomastus cyanomelas*.
 Fig. 53. Lower mandible of the same.
 Fig. 54. The skull of *Promerops caffer*, in profile.
 Fig. 55. Mandible of the same specimen of *Promerops*.
 Fig. 56. Right quadrate bone of *Promerops caffer*, from the outside, and twice natural size.
 Fig. 57. Its inferior aspect, showing knuckles for articulating with inferior maxilla.
 Fig. 58. Mandible of *Rhinopomastus cyanomelas*, its upper or oral surface.
 Fig. 59. A similar view of the inferior maxilla of *Promerops caffer*.

Letters common to the foregoing figures:—*m x p*, maxillo-palatine; *vo*, vomer; *c*, cleft or fissure, maxillary and nasal; *p*, posterior angle of the mandible; *o l*, orbital limb; *o*, outer, *i*, inner, and *p*, posterior knuckles of quadrate bone.

- Fig. 60. An upper view of the tongue, glottis, &c. of *Upupa minor*:
g, gland, lateral and behind the orifice of the glottis.
- Fig. 61. The cleaned hyoid or tongue-bones of the same bird (*U. minor*).
- Fig. 62. Hyoidean apparatus of the common Hoopoe, *Upupa epops*.
- Fig. 63. Left humerus of *Promerops caffer*, shown from behind.
- Fig. 64. Left tarsus of the same bird, anterior aspect.
- Fig. 65. The same tarsus posteriorly.
- Fig. 66. Left tibia or mid leg-bone of *Promerops caffer*, its inner surface.
- Fig. 67. The knee-joint end or upper articular surfaces of this tibia and the fibula, enlarged two diameters: *t*, tibia; *f*, fibula; *at*, anterior tibial eminence or cnemial tubercle; *e*, external tibial tuberosity; *i*, inner tibial tuberosity.
- Fig. 68. A front view of the same tibia and fibula entire.
- Fig. 69. The upper end of the left tarsus of *Promerops caffer*, about twice the natural size.
- Fig. 70. The lower end of the same tarsus, also magnified two diameters.
- Fig. 71. Sternum of the Black Ibis, *I. aterrimus*.
- Fig. 72. Clothed tarsus and sole, right foot of *Promerops caffer*.
- Fig. 73. An inner view, in profile, of the same foot and tarsus.
- Fig. 74. Clothed tarsus and sole of right foot of *Rhinopomastus cyanomelas*.
- Fig. 75. Inner aspect of the same limb.
- Fig. 76. Sole of the left foot of the Red-billed Ibis, *I. erythrorhynchus*.
- Fig. 77. The lower limb of the common Hoopoe, *Upupa epops*.
- Fig. 78. Sole and hinder surface of scutellate tarsus of the same Hoopoe: *i*, *ii*, *iii*, and *iv*. denote the consecutive toes in the above seven figures.

XXIV.—Notes on 'Stray Feathers'*. By W. T. BLANFORD,
 F.G.S., C.M.Z.S.

THE appearance of a new periodical, solely devoted to Indian ornithology, and edited by Mr. Allan O. Hume, deserves more than a passing notice. Mr. Hume is not only, as he modestly states on his titlepage, the editor, but also the author of the eleven different papers contained in the only number of his magazine which has hitherto reached England. Valuable as these papers are, and important as are the additions made by them to our knowledge of the avifauna of India, the first feeling with many Anglo-Indian ornithologists will probably be one of regret that the labour spent upon this number by Mr.

* 'Stray Feathers,' No. 1. November 1872. Edited by Allan Hume. Calcutta: T. Black & Co. London: Bumpus.

Hume has not been devoted to a further instalment of his most useful 'Scrap-book,' a work the real value of which is necessarily far less appreciated by European naturalists than by those who, in India, far from museums and libraries, are engaged in studying the avifauna of the country, and to whom a book pointing out what is already known, and what remains for inquiry, may save many an hour of useless toil spent in ascertaining facts already well known to others.

The objects aimed at in '*Stray Feathers,*' and the reasons for commencing a new journal, are stated in a short "Avis au Lecteur" on the cover of the present number, and in a few lines printed on the back of the titlepage. Mr. Hume complains that he has sent the descriptions of new species to England for publication, and that his papers have been kept unpublished until he was anticipated by a brother ornithologist; and he invites all Indian ornithologists "to secure the prompt publication of every new species by inscribing its name and diagnosis in some '*Stray Feather,*' which will freely open its pages to all comers." I fear the labours of Indian ornithologists, I mean those who care more for ascertaining facts than describing new species, will be increased if every collector living away from museums and books of reference is invited to give a name to each bird which he cannot identify. Most of us who have written on scientific subjects in India, or in other countries distant from Europe, know the disadvantages under which we suffer in sending MS. papers for publication in England; and although my own experience has not been so unfortunate as Mr. Hume's, I should be very glad to be obliged to publish nothing at a distance. But I feel that whatever may be the inconvenience involved in sending papers to Europe, it will be but little diminished by intrusting them, instead, to the mercies of a Calcutta printer, and to the chances of a magazine described by its editor as one of those articles which "no one can expect . . . to be very regular in their appearance." The success or failure of '*Stray Feathers,*' will of course depend upon the amount of assistance received by Mr. Hume from his brother ornithologists; and the experience of a few months will decide better than any thing else whether

such a periodical supplies a real want or not ; but it is only right to point out that the 'Proceedings' of the Asiatic Society of Bengal have, for some years past, been published regularly every month*, and that all short papers received by the Society are therein printed, so that, even without Mr. Hume's periodical, there is no difficulty in securing the prompt publication in India of all descriptions of new species.

Proceeding to the different papers in detail, I may perhaps be allowed first to refer to one which relates to a species of Horned Lark, described by myself from Sikkim, and to ask pardon for my own sins of commission. After reading Mr. Hume's account, and after the examination of several specimens of *Otocorys longirostris* in Mr. Gould's collection and elsewhere, I think it highly probable that *O. elwesi*, described by me in the P. A. S. B. 1871, p. 227 (and more fully in J. A. S. B. 1872, pt. ii. p. 62), is merely a variety of the first-named species. The differences in coloration are certainly, as stated by Mr. Hume, merely seasonal ; and so is, I believe, the change in the tarsus from brown to black ; for I find in a large series of *O. penicillata* collected in Persia and lying before me, that there is a perceptible distinction in the colour of the legs between young birds and adults, although the difference is much less than in the case of *O. longirostris* and *O. elwesi*. That the bill of a Lark should vary in length from 0.36 to 0.6 inch is certainly very startling ; and I must say that the specimens of *Otocorys* belonging to this form which I have hitherto seen from Central Asia, Lake Baikal, &c. belong to the short-billed type ; but still variation appears to be the rule, and considerable difference in dimensions is common amongst Larks, as has been shown by Sharpe and Dresser in their article on *Alauda arvensis* in the 'Birds of Europe,' and as appears to be the case in specimens of *Galerida cristata* which I have before me.

It is only just to Mr. Hume to admit that, as he states in 'Stray Feathers,' he wrote to me in 1871 to tell me that the Sikkim Horned Lark was identical with that from Cashmere ;

* Except for two months in the autumn, in which the Society does not meet.

but my description of *O. elwesi* was in print before I received his letter.

I think that, so far as separating a bird on insufficient grounds is excusable, my mistake in the case of *O. elwesi* may be pardoned; for I find that better ornithologists than myself had long since considered the short-billed race distinct from *O. longirostris*. The former extends to Siberia; and specimens from that country have found their way into European collections under the name of "*O. albigula*, Brandt." This name, however, does not appear to have been published by the great naturalist of St. Petersburg; and the *O. albigula* of Bonaparte's 'Conspectus,' p. 246, is clearly *O. penicillata*, Gould (vel scriba, Bp.).

Now, as one good turn deserves another, I must point out that some of Mr. Hume's supposed novelties will accompany *Otocorys elwesi* to "the limbo of synonyms." The first paper in 'Stray Feathers' contains the descriptions of no less than eleven birds which Mr. Hume considers new to science. He, however, in a few paragraphs preceding the descriptions, points out that he does not dogmatically assert that all are positively new; he has been unable to identify them, and he considers the most ready means of ascertaining whether they are new or not is to publish descriptions. That this means will be successful is probable; whether it be the *best* plan to name birds which it is found difficult to identify, on the chance of their being new, is, of course, matter of opinion.

The first species described, *Ptionoprogne pallida*, from Sind, is *Cotyle obsoleta*, Cab., an African Rock-Martin. Like Mr. Hume, I obtained this bird in Sind and Baluchistan; and I have compared my specimens with African skins in the British Museum. The second species, *Saxicola alboniger*, a large form allied to *S. picata*, Blyth, is, to the best of my belief, new. It certainly is not *S. leucopygia**, Brehm; nor is it

* Mr. Hume says he cannot find the description of this bird. It will be found in the Journ. f. Ornith. 1858, p. 66, and is from Egypt, not Palestine. It is also described in Shelley's 'Birds of Egypt,' pp. 79, 80. The outer tail-feathers are entirely white, as in *S. monacha*, and the breast and abdomen black.

a form of *S. monacha*,—both of which Mr. Hume suggests as possible. No. 3, *Pellorneum palustre*, has been twice described before, fortunately always under the same name:—first, as mentioned by Mr. Hume in a foot-note, by Mr. Gould in the 'Birds of Asia,' pt. xxiv. (*Ibis*, 1872, p. 188); secondly by Dr. Jerdon himself, in the paper published, after his death, in 'The Ibis' for July 1872, p. 300.

Puffinus persicus is described as a new species of Shearwater from the Gulf of Oman. Unfortunately I did not myself obtain this bird when collecting in the same seas, and Mr. Hume has but a single specimen. It is very difficult, in so puzzling a genus as *Puffinus*, to determine the affinities of his bird from the description. It is said to be too small for *P. anglorum* and too large for *P. obscurus*—the length of the former being given by Yarrell as 15 inches, and the wing 9·5, whilst the corresponding measurements in the latter, according to the same author, are 11 and 6·75, and in the new species 13 and 7; but the quill-feathers not being fully grown in the type example of *P. persicus*, it is suggested that the perfect wing probably measures 8 or 8·25 inches. Merely pausing to express my surprise that a veteran field-ornithologist like Mr. Hume places the smallest dependence upon the lengths of birds as given in European works on ornithology, since no one knows better than he does that these are nearly always taken from dried skins, I may mention that the *P. obscurus* of Gmelin is founded upon the Dusky Petrel of Latham, Syn. vol. vi. p. 416, the length of which is given as 13 inches, and which came from Christmas Island*—that the wings, in two specimens of *P. obscurus* in the British Museum, measure 7·3 and, 7·75 inches, and, in three skins of *P. anglorum* from the Mediterranean, two have the wing 8·75 and the other 8·5 in length; specimens of *P. anglorum* from the British Islands agree better with Yarrell's measurements.

* There are two islands of this name—one in the North Pacific, about halfway between the Sandwich and Society Islands, the other S.W. of the coast of Sumatra. It is uncertain from which Latham's type was obtained; but in either case it came from either the Indian or Pacific Ocean, not from the Atlantic.

It is evident at once that there is but little room to insert a species between *P. anglorum* and *P. obscurus* on the score of size. It is, however, clear that *P. persicus* is not *P. anglorum*, being distinguished, 1st, by its much shorter tarsi and mid toe, which are given by Mr. Hume as measuring respectively 1·5 and 1·45, whilst in several specimens of *P. anglorum* I find them to average 1·75 and 1·7; 2nd, by the coloration of the sides of the head. In *P. persicus* the white of the throat extends nearly up to the eye, and covers half the lores, whilst in *P. anglorum* the dark colour of the upper parts covers the lores, and extends some distance below the eye. In both these characters *P. persicus* agrees with *P. obscurus*.

A specimen of *P. obscurus*, from the New Hebrides, in the British Museum, measures, wing 7·75 inches, tarsus 1·6, mid toe 1·55, bill in a straight line from forehead to point 1·2, and agrees with Mr. Hume's description of *P. persicus* in all characters except the two following:—In the latter bird there is said to be a white line round the eye prolonged backwards from the posterior angle for from a quarter to half an inch; in the British-Museum specimen this is less developed, the white not appearing above the eye nor being prolonged so far backward. *P. persicus* is said to have the sides, axillaries, flanks, and under wing-coverts near the body deep brown, whilst in the New-Hebrides specimen they are white. But *P. obscurus* (if, as all writers seem to agree, both Atlantic and Pacific birds, despite slight differences in dimensions &c., belong to this species) is evidently very variable; and Atlantic specimens have the flanks and axillaries brown, as in the bird described by Mr. Hume.

On the whole I do not think there is sufficient distinction shown to justify the separation of *P. persicus*, which will, I think, prove to be a variety of *P. obscurus*.

To *Puffinus persicus* follow two species, *Pomatorhinus obscurus*, from mount Abu, and *Ephialtes brucei*, from Ahmadnagar, probably well-marked forms. Then we have a sixth Indian species assigned to the genus *Drymoipus*, and called *D. insignis*; it is said to be allied to *D. sylvaticus*, Jerdon, but distinguished from Dr. Jerdon's description of the latter

by the coloration of the tail. Mr. Hume says he has never seen *D. sylvaticus*. I am greatly mistaken if there be not a specimen in the Asiatic Society's Museum in Calcutta, in bad condition it is true, but which should suffice to determine whether the tail resembles that described in *D. insignis*. Mr. Hume's *D. rufescens* (Ibis, 1872, p. 110) has been shown by Dr. Stoliczka (J. A. S. B. 1872, vol. xli. pt. 2, p. 241) to be *D. Jerdoni*, Blyth (*conf.* Jerdon, Birds of India, vol. ii. p. 180). Both Mr. Hume and Dr. Stoliczka retain the genus *Drymoipus* for these Indian birds. It is greatly to be wished that they would define its characters and show how it is to be distinguished from the African *Drymæca*.

A new *Ninox* from the Nicobar Islands, *N. obscurus*, is next described, followed by *Mirafra immaculata*, sp. nov., a species distinguished from *M. assamica* by being browner in colour above, with few and ill-defined striations, more rufous below, with scarcely any trace of spots on the breast. As only a single specimen from Deobund, a hill near Masuri, has been procured, it is impossible to help suggesting that this bird may be merely an individual variety of *M. assamica*, which occurs in the neighbourhood, but apparently at lower elevations, as we know that all Larks are liable to variation in precisely the characters pointed out—the greyer or more rufous coloration, and the distinctness of the dorsal striation and pectoral spots. Whether *M. immaculata* is a well-marked species or not can only be determined by a careful search for additional specimens.

Of the last two novelties on the list, *Procarduelis mandellii* is my *P. rubescens*, published, with a figure, in the 'Proceedings of the Zoological Society' for 1871, p. 693, pl. lxxiv.; and *Eudromias tenuirostris* is, I think, undoubtedly founded on a young specimen of *Ægialitis hartingi*, Swinhoe, P. Z. S. 1870, p. 136, pl. xii., described from the Yang-tse-Kiang in China. Mr. Harting, to whom I am indebted for an opportunity of examining a specimen of Swinhoe's species, agrees with me in thinking the two identical.

In his remarks on *Procarduelis mandellii*, Mr. Hume says that both it and *Propasser saturatus*, W. Bl., were distin-

guished by Mr. Mandelli from their allies, and leaves it to be inferred that I had not acknowledged the fact in the latter case. I mentioned in my description of the *Procarduelis* that Mr. Mandelli had sent it and *P. nipalensis* to me, and had pointed out their distinctness; but *P. saturatus* was sent to me by the same energetic ornithologist, together with a large number of other birds, for determination, and without any indication that its discoverer considered it a new species. Mr. Hume doubts whether *P. saturatus* may not, despite Moore's description, be *P. pulcherrimus*, Hodgson. To determine this question I have examined Mr. Hodgson's type specimens of the species last named, in the British Museum. They differ completely from *P. saturatus*. But still I doubt whether the latter name can stand; for the bird described by me appears to be the same as *Carpodacus edwardsii*, Verreaux, from Eastern Thibet (Nouv. Archives du Musée, Bull. vi. 1870, p. 58). M. Verreaux's paper, however, does not appear to have been received in London in time for mention in the 'Zoological Record' for 1870 (*vide* Ibis, 1872, p. 465, and Zool. Rec. for 1871, pp. 40, 66), and certainly had not reached India when I published the description of *P. saturatus* in September 1871 (Proc. A. S. B. 1871, p. 216); so I may, I think, be held excused for not having noticed the earlier description.

The second paper in 'Stray Feathers' mentions the occurrence of *Falco barbarus* in India, two specimens having been obtained, one by Dr. Stoliczka, in Kachh, the other by Mr. Blewitt, in the Narsingpúr district of the central provinces. I learn from Mr. Sharpe that there has for some years been an Indian specimen of this bird in the British Museum; the locality, however, is not quoted in Mr. Gray's Hand-list. Passing over a very interesting account of the breeding of *Elanus melanopterus* (v. *cæruleus*) in India with the remark that Mr. Layard must be added to the number of those who have described this bird as laying white eggs (Ibis, 1868, p. 242), I must make a few remarks on Mr. Hume's attempt to reduce into order the difficult question of Indian Pied Wagtails. I will preface what I have to say with the suggestion that Mr. Hume's paper was probably written

some time before it was printed, and that this accounts for the omission of any mention of Mr. Swinhoe's two papers on the Pied Wagtails of China, published in the Proc. Zool. Soc. for 1870, pp. 120 and 129, of Mr. Brooks's description of *Motacilla cashmiriensis*, Proc. As. Soc. Beng. 1871, p. 210, and J. A. S. B. 1872, vol. xli. pt. ii. p. 82, and of my own remarks on *M. hodgsoni* in the same volume, p. 59. In the latter I expressed my opinion that *M. hodgsoni*, with which I was much disposed to identify *M. cashmiriensis* of Mr. Brooks, is a race peculiar to the Himalayas and parts of Central Asia, and distinct from *M. luzonica* and *M. japonica*. Mr. Hume looks upon all these supposed species as varying phases of plumage more or less advanced towards the full breeding-dress, which he describes, and which appears to correspond with *M. cashmiriensis*, Brooks. But in case any one should be disposed to give a name to this full breeding-stage, Mr. Hume proposes to call it *superciliaris*. It appears scarcely necessary to add to the very extensive existing synonymy of the species.

It is still far from clear that the opinion I expressed (*l. c.*) as to this black-chinned race being peculiar to the Himalayas, perhaps migrating in winter to those parts of the Indian plains which are near the hills, is not correct; for of all the forms of black-backed Wagtails from China described by Mr. Swinhoe, none agrees exactly with the Himalayan bird in full breeding-plumage, for which, in that case, the name *M. hodgsoni* would stand. I should mention that Mr. Swinhoe was apparently unaware that *M. luzoniensis*, or at all events the Indian bird known by that name, has a black back in summer plumage, and a grey one in winter garb; and I suspect that some of the species described by him are only phases of plumage. But without a series of specimens it would be hopeless to attempt to clear up the history of these birds.

With Mr. Hume's remarks on the identity of *M. dukhunensis*, Sykes, and *M. alba*, and the distinction of both from *M. personata*, Gould (= *dukhunensis* apud Jerdon), I quite agree, and I hope that Sykes's name will be disused by all Indian ornithologists. I must, however, differ from the statement that "in winter both *personata* and *dukhunensis* entirely

lose, in both sexes, the black of the head, which is replaced in the male by a dark, in the female by a lighter grey." I cannot speak positively as to *M. personata*; but in *M. alba* of India I have always seen a black or blackish crown to the head of the male throughout the winter. Perhaps, after all, my "blackish" and Mr. Hume's "dark grey" are the same thing. It is, however, confined to the crown, and is sufficiently well marked to be conspicuous at some distance.

The fifth paper in 'Stray Feathers' is devoted to Flamingoes. Mr. Hume shows that the African *Phaenicopterus minor* occurs in India, and that *P. rubidus*, Feilden (Ibis, 1868, p. 496), is the female in breeding-plumage, the brilliancy of the latter varying with the time of year, whilst the difference in the form of the bill, shown in Mr. Gray's figures, Ibis, 1869, p. 440, pls. xiii., xv., is sexual. In the same way the head figured in pl. xiii. No. 2, by Mr. Gray, and said to be that of a very old Indian example of *P. antiquorum*, is stated by Mr. Hume to represent the form of bill peculiar to the female of that species.

A note on "a new (?) Polyplectron" describes some tail-feathers obtained from the Lushai country, and differing from those pertaining to either the Assamese and Bhotan species, usually known as *P. chinquis*, Temm., or the Malayan *P. bicaratum*, L.: Mr. Hume considers it probable that the Lushai bird is the true *P. chinquis* of the 'Planches Coloriées,' pl. 539, and that the Assam species must stand as *P. tibetanum* (L.); but in case the Lushai bird should be new, he proposes to call it "*intermedius*"*. The necessity for a new name is as little apparent here as in the case of the Black-backed Wagtail in breeding-plumage; but Mr. Hume's fear of being anticipated by some other ornithologist, as in the unfortunate instance which decided him upon becoming his own editor, evidently induces him to give names on the chance of their being perpetuated. The practice is common enough, it is true; but it is, I think, not followed by the best naturalists.

* I am indebted to Mr. Elliot for calling my attention to the fact that *P. chinquis*, Temm., i. e. *P. tibetanum*, L., has already been divided into three species by Mr. G. R. Gray (*conf.* Elliot, Phasianidæ, vol. i.).

But there is something else to notice in the particular case of *Polyplectron intermedium*. Not only is the name given to a race which is, by the author of the title, believed to be the true *P. chinquis*, Temm., but it is given to no complete specimen of the bird, but merely to a few tail-feathers. Against this practice I beg to protest. It is bad enough that, as in the *Dicranoceras* of Marsh, three generic names should be given to different bones of the same fossil mammal: but this is, to a certain extent, inevitable; for only fragments of extinct animals are usually found. But with living species it might at least be required that, to avoid confusion, each describer should have a complete specimen before him, and that names given to tail-feathers of birds and similar fragments should not be recognized. For if one name is applied to the tail-feathers, why should not a second be given to the quills, and a third to the head or legs? and how is any one to identify a bird with a supposed species of which merely the tail-feathers are known? A well-known naturalist lately described as the type of a new genus and species the skull of a tortoise, on the carapace of which he had already founded another genus and species; and I believe that no rule would be more worthy of general acceptance amongst naturalists than one specifying that all names given to imperfect specimens should be null and void, in the same manner as MS. names. The history of the supposed species of Argus Pheasants recently founded on a few feathers believed to belong to birds unknown to science is instructive on this subject, since the original author of the name first given now seems to doubt whether any of the feathers in question belong to birds of the genus *Argus* at all, whilst some of the feathers figured in Mr. Elliot's 'Monograph of the Phasianidæ' as primaries of one of the unknown species are declared to be rectrices of *Pavo muticus*! (Ann. Mag. Nat. Hist. July 1872, p. 67).

To return to 'Stray Feathers.' In a note on the Skylarks of India, Mr. Hume considers that there are two well-marked species, one a form of *Alauda arvensis*, L., the other the bird (comprising several local varieties) commonly known as *A.*

gulgula, Franklin, for which Mr. Hume adopts as the oldest name *A. malabarica*, Scopoli, under the belief that the figure in Sonnerat's book, upon which Scopoli's name was founded, represents the rufous bird inhabiting the Nilgiri hills in Southern India. Against this use of Scopoli's name I must enter a *caveat*. Dr. Jerdon's *Alauda malabarica* was, I believe, *Spizalauda deva* (cf. J. A. S. B. vol. xxxviii. pt. ii. p. 183, and vol. xxxix. pt. ii. p. 119); and I am told by Lord Walden that Dr. Jerdon, after his return to England, on seeing a copy of Sonnerat's work with coloured plates, satisfied himself that his identification of Scopoli's bird was correct. If this be the case, *Spizalauda deva* will become *S. malabarica*, and the Nilgiri Skylark will require a name, if it be necessary to separate it from *A. gulgula*, Frankl.; but Jerdon, who knew both races well, did not separate them, and Mr. Hume's opinion also tends towards union.

I pass on to what I cannot but consider the most important subject treated in the whole number, the Ornithology of Sind. Mr. Hume's short note is, so far as I know, the first attempt at any general account of the avifauna of one of the most remarkable parts of India, although a few of the most important birds met with in Sind were mentioned in a letter from Mr. Hume, printed in last year's 'Ibis,' p. 46. My own experience of the province is small; but so far as it goes, it entirely agrees with Mr. Hume's description; and as regards the interest of the matter to myself, I can only say that for years I have been in hopes of making such a collection of Sind birds as Mr. Hume has succeeded in bringing together, and I sincerely trust that he will give, as he promises, a complete list of the birds he has obtained in the province. Meantime I have one or two brief remarks to make on the species mentioned.

Blandfordius striatulus, which, however, is not described, is probably a new genus as well as species; at least I do not think I have met with the description of the genus elsewhere in ornithology. If the generic name is, as I presume, a compliment to myself, and the *d* in the middle is one of the numerous additions with which, as every writer who has suffered knows,

Calcutta printers have a wonderful habit of embellishing the works that come under their hands*, I must point out that for many years past there has been a genus *Blanfordia* of Arthur Adams established amongst the Mollusca, and that it will be better to use some other appellation.

Pyrrhulauda affinis, Blyth, which I obtained near Karachi, proves to be identical with *P. melanauchen* of Cabanis. I have compared a specimen from Baluchistan with the type of Blyth's species in Mr. Gould's collection, and with specimens of *P. melanauchen* collected by myself on the coast of the Red Sea. I have no faith in the occurrence of this species in Madras.

The last paper in 'Stray Feathers' merely announces the first draft of a conspectus of all the species of birds, so far as is known to the author, hitherto observed in any part of India—the latter name being used in a very wide sense, as Mr. Hume makes it to include not only Cashmere, Nepal, and Sikkim, but Ladak, and even Yarkand. I doubt if the admission of the latter country is advisable, because, if Yarkand be considered part of India, why are Afghanistan, Kelat, and, for that matter, Persia left out? Surely Yarkand has no claim, either on zoological, geographical, ethnological, or political grounds, to be included in India, however little we may be desirous that it should be made part of Russia. I quite agree with Mr. Hume in thinking that a list of the avifauna of India should include the birds of all countries belonging to the government of British India or dependent upon it, together with Ceylon; but since this limit is not coincident with the boundary of any marked zoological province, it would be, I think, well to omit all regions outside the line which marks the British rule.

The conspectus promised will be no mere list, since Mr. Hume promises many most valuable notes on nidification, and

* In the present work errors in the spelling of names are rather frequent; thus on p. 25, Captain Shelley's name is spelt Shelly; pp. 31–35, Captain Feilden is called Captain Fielden; on p. 45, *Melizophilus striatus*, Brookes, appears instead of Brooks; and on page 49, Sharp instead of Sharpe is quoted as the author of the 'Monograph of Alcedinidæ.' Those who have had to do with Calcutta printers well know the extreme difficulty of avoiding such mistakes.

descriptions and measurements of all species not included in Jerdon's 'Birds of India.' That such a work will be a most valuable boon to the ornithologists of India there can be no doubt whatever. All that is needed to perfect the work, is that some European ornithologist, with the requisite leisure and access to books, should correct the synonymy of the Indian birds. How necessary a careful work of this kind is one instance may serve to show. *Circus pallidus*, Sykes, is quoted in two instances in 'The Ibis' for last year, as the oldest name of the Pale-chested Harrier. The same mistake is made by Mr. Gray in his 'Hand-list of Birds.' Yet Sir A. Smith's name, *C. swainsoni*, has priority by two years, having been first published in the 'South African Quarterly Journal' for 1830, p. 384, whilst Sykes's name was not published before 1832 (P. Z. S. p. 80).

P.S. Whilst the preceding paper was passing through the press, I received, by post, the second part of 'Stray Feathers,' comprising Nos. 2, 3, and 4, published together in February of this year. This part consists of no less than 273 pages, 200 of which are devoted to a valuable paper by Mr. Hume on the ornithology of Sind, containing a diary of the author's journey through the province, and of his voyage along the Makran coast to Muscat, in Arabia, together with copious notes of the birds collected. For several of these, "provisional" names are proposed. I can here only call attention to this paper, which I believe to be the most important contribution to Indian ornithology that has appeared for several years.

The other papers in the present part of 'Stray Feathers' are:—A list of the birds known to occur in the Andaman and Nicobar islands, by Mr. V. Ball; Notes upon some of the Indian and European Eagles (*A. mogilnik*, *A. nævia*, and the forms hitherto confounded with them), by Mr. A. V. Brooks; Descriptions of the following novelties by Mr. Hume:—*Collocalia innominata* and *Brachypodius fuscoflavescens*, from the Andaman Islands; *Pellorneum minus*, from Thayetmyo, Pegu; *Blanfordius striatulus*, nov. gen. et sp. (a Malurine bird, near

Suya), from Karachi, Sind; *Carpophaga palumboides* and *Mareca albobularis*, from the Andamans. The remaining papers, all by Mr. Hume, are:—Additional notes on the avifauna of the Andamans; notes on *Spizaëtus kienerii*; and shorter notes on the eggs of *Megapodius nicobaricus*, on *Indicator xanthonotus*, on an Eagle-Owl from Kulu, to be called *Bubo hema-chalanus* if distinct from *B. maximus*, on *Archibuteo hemiptilopus*, *Procarduelis mandellii*, recognized as identical with *P. rubescens* (Mr. Hume explains his mistake in redescribing this bird), on the occurrence of *Poliornis liventer*, Temm., at Thayet Myo, on a *Spizaëtus* from Travancore, described as *S. sphynx*, on *Chelidon urbica*, from the Nilgiri hills, on a *lutino* of *Palaornis rosa*, and on the occurrence of *Parus cinereus* at Purneah.

XXV.—*Descriptions of a new Jay and a new Woodpecker from Persia.* By WILLIAM T. BLANFORD, F.G.S., C.M.Z.S.

GARRULUS HYRCANUS, sp. nov.

G. affinis G. glandario, sed minor; tarso brevior; pilei plumis nigris anguste rufescenti-vel rufo-schistaceo marginatis, haud albido; gulâ isabellinâ in colorem saturatiorem pectoris gradatim transeunte, remige secundario penultimo et plerumque antepenultimo maculâ ferrugineâ magnâ ad pogonium externum signatis.

Long. alæ 6·5, caudæ 5·2, tarsi 1·6, rostri a fr. 1·2.

Hab. in sylvis Hyrcaniæ, hodie Mazendaran dictæ, in parte septentrionali regni recentis Persici haud procul a litore maris Caspii.

Head above black, the feathers with narrow rufous edges, which are isabelline towards the forehead, rufous slaty behind, never white as in *G. glandarius* and *G. japonicus*, but rather resembling those in *G. brandti*; sides of head pale rufous, the ear-coverts being decidedly paler than the back. A black patch at the base of the lower mandible extending a short distance down the side of the throat, but not on to the lores. Hind neck and back vinaceous, with a grey tinge, upper tail-coverts white. Tail brownish black, the central feathers and outer webs of some of the others with imperfect narrow bluish

grey transverse bars near the base. Quills brownish black; all the primaries except the first with broad white margins; basal portion of outer web of secondaries, except the five nearest the body, white, with a blue spot at the further end of the white portion and blue bands near the wing; last secondary but four with blue, black, and white bands near the base of the outer web; last but three blackish brown throughout, the last three with an increasing amount of ferruginous brown, restricted to the outer web in all but the last, in which it extends over both webs and only the tip of the feathers is black. Wing-coverts as in *G. glandarius*, those of the primaries banded blue and black. Chin and throat rufous white passing gradually into the rufous of the breast and abdomen, which are nearly of the same colour as the back. Vent and lower tail-coverts white.

PICUS SANCTI-JOHANNIS, sp. nov.

P. affinis P. medio, sed pileo minus roseo, pectore albo haud fulvo, abdomine medio flavo, crisso subcaudalibusque solis coccineis, pectoris lateribus abdomineque striis nigris angustioribus signatis; reatricibus extimis fasciâ unicâ albâ mediocri transversâ, nec duabus latis notatis, penultimis extûs albo maculatis, haud fasciatis, reliquis omnino nigris; remigibus e contrario maculis albis majoribus signatis. Long. alæ 4·75, caudæ 2·75, tarsi 0·8, rostri a fronte 1, poll. Angl. et dec.

Hab. in quercetis prope urbem Shiraz, in Persiâ meridionali, ad alt. circa 4000–7000 ped. Angl. supra mare.

Crown of the head scarlet, less crimson than in *P. medius*; forehead, lores, and sides of the head, including the feathers above the eye, white, with a slight isabelline tinge, which is more pronounced on the forehead; ear-coverts greyish, with a greyish white band passing from behind them to the side of the breasts, in front of which is a sooty black band, rather irregular in form, terminating in an imperfect pectoral gorget. Nape brownish black, back brown, rump and upper tail-coverts brownish black, the former and the lower back mixed with dark ashy grey, from the bases of the feathers showing. Tail dull black, without any white on the six central feathers, the penultimate pair with two white spots on the outer and

one on the inner web, the latter corresponding with one of the former, but not meeting it as in *P. medius*; perhaps in fresh moult these feathers may have a small white tip, of which, however, no trace remains in the specimens collected. The outermost rectrices have a white tip, a rather irregular white bar about half an inch from the end, much narrower than the black band beyond it, and one or two more white spots on one or both webs nearer their base. Scapulars white; wing-coverts brownish black, some of those next the scapularies edged and tipped with white; quills brownish black, with white spots on both margins, those on the outer primaries being about as long as the intervening black spaces; altogether these spots form six bands on the primaries and four on the secondaries, the band at the base being partly concealed by the coverts. These bands are conspicuously broader than in *P. medius*. Breast dull white, with imperfect black gorget; sides of the breast and flanks, which are greyish, and the abdomen, with narrow, long, black streaks; middle of abdomen yellow; lower abdomen, vent, and under tail-coverts scarlet.

Of this new Woodpecker three specimens were procured in the oak-forests near Shiraz by Major St. John, R.E., after whom I have named the species.

XXVI.—*Letters, Announcements, &c.*

The following letters, addressed "To the Editor of 'The Ibis,'" have been received:—

Ningpo, December 1872.

DEAR SIR,—Last mail has placed 'The Ibis' of July in my hands. Mr. J. H. Gurney (p. 328) refers to my confusing *Scops japonicus* with a species of *Lempijius*. I regret the blunder and have been at some pains to clear up the matter. The bird I procured at Tamsuy (N.W. Formosa) (noted in 'The Ibis,' 1865, p. 348) was the bird now in the Norwich museum, which Mr. Gurney discovered to be a *Lempijius*. I received it from the interior, in skin, and could not note the colour of its eyes. But the bird procured at a later date

at Takow (S.W. Formosa) (noted in 'The Ibis,' 1866, p. 307) was a true *Scops japonicus*, as the measurements will, I think, show. I had it alive for some days.

As regards *Brachyotus accipitrinus* (Gmel.), I once put up at the back of Apes' Hill an Owl that I took for this species; but as I was not sure of it I omitted all mention of the occurrence.

It is interesting to learn that the Merlin (*F. lithofalco*, Gmel.) has occurred in Formosa. It is a winter visitant to South China. I have had it from Amoy and Swatow.

I think we are wrong in identifying *Milvus melanotis* with *M. govinda*. Our bird has bluish white or light leaden legs and feet, with sometimes a slight tinge only of yellow; whereas the Indian species has the yellow always well marked. In the 'Fauna Japonica' the feet are painted bright yellow; but this must be wrong, as I cannot believe the Japanese Kite to be distinct from ours. Radde (Reisen, Taf. 1) also paints his young Kite in the same way.

I note what Mr. H. J. Elwes remarks on our two *Henicuri*. I am not in a position here to dispute the validity of the species. Among our hills *H. sinensis*, Gould, is a very common species, and I am trying to learn all I can about it. The colour of the legs, feet, and claws, in all the *Henicuri* I know, is that of pale bloodless flesh, say veal; I fancy therefore that they are wrongly coloured in the plate of *H. frontalis*, which is otherwise excellent.

On Mr. E. W. H. Holdsworth's catalogue of Ceylon birds (P. Z. S. 1872, p. 404) I should like to make a few remarks. Mr. Holdsworth describes a new species of *Zosterops* from the Ceylon hills. I may mention that I have from Capt. Bulger's collection a very similar species, marked Madras, which I showed Dr. Jerdon in 1871, and pointed out to him wherein it differed from *Z. palpebrosus*. Dr. Jerdon shrugged his shoulders and said that he did not believe in the small differences that people considered sufficient to separate the members of this group. The Madras bird appears close to *Z. ceylonensis*, Holdsworth, in size and colour, but has no more yellow on the under neck than the ordinary species; in fact

you might take it for a large *Z. simplex* of South China. My single specimen is in my collection at home, or I would now describe and dedicate it to our lamented friend, Dr. Jerdon.

When at Galle (Ceylon) in the spring of last year (April), I shot a pair of the *Z. palpebrosus*. They seemed in habits and note to be very similar to the South-China bird. Their tongues were brushed at the tip. The male had small testes; and the birds were still in little parties and had apparently not commenced to breed.

I also got a male *Arachnechthra lotenia*, with a tongue long and brushed at the end. Its testes were large and white; and its gizzard contained a number of small *Tipulæ* (Harry Long-legs) entire.

A large tree ran into a dead pole at its top. In a small hole in this dead wood, about 50 feet from the ground, a pair of small Barbets had their nest. The male flew to the tree and called to his mate, and she flew out and sat by his side. I procured the pair. They were *Xantholæma rubricapilla* (Gmel.), and had dull coral-red legs and feet with black claws, soles ochreous; iris brown; bellies bare. The stomach of the female was empty; and she was evidently going to be relieved by the male, who by the bareness of his belly apparently took his share in incubation. In birds where the sexes are alike both parents seem to take a share in sitting on the eggs, so far as I have observed; but where the males are handsomer, they only do the gallant to the females by taking them refreshment while engaged in brooding. I do not state this as a law, but suggest it as an idea to invite further investigation.

To another small hole in a smooth-stemmed tree, about 30 feet from the ground, I watched a male *Copsychus* take food to a female on her eggs. They were common about the native huts in the gloom of cocoanut-groves. In habits and notes they reminded me entirely of our Chinese Magpie Robin, which is also distinguished for the extraordinary nuptial antics of the male. I shot a pair; but the bird is so rare here that I have not yet had a chance of comparing Chinese with Ceylon specimens.

Babbling Thrushes (*Malacocercus striatus*) were often seen

along the high road picking among the droppings of horses and cattle. They were in groups of half a dozen, and very tame, merely flying up to the branch of one of the trees lining the road, where they basked in the sun-light, sidling to one another with rounded back and drooped wings and tail, and talking amongst themselves in coaxing tones. I shot a pair. They were in worn and faded plumage, and very mangy-looking. They had the iris, beak, legs, and claws pale lemon-colour; inside of the mouth orange-yellow. The male had the testes white and small; the female numerous small eggs in a backward state. The stomachs of both contained rice- and grass-seeds. They were often to be observed clustered at the base of cocoanut-fronds.

I shot also a *Buchanga leucopygialis* (Blyth), and a small *Centropus*, which, as it certainly is not *C. rufipennis*, I took for *C. chlororhynchus*. Both the specimens I procured of this were females, and I thought possibly the female of this species might have the bill black. I find now that this is not so. Our bird differs from *C. rufipennis* in being much smaller and having a larger bill, in having broader tail-feathers, black, only lightly tinged and obscurely barred across. The beak between the scapulars is blue-black, like the neck; and the scapulars are a much darker and richer chestnut than the wings. Its differences are conspicuous when compared with *C. sinensis*, which was not the case with the Bengal *C. rufipennis*. The females are in adult plumage, which is much the same as that of the male. Length about $17\frac{1}{4}$ inches, wing $7\frac{1}{4}$, tail $9\frac{1}{2}$. It is possible that the true *C. rufipennis* (so called) of Bengal, may be found in the north of Ceylon; but I should think the South-Ceylon form was worthy of distinction.

At Penang I was so fortunate as to pick up a bright example of a pigmy *Centropus* of the *rufipennis* type, which I thought must be the true *C. eurycercus*, A. Hay, and that I had hitherto mistaken that bird; but Lord Walden's article "on the Birds of Celebes" (Trans. Z. S. vol. viii. pt. 2), has come opportunely to hand, and teaches me (p. 57) that my Malacca bird is *C. rectunguis*, Strickland.

In Galle *Cecropis hyperythra* was flying about in small

parties; but in Penang the prevailing Swallow was the *Hirundo javanica*, Sparrm., a pair of which had a nest on a punkah-rope in the upper story of the small hotel near the waterfall. It was built on a narrow wooden girdle that encircled the rope, about a foot and a half from the ceiling, looked much like a Common Swallow's nest, was open at the top, and contained three young ones. The eggs, the attendant told me, had been whitish, with pink spots. The punkah had not been pulled since the birds took to the site.

Numbers of *Cypselus subfuscatus* and *C. bataviensis* were flying about overhead; and occasionally a *Macropteryx comatus* dashed by the side of a hill, its lovely metallic colouring glistening vividly.

We procured a *Merops quinticolor* ♂. Bill black; tongue long and deeply cleft. Inner mouth yellowish flesh-colour. Testes small. Stomach contained small flies. Legs and feet dirty light brick-colour, claws black.

From a birdstuffer at Penang, among other birds, I bought a pair of *Dacelo concreta*, Temm. The bills of these were a fine rich ochreous buff on the under mandible and edge of upper, and the female much like the figure given for a young bird in Sharpe's monograph.

At sea, off Cochin China, on the 14th May, a female *Tringa salina* (Pall.) flew on board, thin and half starved. Bill and legs, toes and claws, deep bronzed black. Eggs in the ovary few and small. Land not visible.

On the 15th May, off Hainan (still no land), a *Calobates melanops* (Pall.) appeared on deck and caught flies. Several Swallows about the ship (*Hirundo gutturalis*, Scop.). Flocks of white Gannets about, stopping and hovering over disturbed water, roughened by the surface-gambolling of shoals of fish. The fish kept jumping, and the Gannets charging down amongst them. Some of the Gannets followed the ship. A specimen was captured, and shows the species to be *Sula piscatrix* (L.).

Yours, &c.,

ROBERT SWINHOE.

Marldon, near Totnes.

15th February 1873.

SIR,—I am desirous of availing myself of the pages of 'The Ibis' for the purpose of recording the existence in Damara-Land of a bird which was not included in my edition of the late Mr. Andersson's Damara notes, but which subsequently to the publication of that volume has come to my knowledge as being entitled to a place in the fauna of that country.

This is *Graculus lucidus*, Licht., as to which I am indebted to Mr. Malin, Curator of the museum of Gothenburgh, for the knowledge of the existence of two specimens presented by Mr. Andersson to that collection, and obtained by him in Walvisch Bay on the 2nd and 22nd October 1863.

In connexion with the volume above referred to, I may perhaps, without impropriety, recur to the question (which seems to me to be raised by the editorial remarks in p. 92 of the last number of 'The Ibis') as to the use of generic names of a barbaric character, whether the rule of priority ought not to be applied as strictly to generic and subgeneric names as to those which are specific.

My own view is that the rule of priority should be observed in all these cases, and for this reason—namely, that, so far as I can judge, it is impossible to define the degree of barbarism which ought to cause an only or an oldest existing name to be ignored.

I endeavoured to follow this rule in my edition of Andersson's notes, and in doing so I used "*Kaupifalco*" as an older term than its synonym "*Asturina*," and "*Hagedashia*" as the only name yet published for the restricted subgeneric group of two species which it was intended to denote.

I am yours, &c.

J. H. GURNEY.

SIR,—The identification of the females and immature birds of the genus *Circus* has caused a good deal of perplexity; and I would therefore call attention to some specific distinctions which I have recently noticed in the four Harriers found in Europe, and which, strange to say, do not appear to have

been hitherto recorded in any work with which I am acquainted. The difficulty has been principally with the females and young of the Hen, the Pallid, and Montague's Harriers; but I will go through the group.

C. æruginosus (Linn.). There is little danger of mistaking this species in any stage; but I may remark that the outer web of the 2nd, 3rd, 4th, and 5th primaries is emarginated.

C. cyaneus (Linn.) has also the 2nd, 3rd, 4th, and 5th primaries emarginated on the outer web. This formation of the 5th primary would appear to be characteristic of nearly all the Harriers; it appears in specimens labelled *C. ranivorus*, *C. assimilis*, *C. wolfii*, *C. spilonotus*, *C. hudsonius*, *C. melano-leucus* in the British Museum, and doubtless in others which I have not been able to examine. But as regards the two remaining European species, *C. swainsonii*, Smith (*C. pallidus*, Sykes), has the 2nd, 3rd, and 4th primaries, but *not* the 5th; and the same holds good of *C. cineraceus*, Mont.

Hence it follows that *C. cyaneus* can by no possibility be confounded with either of these two species, which in the formation of the 5th primary seem to stand apart from any others. Having thus reduced the elements of confusion to two species, let us apply another test, which this time will be found in the 2nd primary. In *C. swainsonii* the emargination of the 2nd primary begins on a level with the wing-coverts, so that the bulge or widening of the outer web is almost or entirely hidden; but in *C. cineraceus* this emargination commences nearly or quite *an inch below* the line of these coverts, and the bulge is visible at a glance. There are other points of distinction, such as the length of the 3rd primary, which is relatively longer in *C. cineraceus* than in *C. swainsonii*; but where the wings are abraded this is often not available; and, indeed, the number of errors which I have discovered in the course of working out this point, in the labels of the specimens I have examined from various collections, would suffice to show that the rules hitherto laid down have not been infallible. No dependence can be placed upon the sexes and labels of immature birds from the Volga, many of which seem to have been designated *C. cyaneus*, *C. pallidus*, or *C. cine-*

raceus at the pleasure of the writer; the labels of adults are generally, although not always, correct, a large female *C. cyaneus* being sometimes referred to *C. pallidus*, or a young male referred to a female *C. pallidus*, and this in spite of the blue tinge and fading bars on the tail, proving that the specimen in question can never have been properly sexed. But the test of the 2nd primary in separating the two nearly allied species has proved as constant as is that of the 4th and 5th primaries in distinguishing them from *C. cyaneus*; it has never allowed of an instant's vacillation in upwards of twenty specimens of each species from different localities; at the same time it has never been admitted as settling the question until the decision was fully borne out by most careful examination and measurements where such were possible.

It is interesting to notice that Bonaparte separated from *C. aruginosus* the Harriers with a facial disk like the three species in question, and erected them into a genus, *Strigiceps*; but it is doubtful whether the fact of the 5th primary being of a different shape in *C. swainsonii* and *C. cinereaceus* is not a still better generic distinction, although not a good one to my mind; at all events it seems to weaken the generic value of *Strigiceps*.

Yours &c.,

HOWARD SAUNDERS.

Before this number of 'The Ibis' reaches its readers, Mr. Osbert Salvin will be far on his way across the Atlantic to his old collecting-quarters in Guatemala, where he proposes to spend the next few months. In the meanwhile the undersigned has undertaken to attend to the interests of this Journal, and will do his best to see that they do not suffer from the temporary absence of its legitimate Editor.

P. L. SCLATER.

THE IBIS.

THIRD SERIES.

No. XI. JULY 1873.

XXVII.—*Notes on the Ornithology of Sardinia.*

By A. B. BROOKE, F.Z.S.

[Continued from page 155.]

32. YUNX TORQUILLA.

I only on one occasion came across this bird during the months of April, May, and the early part of June, although one would imagine numbers must pass through the island on their migration, as they are exceedingly numerous at that season amongst the olive-groves along the Riviera. I think, however, the spring of 1871 must have been an unfavourable one for migration, as I met with very few species, and very few individuals of each species excepting the most common. The same remark was also made to me by Marquis Doria in reference to Genoa, which is in ordinary seasons one of the best spots on that coast.

33. GECINUS VIRIDIS.

I never saw or heard this bird during any of my visits to the south of the island; neither did Salvadori during his stay there. It is stated by Cara to be not uncommon in the north.

34. PICUS MAJOR.

Extremely common in the forests, where his loud clicking note is always to be heard.

35. *PICUS MINOR.*

Not uncommon, according to Cara. I never saw one.

36. *CUCULUS CANORUS.*

Very common in summer. I heard the first on the 8th of April 1871, and on the 11th of April 1870. In the Riviera I have heard them as early as the 4th of April.

37. *CORACIAS GARRULA*

is stated by Signor Cara to frequent in small numbers certain localities between Cagliari and Orre, and also near Oristano. I did not see any during my short stay in the latter place.

38. *ALCEDO ISPIDA.*

It is curious I never saw a Kingfisher during my stay in Sardinia, although I visited many likely localities. Cara and Salvadori, however, state it is not uncommon.

39. *MEROPS APIASTER.*

From about the 17th of April large flocks of these birds began to appear, flying very high in a northerly direction. The first arrivals seemed all to pass on further north; and it was quite a week later before they began to settle in the south of the island. On their migration they keep up their soft musical note, which can be heard a long distance off. Large numbers build in the island.

40. *UPUPA EPOPS.*

Common, arriving in considerable numbers in spring. Cara states that some stay during the winter, which I think doubtful. They arrive very early in April. I had a nestling brought to me on the 29th of May.

41. *CAPRIMULGUS EUROPEUS.*

I only once put up one of these birds, on the top of some high mountains, in the middle of April.

42. *CYPSELUS MELBA.*

On the 30th of March I first saw a pair of Swifts; but they were flying too high to distinguish to which species they belonged. The present species builds in great numbers in the high rocks and precipices about the mountains.

43. *CYPSELUS APUS.*

This and the preceding species arrive about the same time, viz. the end of the first week in April. During that month I constantly met small flocks flying rapidly and steadily in a northerly direction, over the large plain, extremely low, and taking advantage of every small dip and hollow to shelter themselves from the strong northerly wind which was blowing during the month.

44. *CHELIDON URBICA.*

First seen on the 27th of March. Very common and breeding in the island.

45. *HIRUNDO RUSTICA.*

Arrives in small numbers about the end of February or early in March, from which time they keep gradually increasing in numbers. Young birds were hatched about the 9th of May.

46. *COTYLE RUPESTRIS.*

Common and resident, breeding in the rocks and cliffs.

47. *COTYLE RIPARIA.*

Arrives early in March, and is common.

48. *MUSCICAPA GRISOLA.*

Common in summer, arriving in the middle of April.

49. *MUSCICAPA ATRICAPILLA.*

I procured a female of this species, the only specimen I ever saw, on the 24th of April.

50. *MUSCICAPA COLLARIS.*

Not common.

51. *LANIUS EXCUBITOR.*

Rare. There are two specimens in the Cagliari museum.

52. *LANIUS MINOR.*

Dr. Salvadori mentions this bird as being very common. It certainly is not so about the south, where I never met with a single specimen.

53. *LANIUS AURICULATUS.*

Most abundant. Began to appear on the 7th of April;

from that date their numbers were increased rapidly by fresh arrivals; and towards the middle of the month the topmost leaf of every cactus hedge, which forms their favourite perch, was sure to be occupied by one of this species. They seem to prefer plains, as, although they extend occasionally into the low hills, I never remember seeing one in the high mountains.

54. *LANIUS COLLURIO*.

Arrives a great deal later than the preceding species (the first I saw not being till the 10th of May), and is not so numerous. They also differ considerably in their choice of locality, preferring the low hills and mountains, and being rarely found on the plain. The stomach of one I shot was full of the elytra of beetles and a small lizard.

Note.—*Lanius meridionalis* is included in Dr. Salvadori's list of the birds of Sardinia; but he has since rectified his mistake in Sharpe and Dresser's 'Birds of Europe,' in their excellent article on the Southern Grey Shrike. It, therefore, cannot be included in this list.

55. *PARUS MAJOR*.

By far the commonest Titmouse in Sardinia, where it is resident; and during spring their loud call-note is to be heard ringing through every orchard.

56. *PARUS ATER*.

Scarce; confined to the forests on the mountains.

57. *PARUS CÆRULEUS*.

Moderately common. In the winter they come down about the plains, where I never remember having seen them during summer.

58. *TICHODROMA MURARIA*.

Rare.

59. *TROGLODYTES VULGARIS*.

Extremely common in the mountains; but I never remember hearing or seeing one on the plains.

60. *CINCLUS AQUATICUS*.

It surprised me very much to find this bird absent on many

streams that I constantly examined both in the mountains and plains, though Cara and Salvadori consider it common. This certainly is not the case in the south of the island.

61. *TURDUS VISCIVORUS.*

Common all the year round in the mountains.

62. *TURDUS PILARIS.*

A rare winter visitor.

63. *TURDUS ILIACUS.*

A winter visitor, but never numerous.

64. *TURDUS MUSICUS.*

Extremely abundant in winter. Very few, if any, remain to breed.

65. *TURDUS MERULA.*

Common at all seasons; but their numbers are greatly increased during winter.

66. *MONTICOLA CYANUS.*

Common and stationary all the year. I have heard their wild cheerful song early in March.

67. *MONTICOLA SAXATILIS.*

Included in Cara's and Salvadori's list as "not rare." I never saw one.

68. *SAXICOLA LEUCURA.*

A rare visitor. Salvadori mentions one having been killed near Cagliari during his visit there in winter.

69. *SAXICOLA STAPAZINA.*

70. *SAXICOLA AURITA.*

I never saw either of these species; but they are included in both of the above-mentioned lists.

71. *SAXICOLA GENANTHE.*

First appeared on the 7th of April, after which date they were very abundant on the plains. Salvadori mentions having seen some during winter along the Scaffa of Maddalena in the north of the island.

72. PRATINCOLA RUBETRA.

Not common. The only occasion on which I met with this bird was during the early part of May, in the extreme S.W. of the island.

73. PRATINCOLA RUBICOLA.

Common and stationary. They are always very shy and hard to approach.

74. ACCENTOR ALPINUS.

My brother, Sir V. Brooke, who was with me in November 1869, observed a small flock of this species amongst the rocks at the back of Villacidro; it is, however, a rare bird in the island; and none remain during the summer.

75. ACCENTOR MODULARIS.

I do not consider this by any means a common bird in the island. I only met with it on one occasion; this was in the month of March.

76. RUTICILLA PHŒNICURA.

I never saw this species till the beginning of April. Salvadori mentions having seen some during winter.

77. RUTICILLA TITHYS.

Not uncommon during winter. I do not think they remain to breed in the south of the island.

78. ERITHACUS RUBECULA.

Common. I have noticed a great accession of numbers in the plain during winter, but do not feel certain whether these are residents in the island, driven from the mountains by the severity of the weather, or whether they are fresh arrivals. I never saw Robins in Sardinia on any occasion resorting to houses, gardens, &c. in the same manner as on the continent.

79. DAULIAS LUSCINIA.

Arrives in great numbers during the month of April, appearing generally about the 15th. From that date till the beginning of June the whole country is alive with their glorious song bursting forth from every hedge and bush.

Note.—*Daulias philomela*. Signor Cara includes this species in his catalogue; but a supposed specimen shown by him to me, and now in my collection, belongs to the common species (*D. luscinia*).

80. CURRUCA ATRICAPILLA.

Common and abundant, arriving in considerable numbers in spring. I think a few remain in favourite localities all the winter, as I have seen them early in March, long before the arrival of any species of Sylviidæ. They are very partial to olive-groves.

81. CURRUCA MELANOCEPHALA.

Extremely numerous, both on the hills and plains, all the year round.

82. SYLVIA CURRUCA.

Not common; there is one specimen in the Cagliari museum.

83. SYLVIA CINEREA.

Common during summer.

84. SYLVIA CONSPICILLATA.

Very common in all the uncultivated parts of the plain, where it is found in company with *C. melanocephala* and *M. sardus*; but I have never seen it on the hills. It is, I think, the most shy of all the Warblers. During the months of April and May the cock bird may generally be seen perched on the highest twig of cistus forty or fifty yards off; but the moment one tries to approach any nearer, it flies off low over the ground, lighting again in a similar situation; and this is repeated time after time in the most tantalizing manner. I do not think all, if any, of these Warblers migrate in winter, as I have seen as many early in March as at any other time of the year. Excepting during the spring, they are very hard to see, always keeping in thick cover; and unless come upon unawares, they creep away through the twigs, close along the ground, without showing themselves. The young birds are able to fly by the middle of May; they have much broader rufous edgings to the feathers than the old birds. Their song is short and pleasant; and the cocks often sing flying up in the air, return-

ing and lighting again in the same spot—a habit so characteristic of the common Whitethroat, to which species this bird appears to bear a remarkable resemblance both in coloration and habits.

85. SYLVIA SUBALPINA.

I cannot say whether these Warblers remain in Sardinia during the winter. They are moderately common in summer on the low wooded scrubby hills and along river-banks. They seem to be more partial to trees than most of the other small Warblers, and are extremely shy and difficult to see. I saw young birds flying on the 12th of May.

86. MELIZOPHILUS SARDUS.

This interesting little Warbler is very common on all the uncultivated parts of the plain, where the undercover (consisting chiefly of cistus) does not grow very tall or thick, but is scattered sparingly; and I have never seen them in the woods. They are, as far as my observations go, entirely confined to the plain, rarely, if ever, wandering, even to the adjoining low hills, where their place seems to be taken by the following very closely allied species. I have only on one occasion met with these two species on the same ground.

M. sardus is a bold little bird, often hopping and creeping about confidently within ten yards, trusting to escape observation by its diminutive size, dusky colour, and quiet unobtrusive habits. Their flight is feeble and wavy, rarely extending any distance; and on alighting it is often hard to see them again, as they creep off close to the ground along the stems of the cistus, and by the time the spot they disappeared in is reached they are thirty or forty yards off, perhaps in an opposite direction. They sing either perched on the top of the cistus or, frequently, in the air, jerking themselves down again into the bushes. Their song is very like that of *M. provincialis*; but I do not think it quite so grating; their alarm note is a single short *tick*, unmistakable when once heard. I was unfortunate in never being able to find a nest, owing to the density and vastness of the undercover; but on the 19th of May I came on a brood of five or six young birds just able

to fly, from which I secured some interesting specimens. They differ from the old ones in being a much paler brown all over, their irides and legs the same colour; in adult birds the irides are a yellow-brown, the legs a light orange-yellow.

M. sardus can always be easily distinguished, even when flying, from all other Warblers, by its uniform dark dusky colour, and more especially from *C. melanocephala* (with which Dr. Bree seems to think it may be confounded), not only by its smaller size, but by the almost entire absence of the white edgings on the outer tail-feathers, which the latter shows very conspicuously when flying.

Dr. Salvadori, in his late work on the birds of Italy, mentions Corsica and Sicily as localities where this bird is found.

87. MELIZOPHILUS PROVINCIALIS.

Common in the low hills covered with cistus, heather, &c., but not so numerous as the last species. It is a good deal smaller than *M. sardus*.

88. REGULUS IGNICAPILLUS.

Very common in the ilex forests on the range of mountains south of Villacidro, in which localities I saw them during the months of May and June. A very young bird shot on the 29th of May showed already, strongly, the white striping on the face.

89. REGULUS CRISTATUS.

I never saw one. Both Cara and Salvadori agree in saying it is commoner in the north than in the south of the island.

I cannot say I have ever been able to detect any perceptible difference between the notes of this bird and the preceding species, though on many previous occasions I have listened attentively to the two species singing simultaneously.

90. PHYLLOPNEUSTE RUFA.

Common. I think a few remain during winter, as I have seen them in February and March.

91. PHYLLOPNEUSTE SYLVICOLA.

Common, arriving in spring, when they frequent the orchards and olive-groves.

92. *PHYLLOPNEUSTE TROCHILUS.*

Not so numerous as the last, but arrives in considerable numbers in spring.

93. *BRADYPTERUS CETTI.*

This is, without exception, the most difficult Warbler I ever came across, either to see or obtain, although in suitable localities its loud bold song may be constantly heard. They love to secrete themselves in the very middle of the densest and most tangled mass of briars and creepers, and are very shy. On hearing any slight noise they often begin their short rich song, but, on the approach of danger, steal off rapidly and silently, bursting forth again thirty or forty yards further on, while one is still anxiously peering into the bush they were last heard in. They are extremely common in Sardinia, going generally singly or in pairs; and every bush that is thick enough along the river-banks or round the shores of the stagnos is sure to hold a pair. They prefer wet marshy places; in fact, I have never seen them except in the vicinity of water. Round Oristano they are particularly numerous.

94. *CALAMODYTA MELANOPOGON.*

There is one specimen of this Warbler in the Turin museum, said to have been killed in Sardinia.

95. *CALAMODYTA AQUATICA.*

Arrives in spring, and breeds. Moderately common in the marshy swamps.

96. *SCHÆNICOLA CISTICOLA.*

Extremely numerous about the large marshy swamps in the neighbourhood of Oristano, where they breed. It is also to be found, but more sparingly, in all suitable localities.

97. *LUSCINIOPSIS LUSCINOIDES.*

There is one specimen in the museum at Cagliari.

98. *CALAMOHERPE ARUNDINACEA.*

There are several specimens in the museum. I never met with it in the island.

99. *MOTACILLA ALBA.*

Common in winter. None remain during the summer.

100. *MOTACILLA SULPHUREA.*

Common all the year. They breed in the mountains along the small streams. I saw a young bird flying on the 1st of May.

101. *BUDYTES FLAVA.*

Early in May I met several small flocks at St. Antioco on their passage northwards. Very few, if any, remain in the island to breed.

102. *ANTHUS AQUATICUS.*

Not uncommon in winter.

103. *ANTHUS PRATENSIS.*

Very abundant on the plain.

104. *ANTHUS ARBOREUS.*

I never saw one, although Cara says it is resident. There is one specimen in the Cagliari museum.

105. *ANTHUS CERVINUS.*

Rare.

106. *ANTHUS CAMPESTRIS.*

Passes in spring in small numbers; and, I think, some remain to breed. They are very partial to semicultivated lands; and I generally found them in old deserted vineyards &c.

107. *ALAUDA ARVENSIS.*

Extremely common, breeding in large numbers on the plain.

108. *ALAUDA ARBOREA.*

Very numerous all the year round. I found a nest finished on the 7th of April; and on the 16th the old bird was sitting on five eggs.

109. *CALANDRELLA BRACHYDACTYLA.*

Arrives in great numbers in the beginning of April, and breeds. None remain during winter. These birds prefer the most barren and open parts of the plain, where they are extremely numerous.

110. *MELANOCORYPHA CALANDRA.*

This fine Lark is extremely common on the plain all the year round. They seem to have a strong power of mi-

micry, as I have several times most distinctly heard the notes of other birds mixed up with their songs, especially those of *Passer salicaria* and *Falco tinnunculus*. The sexes differ greatly in size.

111. *EMBERIZA MILIARIA*.

Extremely common. His most monotonous song is to be heard all over the country, especially shortly after sunrise.

112. *EMBERIZA MELANOCEPHALA*.

Of doubtful occurrence.

113. *EMBERIZA HORTULANA*.

Accidental.

114. *EMBERIZA CIRLUS*.

Very common, breeding both in the mountains and plains, but more especially in the former.

115. *EMBERIZA CIA*.

Cara states a few appear in winter.

116. *EMBERIZA SCHÆNICLUS*.

Not uncommon during winter along the banks of the stag-nos at Cagliari and Oristano.

117. *PASSER MONTANUS*.

Very rare. There are two specimens in the museum at Cagliari.

118. *PASSER SALICICOLA*.

In Sardinia these birds build in small communities, generally consisting of seven or eight pairs, in the groups of large wild olive-trees that are scattered about in different parts of the plain. A considerable number also build about the houses and towns; but on the whole they do not appear to me as much attached to the dwellings of man as *P. domesticus*. The nests are very similar, being formed externally of dried grass and lined with feathers.

119. *PYRGITA PETRONIA*.

Arrive in considerable numbers about the middle of April, immediately resorting to the orchards and gardens round the towns; but I never saw them in the mountains. None remain during the winter.

120. *FRINGILLA CŒLEBS.*

Very common at all times.

121. *FRINGILLA CHLORIS.*

Extremely common all the year.

122. *LINOTA CANNABINA.*

Common at all times, but more numerous during winter.

123. *CARDUELIS ELEGANS.*

The commonest Finch in the island, going in large flocks. They begin to pair the first week in April.

124. *CHRYSOMITRIS SPINUS.*

Cara states it is an annual bird of passage in autumn and spring. I never saw any at either season.

125. *SERINUS HORTULANUS.*

Salvadori says that he observed the Serin Finch at all times of the year, but their numbers are increased during spring. I never saw any in the southern part of the island.

126. *COCCOTHAUSTES VULGARIS.*

I did not see any before the 9th of April, when they began to appear in considerable numbers; and during the summer they were common in all the orchards, where they bred.

127. *LOXIA CURVIROSTRA.*

Of very uncertain occurrence during winter. There are two specimens in the museum that were killed in the island.

128. *STURNUS VULGARIS.*

Common in winter. I never saw any during the summer.

129. *STURNUS UNICOLOR.*

Very common, breeding in holes amongst old buildings in the towns. In habits &c. they closely resemble the common species.

130. *PASTOR ROSEUS.*

Their appearance seems quite accidental and of rare occurrence. There are two specimens in the museum.

131. *ORIOLOUS GALBULA.*

Arrive in spring, but are not very numerous.

132. *NUCIFRAGA CARYOCATACTES.*

There is only a single specimen in the museum, which was taken one winter near Aritzu, in the Gennargentu mountains.

133. *FREGILUS GRACULUS.*

Common in the higher ranges in the centre of the island. There are none in the Monte-Limas range.

134. *CORVUS CORAX.*

Very common. On the 2nd of May I was witness to what must have been an unusual migration of these birds. When on the road, halfway between Iglesias and St. Antioco, I saw and counted more than 100 Ravens in one large straggling flock, tossing and tumbling about in the air, performing all kinds of curious antics, uttering incessantly their harsh croak. They were proceeding, as long as I could see them, rapidly and steadily in a north-easterly direction, not flying very high. One nest I found contained six young birds—an unusually large number.

135. *CORVUS FRUGILEGUS.*

Common in winter. None remain during the summer.

136. *CORVUS CORONE.*

A few observed in company with the following species.

137. *CORVUS CORNIX.*

Extremely common all about the plain. At Oristano, during the month of March, they used to collect in flocks to roost in the high reeds round the shores of the lakes, flying in like Rooks from all quarters as it began to get dusk, until I am sure there were several hundred collected in one spot.

138. *CORVUS MONEDULA.*

The only locality where I saw any Jackdaws was at Oristano, where they were very common, breeding in the steeples of the churches &c. I should imagine they occur pretty generally through the island.

139. *GARRULUS GLANDARIUS.*

Very numerous in the forests on the mountains at all seasons.

[To be continued.]

XXVIII.—On the Rosy Ibis of China and Japan (Ibis nippon).

By ROBERT SWINHOE, H.B.M. Consul at Ningpo.

IMAGINE my delight on learning, when I arrived at Ningpo, that the Rosy Ibis was a resident in the vicinity, and known to the natives as the *Tien-go* or “Celestial Goose”! During the closing months of last year I saw small parties of them at dusk flying towards the hills; and on the 31st Dec., 1872, in the forenoon, a pair flew over me in a small valley; and the male, perching on the broken top of a very tall pine, kept throwing his head forward and crying *now, now*, in a loud hoarse voice. It was his love-note. My comrade shot it; but it fell where it stood, and we could get no one to climb the giant smooth stem. In April I was told that they were putting on their dark breeding-feathers; and on the 6th May, Père David, who had returned from a month’s trip up country, assured me that he had got the same form of Ibis of a grey colour, and considered it of a new species. He laughed at the idea of its being a young bird, as he had seen large numbers of them; he said that the Chinese recognized them as distinct under the name *Hwuy-go* or “Grey Goose,” and he believed they were breeding among the high trees. A countryman had brought me five eggs of Ibis, and offered them as those of Crows. He had taken them from two Crow-like nests on the tops of high pines about the 16th of March. On the 10th of June I had the good fortune to get a wild Grey Ibis. It was a full-fledged bird of the year, and very tame, had apparently been kept a long time in captivity, refused to eat fish, and showed a preference for raw beef. Its cheeks and over the eye were covered with small downy feathers, while the rest of its face was bare and coloured orange-yellow instead of red. Its bill was deep brown, the tip light orange-brown. Irides light yellowish brown. Legs and feet light brown, with a tinge of orange flesh-colour. Its plumage was of a dusky cream-colour washed lightly with rosy, brighter on the concealed parts of the feathers. Primary quills blackish brown at their ends. It had the full occipital crest of the adult, which it delighted in expanding. It rarely raised itself to its full

height, and then only as a preliminary to shaking and preening itself. I sent this fine bird to the Zoological Society's Gardens, where I hear it is now safely domiciled*.

On the 23rd of August I was on our Western Lake and saw large parties of this Ibis, white birds and dusky birds in company together.

On the 18th November I was there again, and came across very large flocks of them; but all were white and rose-coloured, not a grey bird among them. I shot three—an adult male, a male of the year, and a female of the year. The lake-dwellers call them *Hong-le* (Red) *le*, as they call the Heron *Sah-le*. We were moored near a shallow at one end of the lake, and had the gratification of seeing a large party of Ibises alight about 100 yards off to feed. They settled in the muddy shallow water, which covered their legs up to their tarsal knees, and assumed a crouching position, looking as small as Curlews. After remaining perfectly still for a few minutes, they put their bills into the water and advanced, brandishing their bills under water right and left, and thrusting them forward; any thing caught was jerked into the bill by a few nods of the head. They must have felt their prey; the water was too muddy to see into. There was no darting at it as with Herons, or walking about and probing mud as with Curlews, or slashing liquid mud with the beak as with Avocets. Every time I saw them feeding it was thus up to their knees in muddy water; and their captures were small fish, as dissection afterwards proved. As each grew tired of feeding, or had had enough, he flew on to a ridge of earth close by, stretched himself, yawned, shook his feathers, scratched and preened a little, and then sank to the usual contracted position, and remained quite still. As I approached they did not raise their heads to full length, as Ducks and Herons &c. do when disturbed, but sprang into the air direct from their crouching attitude, their flammeous wings making quite a glow as if under the light of the rising or the setting sun, their bills chattering, and uttering a "gaw"-like murmur, with cries of a guttural sound like *gok, gok*, as they flapped to a safer ground. They

* [It arrived in November last (see P. Z. S. 1872, p. 862.), but unfortunately died April 23.—ED.]

fly with steady flap, the legs stretched behind, reaching just a little beyond the tail, the head full forward, the bill and forehead looking black.

Adult male.—Total length 31 inches; wing $16\frac{1}{4}$; tail $6\frac{1}{2}$. Bill to gape 7; tarse $3\frac{1}{2}$; middle toe 3, its claw $\cdot 6$; bare part of tibia 2. First five quills sinuated on the inner web. First primary quill 3 inches shorter than the third, the longest in the wing; the second four tenths shorter than the same; tertiaries extending $1\frac{1}{2}$ inch beyond tip of primaries. Legs Indian-red, with light-reddish-brown claws. Bill black, with $1\frac{1}{2}$ inch of apex of upper, and $\frac{1}{2}$ inch of lower mandible vermilion. Face-skin like transversely wrinkled raw beef. Iris vermilion.

Male after autumnal moult.—Face-skin as in the last; a few fibrous feathers still projecting over the ear from its front corner. Bill black, becoming red at tip. Iris scarlet. Legs paler, with front of tarse and toes blackened except at joints; claws black. Outer quills still more or less brown. General plumage rosy; wings shorter than in the adult, and wanting its flammeous lateral rectrices, moulting into the flame-colour of the adult dress.

Female after autumnal moult.—Smaller bird, with shorter bill. Plumage as in the last. Iris paler. Legs and feet paler, without the black.

The plumage of the adult is of a lovely rosy white, the feathers blushing deeper on their hidden portions; but, like the same tint in Terns, it fades away on skins. The wings and tail have vermilion stems, and webs glowing with “une jolie nuance aurore,” as the ‘Fauna Japonica’ aptly terms it.

Dissection of male of first year.—Proventriculus granulated beneath the outer surface, $1\frac{3}{4}$ inch long, $\cdot 9$ at broadest. Stomach of an irregular oval, with strong lateral tendons, and gummy adnate epithelium, $2\frac{3}{4}$ inches long by $2\frac{1}{4}$ broad, full of half-digested little fish and a few small shrimps. Intestine white, $\cdot 2$ – $\cdot 4$ thick, about 6 feet long, with cæca 3 inches from the anus, the right one about $\cdot 4$ long, the left little more than a pimple. Testes small and bluish black, the left twice the size of the right. (I would here remark that most birds

of the year, in other groups that I have examined, have small blackish testes during the winter.) I had some of its flesh cooked, and found it coarse and fishy to the taste.

Dissection of female of the year.—Ovary small. Stomach containing fish and a few water-bugs (*Naucoris*).

Dissection of adult male.—Stomach containing the remains of small fish. Testes much larger than in younger bird, also unequal in size, of an ochreous yellow. The whole of the flesh, fat, cartilage, and bone saturated with the vermilion tint that appears on the wings and soft external parts of the bird. What the chemical nature of this permeating juice is I do not know. It does not occur in the younger birds; and I have not noticed it in any other species.

The trachea is the same in all these specimens, its length $6\frac{1}{2}$ inches. It consists of a series of rings closely succeeding one another, alternately broad on one side and narrow on the other, until, just before reaching the bronchi, four or five uniform rings occur, ending in a projecting semicircle of bone, the thickness of two of the broad parts of the upper rings; below this two crescentic bony ridges commence the short bronchi. The trachea averages about $\cdot 5$ in. in breadth, becoming narrower towards its end. In a young Heron (*Ardea cinerea*) of the year the trachea attains the great length of $15\frac{1}{2}$ inches, is of uniform breadth, not half that of the other, and consists of nearly uniform rings, separated from each other by a narrow membrane, with a small round perforation on the upper edge of each ring.

The tongue of the Ibis is short ($\cdot 6$ inch) and triangular, with a concave papillose base; the hyoids thick and curved, the first joint $1\cdot 4$, the second $\cdot 8$ long.

The tongue of the Heron is long (2 inches) and spear-like; its hyoids thin and nearly straight, the first $1\cdot 8$, the second $\cdot 4$.

I bring the Heron to the fore in comparison with the Ibis, because some suppose affinity between them (see Hewitson, Eggs of B. B.). But in the two important organs just examined there appears to be no relationship. No more is there in the form of the sternum.

The Rosy Ibis often breeds in company, but often also in

pairs by themselves. Their nests I have not examined; but they must be warmly lined, as the older birds have eggs in January and even earlier, when the country is under hard frost, and there is often snow on the ground; for the young are fully fledged and have the appearance of adult birds by April. (N.B. Père David mistook them in that month for birds breeding, and believed it even after he had procured a specimen.) The young retain their grey plumage throughout the summer, associating with adults, even while the latter are continuing their nesting-duties, and moult about October, when they change their attire for a white robe with a tinge only of rosiness, their wings and tail alone remaining the same; but these get abraded and the former fades, and occasionally some quills are cast, to be renewed by others of the early spring suit which these birds of the year put on before breeding. These must therefore be later in commencing operations, which dissection shows to be the case. Of the eggs before mentioned, three measured each about 2 inches in length by 1.25 in breadth; the other two were larger, measuring each 2.6 by 1.6. They had a rough surface, and were of a pale bluish-green colour. The man who brought them to me was positive that the larger ones were the eggs of a Crow, the smaller those of a Magpie.

In its comportment the Ibis is not at all a Heron. I should think its affinities lay rather with the Spoonbills*, or with the larger *Tantali*, which connect it with the Storks. It has, however, peculiarities of its own, bearing off in different directions; and I hope I shall be able to learn something more about it. The Chinese are evidently puzzled at its appearance when they style it a "Heavenly Goose." We might be nearer the mark if we said it was a "queer Stork."

* [There can be no doubt, we believe, that the Ibises and Spoonbills should be united in one family (Plataleidæ). Cf. Nitzsch, Pterylography, Engl. Transl. p. 134. *Tantalus*, however, belongs to the Ciconiidae.—Ed.]

XXIX.—*A Tenth additional List of Birds from Natal.*

By J. H. GURNEY, F.Z.S.

[Continued from 'The Ibis,' 1868, p. 471.]

IN consequence of some corrections in the synonymy of *Drymoica flavicans*, to be subsequently noticed, the first two species in the present list will stand respectively as No. 314A and No. 315A.

314A. *HAPALODERMA NARINA* (Vieill.). African Trogon.

Sent by Mr. Ayres with the following note:—"I have frequently seen this species in the bush around D'Urban, and have heard its melancholy note, leading one to suppose that the bird was at a great distance, when it was actually within twenty or thirty yards; the sportsman, labouring under this delusion, scrambles through the dense tangled underwood, thinking he will be more careful when he gets near the bird, and so seldom gets a shot. One first catches sight of the bird as it darts round some bush and is immediately lost to view. It is generally solitary, though sometimes two or three may be seen together or near each other. The sexes appear to be similar, their food consists of insects; the skin of this bird is excessively thin, reminding one of wet tissue-paper, the fall from the tree when shot frequently spoils the specimen, the feathers being very loose in the skin. Iris hazel, bill light ash-colour; length 12 inches, wing 5 inches, tail 7 inches."

315A. *DRYMOICA SUBRUFICAPILLA*, Smith. Tawny-headed Drymoica.

Sent by Mr. Ayres with the following note:—"Shot in September at the Karkloof, in Natal, amongst long grass at the edge of the forest that clothes the Kloof near the main road."

316. *HIRUNDO SEMIRUFA*, Sund. Rufous-breasted Swallow.

Specimens of this and the twelve succeeding species, all obtained in Natal, are contained in the rich collection of Mr. R. B. Sharpe*, to whom I am indebted for the fact of their occurrence in that colony.

* This fine collection is, I understand, about to be transferred to the British Museum.

317. *MEROPS NUBICOIDES*, Des Murs. Carmine-throated Bee-eater.

318. *CINNYRIS TALATALA*, Smith. Andersson's Sun-bird.

319. *MOTACILLA VAILLANTI*, Cab. Levaillant's Wagtail.

320. *PYCNONOTUS TRICOLOR*, Hartl. Angola Bulbul.

321. *TURDUS GUTTATUS*, Vig. Vigors's Thrush.

322. *LANIARIUS ATROCOCINEUS* (Burch.). Southern Crimson-breasted Shrike.

323. *UROLESTES MELANOLEUCUS* (Smith). South-African Long-tailed Shrike.

324. *HYPHANTORNIS SUBAUREUS* (Smith). Algoa-Bay Weaverbird.

325. *HYPHANTORNIS NIGRICEPS*, Layard. Black-headed Weaverbird.

326. *EUPLECTES TAHA*, Smith. Taha Bishopbird.

327. *CORYTHAIX MUSOPHAGUS*, Dubois. Cape Touraco.

328. *BARBATULA LEUCOTIS*, Sund. White-cheeked Barbet.

329. *PŒOCEPHALUS ROBUSTUS* (Gmel.). Levaillant's Parrot.

Mr. E. C. Buxton informs me that during a recent visit to Natal he saw two young Parrots in that colony which had been respectively taken from nests at "Cremer's, Unyeni Falls." One of these he identified as a specimen of *P. robustus*; the other, which was of a much smaller species, he was unable satisfactorily to identify, in consequence of the bad condition of its plumage.

330. *NUMIDA VERREAUXII*, Elliot. Verreaux's Guinea-fowl. Sent by Mr. Ayres with the following note:—

"These fine Guinea-fowls I got in the month of July at D'Urban, Natal, where they were being hawked about the town by Caffre hunters as birds for the table, the flesh being uncommonly delicate and good.

"They frequent the densest bush immediately on the searange, and are difficult to get; the best method is with dogs accustomed to hunt the bush, as the birds, when chased, take

to the trees, and a good dog will bark until his master manages with much trouble to get to the spot through brambles, thorny bushes, and nettles innumerable; and then, if due care is taken to approach without noise, the birds may be potted from the tree, a flying shot being totally out of the question.

“These Guinea-fowls are to be found from the Bay of Natal northwards; but, so far as I can learn, not a single bird is to be found to the south, although the bush-range is precisely similar. The male bird measures from 23 to 25 inches in total length, the bill $1\frac{1}{2}$, the tarsus $3\frac{1}{2}$, the wing $10\frac{1}{2}$, and the tail $5\frac{1}{2}$.

“The bare skin of the sides of the head, chin, throat, and upper neck is black, but whitish on the occiput; the iris is dusky; tarsi and feet ashy. In the female the crest is rather smaller than in the male, as are also the spots on the plumage; with these exceptions there is but little difference in the appearance of the sexes.”

331. TANTALUS IBIS, Linn. African Roseate Ibis.

Sent by Mr. Ayres with the following note:—

“This specimen was shot by my brother at Port Natal, amongst the mangroves at low water on the edge of the inner harbour; there were two of them; and others have been seen at the same spot subsequently. This bird was wounded by my brother’s shot; and as he approached it made a curious snapping noise with its bill, but did not attempt to defend itself.”

I may take this opportunity of recording a note respecting a species which has been already included in my lists of birds from Natal, *Buphaga erythrorhyncha* (*vide* Ibis, 1863, p. 328). I am not aware that this species has been hitherto observed to consort with its congener *Buphaga africana*; but Mr. E. C. Buxton has been so good as to give me an adult specimen of each, which he shot in company on 28th August, 1872, near the Asuto river in Suari Land, a little to the north of the colony of Natal. Mr. Buxton writes to me, “The two Buphagas I shot at the same time on some oxen, one of each species off the same cow; and I could not distinguish them on the wing. There were several others shot at the same time,

and in the proportion of one of the red-billed birds to two of the others."

Another subject as to which I am also desirous of recording an additional note, is the synonymy of the *Cisticola* from Natal, for which Dr. Hartlaub proposed the name of *C. ayresii* (*vide* Ibis, 1863, p. 325).

The examination of numerous specimens of *Drymoica terrestris*, Smith, of which a typical example is preserved in the British Museum, has convinced me that *C. ayresii* is identical with this species; and I have further arrived at the conclusion that the latter is not separable from the Europæo-Asiatic *Cisticola cursitans* (Frankl.), although specimens from tropical and southern Africa are frequently rather brighter in their tints than those from more northern localities.

In 'The Ibis' for 1871, p. 152, I gave the measurements of eight specimens of *Cisticola* from various localities; and I am now able to furnish the measurements of several others, all of which I consider should be referred to *C. cursitans*.

From	Wing. in. lin.	Tarsus. lines.	Middle toe without claw. lines.
Sicily, not sexed	2 0	9	6
Do., do.	1 10	9	6
Algeria, do.	2 1	9	5
Do., male	2 1	10	6
Do., female	1 10	9	6
Zanzibar, do.	1 9	9	5
Trans Vaal, do.	1 10	10	5½
Do., do.	1 9	10	6
Do., male	2 0	10	6
Do., do.	1 9	9	5½
Do., two males	2 0	9	5½
Do., female	1 10	9	5½
Drakenberg, Natal, Male	1 11½	10	5½
Coast of Natal, typical specimens of <i>C.</i> <i>ayresii</i> , one male and one female....	1 9	9	5
Eland's Post, South Africa, male	2 0	9	6
Do., not sexed	1 11	10	5
Accra, West Africa, not sexed.....	1 10	10	5
Cape-Coast, do., do.	2 1	9	5
River Volta, do., do.....	2 0	9	5
Do., do., do.....	1 11	9	5
Do., do., do. (two specimens)	1 10	9	5

From	Wing. in. lin.	Tarsus. lines.	Middle toe without claw. lines.
Damara Land, male	2 0	9	6
Do., do.	2 0	9	6
Do., do.	2 0	9	5
Do., do.	2 0	10	5½
Do., do.	1 11	9	5
Do., female	1 11	8	5
Do., do.	1 11	9	5
Do., do.	1 10	8½	6
Do., do.	1 9	9	6
Do., two females	1 10	9	6
Do., do.	1 10	9	5
Corresponding measurements given in Smith's 'South African Zoology' of "Drymoica terrestris, male"	2 1	10	4½

Eleven of the specimens from Damara Land included in the above Table were measured in the flesh by the late Mr. Andersson; the remaining measurements were taken by myself from dried skins.

I may add that the coloration of different individuals of this species varies much both in Trans Vaal and Damara Land as regards the intensity of their tints, which I suppose to be owing to the plumage becoming faded as the season of moulting approaches.

To refer, in conclusion, to another matter, I regret to find that in the earlier portions of my list of Natal birds, published at various times in 'The Ibis,' some errors of identification occurred, which a better knowledge of the ornithology of the district has enabled me subsequently to rectify in several instances (*vide* Ibis, 1864, p. 356, 1868, pp. 51, 147, 151, 155, 157, and 265, 1869, pp. 296 and 299, and 1871, p. 103); and I am now desirous of recording the following additional corrections, which I give in the order in which the several species were included in my former lists.

6. GYPS FULVUS should stand as *G. kolbii* (Daud.), as to the distinctness of which see Mr. Blyth's remarks in 'The Ibis' for 1870, p. 157.

34. ALCEDO QUADRIBRACHYS should be *A. semitorquata*, Swains.

36. *ISPIDINA PICTA* should be *I. natalensis* (Smith).

37. *OXYLOPHUS SERRATUS* should be *O. jacobinus* (Bodd.).

40. *CHRYSOCOCCYX SMARAGDINEUS* should be *C. splendidus*, Gray.

52. *ARDETTA MINUTA* should be *A. podiceps*, Bon. To this species I erroneously applied, in 'The Ibis' for 1869, p. 300, the specific name of *pusilla*, which properly belongs to the Little Bittern of Australia: *conf.* Finsch & Hartlaub's 'Vögel Ost-Afrikas,' p. 709.

71. *DRYMOICA MELANORHYNCHA* should be *D. flavicans* (Vieill.), of which *D. subflava*, No. 151, and *D. pallida*, No. 199, are also synonyms.

77. *PRATINCOLA RUBICOLA* should be *P. torquata* (Linn.), which, contrary to my former opinion, I am now disposed to regard as distinct from *P. rubicola*, in consequence of the somewhat greater extent of the white patch on the rump and upper tail-coverts, and the absence of any rufous tint from the white feathers in the centre of the abdomen and from the under tail-coverts.

83. *PLATYSTIRA PRIRIT* should stand as *P. molitor*. Cf. Sharpe *anteà*, p. 167.

102. *TURTUR SEMITORQUATUS* should be *T. capicola*, Sund.

149. *PROMEROPS CAFFER*, should be *P. gurneyi*, Verreaux; *vide* J. P. Verreaux in P. Z. S. for 1871, p. 135, pl. 8.

223. *CALAMOHERPE GRACILIROSTRIS* should be *C. babæcula* (Vieill.), as to which, and also as to the succeeding species, see Mr. Layard's remarks in 'The Ibis,' 1869, pp. 365, 366, and the editorial footnotes at p. 365.

258. *CALAMOHERPE ARUNDINACEA* should be *C. baticula* (Vieill.), or, as according to Prof. Sundevall it should be spelled, *C. baticata*, see reference under preceding species.

272. *ÆDICNEMUS SENEGALENSIS* should be *Æ. vermiculatus*, Cab.; *cf.* Finsch & Hartlaub's 'Vögel Ost-Afrikas,' p. 624.

296. *ESTRELLA CARMELITA* should be *Vidua principalis* (Linn.), immature; *conf.* Sharpe's Catalogue of African birds, No. 600.

XXX.—*On rare or little-known Limicolæ.*
 By JAMES EDMUND HARTING, F.L.S., F.Z.S.

(Plates VIII., IX.)

[Continued from 'The Ibis,' 1870, p. 392.]

It frequently happens that a general description of form and colour intended to indicate a particular species applies so well to another for which it was not intended, that unless measurements are added, or some marked specific character pointed out, it is impossible to discriminate the two without reference to the type or types which furnished the description.

A case in point is afforded by the *Charadrius pecuarius* of Temminck.

When that eminent ornithologist described and figured (Pl. Col. 183) a little Plover from the Cape of Good Hope, he doubtless imagined that his plate would convey to the eyes of his readers what he might have failed to make clear by his text; but unfortunately there are two species to which, in the absence of all measurements, the description and plate will equally well apply. Not unnaturally therefore they have been applied by different naturalists to different birds, some supposing that Temminck intended to refer to the smaller of the two species, sometimes known as *Ch. kittlitzi*, which is generally distributed throughout the continent of Africa, and does not visit St. Helena, others maintaining that the description and plate sufficiently indicate the larger bird, which, strange to say, is exclusively confined to that remote island.

To clear up the difficulty is the object of the present paper; and, to plunge *in medias res*, I will first state the conclusions at which I have arrived, and then adduce the reasons which have led me to such conclusions.

The bird upon which Temminck bestowed the specific name *pecuarius* is the smaller of the two allied species, which inhabits Africa generally, but is not found in St. Helena. An older name for it is *Charadrius varius*, Vieillot.

The St.-Helena bird, popularly known in the island as the "Wire-bird," is at present without a scientific appellation; and I propose therefore to name it *Egialitis sanctæ-helenæ*.

Before I could form any opinion on this subject, it was of course material that I should examine the type or types of Temminck's description. Accordingly I visited the rich museum at Leiden, where, although a week was too short to admit of my inspecting all the ornithological treasures, I was enabled to satisfy myself conclusively upon this point, which was one of the chief objects of my visit.

The types were found duly labelled in Temminck's handwriting, *Charadrius pecuarius*. They are from the Cape of Good Hope, and belong undoubtedly to the smaller continental species.

Further than this, I saw no specimens of the St.-Helena bird in the museum, and from the observations made to me at the time by Professor Schlegel I feel assured that Temminck was not acquainted with that species. On carefully taking the measurements of the specimens which he had labelled, I find that they correspond almost exactly with those of the figure of *Ch. pecuarius* in the 'Planche Coloriée' 183, which may therefore be said to be of life-size, although not so characterized in the accompanying letterpress.

Ægialitis varius seu pecuarius.

No. of Sp.	Sex.	Locality.	Bill.	Wing.	Bare tibia.	Tars.	Mid. toe.	Collection.
1.	♂	Cape Verd.	·6	4·	·45	1·3	·8	J. E. H.
2.	..	"	·6	3·9	·5	1·1	·7	Brit. Mus.
3.	♀	Gambia.	·5	4·	·4	1·1	·7	J. E. H.
4.	♂	"	·6	4·1	·45	1·2	·65	"
5.	..	Ashantee.	·6	3·9	·6	1·1	·7	Brit. Mus.
6.	..	Cape Lopez.	·65	4·	·45	1·2	·7	Walden.
7.	..	Angola.	·5	4·	·5	1·	·7	J. E. H.
8.	♂	Damaraland.	·6	4·1	·5	1·1	·7	"
9.	♀	"	·6	3·9	·5	1·2	·7	"
10.	♀	"	·5	4·	·4	1·1	·7	"
11.	..	Cape-Town.	·6	3·9	·5	1·1	·8	"
12.	♂	"	·65	4·2	·6	1·3	·8	"
13.	♀	Port Elizabeth.	·6	4·	·5	1·2	·7	"
14.	♂	Trans-Vaal.	·5	4·1	·5	1·2	·8	Brit. Mus.
15.	..	Tette.	·6	4·	·5	1·2	·7	"
16.	..	"	·6	3·9	·5	1·1	·7	"
17.	♂	Abyssinia, { Zoulla. }	·65	3·9	..	1·2	..	Jesse.
18.	♂	Egypt.	·5	3·9	·45	1·1	·7	J. E. H.
19.	♀	"	·65	4·2	..	1·2	..	Shelley.

Ægialitis sanctæ-helenæ.

No. of Sp.	Sex.	Locality.	Bill.	Wing.	Bare tibia.	Tars.	Mid. toe.	Collection.
1.	♂	St. Helena.	·85	4·5	·7	1·5	1·	J. E. H.
2.	..	"	·85	4·4	·7	1·5	1·	"
3.	..	"	·8	4·4	·65	1·45	·95	"
4.	..	"	·85	4·5	·65	1·5	·95	"
5.	..	"	·8	4·5	·7	1·5	1·	"
6.	♂♂	"	·85	4·4	·7	1·5	·9	"
7.	♂♂	"	·8	4·4	·7	1·45	·9	"
8.	..	"	·8	4·5	·6	1·5	1·	Brit. Mus.
9.	..	"	·8	4·5	·6	1·5	1·	"
10.	..	"	·85	4·5	·7	1·5	1·	"
11.	♂♂	"	·85	4·5	·6	1·5	1·	A. Newton.
12.	♂	"	·85	4·5	·7	1·5	1·	"

The preceding table of measurements will sufficiently indicate the discrepancy in size which exists between the two species, and will serve to distinguish them at all times, notwithstanding the similarity of their plumage.

On placing the two species in juxtaposition, their relative sizes appear as follows:—

	Bill.	Wing.	Bare tibia.	Tarsus.	Mid. toe.
	in.	in.	in.	in.	in.
<i>Æ. varius s. peculiaris</i>	·6	4·0	·5	1·2	·7
<i>Æ. sanctæ-helenæ</i> ..	·8	4·5	·7	1·5	·95

I append descriptions of the two species, with such particulars of the life-history of each as I have been able to collect.

ÆGIALITIS VARIUS. (Plate VIII.)

Charadrius varius, Vieillot, N. D. xxvii. p. 143 (1818).

Charadrius peculiaris, Temm. Pl. Col. 183. livr. 31 (1823); Lichtenst. Verz. Doubl. p. 71 (1823); Wagler, Syst. Av. Char. sp. 17 (1827); Lesson, Traité d'Orn. p. 544 (1831); Kittlitz, Kupf. Vög. p. 26, t. 34 (1832); Gray, Gen. B. iii. p. 544 (1844-49); Strickland, Ann. & Mag. N. H. 1852, p. 348; Schlegel, Mus. P. B. Cours. p. 34 (1865); Finsch, Trans. Zool. Soc. 1870, vii. p. 297; Heuglin, Orn. N. O. Afr. p. 1033 (1872).

Charadrius kittlitzii, Newton, Ibis, 1867, p. 251, note*; Layard, B. S. Afr. p. 297 (1867); Ayres, Ibis, 1869, p. 300.

Charadrius pectoralis et *Ch. frontalis*, Lichtenstein, Nomencl. p. 94.

Charadrius pastor, Cuvier, Mus. Paris; Lesson, Man. d'Orn. ii. p. 319 (1828).

Charadrius isabellinus, Müller, Naumannia, 1851, iv. p. 29.

Leucopolius pecuarius, Bonap. Compt. Rend. 1856, p. 417.

Hiaticula pecuaria, Ruppell, Syst. Uebers. p. 118 (1845).

Ægialitis longipes, Heuglin, Syst. Uebers. p. 56 (1856).

Ægialitis sennaarensis, Pr. Würt. Icon. ined. t. 71.

Ægialitis pecuarius, Cassin, Proc. Acad. Philad. 1859, p. 173; Heuglin, J. f. O. 1860, p. 199; Hartlaub, J. f. O. 1861, p. 268; Orn. W. Afr. p. 215; Taylor, Ibis, 1867, p. 68; Shelley, Ibis, 1871, p. 147; id. B. Egypt, p. 239 (1872); Gurney, Andersson, B. Damaral. p. 274 (1872).

Descr. Suprà fusciscenti-brunneus, plumis omnibus ochrascenti-rufo marginatis; fronte et lineâ circa nucham pileum cingente albis: lineâ angustâ frontali et fasciâ infra oculum ad collum posticum ductâ nigris; genis totis gulâque albis; uropygio medio cum supracaudalibus nigris, laterali albo: tectricibus paullo pallidioribus, majoribus fulvescenti-albo terminatis, exterioribus nigricantibus; remigibus brunneis, scapis medialiter albis, secundariis albo terminatis, et primariis interioribus extus conspicuè albo notatis, secundariis longissimis dorso concoloribus: rectricibus mediis brunneis, proximis gradatim albis, duabus extimis omnino albis: pectore pallide ochrascenti-ferrugineo: abdomine, hypochondriis, subcaudalibus, subalaribus et axillaribus albis: iride fuscâ; rostro pedibusque cinerascenti-nigris.

Dimens. rostr. 6; alæ 4; tib. nud. 5; tars 1.2; dig. med. 7.

Hab. Africa.

* Prof. Newton (*l.c.*) ascribes this name to Reichenbach's 'Synopsis Avium,' on the authority of the late Mr. G. R. Gray; but on consulting two copies of the work referred to (Mr. Sclater's, and that in the library of the Zoological Society of London), I have been unable to find any mention of it. It is true a figure of the bird, evidently copied from Temminck's 'Planches Coloriées,' is given (fig. 706) on a plate in the Society's copy; but no name is assigned to it, and no reference is made to this plate in the index. In Mr. Sclater's copy, the entire plate (on which seven other species are also figured) is wanting.

In the 27th volume of the 'Nouveau Dictionnaire d'Histoire Naturelle,' published in 1818, Vieillot thus describes his *Charadrius varius*, giving it the same French name "le pluvier pâtre," which Temminck a few years later bestowed upon his *Charadrius pecuarius* :—

"Le pluvier pâtre, *Charadrius varius*, Vieill., se trouve en Afrique. Le mâle a le front blanc, de même qu'une bandelette qui passe au-dessus des yeux, et entoure la tête au-dessous de l'occiput; une raie transversale d'un brun noirâtre lui succède sur le vertex; la gorge, le ventre et les parties postérieures sont d'un beau blanc; le devant du cou et la poitrine roussâtres; une bande noire part de dessous l'œil, descend sur les côtés de la gorge, où elle s'élargit et remonte sur la nuque, où elle forme un demi-collier; le reste de la tête, le dessus du cou et le manteau sont variés de blanchâtre et de gris sombre; les grandes plumes des ailes noires, ainsi qu'une partie de celles de la queue; le bec et les pieds sont de cette couleur. Taille de *pluvier à poitrine blanche* (*Æ. cantianus*).

"La femelle, ou le jeune, n'a point de bande noire au dessous de l'œil, ni de taches noirâtres sur le ventre, et le reste des parties inférieures est très-peu prononcé."

There can be no doubt that this description applies to the species under discussion.

Now, according to the dates of the livraisons of the 'Planches Coloriées' given by Mr. Crotch, Ibis, 1868, p. 500, the 31st livraison, in which Temminck's *Charadrius pecuarius* appeared, was not published until July 1823, or five years after Vieillot's description in the 'Nouveau Dictionnaire.' Vieillot's name is therefore entitled to precedence.

Although mentioned by so many authors, but little has been published of the history of this bird. So far as we know, it appears to be distributed over the whole of continental Africa, and not confined to the coast, but to be met with often at a considerable distance inland. Specimens from Cape Verd, Gambia, Ashantee, and Angola are in my collection, with others from Damaraland and the Cape, obtained respectively by the late Mr. Andersson and Mr. E. L. Layard. The

British Museum and other collections have enabled me to fill up blanks along the coast-line, and supply, as it were, a continuous chain of localities from the N.W. *viâ* the Cape to the N.E. Perhaps the most inland locality for the species, with which I am acquainted, is Kordofan, where it was met with by Mr. Petherick, as recorded by the late Mr. Strickland (*l. c.*). Mr. Andersson found it not uncommon in Damaraland, but did not think that it nested there. It was to be seen in flocks often composed of a considerable number of individuals, and feeding on the small insects which are to be found in the moist and humid localities to which it is partial. At some seasons he found it very abundant at Objimbinque, but he did not recollect ever to have observed it on the sea-shore. Further south this little Plover is common about the chain of lagoons formed by the Salt River, and along the sea-shore near Cape Tonen. Mr. Layard has also seen it in September on the rocks at Green Point and on Robben Island; and it is abundant near Zoetendal's Vley. In the Trans-Vaal territory, Mr. Ayres says (*l. c.*), the species remains throughout the summer, and breeds. He observed it to frequent the muddy flats, running with considerable swiftness, stopping suddenly and bobbing the head as many of the Plovers do. He describes the colours of the soft parts thus:—"Eye large, iris very dark; bill black, tarsi and feet ashy black."

This species is not included by Dr. Kirk in his notice of the birds of the Zambesi region (*Ibis*, 1864, pp. 331, 332); and Dr. Finsch says (*Trans. Zool. Soc.* 1870, vii. p. 297) "it seems not to have been observed on the Red Sea;" but this must be accidental, because not only does it occur in Abyssinia, but Mr. Jesse procured a specimen at Zoulla, which borders upon the Red-Sea coast*. Moreover it is plentiful throughout Egypt and Nubia, as we are informed by Dr. Rüppell (*Syst. Uebers.* p. 118), Hr. v. Heuglin (*Orn. N. O. Afr.* p. 1035), and Capt. Shelley (*Birds of Egypt*, p. 239), "frequenting similar loca-

* Since the above was in type, I have seen Mr. Jesse's specimen in the collection of Viscount Walden, who agrees with me in referring it to the young of *Æ. marginatus* (Vieillot) (*Ch. nivifrons* of Cuvier and Lesson), and not to *Æ. pecuarius*, as given by Dr. Finsch, *l. c.*

lities to those of *Æ. cantianus* and *Æ. minor*, and generally met with in flocks." Heuglin speaks of it as "rather a common resident bird [Standvögel] throughout the whole of the Nile region." Its numbers, however, appear to vary considerably in the same locality in different years; for in 1870 Capt. Shelley only met with it once near Golosaneh, although he was then anxious to procure some specimens, while in 1868 and 1871 it was one of the most abundant of the small Plovers.

It will thus be seen that it makes the whole tour of Africa, but, so far as we know at present, does not travel beyond these limits, not even to Madagascar. According to Heuglin it lives singly and in small flocks, always near water, more frequently near canals and lakes than near the Nile proper. It is on this account, perhaps, being out of the beaten tract, that it has been less frequently observed by travellers on the Nile. In habits and mode of life it is said not to differ from the common Ringed Plover (*Æ. hiaticula*). Its food consists of larvæ, worms, flies, and small beetles living in the sand. The eggs, of which I have specimens procured in South Africa by my friend Mr. Layard, are most like the eggs of *Æ. tricollaris* and *Æ. nigrifrons* (Australia). They are a trifle smaller than those of the well-known *Æ. cantianus*, less pyriform in shape, and with a smoother and therefore more glossy shell. In colour, though not in shape and size, they remind one of the eggs of *Cursorius gallicus*, being of a pale clay-colour closely freckled over with minute specks and scratches of umber-brown.

ÆGIALITIS SANCTÆ-HELENÆ. (Plate IX.)

Charadrius pecuarius, Layard, Ibis, 1867, p. 251; Birds S. Afr. p. 297 (1867); Newton, Ibis, 1867, p. 251, note; Baker, Zoologist, 1868, p. 1475; Mellis, Ibis, 1870, p. 104.

The "Wire-bird" of the natives.

Descr. Similis *Æ. vario* (scu *pecuario*) sed conspicuè major; rostro et tarsi longioribus; subtùs albidior: scapis primariorum brunneis, scapo primarii primi tantùm albo, præcipuè distinguendus. Iride fuscâ; rostro pedibusque nigrimis.

Dimens. rostr. .8; alæ 4.5; tib. nud. .7; tars. 1.5; dig. med. .95.

Hab. In insulâ Sanctæ Helenæ.

Independently of its larger size, longer and more robust bill and tarsi, the "Wire-bird" may be distinguished from its continental ally by the colour of the primaries, in which the shaft of the first quill only is white, the other shafts being dusky brown; in the other species all the shafts are mesially white.

When Mr. Layard published his 'Birds of South Africa,' he was under the impression that this species, the "Wire-bird," which he had then recently obtained in St. Helena, was the true *Ch. pecuarius* of Temminck, although upon what ground I do not know; for Temminck states that his bird came from the Cape. Accordingly he gave Temminck's name to this species, and called the true *Ch. pecuarius*, with which he was quite familiar in South Africa, *kittlitzi*. This I now propose to rectify, for the reasons above stated.

It is very remarkable that a bird like the present, well formed for flight, and having to a great extent the habits of other Plovers, should be exclusively confined to a particular island: yet such, I take it, is the case; for I have seen no specimens of this bird from any part of continental Africa.

All that we know of its history, therefore, has been collected in St. Helena. Its haunts are thus described by Mr. Layard (*l. c.*):—"A plateau of arid burnt-up scorïæ, rent by fearful ravines, in which a few *cacti* struggled for existence. Here and there an *Asclepias* looked green and inviting to the miserable goats, and was frequented by little bands of a red butterfly (*Danais chrysippus*) and the ubiquitous *Cynthia cardui*. Now and then a little flock of the Australian *Geopelia tranquilla* rose and flew before us, or a Java Sparrow or Cape Waxbill (all introductions) chattered on the stunted vegetation."

On shooting several specimens of the "Wire-bird," Mr. Layard soon found that he had a bird with which he was not previously acquainted; and he observes, "on comparing my specimens with *C. pecuarius*, Temm., I found them to be larger

every way, and to be lighter on the breast and belly. They come, however, very close."

"While sitting on the ground arranging the feathers of my bird, and wondering what it could find to eat in such barren spots, I detected some odd-looking excrescences on the blocks of scoria about us; and a closer examination showed these to be small shells of the genus *Succinea*. These, together with *Coleoptera*, form, as I discovered by their stomachs, their chief food."

Mr. Melliss informs me that they lay three or four eggs of a pale colour (whitish) dotted with black, in the centre of a mass of cow-dung, making no nest, that they remain in the island throughout the year, and frequent open plains; water seemed no attraction to them.

They are called "Wire-birds," says Mr. Layard, "from the fact that their legs are long and thin. I suppose they appear absurdly so to the aborigines of the island, who have so few birds to look at." Another observer, however, Mr. Eden Baker, says (Zoologist, 1868, p. 1475), the local name of this species is taken from its haunt, the "wire-grass," a kind of couch grass that grows where the fertile parts of the island gradually change to the barrenness of the outer rocks; and this view is taken by Mr. Melliss, who says (Ibis, 1870, p. 104), "This bird frequents chiefly the outskirts of the island, and is generally to be seen running about on the hot stony plains, more or less covered with 'wire-grass' (*Cynodon dactylon*). It feeds upon beetles and a small animal (*Succinea*, sp.?) found adhering to and hiding under the rocks and stones, with which the ground is partly covered. It is rarely, but occasionally, seen inland, sometimes in pairs, sometimes in flocks of five or six. It lays in the summer months of December and January, two eggs, in colour grey, with black markings. It is stated, on the pretty good authority of several persons long resident in the island, that this bird makes no nest, but lays its eggs in dry cow-dung on the exposed open ground; it slightly covers them over, but does not sit upon them*,"

* This must be a mistake. The bird probably only covers its eggs to hide them in its absence, as is the case with *Gallinula chloropus*, *Podiceps minor*, and other species.—J. E. H.

merely returning occasionally to see that they are safe, and to take care of the young birds as soon as they are hatched. The colour of the eggs so much resembles the material in which they are laid that it is difficult to distinguish them from it without careful search.

“After heavy rain the Wire-bird may be seen frequenting and running along the edges of the pools of water; but generally it finds little water in the island to indulge its wading propensities. This deprivation does not appear, however, to interfere with its happiness; for it is very doubtful if it ever leaves the island.”

There seems to be no appreciable difference in the colour of the sexes. The young remain to be described.

XXXI.—Notes on the Trochilidæ. *The Genera* *Pygmornis*, *Glaucis*, and *Threnetes*. By OSBERT SALVIN, M.A. &c., and D. G. ELLIOT, F.L.S., F.Z.S., &c.

[Continued from page 14.]

II. *The Genus Pygmornis.*

THE species of this intricate group can be differentiated only by a close study of the changes which take place in the plumage exhibited by individuals, both as regards their sex and age. Mr. Gould, in his article on *Phaethornis adolphi* (Mon. i. p. 85), records M. Sallé's observations as regards the relationship between the colours of the sexes of this species as ascertained by him from actual dissection of specimens procured near Cordova, Mexico. His conclusions were, that all the individuals with short and rounded tails were males, while the females had the two central rectrices more prolonged, and the lateral with a dark zone between their bronzy bases and buff tips. Viewing the other members of the group with the light that these observations give us, we find that the males as they increase in age grow darker on their under surface, especially on the throat, that the tails in the same sex become shorter and more rounded, and that the light colour of the tips becomes evanescent—a similar fact to that which

we have already noticed in members of the allied genus *Phaethornis*, especially in the group containing *P. guyi* and its allies. The females do not appear to pass through these changes, but retain the light colour of the under surface, the elongated rectrices, and the well-defined light tips of their tail-feathers.

The geographical distribution of *Pygmornis* coincides with that of *Phaethornis*, except that we are uncertain about its range in western Ecuador, where, however, some one member of the genus doubtless occurs. Guiana possesses three species, *P. longuemareus*, *P. pygmæus*, and *P. episcopus*. In South Brazil we find the species *P. pygmæus* and *P. idaliæ*, neither going beyond the province of Rio Janeiro. *P. nigricinctus* is found on the Upper Amazon. *P. longuemareus* is the only species of this genus met with in Venezuela, Trinidad, and Tobago. Coming to the Andes we find *P. striigularis*, which spreads through Columbia and Ecuador; and *P. griseigularis* is found in the same countries and also in Peru. In the great isthmus of Central America, together with Southern Mexico, *P. adolphi* alone is found.

We are able to separate the species of this genus into three groups:—

- | | |
|---|----------------------------------|
| A. Rump green, same colour as the back | <i>Pygmornis idaliæ</i> . |
| B. Rump rufescent or bright rufous. | |
| a. Tail-feathers very broad, and central ones acute | <i>Pygmornis longuemareus</i> . |
| b. Tail-feathers narrow | <i>Pygmornis adolphi</i> . |
| c. Median tail-feathers subterminally black. | <i>Pygmornis griseigularis</i> . |
| d. Throat grey striated with black | <i>Pygmornis striigularis</i> . |
| C. With prominent pectoral black band in the male. | |
| a. Mandible basal half yellow | <i>Pygmornis pygmæus</i> . |
| b. Lateral tail-feathers black | <i>Pygmornis episcopus</i> . |
| c. Mandible three-fourths yellow | <i>Pygmornis nigricinctus</i> . |

PYGMORNIS IDALIÆ.

Trochilus idaliæ, Bourc. & Muls. Ann. Soc. Linn. de Lyon, vol. iii. (1856).

Phaethornis obscura, Gould, P. Z. S. 1857, p. 14.

Pygmornis idaliæ, Gould, Intr. Troch. p. 48.

Phaethornis obscura, Gould, Mon. Troch. vol. i. pl. 38.

Phaethornis viridicaudata, Gould, Mon. Troch. vol. i. pl. 33.

Pygmornis aspasiæ, Gould, Intr. Troch. p. 47.

Hab. South Brazil.

This species was first described by Bourcier, *l. c.*, and the male a year afterwards by Mr. Gould as *Phaethornis obscura*, and the female in the same paper as *P. viridicaudata*. We have seen specimens of the male of this species much darker, and with the tail much more rounded than those figured in Mr. Gould's plate as *P. obscurus*.

Our specimens are as follows:—

One, Brazil (*Bourcier*), one, Brazil (*Gould*), Mus. D. G. E.; one, Brazil (*Verreaux*), Mus. S.-G.

PYGMORNIS LONGUEMAREUS.

Trochilus longuemareus, Less. Trochil. p. 15, pl. ii.

Phaethornis longuemareus, Gould, Mon. Troch. vol. i. pl. 31.

Pygmornis longuemareus, Gould, Intr. Troch. p. 46.

Hab. Guiana; Trinidad (*Léotaud*).

We do not find any difficulty in the determination of this species, its broad tail-feathers, with the median ones quite acute, serving readily to distinguish it from its near allies *P. adolphi* and *P. griseigularis*.

It ranges generally over Guiana, and has also been procured in Trinidad by Léotaud; while it is not at all improbable that it may also inhabit Venezuela, although we have no specimens from that country.

Our specimens are as follows:—

Five, Cayenne (*Whitely*, *Bourcier*, *Deyrolle*), Mus. D. G. E.; one, Cayenne (*Parzudaki*), Mus. P. L. S.

+PYGMORNIS ADOLPHI.

Phaethornis adolphi, Gould, Mon. Troch. vol. i. pl. 35.

Pygmornis adolphi, Gould, Intr. Troch. p. 47.

Hab. Mexico and Central America to Panama.

Bourcier never seems to have described this species himself, and though mentioned under his MS. name, it appears to have been first published by Mr. Gould in his monograph. It is extremely similar to *P. griseigularis*, the only tangible differ-

ences consisting in the central tail-feathers being subterminally green instead of black as in the latter species.

The following are our specimens:—

One, Coban (*Salvin*), one, Bogota (*Parzudaki*), Mus. P. L. S. ; one, Cayenne (*Parzudaki*), Mus. P. L. S. ; one, Vera-Paz (*Salvin*), one, Coban (*Bourcier*), one, Cayenne (*Verreaux*), Mus. D. G. E. ; one, Costa Rica (*Eudres*), one, Veragua (*Arcé*), four, Vera Paz (*Salvin*), three, Panama (*McClellan, Hughes*), Mus. S.-G.

PYGMORNIS GRISEIGULARIS.

Phaethornis griseogularis, Gould, P. Z. S. 1851, p. 115 ; id. Mon. Troch. vol. i. pl. 36.

Pygmornis griseogularis, Gould, Intr. Troch. p. 47.

Trochilus aspasiæ, Bourc. & Muls. Ann. Soc. Linn. de Lyon, vol. iii. (1856).

Phaethornis zonura, Gould, P. Z. S. 1860, p. 305 ; id. Mon. Troch. vol. i. pl. 34.

Pygmornis zonura, Gould, Intr. Troch. p. 47.

Hab. New Granada.

This species was first described by Gould as above cited ; and a few years later Bourcier gave to it the name of *aspasiæ*, evidently not being aware that Mr. Gould had already characterized it. In 1860 Mr. Gould bestowed on it another name, that of *zonura*. This, in our opinion, after the examination of the type, kindly lent to us by Mr. Gould, is in no way distinguishable from *P. griseigularis*, of which we have a series of specimens before us, and amongst them Bourcier's type of *P. aspasiæ*.

Mr. Gould, in his remarks upon *P. zonura*, states that one of its characters is the "deep black colouring of the tail-feathers." We find in the specimens before us that this must not be relied upon as indicating any specific distinctness, as, although some have these feathers black like Mr. Gould's type, others exhibit a greenish shade, but in every other particular are identical.

We have examined the following specimens:—

Two, New Granada (*Bourcier*), one of which is the type of

P. aspasia, two, New Granada (*Whitely*), one, New Granada (*Boucard*), one, Bogota (*Gould*), Mus. D. G. E.; one, Peru (*Cook*), Mus. D. G. E.; one, Peru (*Gould*), type of *P. zonura*, one, Bogota (*Trübner*), Mus. P. L. S.

PYGMORNIS STRIIGULARIS.

Phaethornis striigularis, Gould, Mon. Troch. vol. i. pl. 37.

Pygmornis striigularis, Gould, Intr. Troch. p. 48.

Pygmornis amaaura, Bourc. Rev. Zool. 1856, p. 522.

Phaethornis atrimentalis, Lawr. Ann. Lyc. Nat. Hist. N. Y. p. 260, vol. vi. (1858) ?

Phaethornis amaaura, Gould, Mon. Troch. vol. i. pl. 32.

Pygmornis amaaura, Gould, Intr. Troch. p. 46.

Hab. New Granada and Ecuador.

This species was first described by Mr. Gould in Part iii. of his monograph, and afterwards by Bourcier in 1855, as *Phaethornis amaaura*. In 1858 Mr. Lawrence described his *P. atrimentalis*, which Mr. Gould refers to the *P. amaaura* of Bourcier. In Elliot's collection is the type of *P. amaaura*, Bourcier, which proves to be the same as *P. striigularis*; and the specimen called *P. amaaura* by Mr. Gould is only an adult male of the same species.

We have examined the following specimens:—

One, Bogota (*Trübner*), Mus. P. L. S.; one, Ecuador (*Buckley*), Mus. P. L. S.; one, Napo (*Bourcier*), type of *P. amaaura*, one, Bogota (*Gould*), one, Napo (*Bourcier*), Mus. D. G. E.; one, Napo (*Gould*), one, Ecuador (*Bourcier*), Mus. J. Gould.

PYGMORNIS PYGMÆUS.

Trochilus pygmæus, Spix, Av. Bras. 1824, p. 78, pl. 80. fig. 1.

Phaethornis pygmæus, Gould, Mon. Troch. vol. i. pl. 41.

Pygmornis pygmæa, Gould, Intr. Troch. p. 49.

Phaethornis eremita, Gould, Mon. Troch. vol. i. pl. 40.

Pygmornis eremita, Gould, Intr. Troch. p. 49.

Phaethornis rufigaster, Less. Hist. Col. t. 9.

Pygmornis rufiventris, Gould, Intr. Troch. p. 48.

Hab. Brazil and Cayenne.

Spix described this species in 1824, from a specimen pro-

cured at Minas Geraes, and gave a very poor figure of it. We can find no differences in examples from various parts of Brazil, and also from Cayenne. We have compared also specimens from Bahia, called *P. eremita* by Gould, with those from Rio Janeiro and other parts of Brazil, and find them identical.

Our specimens are as follows :—

One, Brazil (*Gould*), one, ditto (*Cook*), one, Bahia (*Deyrolle*), Mus. D. G. E. ; one, Rio (*Youds*), two, Brazil, Mus. S.-G. ; one, Brazil (*Leadbeater*), Mus. P. L. S.

PYGMORNIS NIGRICINCTUS.

Phaethornis nigrincinctus, Lawr. Ann. Lyc. Nat. Hist. vol. vi. p. 260 ; Gould, Mon. Troch. vol. i. pl. 39. fig. 1.

Pygmornis nigrincinctus, Gould, Intr. Troch. p. 48.

Hab. Upper Amazons, Pebas (*Hauxwell*) ; Eng. do Gama, Brazil (*Natterer*).

This species, although resembling closely the *P. pygmæus* and *P. episcopus*, presents one constant difference—that is, in the extent of black on the mandible. In the allied species mentioned above, the black extends halfway from the tip ; in *P. nigrincinctus* it is only the tip that is black ; and this character seems always to distinguish it from its relatives. In all other respects we find it resembles the two species with which we have compared it.

Specimens examined :—

Two, Pebas, Peru (*Hauxwell*), Mus. D. G. E. ; three, Pebas (*Hauxwell*), one, Brazil (*Natterer*), Mus. S. & G.

PYGMORNIS EPISCOPUS.

Phaethornis episcopus, Gould, P. Z. S. (1857) p. 14 ; id. Mon. Troch. vol. i. pl. 39. fig. 2.

Pygmornis episcopus, Gould, Intr. Troch. p. 48.

Hab. Guiana.

This species, although very closely allied to *P. pygmæus*, is apparently distinct from that species, the principal point of difference being in the tail, the feathers of which are much broader and blacker. This character is not exhibited in Mr. Gould's plate of the species, his differences being the bronzy hue of the upper surface and tail, broad pectoral band, and

small wings. We find none of these characters wanting in *P. pygmæus* before us; but the black colouring of the tail-feathers, not mentioned by Mr. Gould, we do not find represented in our specimens of *P. pygmæus*; and this fact alone induces us to consider it a species. Our comparisons have been made with the type of *P. episcopus*, kindly lent to us by Mr. Gould.

Specimens examined:—

One, Demerara (*Gould*), type.

III. *The Genus Glaucis.*

With ample materials before us, representing every so-called species of this genus, we are utterly unable to recognize more than one, if we except *G. dohrni*, of which more anon. The variation in the shape and coloration of the rectrices is very much the same as in the genera *Phaethornis* and *Pygornis*, inasmuch as these, with the advancing age of individuals, lose the pointed character of their tips, and become more and more rounded. It would also appear that the subterminal black band becomes narrower, and even evanescent. Upon these two characters, no less than four species have been founded. The males, upon the the underside, especially the throat, are darker in hue than the females.

There can be no doubt as to the first name applied to this species being *hirsuta* of Gmelin, based upon the Brazilian bird. Lesson was the first to divide the species, applying the term *mazeppa* to the form from Guiana. Mr. Lawrence next distinguished the bird from Ecuador as *G. affinis*, basing the species upon the sombre colour of the underparts, which we find to be indicative of old males. Then Mr. Gould, in 1860, described the bird from the Rio Negro and Rio Napo (the same country as that of *G. affinis*) as *G. melanura*; and in his 'Monograph' he gave to specimens from Para (admitted to be immature, which fact is demonstrated in the plate by the light tips of the whole of the wing-feathers, together with the sharply-pointed rectrices) the name of *G. lanceolata*. We may further add that Mr. Gould, though figuring all the above species, and describing some of them himself, does not

appear to hold positive views whether there are four or one species. As regards *Glaucis ænea* of Lawrence, from Costa Rica, the type of which is before us, as well as another specimen from the same country, skinned by the same hand, we find that the bronze colouring of the back and the rich rufous of the under surface can be matched without difficulty in our specimens from southern countries. The blackish mandible of Mr. Lawrence's type is not borne out by the other specimens from the same locality, which have the mandible yellow as in normal South-American specimens.

The bird which has also been included in this genus as *Glaucis dohrni* we believe to be the female of *Grypus spixi*, as already suspected by Mr. Gould (P. Z. S. 1860, p. 304). Whether the species is really referable to the genus *Grypus* remains to be proved. The only known male specimen, the type of *G. spixi* of Gould, has the tip of the maxilla broken, and shows but a slight serration of the edges at the extremity of the bill, not more than is found in perhaps the majority of the so-called genera of Humming-birds. We do not observe in the unbroken mandible the peculiar hook, which forms so marked a character in both *Grypus* and *Androdon*.

The geographical distribution of *Glaucis* is very similar to that of *Phaethornis*, except that it does not proceed further north than Costa Rica, nor have we seen any specimens of it from western Ecuador. On the east coast it goes as far south as Rio, and in the north to the islands of Trinidad and Tobago, and extends over the whole country lying between these points.

† *GLAUCIS HIRSUTA.*

Trochilus hirsutus, Gm. Syst. Nat. tom. i. p. 490.

Glaucis hirsuta, Gould, Mon. Troch. vol. i. pl. 5; id. Intr. Troch. p. 38.

Trochilus mazeppa, Lesson, Troch. p. 18, pl. 3.

Glaucis mazeppa, Gould, Mon. Troch. vol. i. pl. 6; id. Intr. Troch. p. 38.

Glaucis affinis, Lawr. Ann. Nat. Hist. of New York, vol. vi. p. 261; id. Gould, Mon. Troch. vol. i. pl. 7; id. Intr. Troch. p. 38.

Glaucis melanura, Gould, P. Z. S. (1860) p. 364; id. Mon. Troch. pl. 9; id. Intr. Troch. p. 39.

Glaucis lanceolata, Gould, Mon. Troch. pl. 8; id. Intr. Troch. p. 39.

Glaucis ænea, Lawr. Pr. Acad. Phil. 1867, p. 232.

Hab. Tropical South America, and Central America to Costa Rica.

We have examined the following specimens:—

Two, South Brazil (*Youds*), three, Bahia (*Wucherer*), Mus. S. & G.; one, Brazil (*Whitely*), Mus. D. G. E.; one, Eng. do Gama, Brazil (*Natterer*), Mus. S. & G.; two, Cayenne (*Deyrolle*), Mus. D. G. E.; two, Pebas (*Hauxwell*), Mus. S. & G.; one Xeberos (*Bartlett*), Mus. D. G. E.; one, Barra do Rio Negro (*Natterer*), Mus. S. & G.; one, Trinidad (*ex Gould*), Mus. P. L. S.; two, Trinidad, Mus. D. G. E.; one, Merida (*Goering*), Mus. D. G. E.; one, Caraccas (*Goering*), Mus. S. & G.; one, Venezuela (*Sallé*), Mus. D. G. E.; one, Bogota (*ex Verdey*), Mus. D. G. E.; one, New Granada (*Leadbeater*); Mus. P. L. S.; three, Panama (*McClenan*), Mus. D. G. E.; four, Panama (*McClenan*), Mus. S. & G.; one, Panama (*Arcé*), Mus. S. & G.; one, Panama (*Salvin*), Mus. S. & G.; one, Costa Rica (*Endres*), Mus. S. & G.; one, Costa Rica (*Endres*), type of *G. æneus*.

IV. The Genus *Threnetes*.

This genus has generally been deemed to consist of three species—*Thr. leucurus*, *cervinicauda*, and *antoniæ*. We here unite with these a species heretofore included in the genus *Glaucis* as *G. ruckeri*, as being in no way separable from them.

The geographical distribution of this genus is restricted in South America to the northern portion of the continent, no species having been found south of the basin of the Amazon. Two species occur in Guiana alone, *T. leucurus* and *T. antoniæ*; another, *T. cervinicauda*, spreads over the regions of the Upper Amazon westward to the roots of the Andes, while the fourth, *T. ruckeri*, stretches through western Ecuador and the Isthmus of Panama as far north as Costa Rica.

THRENETES LEUCURUS.

Trochilus leucurus, Linn. Syst. Nat. vol. i. p. 190.

Threnetes leucurus, Gould, Mon. Troch. vol. i. pl. 13. ; id. Intr. Troch. p. 40.

Hab. Guiana.

We have the following specimen :—

One, Surinam (*Gould*), Mus. D. G. E.

THRENETES CERVINICAUDA.

Threnetes cervinicauda, Gould, P. Z. S. 1854, p. 109 ; id. Mon. Troch. vol. i. pl. 14 ; id. Intr. Troch. p. 40.

Hab. Upper Amazonia, Ecuador, and Columbia.

Our specimens are :—

One, Ecuador (*Gould*), two, ditto (*Buckley*), Mus. D. G. E. ; one, Bogota (*Gould*), one, Ecuador (*Buckley*), one, Eastern Peru (*Hauxwell*), Mus. S. & G.

THRENETES ANTONIÆ.

Trochilus antoniae, Bourc. & Muls. Ann. Soc. d'Agric. de Lyon (1846), p. 329.

Threnetes antoniae, Gould, Mon. Troch. vol. i. pl. 15 ; id. Intr. Troch. p. 40.

Hab. Guiana.

Our specimens are :—

One, Cayenne (*Verreaux*), one, ditto (*Verdey*), Mus. D. G. E.

† THRENETES RUCKERI.

Trochilus ruckeri, Bourc. P. Z. S. 1847, p. 46.

Glaucis ruckeri, Gould, Mon. Troch. vol. i. pl. 11 ; id. Intr. Troch. p. 39.

Glaucis fraseri, Gould, Mon. Troch. vol. i. pl. 12 ; id. Intr. Troch. p. 39.

Hab. Central America and Ecuador.

This is not an uncommon species in the southern portion of Central America, and, according to Fraser, extends southwards into Ecuador. Specimens from the latter country have been separated by Mr. Gould, and called *Glaucis fraseri* in his monograph of this family. We have compared Mr. Gould's specimen of *G. fraseri* with those before us from different parts of Central America, and consider it to be merely *T. ruckeri* in immature plumage, and in no way worthy of

specific distinctness. A young specimen of *T. ruckeri* from Panama, in Salvin's collection, is precisely similar.

We have examined the following specimens:—

One, Costa Rica (*Carmirol*), Mus. S. & G.; two, Panama (*Arcé*), Mus. S. & G.; one, Costa Rica (*Endres*), Mus. S. & G.; one, Panama (*McLennan*), Mus. S. & G.; one, Panama (*McClellan*), Mus. D. G. E.; one, Ecuador (*Fraser*), Mus. Gould.

XXXII.—*On two Species of Trochilidæ of the Genus Lophornis.* By OSBERT SALVIN, M.A. &c., and D. G. ELLIOT, F.L.S., F.Z.S., &c.

IN Schreibers's 'Collectanea ad Faunam Brasiliæ,' 1833, the species generally known to authors as *Lophornis gouldi* (*Ornismya gouldi*, Less.) is described and figured as *Trochilus reginæ*. It is impossible to decide which of these names takes precedence, as Lesson's work on the Trochilidæ extended over more than one year in its publication, and therefore the exact date at which his name was first given cannot be accurately ascertained. Rather than disturb, therefore, a name by which the species is everywhere known, by the substitution of *reginæ* of Schreibers, which possibly may have a slight priority, we have deemed it best to place Schreibers's name among the synonyms of *gouldi*. In either case, however, whether *reginæ* or *gouldi* have precedence, it becomes necessary to give a new name to the very distinct species described as *reginæ* by Gould in 1847, many years after the term had been employed by Schreibers.

The synonymy of the two species will be somewhat as follows:—

LOPHORNIS GOULDI.

Ornismya gouldi, Less. Troch. 1831-33, p. 103, pl. xxxvi.

Trochilus reginæ, Schreib. Collect. Faun. Brasil. pl. 1 (1833).

Lophornis gouldi, Gould, Mon. Troch. vol. iii. pl. 118; id. Intr. Troch. p. 83.

Hab. Northern Brazil.

Top of head and crest bright rufous. Front and throat brilliant green; elongated feathers on the side of the neck white, with small round spots of brilliant green. Back bright grass-green. Rump dark red crossed by a white bar. Tail rufous red, outer edges of the feathers dark green. Underparts dark gray, greenish on the flanks. Bill red.

LOPHORNIS STICTOLOPHUS.

Lophornis reginæ, Gould, P. Z. S. 1847, p. 95; id. Mon. Troch. vol. iii. pl. 122; id. Intr. Troch. p. 84.

Hab. Columbia.

Top of head and crest bright red, the latter having several rows of small round black spots. Throat and upper parts of breast brilliant metallic green. Back dark green. Rump dark red crossed by a white bar. Two central feathers glittering green, outer ones dark rufous edged with dark green. Underparts dark green. Under tail-coverts dark rufous. Bill red.

XXXIII.—*Additional List of and Notes on Birds obtained in the Republic of Trans-Vaal.* By THOMAS AYRES. (Communicated by JOHN HENRY GURNEY.)

[Continued from 'The Ibis,' 1871, p. 270.]

[In communicating the following notes from the pen of my friend Mr. Ayres, I am desirous of correcting an error for which I am responsible, and which occurred in Mr. Ayres's first paper on Trans-Vaal birds, on page 292 of 'The Ibis' for 1869. The Zosterops there mentioned as *Z. capensis* should have been given as *Z. sundevalli*, Hartl., and not as *Z. capensis*.—J. H. G.]

158. ERYTHROPUS AMURENSIS, Radde. Eastern Red-footed Hobby.

In December 1870 my brother and I rode over to a lagoon on Loup-spruit, some six miles from Potchefstroom, duck-shooting, and there we found a lot of these pretty Falcons hunting with much assiduity; they were coursing backwards

and forwards over the driest end of the swamp with an exceedingly rapid flight, and were taking insects on the wing. Though the birds were plentiful, they would seldom come within range, and we only secured the specimen sent (an adult male). This is the only time I have noticed them in this part of the country.

159. *MILVUS FORSKAHLI* (Gmel.). Yellow-billed Kite.

160. *CIRCAËTUS PECTORALIS*, Smith. Black-breasted Harrier Eagle.

161. *AQUILA NÆVIOIDES*, Cuv. Tawny Eagle.

162. *HALIAËTUS VOCIFER* (Daud.). African Sea-Eagle.

163. *SERPENTARIUS SECRETARIUS* (Scop.). Secretary bird.

164. *HIRUNDO ALBIGULARIS*, Strickl. Southern White-throated Swallow.

These Swallows breed sparsely in this part of the country.

165. *HIRUNDO CUCULLATA*, Bodd. Rousseline Swallow.

A pair of these Swallows are now (30th December) breeding in my bedroom. They have fixed their nest within a few feet of my head; and I hear them frequently talking to one another in the middle of the night; and in the early morning it is pleasant to listen to their short but cheery song. The little white-rumped Swifts (*Cypselus caffer*) tried several times to turn them out when the nest was about half built; and they certainly would have done so, had not I prevented the robbery. There is no fighting over the matter; the Swifts simply frighten the Swallows away by constantly flying close past, making harsh cries; and then, entering the nest, they take possession.

166. *COTYLE CINCTA* (Bodd.). Brown-collared Martin.

167. *ALCEDO SEMITORQUATA*, Swains. Half-collared Kingfisher.

168. *CORYTHORNIS CRISTATA* (Linn.). Malachite-crested Kingfisher.

169. *SYLVIETTA RUFESCENS* (Vieill.). South - African Crombec.

170. *BUDYTES RAYI*, Bonap. Ray's Wagtail.

[The specimen sent (a male in full plumage) is the only South-African example of this species which I have yet seen. Mr. Ayres sent with it two specimens of *B. flava*, which he says has been "exceedingly scarce for the last two seasons."—J. H. G.]

171. *MACRONYX CAPENSIS* (Linn.). Sentinel Pipit.

172. *PYCNONOTUS NIGRICANS* (Vieill.). Brunoir Bulbul.

173. *LANIARIUS QUADRICOLOR*, Cass. Four-banded Shrike.

174. *HYPHANTORNIS SUBAUREUS*, Smith. Algoa-Bay Wea-verbird.

175. *ESTRELDA ASTRILD* (Linn.). Waxbill Finch.

176. *HABROPYGA SUBFLAVA* (Vieill.). Sanguineous Finch.

177. *ORTYGOSPIZA POLYZONA* (Temm.). Little Barred-breasted Finch.

178. *STREPTOPELIA CAPICOLA* (Sund.). Cape Turtle Dove. Tolerably common in Potchefstroom.

[The specimen sent appears to agree with two in my possession, obtained by the late Mr. Andersson, one at the river Cunené and the other near the river Obavango, and may therefore be considered referable to *S. damarensis* (Finsch & Hartl.), if the latter be admissible as specifically distinct from *S. capicola*, which I greatly doubt.—J. H. G.]

179. *FRANCOLINUS GARIEPENSIS*, Smith. Orange-River Francolin.

[The eggs sent to the Rev. Canon Tristram, and referred to in 'The Ibis,' 1871, p. 262, were subsequently proved, by an examination of the skin of the parent bird, to belong to this species, and not, as at first supposed, to *F. levaillanti*; both species, however, are natives of Trans-Vaal. Mr. Ayres remarks, as to *F. levaillanti* and two of its congeners, "*F. afer* and *F. levaillanti* appear to me to be generally distributed all over the country where the localities are suitable to their habits; *F. pileatus* I have only found in the

bush-country, frequenting the open glades, and I think it is a much scarcer bird."—J. H. G.]

180. *ARDEA GOLIATH*, Temm. Goliath Heron.

Whilst out fishing I shot a fine specimen of this Heron; he had just caught and gorged whole a cat-fish (here called barbel) of at least two pounds weight, and with a head as broad as one's hand; he had dexterously speared it right through the body behind the head, with one mandible, and had evidently clasped it with the other.

181. *ARDEA COMATA*, Pall. Squacco Heron.

This Heron is plentiful in the swamps in the neighbourhood of Potchefstroom.

182. *LOBIVANELLUS LATERALIS* (Smith). South-African Wattled Plover.

A few of these Plovers occasionally find their way to Potchefstroom and the neighbourhood; they are, however, very rare visitants.

The specimen sent (a female) was one of three which were observed outside the town of Potchefstroom in the month of April.

The iris was ashy brown; the bill yellow, but black at the tip; the bare part of the thighs, the tarsi and feet greenish yellow; the basal part of the wattles red; the remaining portion and the eyelids yellow.

[Mr. E. C. Buxton informs me that he obtained this species in the neighbourhood of the Labomba mountains, beyond the northern boundary of the colony of Natal.—J. H. G.]

183. *PHILOMACHUS PUGNAX* (Linn.). Ruff.

[A female specimen in winter plumage.—J. H. G.]

184. *TOTANUS GLAREOLA* (Linn.). Wood-Sandpiper.

185. *GALLINAGO MAJOR* (Gmel.). Solitary Snipe.

These Snipes were more plentiful than usual in the neighbourhood of Potchefstroom about the end of 1871.

186. *RALLUS CÆRULESCENS*, Gmel. Caffre Rail.

187. *ORTYGOMETRA PYGMÆA*, Naum. Baillon's Crake.

The following observations relate to species already recorded as occurring in Trans-Vaal :—

108. *HYPHANTORNIS MARIQUENSIS* (Smith). Mariqua Weaver bird.

In the beginning of August 1871 I noticed that a pair of these birds had commenced building, hanging their nest on the pendulous twigs of a weeping-willow right over one of the secluded back streets of the town of Potchefstroom, at a height of perhaps twenty feet from the ground, the tree being large and one of a row. At this period the cock bird had not assumed the yellow plumage, or the slightest symptom of it that I could see, but was in appearance similar to the female. The building of the nest proceeded very slowly, and by the beginning of September it was not more than one fourth completed, the pair of birds still remaining in the same plumage ; but at this stage the nest was pulled down by some boys, and of course the birds left the place.

At the same date (the beginning of September) I explored the reeds at the river and found many nests of this species in various early stages, and saw several cock birds in full yellow plumage.

About the middle of September I again went to the river and found a good many nests among the reeds, but none finished or containing eggs ; the nests are almost always hung between two reeds, sometimes where the water is knee-deep, at others where it is waist-deep, and sometimes where they can be only reached by swimming ; for the river, though narrow, is very deep, and the reeds either shoot up from the bottom, or form a sort of overhanging bank not easy of approach.

On 20th October I again visited the spot, but of the nests which I then examined I only found one containing eggs ; I saw several cock birds in full plumage, and it is noticeable that the cock birds are more often to be seen at the nests than the hens.

On 1st November I obtained three nests, with eggs, from the same locality, but could not get the birds belonging to them ;

and though, as far as I could judge, the males were in full plumage, I was never certain which birds belonged to the nests which I took.

I think, however, that Mr. Layard's correspondents are right in considering "that many of these birds do not assume the yellow plumage in summer, and that they breed, or at all events commence building, before assuming the breeding-dress."

[The following are particulars of the plumage of five males of this species obtained by Mr. Ayres:—

One shot in July, with no marks of breeding-plumage except a little black on the cheeks, throat, and chin, especially the latter, and a very slight tinge of yellow on the underparts.

One shot in September in full breeding-dress.

One shot 26th November, also in full breeding-plumage.

Two shot 29th November, both in winter dress, except a slight tinge of yellow on the under surface.

Of four nests obtained by Mr. Ayres, one contained three eggs of a light pink ground-colour sprinkled with spots of a dark pink over the whole surface, some of these spots being minute and others much larger.

A second nest contained a single egg with similar spots on a pale blue ground.

In another nest there were three eggs with pinkish spots of a fainter hue than the preceding ones, more thickly clustered, and on a dull green ground.

In the fourth nest were two eggs with spots similarly clustered, but of a brighter and more rufous tint and on a pale ground.—J. H. G.]

38. MEGALOPHONUS RUFIPILEUS (Vieill.). Fasciolated Lark (*vide* Ibis, 1871, p. 268).

This Lark has precisely the peculiar habits of *M. apiatus*, mentioned in Mr. Layard's Catalogue, p. 206.

One of the birds sent (a male) had evidently, from the appearance of the skin on the breast and belly, taken his share in incubation; it was shot about the end of March.

124. MEGALOPHONUS NÆVIUS, Strickl. Dark-streaked Lark.

This species is fond of perching on the tops of bushes; it has a short but pleasing song; its food consists of insects.

125. MEGALOPHONUS CHENIANUS (Smith). Latakoo Lark.

This Lark somewhat resembles in its habits the English Skylark, rising in the air in the early morning, with the same fluttering flight and singing sweetly all the time. I observed this in the middle of February, towards the end of our summer; and the birds were then in pairs.

The food of this species consists of small insects.

146. BALEARICA REGULORUM (Licht.). Southern Crowned Crane (*vide* Ibis, 1868, pp. 255, 256, 1869, p. 376, and 1871, p. 264).

I have been fortunate enough to get two more eggs of this Crane; they are precisely similar to those mentioned in 'The Ibis' for 1868, p. 256, except that those now obtained were quite fresh, whereas the previous ones were much incubated, and in consequence had a dirty, glossy, and worn appearance.

These last eggs have changed but little in colour since they were blown, but were perhaps scarcely so white before they were emptied of their contents, and then showed more of the pale green lining of the shell through the outer coating.

One of these eggs measured $3\frac{7}{16}$ inches by $2\frac{3}{16}$, the other $3\frac{9}{16}$ by $2\frac{4}{16}$.

They were taken from the nest on 22nd December, 1871, by my friend Mr. J. C. Bodenstein, on whose statements I can implicitly rely, and who also shot one of the old birds, the skin of which I now have.

The nest was found in an extensive swamp on the banks of the Movi river, about twenty miles from Potchefstroom, and was composed of rushes pulled and placed in a conical form on the rank long grass, which falls over from its own weight and forms a thick carpet of vegetation, often more than a foot thick; the nest was built where the water was about ankle-deep, and contained two eggs only.

XXXIV.—*Remarks on Neomorphus pucherani and its Allies.*

By G. N. LAWRENCE.

I HAVE been much interested in the examination of two specimens, male and female, of a Cuckoo sent me for determination by Prof. James Orton: they were obtained in the Upper Amazonian region, near Pebas, by Mr. J. Hauxwell.

I found them to be of the rare species *Neomorphus pucherani* (*Cultrides pucherani*, Deville), specimens of which few ornithologists appear to have had the opportunity of examining; for I can find no record of any having been procured since the description of the types, figures of which are given in the Zoology of Castelnau's Voyage.

Mr. Sclater (P. Z. S. 1864, p. 249) has expressed a doubt of the specific value of this species. Having under examination a specimen of *N. rufipennis*, from Demerara, he is inclined to consider it identical with *N. pucherani*; he says, "At least I have very little doubt that the species is the same, although I can say but little in praise of the figures of *Cultrides pucherani* given in the 'Zoology of Castelnau's Voyage.' I may observe, however, that M. O. Des Murs's supposition there expressed, that this species is the young of *Neomorphus geoffroyi*, appears to have very little foundation."

Subsequently Mr. Sclater (P. Z. S. 1866, p. 59) has described a new species of *Neomorphus*, viz. *N. salvini*, and again gives diagnoses of *N. geoffroyi* and *N. rufipennis*, and, under the latter, remarks "I am still uncertain as to whether the *Cultrides pucherani* of Deville, figured in 'Castelnau's Voyage,' belongs to this species or not. If different it will form a second species of the same section"*.

M. O. Des Murs (Castelnau's Voyage, p. 18) gives as his opinion, that *N. pucherani* is one of the stages of plumage of

* [It is quite true that in 1866 I questioned the specific validity of *Neomorphus pucherani*. But in 1868 I had an opportunity of examining the typical specimens in the Jardin des Plantes, in company with Mr. Salvin, and saw at a glance that there could be no doubt of its being an excellent species. Moreover, last year Mr. Hauxwell sent a pair of these birds to this country also; and one of these is now in my collection, and the other in that of Salvin and Godman.—P. L. S.]

N. geoffroyi, Temm., which he considers also to be an immature bird, and furthermore he decides that *N. rufipennis*, Gray, is no other than *N. geoffroyi* in mature plumage, thus reducing the three so-called species to one. He gives his reasons at great length to sustain these opinions; but they seem to me to be mainly conjectural, as he assumes that the very different markings on the throat-feathers are in a state of transition, and would finally become as they exist in *N. rufipennis*.

M. Des Murs further remarks that it is evident that M. Deville was ignorant of the existence, or had forgotten Mr. Gray's description of *Cultrides rufipennis*, and that, if he had compared one with the other, he would have hesitated to establish his species.

M. Des Murs says in conclusion, that he has no hesitation in considering the two species the same, because his opinion is corroborated by Prince Charles Bonaparte in the 'Conspectus Volucrum Zygodactylorum,' who only made a single species of *C. rufipennis* and *C. pucherani*.

It is thus seen that the specific validity of *N. pucherani* has been questioned by several distinguished ornithologists; it is recognized, however, as a good species by Messrs. Cabanis and Heine (Mus. Hein. iv. p. 92) and by G. R. Gray (Hand-list, vol. ii. p. 212).

Having been able to examine and make comparisons of specimens of the four species of this genus, I hope to make it evident that there are four well-marked and distinct species.

The two specimens under examination are marked as male and female, and are well represented in plates 6 and 7 of the 'Zoology of Castelnau's Voyage,' taken from the types of *Cultrides pucherani*. Although the figures show some slight differences of coloration from the specimens, I think no one would hesitate a moment in deciding that they are alike.

Mr. Sclater's reason for supposing these figures of *N. pucherani* inaccurate arose no doubt from the fact that he considered them as probably representing *N. rufipennis*.

Prof. Orton's specimen marked "male" corresponds well with the figure on plate 7, which is stated to be immature

("jeune âge"); in this figure the blue-black colour extends quite down on the hind neck, whereas in the specimen it is restricted to the occiput. There is also in the specimen a blue-black mark under the eye; this is absent in plate 7. These are probably errors in colouring, as the black mark under the eye is shown in plate 6, in which the black also exists on the hind neck, but it does not extend so far down as in plate 7. Both of Prof. Orton's specimens have the black under the eye, and the lower edge is just on a line with that of the same colour on the occiput. In plate 6 the black on the hind neck extends further down than on a line with the same colour under the eye.

The specimen of the female is apparently more mature, and agrees quite accurately with plate 6 ("adult male") in having the narrow black edgings on the feathers of the lower part of the throat, and in the central tail-feathers being of a lustrous reddish purple; the difference of the extension of the black colouring on the hind neck I do not consider of much account.

As supposed by M. Deville, the black edgings to the throat-feathers are probably evidence of maturity, they are clearly not sexual, as the female specimen is so marked; on the throat-feathers of the male there are slight indications of these dark margins. Neither of the specimens has the appearance of immaturity; yet one is quite likely older than the other. In general appearance and plumage both are exceedingly like the figures given in the 'Zoology of Castelnau's Voyage,' both having the deep-red carmine bills; this character does not seem one likely to exist in immature birds.

There are some differences between the specimens and the plates, in the grey, brown, and rufous colouring of the abdomen and sides; but I do not regard these as of much importance.

The following descriptions of the different species are taken from specimens which I have had under examination:—

1. NEOMORPHUS GEOFFROYI (Temm.).

Female. Bill pale yellow, dusky at the base; chin and upper part of throat grey, obscurely banded with dusky, lower part

of throat grey, tinged with rufous; the throat-feathers have their ends rounded, and each feather has a submarginal brownish black mark shaped like the letter U, which conforms to the shape of the feather; there is an inner mark somewhat similar in shape at the base of the feather; on the sides of the neck the dark colour is washed with greenish; the pectoral band is formed by three rows of feathers ending with blue-black, in addition to the two black marks on each feather, all the other throat-feathers having grey margins; breast and abdomen brownish ash, sides of the breast more brown, with darker brownish bars; the flank-feathers are dark rufous; the vent dark purplish brown; thighs light dull rufous obscurely barred with brownish; the feathers of the front and crown are grey washed with rufous, each having a black bar at the base and at the end, this dark colour increasing towards the hind head, where it covers the entire ends of the elongated feathers, forming the blue-black crest; the feathers on the sides of the head, on the occiput and upper hind neck, are marked much as on those of the front and crown; lower part of hind neck and wing-coverts bluish green; back, tertiaries, and upper tail-coverts light bronzy green; two central tail-feathers violet-purple ending with green, the next pair dark green on the inner webs, the outer webs like the central feathers, the other feathers are purplish black, more or less green on the outer webs; the outer primaries are blackish purple, with their outer margins lightly tinged with green, the margins of the inner primaries are more green; the innermost secondaries are entirely dark green; some of the wing-coverts are edged with grey; the tarsi and toes appear to have been dark plumbeous, claws pale yellowish. Wing $6\frac{3}{4}$ inches; tail $10\frac{1}{2}$; bill from front $1\frac{5}{8}$, from gape $2\frac{1}{4}$, high at base $\frac{1}{6}$, wide at base $\frac{1}{6}$, wide at nostrils $\frac{1}{2}$; tarsus $2\frac{1}{4}$.

Hab. "Rio Jazoaripe, Province of Bahia, Brasil."

Mus. Amer. of Nat. Hist. Central Park, New York; from the Maximilian Collection.

This example is apparently adult, and agrees well with Temminck's plate (Pl. Col. 7).

† 2. NEOMORPHUS SALVINI, Scl. P. Z. S. 1866, p. 59, pl. 5.

In the museum of the Acad. of Nat. Sciences, Philadelphia, I found a fine specimen of this recently described species. It came in the Rivoli collection, and had on the original label of *Coccyzus geoffroyi*, Temm.; it was relabelled by Mr. Cassin *Neomorphus geoffroyi*. On first seeing it I was struck with its resemblance to the plate of Mr. Sclater's *N. salvini*, as I remembered it, and on comparison with the plate found it to agree exactly with it. My first impression was that Mr. Sclater had committed an error, supposing the specimen to be correctly labelled; but on examining the bottom of the stand, I found in fine writing, "Mexique." From this I drew the conclusion that it was not *N. geoffroyi*, which has only been found in Brazil, but in reality Mr. Sclater's *N. salvini*. In the catalogue printed at the time the Rivoli collection was offered for sale, this specimen is given as from Brazil.

Thus this fine species escaped the scrutiny of the French naturalists as well as that of Mr. Cassin.

"Mexique" has so wide a significance in French specimens that, if noticed by Mr. Cassin, he probably did not heed it; but in this case it is undoubtedly correct.

The bill is light horn-colour, clouded in the middle and paler at the edges; front and crown, as far as on a line with the posterior angle of the eye, light rufous, beyond which the crest-feathers are bluish black, with pale rufous edges; bare space around the eye blackish in the dried specimen; the throat-feathers are pale ochreous, with lighter or greyish margins; on the upper part of the breast there is a narrow band of bluish black; breast and upper part of abdomen ochreous grey, lower part of abdomen and sides bright rufous, under tail-coverts dark brown; hind neck bronzy green, upper part of back and wing-coverts light bronzy green; lower part of back and upper tail-coverts brownish rufous; the primary quills are dark green on the outer webs, blackish on the inner, the secondaries are of a lighter green on the outer webs, the tertiaries brownish rufous like the back; central tail-feathers dark green, with their edges largely reddish purple, the outer tail-feathers changeable purple and green. Wing 7 inches;

tail $11\frac{3}{8}$; tarsus $2\frac{5}{8}$; bill from front $1\frac{1}{16}$, from gape $2\frac{1}{8}$, high at base $\frac{3}{4}$, wide at base $\frac{3}{4}$, at nostril $\frac{9}{16}$.

Hab. Central America.

Mus. Acad. of Nat. Sciences, Philadelphia.

As stated by Mr. Scater, this species is nearly allied to *N. geoffroyi*; it is, however, quite distinct, differing in the rufous front and in not having the black marks on the throat-feathers; these last in shape are nearly even at the end, those of *N. geoffroyi* being strongly rounded; in each of the species the shape of the throat-feathers is different, and it is a strong distinguishing character: the bill is not shorter than in the specimen of *N. geoffroyi*; but it is higher, as stated by Mr. Scater, and also wider: the purple and green colours of the tail, I think, vary with age, being more purple in the adult.

3. *NEOMORPHUS RUFIPENNIS* (G. R. Gray), P. Z. S. 1849, p. 63, pl. 10.

Bill black for three quarters its length, the terminal quarter whitish horn-colour clouded in the middle; upper part of the throat greyish, narrowly edged with dusky blue; front, crown, crest, a space under the eye, entire neck and upper part of the breast of a fine deep blackish blue; this blue colour extends somewhat on the upper part of the back; the throat and neck-feathers in front are obtusely lanceolate in shape; the bases of the blue throat-feathers are grey; bare space around the eye whitish; lower part of breast, abdomen, and thighs of a fine dark grey; under tail-coverts dark brown; middle tail-feathers fine purplish red, the others dark green, except the outer pair, which are deep violet-purple, as are the underparts of all the tail-feathers; back and upper tail-coverts dark green; the primaries are blackish violet-blue, the secondaries have their outer webs for two thirds their width bright reddish cinnamon, the remainder of webs next the shaft and the inner webs violet-blue. Wing $6\frac{1}{2}$ inches; tail 11; tarsus $2\frac{3}{4}$; bill from front $1\frac{9}{16}$, from gape $2\frac{1}{16}$, high at base $\frac{1}{6}$, wide at base $\frac{1}{6}$, wide at nostrils $\frac{1}{6}$.

Hab. No locality given*.

* [The correct patria of this species is undoubtedly Guiana. Cf. P. Z. S. 1864, p. 249.—P. L. S.]

Mus. Acad. of Nat. Sciences, Philadelphia. Labeled by Mr. Cassin as this species. "Bought from Bell, 1864."

This specimen corresponds closely with Mr. Gray's plate, differing only in the central tail-feathers being purple instead of green.

4. NEOMORPHUS PUCHERANI (Deville), *Rev. Zool.* p. 51; *Cast. Voy.* pls. 6, 7.

Female. Bill deep carmine, the ends of both mandibles and the cutting-edges pale yellow. In a note attached to the specimen Mr. Hauxwell says, "Iris brown, point of beak green, the rest and skin around the eyes red, skin behind the eye light blue." The bill still retains its deep carmine colour; but the bare space behind the eye is blackish, the blue colour having almost entirely faded out.

Front dark brown, top of head, crest-feathers, occiput, and a mark under the eye from near the front angle deep blackish blue; chin and upper parts of throat light ash, with an ochreous tinge, feathers of the lower part of the throat dark ash, with paler margins, the extreme end of each marked with a very narrow but distinct black line; the throat-feathers are slightly rounded at their ends; there is a well-defined pectoral band of blue-black, formed by two rows of feathers having their ends of that colour, the concealed portion of these feathers is much paler than in those immediately above; breast and abdomen dark ash washed with ochreous, lower part of abdomen, flanks, and crissum dark purple-brown; the feathers of the thighs are pale cinereous, with their ends light brown; hind neck, back, and upper wing-coverts greenish olive; lower part of back, rump, and upper tail-coverts olivaceous brown; the central tail-feathers are of a fine reddish purple, in certain lights changing partly to green, the next pair green, with the edges of the outer webs purple, the third pair dark green, the fourth and fifth pairs dark purple, with a wash of green; under surface of the tail blackish purple; the primaries are bluish purple; the larger wing-coverts and the entire outer webs of the secondaries are of a brownish maroon-colour, the inner webs are dark purple, except the ends, which are maroon-colour; tarsi and toes dark fleshy brown, nails pale brownish.

The male, which is probably younger, differs from the female in the black edges of the throat-feathers not being clearly defined, in the smaller wing-coverts and upper back being more green, the lower back and upper tail-coverts bronzy green, and the tail-feathers showing less of the changeable purple colour. In all other respects they are precisely alike.

Length (skin) 20 inches; wing $6\frac{1}{4}$; tail 10; bill from front $1\frac{5}{8}$, from gape $2\frac{1}{8}$, high at base $\frac{7}{8}$, wide at base $\frac{1}{16}$, wide at nostrils $\frac{9}{16}$; tarsus $2\frac{1}{2}$.

Hab. Pebas, Peru, Upper Amazons.

Mus. Vassar College, Ploughkeepsie, New York.

Mr. Hauxwell considered this species to be undescribed, and wrote to Prof. Orton as follows:—"The first of the kind that I have been able to obtain, although I have been trying and requesting the Indians to bring me some, and have offered them a good price. The Oregones call them '*Sataicu*;' some call them *Huangana pisco* or Hog-bird, they make a noise similar to the hog when he is excited." Prof. Orton suggests that, "Mr. Hauxwell refers here to the Peccary."

They would seem to be very rare or difficult to procure. Deville says that on the Yucayali it is called "*Vanvana pisco*," that they are in pairs in the large woods, that it is very wild, and its flight very swift. Yaguas Indian name "*Monasitan*."

There is no need of comparing this species with any except *N. rufipennis*; and to that there is little resemblance except in the reddish brown colour on the wings; this colour in *N. rufipennis* is brighter, and occupies but two thirds of the outer web of each of the secondaries, instead of the entire outer web as in *N. pucherani*; the throat-feathers of the two species are entirely unlike in shape; and in the coloration of the neck they are very dissimilar; in the colours of the bill they are notably unlike; and the bills also differ in form, that of *N. pucherani* being at the base seven eighths of an inch in height, whereas in *N. rufipennis* it is but five eighths; yet in length the bills do not vary materially.

The most salient points of difference in the several species may be stated as follows:—

1. *N. geoffroyi*. Bill pale yellow, dusky at base; front

grey tinged with rufous and marked with black bars; throat-feathers with rounded ends, and having U-shaped marks on each feather; tarsus $2\frac{1}{4}$ inches.

2. *N. salvini*. Bill light horn-colour clouded in the middle; front pale rufous; throat-feathers with their ends nearly even, of a pale ochreous, with lighter-coloured margin; tarsus $2\frac{5}{8}$ inches.

3. *N. rufipennis*. Bill black for three fourths its length, the end whitish horn-colour; front blackish blue, of the same colour as the crown and crest; throat-feathers lanceolate in shape and of a blackish blue colour; there is no distinct pectoral band; tarsus $2\frac{3}{4}$ inches.

4. *N. pucherani*. Bill deep carmine, yellowish at tip, much curved and very high; front dark brown; throat-feathers dark ash, their ends are slightly rounded, and the lower ones are margined with black; tarsus $2\frac{1}{2}$ inches.

XXXV.—*Note on the Fulica alba of White.*

By OSBERT SALVIN, M.A., &c.

(Plate X.)

IN a former number of 'The Ibis' for the current year (*anteà*, p. 45), I referred to a Plate which I was having prepared from a coloured drawing, sent to me by Herr von Pelzeln, of the typical specimen of the *Fulica alba* of White. This plate (Plate X.) is now given herewith.

On comparing the coloured drawing with the specimens of *Notornis mantelli* in the British Museum, it appeared evident that the bird in the Imperial Cabinet at Vienna must belong to *Notornis*. The short wings and the short toes, as well as the outline of the beak, indicated clearly a far greater generic affinity with *Notornis* than with *Porphyrio*.

I therefore (depending, of course, upon the accuracy of the drawing sent me, which has been placed on stone by Mr. Keulemans on a slightly larger scale than the original sketch) have little hesitation in adding this species to the genus *Notornis*, thereby confirming the position pointed out for it by Herr von Pelzeln (*anteà*, p. 44).

XXXVI.—*On a Collection of Birds recently made by Lieutenant Robert Wardlaw Ramsay, F.Z.S., in the Andaman Islands.* By ARTHUR, VISCOUNT WALDEN, P.Z.S., F.R.S.

(Plates XI., XII., XIII.)

A YOUNG member of the B. O. U., Lieutenant R. W. Ramsay, H.M. 67th Regt., having, in the middle of December 1872, been sent on duty to Port Blair, in the Andaman Islands, immediately after arrival, availed himself with great energy of his opportunities, and, being an excellent shot as well as a keen naturalist, collected in a couple of months 460 specimens of birds, representing 62 species. These he has been good enough to forward to me for identification; and as many of them are of considerable interest and are accompanied by useful notes, I venture to offer to the readers of 'The Ibis' the following list of them, together with some observations on the more important species.

Mr. Blyth and the late Colonel Tytler are the principal authors who, until quite lately, had investigated the ornithology of the Andamans. But in February last, Mr. V. Ball* followed up two former and less complete papers on that subject by publishing an admirable list of the birds known to occur in the Andamans and Nicobars, every species hitherto noted as inhabitants of these two insular groups being included. This list makes the total number recorded amount to 133; from which 24 must be deducted as being species as yet only known to inhabit the Nicobars, while 4 more are titles which doubtfully belong to Andaman species. To these 105 species of Andaman birds must be added some 18 species sent to Mr. Hume† after Mr. Ball's paper was in print, thus raising the total to 113, less 5, which are not indigenous, having been introduced by Colonel Tytler. Mr. Ramsay obtained two species, new to the Andaman fauna, which when added make the complete numbers of known Andaman birds at this date reach to about 110 species.

The avifauna of the Andamans, while containing some peculiar species, appears to resemble in character that of the

* Str. Feath. i. p. 51.

† *Op. cit.* p. 304.

highlands of India south of the Himalayas and west of the Brahmopootra, rather than that of the Indo-Malayan or Indo-Chinese countries.

1. *PALÆORNIS EUPATRIUS* (Linn.), S. N. i. p. 140. no. 7, ex Briss; Finsch, Papag. ii. p. 11. no. 89.

Psittaca ginginiana, Briss. Orn. iv. p. 343, ex "Ginginiano regno."

Palæornis alexandri, auct., nec Linn.

Palæornis magnirostris, Ball, J. A. S. B. xli. p. 278, "Andamans" (1872).

"S. Andaman, ♀, iris straw-colour, a yellow rim round each eye."

Two females, do not differ from Ceylon, Indian, and Burmese examples of that sex. Bill not so large as in Ceylon and Candeish individuals.

2. *PALÆORNIS MELANORHYNCHUS*, Wagler, Monogr. p. 511. no. 4 (1832); Finsch, Papag. ii. p. 70. no. 98, ♀ adult.

Palæornis nigrirostris, Hodgs. Gray's Zool. Misc. p. 85, "Nipaul" (1844), ♀ juv.

Palæornis derbyanus, Fraser, P. Z. S. 1850, p. 245, pl. 25, ex patr. incog. ♀ adult.

Palæornis javanicus (Osbeck), Jerd. B. of Ind. i. p. 262. no. 152, nec Osbeck; Ball, J. A. S. B. xli. p. 279. no. 14, ♂.

Palæornis lathamii, Finsch, tom. cit. p. 66. no. 97, ♂ adult (1868).

Six examples in perfect plumage. Two with the maxilla red, noted as males; two with both mandibles black, as females. I agree with Dr. O. Finsch in considering *P. alexandri*, Linn., = *P. javanicus*, Osbeck, known with certainty as an inhabitant of Java and Borneo only, totally distinct from the Indian, Burmese, Cambodjan, and Andaman Parrot; but I cannot concur in his opinion that the black-billed birds belong to a species different from those with a red maxilla. These Andaman examples clearly belong to one species, the totally black bill being the chief distinguishing characteristic of the female.

3. *PALÆORNIS ERYTHROGENYS*, Blyth, J. A. S. B. 1846, p. 23, "Nicobars."

Palæornis nicobaricus, Gould, Birds of Asia, pt. ix. pl. (1857).

Palæornis affinis, Tytler, Beavan, Ibis, 1867, p. 320. no. 27, ♂ juv. vel ♀, "Andamans."

"S. Andaman: ♂, feet and legs bright olive-green."

Three males and seven females are in the collection. Males have the maxilla red and mandibula black; in the females both mandibles are black, and the moustache is deep rich green and not black.

4. *LORICULUS VERNALIS* (Sparrm.), Mus. Carls. pl. 29 (1787).

"S. Andaman: ♂, ♀, iris straw-yellow."

Four examples, in no respect differing from Malabar and Burmese individuals.

5. *SPILORNIS RUTHERFORDI*, Swinhoe, Ibis, 1870, p. 85, "Hainan."

Spilornis davisoni, Hume, Str. Feath. i. p. 307, "Andamans" (1873).

Hæmatornis cheela (Latham), Beavan, Ibis, 1867, p. 314, no. 1, "Andamans."

"S. Andaman: ♀, Dec. 27."

A single individual in perfect (?) plumage and almost identical, save in its dimensions, with an example of *S. cheela*, ♂, from Mussoorie, the only distinction being that the transverse striations on the throat and upper breast are not so dark nor as bold in the Andaman bird, and the chin and cheeks are concolorous with the throat and breast, and not dark brown.

Wing 15 inches; tail 10; tarsus 3.37; middle toe, without nail, 1.50; bill from nostril in a straight line 1, from gape to end of mandible 1.67.

It may be here added that *S. spilogaster*, Blyth (J. A. S. B. 1852, p. 351), was described from Ceylon examples. It closely resembles Javan *S. bacha*; and I have never seen it from any part of continental India. The peninsular Indian bird, if different from the northern form, *S. cheela*, must take another title, the oldest applicable being *albidus*, Cuv., Temm. (1824).

My examples from different parts of India, north and south, do not differ in plumage, unless the transverse striations of the pectoral plumage form a constant feature peculiar to the northern bird. This character I have found only in examples from the north and in those which inhabit the Indo-Chinese countries.

6. *SPILORNIS ELGINI* (Tytler), J. A. S. B. 1863, p. 87, "Andamans;" Blyth, Ibis, 1863, p. 118.

Spilornis spilogaster, pt. Blyth, Ibis, 1866, p. 243.

Hæmatornis elgini, Tytler: Beavan, Ibis, 1867, p. 314, no. 2.

"S. Andaman: ♀, Jan. 15th; total length in the flesh 22 inches."

A perfectly distinct species, of a deep rich brown. Chin and cheeks almost black. Upper breast and throat almost uniform; three or four of the feathers only with one, two, or three white spots irregularly placed. Lower breast-feathers with three pairs of pure white almost round spots placed at regular intervals on each side of the shaft. Ventral plumage and thigh-coverts with four pairs of similar spots of a smaller size. Under tail-coverts traversed with three or four white bars almost, but not quite, running through, except the terminal white band, which is much narrower. Head and crest as in *S. cheela* and *S. bacha*, the black crest-plumes being narrowly fringed with bright ferruginous brown. Interscapular region and back uniform brown. Most of the scapulars with two small irregularly shaped white terminal dots. Secondaries narrowly and partially fringed with albescent. Upper tail-coverts somewhat irregularly spotted with white. Shoulder-coverts spotted as in *S. bacha*. Quills very deep brown, almost black. First quill with a narrow white bar on the inner web near insertion; a second and broader transverse mark an inch and a half lower down. The next three primaries with three or four *narrow* transverse grey or grey and brown marks. The remaining primaries with only two transverse marks; the upper very narrow, irregularly formed, and white; the lower about half an inch deep, and of a clouded grey-

brown. Rectrices dark brown, with one very narrow, ill-defined, cloudy, pale band at about four inches from root of the tail; a broader, well-defined, pale band an inch and a half lower down and about three fourths of an inch deep. Rectrices terminated with a narrow pale fringe. Shoulder-edge dark brown. Under carpals and axillaries of the same hue as the lower plumage and profusely spotted with white.

Wing 15 inches; tail 10; tarsus 3; middle toe, without the nail, 1.50; bill from nostril to tip in a straight line 1.

The rich brown colour of the general plumage, the almost circular white spots of the lower plumage, which are sharply defined from the brown ground-colour, and not surrounded with a different shade as in *S. bacha*, the extreme narrowness of the alar and caudal bands, and the shortness of the tarsus and middle toe distinguish this beautiful species from all other known members of the genus. Seen from above it closely resembles adult Javan specimens of *S. bacha*, the narrow banding of the rectrices alone distinguishing it, and the dimensions of the wings and tail being about equal.

Whether it was examples of this species or of *S. rutherfordi* that were sent by Mr. Grote to the Zoological Society in 1865 must remain in doubt until Mr. Gurney has compared this Andaman skin with the specimen at Norwich*.

7. PICUS ANDAMANENSIS, Blyth, J. A. S. B. 1859, p. 412, "Port Blair."

"S. Andaman: ♀, ♂, iris dark brown; bill dark slate-colour; darkish on maxilla; legs and feet dark olive-green."

Represented by six individuals, four males and two females. All possess three pairs of distinct and prominent pure white spots on the middle rectrices, and a fourth pair, more or less indistinct, towards the apex.

* Mr. Gurney intends to make the necessary comparison when he next visits Norwich. It is impossible to read Mr. Blyth's original description of *S. elgini* (*l. c.*) without recognizing the bird above described. In the mean time I add the references on the disputed point:—Sclater, P. Z. S. 1865, p. 466; *op. cit.* 1871, p. 495; List of Vertebr. Z. S. Gard. 1872, no. 520; Beavan (*l. c.*); Blyth, Ibis, 1868, p. 131.

8. *THRIPONAX HODGII* (Blyth), J. A. S. B. 1860, p. 105, "Port Blair."

S. Andaman.

9. *MEROPS QUINTICOLOR*, Vieillot, N. Dict. xiv. p. 81 (1817), ex Levaillant.

Le Guépier quinticolor, Levaillant, Hist. Nat. Guépiers, p. 51, pl. 15, "Ceylon."

"S. Andaman: January and February, ♂, ♀, iris lake, legs and feet greenish black, bill black."

Appears to be very common. In no respect different from Ceylon, Malabar, and Burmese examples.

Mr. Swinhoe has pointed out (P. Z. S. 1871, p. 348. no. 81) that the Javan form is specifically different from the Indian. One character mentioned by him is not peculiar to the Javan bird, namely the blue tail. The Javan species, however, appears constantly to want the chestnut triangular throat-mark, the yellow throat being sharply separated from the green breast by a well-defined black band. Mr. Swinhoe further remarks that the Indian species must take the title of *Merops erythrocephalus*, Briss. This is Gmelin's title (S. N. i. p. 463. no. 13), founded on *Merops indicus erythrocephalus*, Briss. (Ornith. iv. p. 563), a species which Brisson never saw, and which he described from a drawing made by Poivre of a bird said to have come from the East Indies. It is impossible from Brisson's account to determine the species; and Gmelin's title must therefore be suppressed. Vieillot bestowed the title of *quinticolor* on a species figured and described by Levaillant (*l. c.*), and of which Levaillant states that he had received eight individuals, dried, from Ceylon. The plate and description are, notwithstanding, taken from a Javan bird. At page 55 of the same work Levaillant figured and described a second species, said to have been brought from Java by Laichenot. An immature example of either the Javan or the Indian species is represented; but as Levaillant describes the throat as being covered by "une plaque triangulaire d'un roux jaunâtre," I suspect that the subject of his description was either a Ceylonese or a continental example. On it

Vieillot (*tom. cit.* p. 17) founded his title of *Merops leschenaulti*. Unfortunately no title has ever been given since Levaillant's time to the Indian species; and rather than disturb the received nomenclature Vieillot's title is here retained.

10. EURYSTOMUS ORIENTALIS (Linn.), S. N. i. p. 159 (1766).
"S. Andaman, December 31."

11. SAUROPATIS CHLORIS (Bodd.), Tabl. Pl. Enl. p. 49 (1783).
"S. Andaman: ♂, iris reddish brown; ♀, iris bright brown; Ross Isl."

12. ENTOMOBIA SMYRNENSIS (Linn.), S. N. i. p. 181. no. 11 (1776).

"S. Andaman: iris dark brown, legs and feet dark red, bill coral-red."

The six examples obtained by Mr. Ramsay in South Andaman differ from individuals from all other parts of Asia in the intensity of their colouring. Instead of chestnut-brown, the plumage of the head, shoulder-coverts, flanks, and under surface is deep chocolate-brown; and the blue portion of the plumage is much deeper in shade. I have compared these six individuals with forty-three examples from all parts of India, from Ceylon, Formosa, Burma, Malacca, Cambodia, and from Syria; and the differences above mentioned at once distinguish the Andaman race.

13. CALIALCYON COROMANDA (Lath.), Ind. Orn. i. p. 252 (1790).

"S. Andaman: ♂, ♀, iris brown, legs and feet red."

14. ALCEDO BENGALENSIS, Gm. S. N. i. p. 450. n. 20 (1788).

"S. Andaman: ♀, bill above and tips of both mandibles black, lower coral-red; legs and feet vermilion; Ross Isl."

15. COLLOCALIA AFFINIS, Tytler: Beavan, Ibis, 1867, p. 318.

"Chatham Island: iris brown, feet light brown, bill black."

A numerous series was obtained by Mr. Ramsay on Ross and Chatham Islands during the months of January and February. The species is apparently the same as *C. linchi*, Horsf. and Moore, and which I have very little doubt is the bird

described from Java by Thunberg under the title of *Hirundo fuciphaga*. *Collocalia innominata*, Hume, Str. Feath. i. p. 294, "Port Blair," as described, agrees well with Sikim and Malaccan examples of so-called *C. fuciphaga* (Thunb.), and named *brevirostris* by McClelland (P. Z. S. 1839, p. 155), the type specimen of which was identified as being that of a *Collocalia* by Mr. Moore.

16. *EUDYNAMIS MALAYANA*, Cab. Mus. Hein. iv. p. 52, "Sumatra" (1862-63).

*Eudynamis honorata** (Linn.), Ball, Str. Feath. i. p. 63, no. 38 "Andamans."

"S. Andaman: ♂, iris red, bill greenish white, legs slate-blue; ♀, iris lake. Ross Island, ♂."

* Written *honorata* at page 173, by Mr. Hume (a quaint blunder), with the suggestion that I had written *honorata* through a "clerical oversight." The Calcutta printers, in this instance at least, are not responsible; for they have been made to reproduce, not correct, the palpable misprint in the 'Hand-list,' No. 9068. Surely, if there is not a copy of a Linnæus, or even of a Gmelin or a Latham, in any Calcutta library, there must be a Latin dictionary accessible. For the reason why Linnæus entitled the species *Cuculus honoratus*, cf. Walden, Ibis, 1869, p. 327; in addition to which I may quote Gmelin, i. p. 413. no. 7, "*Cuculus honoratus*. *Habitat in Malabar, reptilibus victitans, hinc forte incolis sacratus*," which is only a repetition of Latham's remarks, *Sacred Cuckoo, C. honoratus*, L. (Syn. i. p. 523), "Inhabits Malabar, where the natives hold it sacred. It feeds on reptiles, which, perhaps, may be such as are the most noisome; if so, this seeming superstition may have arisen from a more reasonable foundation than many others of the like sort." This is an indifferent rendering of Montbeillard's observations on the "*Cuil*" (Hist. Nat. Ois. vi. p. 376), "Il est en vénération sur la côte de Malabar, sans doute parce qu'il se nourrit d'insectes nuisibles. La superstition en général est toujours une erreur, mais les superstitions particulières ont quelquefois un fondement raisonnable." We have here an interesting illustration of the *crescendo* growth of a fallacy. Brisson simply stated that the Koel was held in veneration by the natives of Malabar, a story Linnæus perpetuated by the title he bestowed. Montbeillard not only repeated the statement, but added as a reason, that it was because the Koel destroyed noisome insects. Latham improved on the insects and raised them to the rank of reptiles—a view Gmelin adopted; while Stephens, under *Cuculus honoratus*, Linn. (Gen. Zool. ix. pt. 1, p. 104), as a climax, credited the bird with killing both noxious reptiles and insects.

The two males in full black plumage. The female peculiarly coloured and marked, and different from all peninsular Indian and Ceylon individuals I have had opportunities of examining. They agree well with Naga-Hills, Thayetmoo, and Malaccan examples, which I assume to be identical with Sumatran.

17. *CUCULUS MICROPTERUS*, Gould, P. Z. S. 1837, p. 137, "Himalayas."

"S. Andaman: ♂, December 31; ♀, January 9; not sexed, January 24, iris yellow, legs and feet yellow ochre, bill dark brown above, yellow below; ♂, January 29, iris yellowish brown, legs and feet yellow, bill dark brown, yellow at base."

These four examples belong to one species. Two ♂ and one not sexed are, above deep bluish slate-colour; chin, throat, and upper breast pale ash, with tawny brown fringe to some of the feathers; the remainder of lower surface broadly barred in all four alike. The fourth example (♀) differs by having the upper plumage of a rich brown, with traces of plumbeous on the uropygium only, by the head being ashy brown, by the skin and throat only being ashy, much tinged with tawny rufous, and by the rectrices having the characteristic dark brown terminal band. That the first three are not in completely full plumage is shown by several of the secondaries being brown, more or less tipped, fringed, and indented with pure white and with pale ferruginous, and by the tawny fringes to the breast-feathers. The female (as sexed) also exhibits signs of immaturity, many of the secondaries and of the nuchal feathers being banded or otherwise marked with pale ferruginous and tawny. Provisionally I refer these Andaman individuals to *C. micropterus*, Gould; for a far more comprehensive examination and comparison of the Cuckoos of the Indian region than I have had opportunities of making would be requisite to determine the species with any degree of certainty. It has been suggested to me by my friend Mr. Blanford that the brown plumage of the example (sexed as a female) I have

just described, is a phase of the young male plumage, and the ultimate adult dress of the female; and there is much evidence in favour of this view.

	Long. alæ.	Caudæ.
♂	7·00	6·50
♂	7·00	6·50
♀	7·00	6·50
♀	7·37	6·37

18. *CENTROCOCCYX ANDAMANENSIS*. (Plate XI.)

Centropus andamanensis, Tytler: Beavan, Ibis, 1867, p. 321.

“S. Andaman: iris red; bill, legs, and feet black.”

19. *BRODERIPUS ANDAMANENSIS* (Tytler): Beavan, Ibis, 1867, p. 326. no. 52, “Andamans.”

The series sent by Mr. Ramsay is so complete that I have thought it best to give the results in the following Table. All the examples, with the exception of the one not sexed, were killed in the month of January; and all are from the S. Andaman.

	Alæ.	Caudæ.	Tarsi.	Rostr.	
a, ♂	5·25	4	1	0·81	Perfect plumage; quills jet-black; no alar spot; depth of yellow crown 0·91, of black 0·75; “iris red; bill pinkish red; legs and feet plumbeous.”
b, ♂	5·25	4·25	1	0·81	Perfect plumage; quills as above, but with some of the secondaries slightly tipped with yellow; no alar spot; depth of crown 0·91, of black 0·41.
c, ♂	5·12	4	1	0·81	Perfect plumage; wing as in last; no alar spot; proportions of yellow and black on head as in last.
d, ♂	5·25	4·12	1	0·81	Perfect plumage; tertiaries slightly tipped with yellow, thus forming an alar spot; secondaries as above; yellow crown 1, black 0·25. In these four examples the middle pair of rectrices are black narrowly tipped with yellow.

	Alæ.	Caudæ.	Tarsi.	Rostr.	
<i>e</i> , ♂	5.25	4	1	0.76	Jan. 25; Mantle yellowish olive-green; one tertiary slightly tipped with yellow; secondaries not yellow-tipped, but washed with olive; middle rectrices at base washed with olive-yellow; quills and rectrices more brown than black; crown and nape as in <i>d</i> .
<i>f</i> , ♂	4.88	4	1	0.76	Young; above olive-yellow; beneath yellow and white; feathers brown-centred; chin and throat turning from white to yellow; under tail-coverts pure yellow; quills and rectrices pale brown tinged with olive-yellow; all the tertiaries edged with albescent yellow; no coronal ring. Jan. 18.
<i>g</i> , ♂	4.88	4	1	0.75	Younger; Jan. 10; chin and throat pure white, otherwise like <i>f</i> .
<i>h</i> , ♀	5.25	4	1	0.75	Full golden plumage; does not differ from <i>d</i> .
<i>i</i> , ♀	5	4.25	1	0.75	Jan. 25; like <i>e</i> , one or two tertiaries being tipped; "iris red."
<i>j</i> , ♀	5.12	4.25	1	0.75	Jan. 27; exactly like <i>i</i> .
<i>k</i> , ♀	5	4	1	0.75	Not sexed; Dec. 27; young, like <i>f</i> , but with indications of the black coronal ring appearing behind the eyes.

The Andaman black-naped Oriole is readily distinguishable by its almost totally black primaries and secondaries, from *B. indicus*, *B. coronatus*, *B. chinensis*, and *B. celebensis*. It is also smaller than any of these species. Its affinities are with *B. acrorhynchus*, *B. frontalis*, and *B. formosus*, which, however, greatly exceed it in size.

20. IRENA PUELLA (Lath.), Ind. Orn. i. p. 171, "India" (1790).

"S. Andaman."

Four males and as many females were obtained, and they perfectly agree with Malabar and Cambodian examples.

21. BRACHYPODIUS FUSCOFLAVESCENS, Hume, Str. Feath. i. p. 297, "Andamans" (1873).

Brachypodius melanocephalus (Gm.), apud Ball, J. A. S. B. 1872, p. 284, nec Gm.

One example was obtained. It appears to be a distinct species, having for its adult dress the immature plumage of *B. melanocephalus*.

22. *OTOCOMPSA JOCOSA* (Linn.), S. N. i. 138, no. 24, "China" (1766).

"S. Andaman: ♂."

Barely distinguishable from Bengal and Burmese examples. The Chinese bird is stated by Mr. Swinhoe (*Ibis*, 1861, p. 39; P. Z. S. 1863, p. 277) to be identical with those from Calcutta.

23. *KITTACINCLA ALBIVENTRIS*, Blyth, J. A. S. B. 1858, p. 269, "Port Blair." (Plate XII. fig. 1.)

"S. Andaman: iris brown; legs and feet skin-colour; bill black."

24. *COPSYCHUS SAULARIS* (Linn.), S. N. i. p. 165, "Asia" (1766).

"S. Andaman: ♂, iris brown; legs, feet, and bill black. Ross Island, ♂, ♀."

An adult and an immature male from S. Andaman have the two outer pairs of rectrices pure white; the third pair white, with a black inner margin; the fourth pair white, with both outer and inner margins black. Another S. Andaman male has the fourth pair almost entirely black. A male from Ross Island has the first and second pair pure white; the third white, with a black margin to inner web; the fourth, like remaining pairs, jet-black. The under shoulder-coverts have a tendency to dark centres. A female from Ross Island has the rectrices marked as in the first S. Andaman male.

25. *ARUNDINAX AËDON* (Pallas), Reise Russ. Reichs, iii. p. 695. no. 11, "Dauria" (1776).

Arundinax olivaceus, Blyth, J. A. S. B. 1845, p. 595.

"S. Andaman: Jan. 3; Feb. 2, ♀, maxilla dark brown, mandible whitish brown. Ross Island: Jan. 7, ♂, iris dark olive-brown, legs light slate-colour."

Sexes alike.

26. *BUDYTES VIRIDIS* (Gm.), S. N. i. p. 962 (1788).

“S. Andaman: Dec. 27 and Jan. 16; iris brown; feet dark brown; maxilla dark brown; mandible, at base light horn-colour, dark at tip.”

27. *ALSEONAX LATIROSTRIS* (Raffles), Tr. L. S. xiii. p. 312, “Sumatra” (1821), *descr. princ.*; Jerd. Birds of India, i. p. 459. no. 297; Blanford, J. A. S. B. 1869, p. 173. no. 297, “Chanda.”

Muscicapa poonensis, Sykes, P. Z. S. 1832, p. 85. no. 42, “Dukhun.”

Muscicapa latirostris, Swains. (*mot. propr.*) Nat. Libr. *Muscicapidæ*, p. 253, “India” (1838).

Muscicapa grisola, Linn., var. β , Pallas, Zoogr. Rosso-As. i. p. 461, “Dauria.”

Muscicapa cinereo-alba, Temm. & Schl. Faun. Jap. *Aves*, p. 42, pl. xv. “Japan” (1842); Schrenck, Amur-Lande, i. p. 379. no. 106; Radde, Ost-Sibirien, ii. p. 273. no. 147.

Muscicapa pondiceriana, Licht. ex Gm.: Bp. Consp. i. p. 318, nec Gm.*; nec v. Middendorf, Sibir. Reise, ii. pt. ii. p. 188. no. 106, “Uds ’kój’ Os ’tróg and Schantár islands,” = *M. sibirica*, Gm. tom. cit. p. 936.

Hemichelidon latirostris (Raffles), Horsf. & Moore, Cat. Mus. E. I. C. i. p. 137, no. 177.

Butalis latirostris (Raffles), Swinhoe, P. Z. S. 1871, p. 379. no. 325.

“S. Andaman: Dec. 27, σ , Jan. 16, Feb. 5; iris dark brown; legs and feet brown; maxilla brown; base of mandible yellow.”

Not to be distinguished from Malaccan, Malabar, Lake Baikal, Japan (Hakodadi, May 5), and China (October) individuals.

28. *HYPOTHYMIS TYTLERI* (Beavan), 1867, p. 324. no. 45, “Andamans;” Ball, Str. Feath. i. p. 68. no. 58.

“S. Andaman: σ , iris brown; maxilla dark brown; man-

* *Muscicapa pondiceriana*, Gm. S. N. i. p. 939. no. 45, was founded on Sonnerat’s *Gobe-mouches de Pondichéry*, and is a *Tephrodornis*.

dible and legs dull blue : sex ?, bill black ; legs and feet bluish slate ; iris dark brown."

Two examples, both of young birds. Entire head, chin, and throat dark blue. Breast and abdominal region dark ashy, paler on under tail-coverts. Remainder of plumage brown. Identical with Malabar and Burman individuals. Mr. Ball, who has compared adult birds, seems to consider the Andaman form distinct from *H. azurea*.

29. TCHITREA AFFINIS, A. Hay, J. A. S. B. 1846, p. 292, "Malacca."

"S. Andaman, Jan. 17 : ♂, iris dark blue ; bill, legs, and feet bluish slate ; interior of mouth yellow."

In black and white plumage.

30. HIRUNDO GUTTURALIS, Scopoli, Del. Fl. Faun. Insubr. ii. p. 96. no. 115 (1786).

"S. Andaman, Jan. 27 : bill and legs black."

31. ARTAMUS LEUCORHYNCHUS (Linn.), Mantissa Plant. p. 524, "Manilla" (1771) ; Walden, Tr. Zool. Soc. viii. p. 67.

Artamus leucopygialis, Gould, Walden, P. Z. S. 1866, p. 17, "Andamans."

"S. Andaman, Ross Island, ♂ ♀ : iris brown ; legs and feet greenish black ; bill bright slate-blue."

The sexes, as ascertained by Mr. Ramsay, do not differ in either dimensions or colouring.

32. LANIUS LUCIONENSIS, Linn. S. N. i. p. 134. no. 10 (1766).

"S. Andaman, ♂, Jan. 12, 29 ; Ross Island, ♂, Dec. 15, Jan. 4."

Four examples, undistinguishable from Philippine individuals.

33. PERICROCOTUS ANDAMANENSIS, Tytler : Beavan, Ibis, 1867, p. 322. no. 41.

"S. Andaman, ♂ ♀ : iris dark brown ; bill and feet black."

Of six examples three are adult males, two adult females, and one a young male in yellow and grey plumage here and there turning to deep orange. They belong to the same group

as *P. speciosus*, but are much smaller in size, their chief if not sole distinguishing character. *P. ardens*, apud nos, ex Sumatra, Malacca, and Borneo, belongs to the same section, but is still smaller and more deeply coloured.

	Long. alæ.	Caudæ.	
<i>P. speciosus</i>	4	4·37	♂ ad. Valley of Nipaul.
" "	4·60	4·50	" Maunbhoom.
<i>P. andamanensis</i>	3·50	3·87	" S. Andaman.
" "	3·60	3·75	" "
" "	3·50	3·60	" "
" "	3·56	3·75	♂ juv. "
" "	3·60	3·75	♀ adult. "
" "	3·50	3·50	" "
<i>P. ardens</i>	3·50	3	♂ adult. Sumatra.
" "	3·10	3·10	" Malacca.
" "	3·18	3·37	" Marup (Borneo).

34. PERICROCOTUS PEREGRINUS (Linn.), S. N. i. p. 342. no. 10, ♀, patr. incog. (1766).

" S. Andaman: ♂, bill and feet black; ♀, iris brown."

Not to be distinguished from continental examples.

35. BUCHANGA ANDAMANENSIS (Tytler): Beavan, Ibis, 1867, p. 323. no. 42.

" S. Andaman, ♂ ♀."

A distinct species.

36. DISSEMURUS AFFINIS (Tytler): Beavan, Ibis, 1867, p. 323. no. 43.

" S. Andaman: Jan. 12, ♂; 17, ♀; 18, ♀."

The Andaman *Dissemurus* possesses a short but distinct frontal crest, not so much developed as in the Malabar and Ceylon species, but more so than in the almost crestless Malaccan form. It is larger than either the Javan, Malaccan, or Malabar species, but smaller than all others, *D. brachyphorus*, of course excepted.

37. GRAUCALUS MACEI, Lesson, Tr. p. 349, "Bengal" (1831).

Graucalus nipalensis, Hodgs. Ind. Rev. 1837, p. 327, "Nipaul."

" S. Andaman: iris red; bill and feet black."

Graucalus macei.

	Alæ.	Caudæ.	Tarsi.	Rostr.	
* <i>a</i> , ♂?	7.37	6	1	0.75	Deyra Doon : full plumage ; lores black ; breast plumbeous ; abdomen white, unstriated.
<i>b</i> , ♀?	6.86	6	1	0.75	Valley of Nipaul : lores dark slate ; breast plumbeous ; upper part of abdomen and thigh-coverts barred.
<i>c</i> , ♂?	6.75	5.37	1	0.87	Tongoo : like <i>a</i> .
<i>d</i> , ♀	6.50	5.65	1	0.75	Moulmein : lores slate ; similar to <i>b</i> , but entire abdomen barred.
<i>e</i> , ♂	6.62	5.50	1	0.86	S. Andaman : identical with <i>a</i> .
<i>f</i> , ♂	6.62	5.50	1	0.86	† S. Andaman : identical with <i>a</i> .
<i>g</i> , ♀	6.62	5.50	1	0.80	S. Andaman : lores barely indicated ; throat, breast, and thigh-coverts faintly striated ; abdomen white.
<i>h</i> , ?	6.37	5.60	1	0.86	S. Andaman : either a young male or female ; lores, chin, throat, breast, and thigh-coverts faintly striated ; abdomen white.

Graucalus layardi.

	Alæ.	Caudæ.	Tarsi.	Rostr.	
<i>i</i> , ♂	6.37	5.75	1	0.87	Maunbhoom : similar to <i>a</i> , but the abdomen and thigh-coverts striated.
<i>j</i> , ♂?	6.60	5.50	1	0.87	Maunbhoom : lores intensely black ; identical with <i>i</i> .
<i>k</i> , ?	6.30	5.25	1	0.75	Maunbhoom : lores dark slate ; chin, throat, breast, abdomen, and thigh-coverts boldly marked with dark bars.
<i>l</i> , ?	6.12	5.60	1	0.75	Candeish : similar to <i>k</i> , but the bars not so decided.
<i>m</i> , ?	6	4.75	0.87	0.75	Coorg : similar to <i>k</i> .
<i>n</i> , ?	5.67	4.50	0.87	0.75	Ceylon : similar to <i>k</i> .
<i>o</i> , ♂?	6.66	5.50	1	0.75	Southern India : identical with <i>i</i> .
<i>p</i> , ♂?	6	5	0.87		Coorg : identical with <i>i</i> .

The dimensions of the four Andaman individuals in the collection are less than those of *G. macei* from Northern India, about equal with those of the same species from Burma,

* Where the sex is not determined by the collector it is noted with doubt.

† This skin is marked by the collector as being that of a female ; if correct, adult males and females do not differ.

and greater than in so-called *G. layardi* of Central and Southern India and Ceylon. Of the specific distinction of the last-named species I am not yet quite satisfied, the question mainly turning upon whether the adult male (and female?) always has the upper part of the abdominal region barred instead of pure white.

38. *GRAUCALUS DOBSONI*, Ball, J. A. S. B. 1872, p. 281. no. 23, "Andamans."

"S. Andaman: ♀, iris lake; bill and feet black."

An excellent species; perfectly distinct from *G. concretus*, Hartl., and *G. striatus* (Bodd). The example, sent as a female, has the entire under plumage barred across. A second individual, not sexed, has the chin, throat, and upper breast uniform plumbeous. Seen from below it recalls the beautiful *G. lineatus* (Swains.) = *G. swainsoni*, Gould; but the dark bands are not as decided and well defined, nor so intensely black as in the Australian species. In all other characters it entirely differs.

39. ? *ARACHNECHTHRA FLAMMAXILLARIS* (Blyth), J. A. S. B. 1845, p. 557.

Arachnechthra frenata, Ball, Str. Feath. i. p. 65 (*nec* S. Müller).

"S. Andaman, Jan. 3, ♀; 18, ♀."

Two examples of a female *Arachnechthra* are in Mr. Ramsay's collection, but unfortunately no males. Provisionally I refer them to the well-known Burman species, as Mr. Ball's description (*l. c.*) of the male agrees best with that Sunbird. That gentleman states that in all the male specimens "there are more or less distinct traces of a maroon pectoral band," which character is at once decisive against their belonging to *A. frenata*. With Tenasserim examples of *A. flammaxillaris* ♀ these Andaman individuals fairly agree.

40. *CORVUS LEVAILLANTII*, Lesson, Tr. p. 328, "Bengale," (1831); Pucheran, Rev. Mag. Zool. 1853, p. 547.

Corvus culminatus, Sykes, P. Z. S. 1832, p. 96, "Dukhun."

"S. Andaman, Jan. 1, ♀."

The only example, a female in full plumage, sent by Mr.

Ramsay does not differ in colouring from the Indian bird; but the dimensions of the wings and tail are less, while those of the bill and tarsus are about equal. Wing 10·37; tail 7; tarsus 2·25; bill from forehead, in a straight line, 2·36.

41. *ACRIDOTHERES TRISTIS* (Linn.), S. N. i. p. 166. no. 3 (1766).

“Ross Island.”

Introduced by Colonel Tytler (Ibis, 1867, p. 329).

42. *STURNIA ANDAMANENSIS*. (Plate XII. fig. 2.)

Temenuchus andamanensis, Tytler: Beavan, Ibis, 1867, p. 329. no. 67.

“S. Andaman: ♀, iris white; bill and legs gamboge; base of mandible bluish slate.”

43. *EULABES ANDAMANENSIS*, Tytler: Beavan, Ibis, 1867, p. 331. no. 71, “Andamans.”

Eulabes intermedia (A. Hay), apud Ball, Str. Feath. i. p. 77. no. 89.

“S. Andaman, January: ♂ ♀, iris dark brown; lobes, legs, and feet orange; bill vermilion, yellow at tip. A young bird, not sexed: lobes, legs, and feet yellow.”

No difference to be observed between the sexes. A series of eight examples confirms my opinion that Colonel Tytler was justified in separating the Andaman *Eulabes* from the Indian *E. intermedia*. Whether it can only rank as a “geographical race of the same species,” must depend on the sense in which that elastic phrase is applied.

44. ?*OSMOTRERON CHLOROPTERA* (Blyth), J. A. S. B. 1845, p. 852, “Nicobars.”

“S. Andamans: iris red; bill at base greenish slate, at point greenish white.”

A single example, unfortunately not sexed, of a large species of *Osmotreron*. I provisionally identify it with the Nicobar form, which I have never seen. Crown beautiful French grey, very pale on the forehead, and shading darker on the occiput. Under tail-coverts pale creamy white, broadly centred with light green. Wing nearly seven inches.

45. CARPOPHAGA AENEAE (Linn.), S. N. i. p. 283, (1776),
ex Briss.

Palumbus moluccensis, Briss. Orn. i. p. 148, "ex *Moluccis insulis*."

Columba sylvatica, Tickell, J. A. S. B. 1833, p. 581, "Jungles of Borabhúm and Dholbhúm."

"S. Andaman: ♀, iris brown; eyelids with a red margin; feet and legs pink."

Seven examples, all killed in the month of January, and identical with Indian. I have elsewhere shown that Indian, Ceylon, Burmese, Javan, Bornean, and even Philippine individuals cannot well be specifically separated. Young birds in this species appear to have the under tail-coverts of a lighter shade than adults.

	Alæ.	Caudæ.	
<i>a</i> , ?	9	6·50	Sides of head, breast, and abdomen pale bluish grey intensely suffused with vinous; ventral region and thigh-coverts pure grey; on the nape a triangular chocolate-brown mark; throat pure white.
<i>b</i> , ♂	9·25	6·65	Similar to <i>a</i> , but without the nuchal mark: chin, throat, and forehead pure white.
<i>c</i> , ♀	9	6·37	Similar to <i>b</i> , but the vinous shade on breast not so intense; total length in the flesh 15·50.
<i>d</i> , ♀	9·25	6·25	Identical with <i>c</i> ; length in the flesh 15·50.
<i>e</i> , ♀	9	6·25	Identical with <i>c</i> and <i>d</i> .
<i>f</i> , ?	8·50	5·67	Grey plumage without a tinge of vinous, ashy rather than bluish grey; under tail-coverts light chestnut; green plumage brilliant. A young bird?
<i>g</i> , ?	9	6·50	Similar to <i>f</i> .

46. ? MACROPYGIA RUFIPENNIS, Blyth, J. A. S. B. 1846, p. 371, "Southern Nicobar;" Ball, *op. cit.* 1872, p. 287. no. 47, "Andamans."

"S. Andaman: ♂, bill, legs, and feet purplish pink: December and January."

The Nicobar and Andaman birds have yet to be compared. Von Pelzeln (Voy. Novara, Vög. p. 109) describes the iris in the Nicobar *Macropygia* as being white surrounded by cherry-red, the bill chestnut-brown, the feet dark violet-red, and the claws dark brown. From Mr. Blyth's original description (*l. c.*) it is to be inferred that in the Nicobar bird

the feathers of the under surface are not transversely striated, in fact that it is a representative form of *M. phasianella*. But the Andaman *Macropygia*, which is represented in the collection by seven examples, differs from *M. phasianella* in having the head bright rufous, and not cinereous shaded with violet—in the nape and interscapulary region being clothed with rufous feathers very finely marked with black, more evident in some individuals than in others, and not pure coppery green or violet as in the Australian species—and in the feathers of the pectoral and abdominal region being traversed by distinct dark brown narrow lines, whereas in *M. phasianella*, as in *M. tenuirostris*, *M. emiliana*, and others of that group, the plumage of the under surface is uniform, without a trace of striation, at least in the adult males. It is therefore just possible that the Andaman is a species distinct from the Nicobar. *M. leptogrammica*, ex Java, is nothing but a miniature form of *M. tusalia*; the wing measures 6.75 inches as against 8, and the tail 7.75 as against 9.25. *M. amboinensis* (L.) vera has the lower plumage of *M. leptogrammica* and the upper of *M. phasianella*.

47. IANTHÆNAS PALUMBoidES. (Plate XIII.)

Carpophaga palumboides, Hume, Str. Feath. i. p. 302, "Port Mouat" (1873).

"S. Andaman: ♂, iris reddish yellow; feet pink, claws white; bill pinkish lilac at base and white at tip; length 16 inches."

Classed by Mr. Hume as a *Carpophaga*, but clearly belonging to the *Columbidæ*. It has twelve rectrices.

48. CHALCOPHAPS INDICUS (Linn.), S. N. i. p. 284. no. 29 (1766).

"S. Andaman: ♂, bill reddish brown; legs and feet purplish pink."

One male in perfect (?), one in imperfect plumage, and one female in the collection; shot in January. The male, although apparently in full plumage, wants the broad bluish grey stripe descending from the crown to the interscapulars, which is

present in Ceylon, Malabar, Malaccan, Javan, and Philippine individuals. Is this peculiar to the nuptial dress?

+ 49. *CHARADRIUS FULVUS*, Gm. S. N. i. p. 687 (1788).

“S. Andaman: ♂; Dec. 18; not sexed, Dec. 21.”

In winter plumage.

+ 50. *ÆGIALITIS CURONICA* (Gm.), S. N. i. p. 692. no. 29 (1788), ex Beseke, Schr. der Gesellschaft naturf. Freunde z. Berlin, vii. p. 464. no. 49 (1787).

“S. Andaman: Jan. 7, ♂; Feb. 4: iris brown; legs and feet orange; bill brown.”

Two individuals in non-breeding plumage. I have never met with examples of this European bird from Southern Asia in full breeding-dress. Burgess (P. Z. S. 1855, p. 80) states that he believes the egg he described belonged to *Charadrius minor*, and that, if so, that bird breeds in the Deccan in the month of April. But *C. minor*, ap. Burgess (*l. c.*), is probably the *Æ. minuta* (Pallas), ap. Jerd. no. 850. On the other hand I have never seen adult Indian specimens of the small Indian Ring-Plover (*Æ. minuta*, ap. Jerd.), except in full or nearly full summer plumage. The correct title of this smaller species cannot be determined until it is ascertained whether *Æ. curonica* ever occurs in Luzon in full breeding-plumage. If it does not, *Æ. dubia* (Scop.) will be the oldest title for the smaller species. If it does, and the smaller species is also found to occur in Luzon in breeding-plumage, then Sonnerat's bird must remain for ever undeterminable. The title of *curonicus* was given by Gmelin to a bird which Beseke (*l. c.*) described from a drawing, but on which he bestowed no title.

51. *ÆGIALITIS GEOFFROYI* (Wagler), Syst. Av. *Charadrius*, no. 19, “Pondicherry, Java” (1827).

“S. Andaman, Jan. 20, 24: ♀, iris dark brown; legs and feet green; bill dark brown.”

In winter plumage. Two examples, one sexed as being a female, with the whole under surface unsullied white. A third (♀, as sexed) with a broad ashy-brown pectoral band.

+52. *ÆGIALITIS MONGOLA* (Pallas), Reise Russ. Reich. iii. p. 700. no. 29 (1776).

“S. Andaman: Jan. 7, ♀; 24, ♂ ♀; 27, ♀; iris (in both sexes) dark brown; legs and feet ashly green; bill dark brown.”

In winter plumage.

+53. *STREPSILAS INTERPRES* (Linn.).

“S. Andaman, Feb. 1, ♂.”

54. *GALLICREX CINEREUS* (Gm.), S. N. i. p. 702, no. 20 (1788), ex Lath.

Gallinula cristata, Lath. Ind. Orn. ii. p. 773. no. 23 (1790), ex Lath.

Crested Gallinule, Lath. Syn. v. p. 267. no. 22, “China?”

“S. Andaman, Dec. 15: ♀, iris brown; legs and bill olive-green.”

+55. *NUMENIUS PHÆOPUS* (Linn.), S. N. i. p. 243 (1766).

“S. Andaman, Jan. 3.”

56. *ACTITIS HYPOLEUCA* (Linn.), S. N. i. p. 250 (1766).

“Ross Island, Dec. 15, ♀; S. Andaman, Jan. 3, ♀, 29, ♀.”

57. *ACTITIS GLAREOLA* (Gm.), S. N. p. 677. no. 21 (1788).

“S. Andaman: Dec. 31, ♂; Jan. 22, ♂: legs and feet yellowish green; bill dark brown.”

Winter plumage.

58. *TRINGA ALBESCENS*, Temm. Pl. Col. 41. fig. 2, “l’Océanic” (1823).

“S. Andaman, Jan. 24: iris dark brown; bill black; legs and feet greenish black.”

In winter plumage. Mr. Harting inclines to the opinion that *T. ruficollis*, Pallas (Reise, iii. p. 700. no. 31, 1776), is this species in full breeding-plumage, relying on the expression “subtus collum totum ad pectus usque intense ferrugineum.” *T. salina*, Pallas (Zoogr. ii. p. 199. no. 309), Mr. Harting identifies with *T. subminuta*, v. Middendorf. Of that species Pallas says, “Jugulum ferrugineo-nebulosum album, punctis fuscis, in masculo crebrioribus; reliqua subtus alba.” Mr. Harting’s hypothesis can only be maintained on the assumption that Pallas described examples of two distinct species in the full

belief that they belonged to one and the same. For Pallas (Zoogr. *l. c.*) identifies *T. salina* with the *T. ruficollis* of his earlier work, although, curiously enough, he attributes the title of *ruficollis* to Latham, the English author having only borrowed that title and the description from Pallas. It may be here observed that the Japanese specimen mentioned by Mr. Sharpe (Dresser's Birds of Eur. *T. minuta*, p. 5) as being *T. albescens* is nothing but *T. minuta*.

59. GALLINAGO STENURA (Kuhl), Bp. Annali di Storia Naturale, Bologna, iii. fasc. 14, "Sunda Islands" (1830); Isis, 1833, p. 1077.

"S. Andaman: ♂, Dec. 19, 23, 27; ♂, Feb. 5: iris bright brown; legs and feet greyish horn-colour; bill, basal half light horn, remainder brown: ♀, Feb. 6; iris brown; legs and feet pale green; bill light horn, remainder brown. Port Mouat, ♀, Feb. 5: iris bright brown; legs and feet greyish green."

60. DEMIEGRETТА SACRA (Gm.), S. N. i. p. 640 (1788), ex Lath. Synop. v. p. 92, "Otaheite."

Demiegretta concolor, Blyth, J. A. S. B. 1846, p. 372, "Aracau, Nicobars."

Herodias andamanensis, Tytler: Beavan, Ibis, 1867, p. 333, "Andamans."

Herodias concolor (Blyth), Ball, Str. Feath. i. p. 87. no. 122.

Demiegretta greyi, G. R. Gray, *ap. Hume, op. cit.* p. 307.

"Ross Island, Dec. 20, Feb. 4: iris pale yellow; bill brown, mandible tinged with yellowish green; legs bright green, soles yellow."

Moulting from ferruginous brown into uniform ash-colour, a narrow white line extending from the chin down the neck for about one and three quarters of an inch.

It has recently been asserted by Mr. Hume (Str. Feath. i. p. 254) that the *Ardea asha*, Sykes (P. Z. S. 1832, p. 157, "Dukhun"), and the species described by Dr. Jerdon (Birds of India, iii. p. 747) belong to *Ardea gularis*, Bosc (Actes de la Société d'Hist. Nat. de Paris, i. pt. i. p. 4, pl. 2, "Senegal," 1792*),

* Only the first part of this work, edited by Aubin-Louis Millin, and published in "l'an quatrième de la liberté," appeared. It consists, in ad-

the well-known Madagascar and tropical African form, and not to *Ardea sacra*, Gm., = *A. jugularis*, Forst. (Wagler, Syst. Av.). Mr. Hume, in his valuable paper on the ornithology of Sindh (*l. c.*), states that he observed the African species at Muscat, along the Makran coast, at Kurrachee, and on the Bombay coast at Teetul. As Sykes does not mention the characteristic white cheeks of *A. gularis*, nor give the wing and tarsal dimensions, and as I have never seen Deccan individuals, nor Sykes's type, I cannot venture to assert with any confidence which of the two species migrates to the Deccan; and the question must remain open until Deccan examples have been examined. The dimensions given by Dr. Jerdon are nearer those of the African bird; but his description, while sufficient for *A. sacra*, will not apply to *A. gularis*; for he likewise omits all mention of the white cheeks. The species identified by Mr. Blyth on all occasions as *A. asha*, Sykes, seems to have been the African bird. For instance (Cat. Calc. Mus. no. 1642), its range is stated to be the "peninsula of India and Sindh, nec (?) lower Bengal." Later (J. A. S. B. 1855, p. 264) that author identified *A. asha*, Sykes, with *A. gularis*, Bosc, and also doubtfully with *H. pannosa*, Gould. And Mr. Blyth states (*Ibis*, 1865, p. 38) the range to be South India and Ceylon. The Ceylonese bird has long since been identified by von Pelzeln, in his exhaustive article on the general subject (*Novara Exp. Aves*, p. 122), as belonging to *Ardea schistacea*, Hempr. and Ehrenb., = *A. gularis*, Bosc; and Mr. Blanford (*Geol. Zool. Abyssinia*, p. 435. no. 270, 1870) mentions that he had compared an Abyssinian example with Indian specimens in the Calcutta museum, and that there can be no question of their identity.

Mr. Blyth, having some time previously detected the differences which distinguished Arracan examples of the Demi-gret from those he had identified as belonging to *Ardea asha*,

dition to an introductory discourse by the editor, of 129 pages of letter-press, embracing many branches of natural history, and 13 plates. Of birds it contains the description of *A. gularis* by Bosc, and of *Buceros africanus* by Geoffroy, fils, and also a catalogue by MM. Richard and Bernard of birds collected in Cayenne by M. Blond.

Sykes, on receiving similar individuals from the Nicobars, described it under the name of *Demiegretta concolor* (*l. c.*), the chief differences he relied on being the shorter tarsus and the absence or almost entire absence of white about the throat. Subsequently Colonel Tytler named the Andaman bird *Herodias andamanensis* (*l. c.*); and this, Mr. Blyth (*Ibis*, 1868, p. 133) identified with his *D. concolor*, a species, he added, which he had never seen in white plumage.

The two examples obtained by Mr. Ramsay agree perfectly with Malaccan and Celebesian individuals, and fall therefore under true *Ardea sacra*, Gm. But according to Von Pelzeln (*l. c.*), *D. concolor* is a good and distinct species, and inhabits the Nicobars as well as *D. jugularis* (= *sacra*, Gm.). Of this last the Novara Expedition obtained one Nicobar example, which Von Pelzeln correlates with two from Tahiti and two from Panypet, together with three from the Carolines, one from the East Indies, and one from Java, in the Berlin museum. Of *D. concolor*, the same expedition obtained at the Nicobars, and there only, three individuals (♀) in adult plumage, two in dark plumage, with white throat, and one in snow-white dress. Dr. Finsch (*Orn. Central-Polyn.* p. 206) does not admit the specific distinction of the Nicobar examples, and states that examples from Amboina are nearly as small as those included by Von Pelzeln under *D. concolor*.

	Wing.	Tail.	Tarsus.	Middle toe without nail.	Bill from forehead.	Bill from gape.	
<i>D. sacra</i> . .	10·50	4	2·75	2	3·25	4	Ross Island, Dec. 20: partly developed dorsal train.
” ”	9·75	3·50	2·35	1·75	2·89	3·37	Ross Island, Feb. 4: ditto.
” ”	10·50	3·88	2·75	2	3	3·66	Malacca, August: uniform ash-colour; throat-streak as above; no dorsal train.
” ”	10·50	3·75	2·75	2	3	3·60	Malacca, Sept.: ditto.
” ”	10·25	3·50	2·63	1·87	3	3·63	Celebes: ditto.
<i>D. gularis</i> .	11	4	4	2·37	3·95	4·37	♀, Massuah, Aug. 24: full crest and dorsal train; uniform slate-color; chin, cheeks, and throat white.

61. *BUTORIDES JAVANICUS* (Horsf.), Tr. Linn. Soc. xiii. p. 190, "Java" (1820).

"S. Andaman, Feb. 4: ♀, iris yellow; legs and feet dark green; soles of feet yellow."

A single example. Does not differ from Indian individuals.

62. *MARECA GIBBERIFRONS*, S. Müller, Verhand. p. 159, "Celebes" (1839-44); Walden, Tr. Zool. Soc. viii. p. 102.

Querquedula andamanensis, Tytler, Ibis, 1867, p. 333. no. 89, sine descr.

? *Mareca punctata*, Cuv.: Ball, J. A. S. B. 1872, p. 290. no. 62, "Andamans;" Str. Feath. i. p. 88.

Mareca albogularis, Hume, Str. Feath. i. p. 303, "Andamans" (1873).

"S. Andaman, ♂ ♀, February; iris brown; bill plumbeous; legs and feet greenish: ♀, January.

The collection contains three males and two females. One, a female, is absolutely identical with an authentic Celebesian example. While equal in dimensions with Timor examples, they all somewhat exceed in size Celebesian individuals, which, as is well known, are generally smaller than the races that inhabit other areas.

XXXVII.—*Notices of recently published and forthcoming Ornithological Works.* By the EDITOR.

SEVERAL important works bearing on Ornithology have been published within the last few months, concerning which a few words may not be unacceptable to our readers.

'Lahore to Yarkand'* contains an account by Mr. Hume of the birds collected during Mr. Forsyth's celebrated expedition into Central Asia. Specimens of about 158 species were obtained altogether; but only 59 of these were collected actually in Yarkand. They appear to have been well worked

* Lahore to Yarkand. Incidents of the Route and Natural History of the Countries traversed by the Expedition of 1870, under T. D. Forsyth, Esq., C.B. By G. Henderson, M.D., and A. O. Hume, C.B. London: Reeve & Co., 1873. 1 vol. 8vo.

out by Mr. Hume; and no less than 22 coloured plates are devoted to the illustration of the new and rare species. The most interesting discovery is certainly that of two new species of *Podoces*, called *P. hendersoni* and *P. humilis*, both of which are figured.

Another well-illustrated volume* recently published gives an account of the expedition of the 'Curaçoa' among the South-Sea Islands in 1865, and a *résumé* of the numerous novelties obtained on this occasion. For this work Mr. J. L. Brenchley, whose untimely death took place just before the publication of the volume, has put together the results arrived at by various naturalists from an examination of his collections. The birds were originally described by the late Mr. G. R. Gray in the 'Annals of Natural History' for 1870. In the present volume, of which the ornithological part is likewise by Mr. Gray, the descriptions are repeated, with some additions, and are accompanied by 21 coloured plates drawn by Mr. Smit.

The second portion of Prof. Sundevall's 'Methodi Naturalis Avium disponentiarum Tentamen' †, which we have just received, completes this most important work. It contains a complete ornithological system, and gives Latin diagnoses of all groups down to the families and their principal subdivisions, and should be carefully studied by every ornithologist.

The original preface and introduction to Prof. Sundevall's work are written in Swedish; but a French translation is added, which will still further extend their usefulness. Prof. Sundevall's primary division of the class of birds is into two "agmina," *Psilopædes* and *Ptilopædes*, with reference to the state of the young when first excluded from the egg. This is a well-known division, used by several other authors, but not so exactly characterized as by Prof. Sundevall, and not so appropriately named. These two agmina, according to our author, contain the following seven Orders:—

* Jottings during the Cruise of H.M.S. 'Curaçoa' among the South-Sea Islands in 1865. By Julius L. Brenchley, M.A., F.R.G.S. London: Longmans, Green, & Co., 1873.

† Stockholm, 1872-73: 1 vol., 8vo, pp. 188.

1. Oscines.	} Psilopædes.	5. Grallæ.	} Ptilopædes.
2. Volucres.		6. Palmatæ.	
3. Accipitres.	} Ptilopædes.	7. Proceres.	
4. Gallinæ.			

Some of Prof. Sundevall's collocations will surprise his brother ornithologists, such as his reference of *Panurus* (sive *Calamophilus*) to the Viduinæ, of *Upupa* to the vicinity of the Larks, of *Dasycephala* to the Tityrinæ, and of *Glareola* to the Caprimulgidæ! But Prof. Sundevall is not one of those persons who do things without giving some good reason for them.

We have also received, addressed "To the Editor," copies the first two parts of a new American ornithological work entitled 'The Birds of Florida,' containing original descriptions of upwards of 250 species, with notes on their habits by C. J. Maynard, with 5 plates drawn and coloured from nature by Helen S. Farley: Salem, Naturalists' Agency, 1872-73: and No. xiv. of the 'Journal de Sciencias' of Lisbon, containing a seventh paper by Prof. Barboza du Bocage on the birds of the Portuguese possessions in Africa.

As regards forthcoming works on ornithology we may mention that a new edition of Mr. Layard's work on the birds of South Africa, under the supervision of Mr. Sharpe, is in preparation, and that Mr. Shelley is engaged on a book relating to the birds of the western portion of the same continent.

Mr. Gould is preparing to issue the final numbers of his great work 'The Birds of Great Britain,' which will, we believe, be completed before the end of the year.

A new work on the Birds of the New World, consisting of a catalogue of the species known to occur in the Neotropical Region, and an account of their distribution, is noticed in our advertising columns.

A reprint of Boddaert's excessively rare work, 'Table des Planches Enluminées,' which ornithologists are constantly requiring for reference, has been undertaken by Mr. Tegetmeier, F.L.S. We have seen proofs of the reprint, which is a *verbatim et literatim* copy of the original, every word, line, and page being reproduced in fac-simile, even to the typo-

graphical errors of the old edition. The reprint will be issued, to subscribers only, at 5s. a copy. Specimens of the work may be obtained by application to Mr. Tegetmeier, 346 Strand, London, W.C.

XXXVIII.—*Letters, Announcements, &c.*

The following letters, addressed "To the Editor of 'The Ibis,'" have been received:—

Marldon, near Totnes.
20th March 1873.

SIR,—In 'The Ibis' for 1862, p. 207, I recorded the dates at which a female of *Vultur auricularis* in my possession had laid an egg during four successive years ending 26th February 1862; and I think it may now be interesting to record the dates of the eggs which the same individual has subsequently produced, viz. :—

24th February 1863,	2nd March 1868,
21st ,, 1864,	3rd ,, 1869,
20th ,, 1865,	18th ,, 1872,
24th ,, 1866,	17th ,, 1873.

This bird has never laid more than one egg in the same year; her eggs are white, but sometimes, especially in the case of the earlier eggs, more or less sprinkled and clouded with rufous, chiefly towards the obtuse end.

I am yours, &c.

J. H. GURNEY.

SIR,—Mr. Blanford has recently directed my attention to a supposed new species of Plover from Burmah, described by Mr. Hume in his new periodical, 'Stray Feathers' (No. 1, November 1862, p. 17), under the name of *Eudromias tenuirostris*. I imagine that it was by a *lapsus calami* that Mr. Hume wrote *Eudromias* for *Ægialitis*; for his description shows that the bird belongs to the latter genus, and in one paragraph he speaks of it as not belonging "to any of the

species of *Ægialitis* above enumerated." As he has given a full description and measurements, there is no difficulty in identifying it; and I have no hesitation therefore in saying that it is the *Ægialitis hartingi* of Swinhoe, figured and described in the 'Proceedings' of the Zoological Society for 1870, p. 136, pl. xii. One of the peculiarities of this species is that the shafts of all the primaries are of a uniform hair-brown colour, which distinguishes it at once from others of the genus; the rectrices also are barred in a remarkable manner; and both these characters are pointed out by Mr. Hume. In other respects, as regards colour, it comes very close to *Æ. hiaticula*, but is a larger bird, with the bill nearly twice as long, much longer tarsi and toes, and a slight web between the middle and outer toes, as in *Æ. semipalmata* of the New World.

I should not be surprised to learn that this is also the *Charadrius longipes** of Père David (Nouv. Archiv. 1867, Bulletin, p. 38), obtained at Peking, and described as "close to *C. hiaticula*, but with longer legs."

Mr. Swinhoe, I observe, has referred Père David's bird, with hesitation, to *C. hiaticula* (P.Z.S. 1871, p. 404); but as he mentions no other instance of the occurrence of our European bird in China, I should doubt if it is found there, especially as it is unknown in India and the Malay peninsula.

I am aware that Heuglin, in his 'Ornithologie Nordost-Afrikas,' p. 1027, cites amongst the localities for *C. hiaticula* "the Himalayas," and, "during the migration, western and southern Asia;" but he does not say upon what authority this statement is made. Jerdon does not notice the species in his 'Birds of India;' neither does Mr. Holdsworth include it in his recently published "Catalogue of the Birds of Ceylon" (P. Z. S. 1872, pp. 404-483). I can only suppose that, as regards the Himalayas, Heuglin may have relied upon an observation by Mr. Blyth, who in a commentary upon Jerdon's 'Birds of India,' published in 'The Ibis' for 1867, adds to Dr. Jerdon's list thus (p. 165):—"ÆGIALITES HIA-

* Nec *C. longipes*, Temm. & Schleg., qui *fulvus*, Gmelin; nec *C. longipes*, Heuglin, qui *C. pecuarius*, Temm.

TICULA (L.), *Charadrius placidus*, G. R. Gray, B. M. Cat. Hodgson's Coll. 2nd ed. p. 70.

"Two examples of what I consider to be the common British Ringed Plover are among the skins sent by Mr. Hodgson to the British Museum."

Now the two examples above referred to, which Mr. Blyth thought were *C. hiaticula*, and which Mr. Gray had named *placidus**, are undoubtedly *Æ. hartingi*, Swinhoe, *Æ. tenuirostris*, Hume, the very bird now under consideration! Of this I have satisfied myself by a recent examination of the specimens in the British Museum. How Mr. Blyth could have overlooked the very marked specific characters of this bird, I know not; but possibly there was no specimen of *Ch. hiaticula* close at hand for comparison.

Mr. Gray thus described the species:—

"CHARADRIUS PLACIDUS.

"Greyish fuscous; quills fuscous black; front throat, collar round the neck, beneath the body, and margins of wing-coverts white; tail greyish fuscous, the outer feathers marked near the tips with black, and tipped with white; the outer web of outer feather also white; lore and band across the breast a mixture of black and greyish fuscous. Bill black; feet pale.

"Length 8'' 9''', wings 5'' 8''', tarsi 1'' 3''', bill from gape 10'''."

There is a coloured drawing of this bird, of the natural size, in Mr. Hodgson's collection of drawings in the British Museum; and on the same plate is a sketch in pencil of the wing, tibia, tarsus, and foot, and the stomach, with the name "*cantiana?*" written by Mr. Hodgson also in pencil.

It follows, then, that for this well-marked species Mr. Gray's is the oldest name, and must have priority, while Mr. Swinhoe's (I am sorry to say) will sink into a synonym. This must also be the fate of Mr. Hume's *tenuirostris*, it having been bestowed two years after Mr. Swinhoe's *hartingi*.

Should Père David's bird prove, as I suspect, to belong to the same species, his name for it (*longipes*), bestowed in 1867, must also give way. Not only is his description insufficient

* Cat. Hodgson's Coll. 2nd ed. p. 70 (1863); cf. also 'Handlist,' iii. p. 15, No. 10001 (1871).

to enable one to identify the species, but the name proposed by him had already been bestowed by Temminck & Schlegel (Faun. Japon. p. 104, t. 62, 1842) upon another species of the genus in which Père David has placed it. *Ægialitis longipes*, of von Heuglin (Syst. Uebers. Vög. N. O. Afr. 1856), is, as stated above, Temminck's *Charadrius pecuarius*.

Mr. Swinhoe, it will be remembered, obtained his specimens of *Æ. hartingi* (with one of which he has most kindly presented me) from the flats of the Upper Yangtze, Szechuen, in spring*; and he has quite recently recorded it (Ibis, 1873, p. 96) from Nanking, where he was informed that it is common in winter. We may now add to the habitat Pekin (David)? doubtless therefore the whole of China, Burmah (Jerdon, Hume), and Nepal (Hodgson).

The species thus appears to have an extensive range; and now that attention has been directed to it, we may expect to hear of the acquisition of many more specimens.

Yours &c.

J. E. HARTING.

[This letter was received in time for publication in the last number of 'The Ibis,' but accidentally omitted.—ED.]

British Museum,
February 12th, 1873.

SIR,—There is something still to be done before we shall thoroughly understand the vexed question of the two species of *Hieracidea* in New Zealand. Dr. Buller deserves all praise for his conscientious attempt to elucidate the matter; but that he has not succeeded in dispelling the surrounding difficulties is shown by Captain Hutton's letter in the last 'Ibis.' After examining our series in this museum I rather share Captain Hutton's dilemma as to the distinctive characters of *Hieracidea australis*. (N.B. The small bird, if ultimately proved to be distinct, must bear this title, the name of *Falco brunneus*, of Gould, being already preoccupied by Bechstein, who thus called the common Kestrel of Europe.)

* Cf. P. Z. S. 1870, p. 136, and 1871, p. 404.

The New-Zealand *Hieracideæ* are rather abnormal members of the Falconine series; for it is rare to find a bird which, when young, is uniform above, and becomes barred when it is old; nor do they here closely coincide with their Australian congeners, excepting as regards their uniformly cloudy breasts when young. The sexes of the Australian *Hieracideæ* do not appear to differ very markedly in size, an inch in the length of the female's wing being in the Australian species of the genus as much as the male yields to his more powerful consort; therefore the fact recorded by Dr. Buller that the female of *H. brunnea* exceeds the male by 2 inches in length of wing (and that too in the smallest species of the genus) is surprising, and will require ratification. Thus the analogy of the Australian species, to say nothing of the matured opinions of Dr. Buller and Mr. Gurney (and, I gather from his letter, of Captain Hutton also), would almost preclude us from believing that a bird measuring 13·5 inches in length, with a wing of 9·45, can be the mate of a female measuring 17·5 inches in length, with a wing of 11·5, were it not for the gradual gradation shown below. The difference would appear too great; but then what shall be said of the species after comparing the following table of measurements, drawn from the published writings of Dr. Buller, Mr. Gurney, and Captain Hutton, and added to those of fifteen specimens in the national collection (nearly all of the latter being I regret to say, without record of sex)? Still they ought to have been approximately determinable if Dr. Buller's proportions of the birds hold good; and this is apparently the gist of Captain Hutton's measurements, on which he makes "no comment." This, however, I feel bound to do, as it is the duty of the cabinet naturalist to weigh well the labours of practised observers in the field, while the latter should receive with equal respect the results placed before them by the workers at home, who are often in a position, from the examination of large series in the museums and private collections, to arrive at very sound conclusions concerning the relations of birds. I thus venture to give the measurements of the wing in our national series, adding those of the authors above mentioned.

	Wing. inches.
1. Buller, "♂ <i>H. brunnea</i> "	9.0
2. Gurney, no. 6, "♀ [?] immature"	9.25
3. Mus. Brit. no. 6	9.35
4. Mus. Brit. no. 8	9.45
5. Mus. Brit. no. 9	9.5
6. Hutton, no. 7	9.6
7. Mus. Brit. no. 7	9.7
8. Hutton, no. 8	9.8
9. Mus. Brit. no. 5 [♂]	9.9
10. Mus. Brit. nos. 1, 4 { [♂]	10.0
11. Hutton, nos. 5, 6 { [♂]	10.0
12. Mus. Brit. no. 2	10.3
13. Mus. Brit. no. 3	10.5
14. Hutton, no. 1 [♀]	10.95
15. Buller, "♀ <i>H. brunnea</i> "	11.0
16. Hutton, no. 4 [♀]	11.2
17. Buller, "♂ <i>H. novæ zealandiæ</i> "	11.25
18. Mus. Brit. no. 10	11.35
19. Mus. Brit. no. 12	11.4
20. Buller, "♀ <i>H. novæ zealandiæ</i> "	11.5
21-24. Mus. Brit. nos. 11, 13, 14, 15	11.5
25. Hutton, no. 2 { [♀]	11.75
26. Gurney, no. 3 { [♀]	11.75
27. Hutton, no. 3 [♀]	11.8

Thus we have the measurement of the wing in twenty-seven specimens. Those in the museum are numbered as above indicated, in case of future verification; I have not recorded the exact locality of the specimens, which are from both the north and south islands of New Zealand and from the Auckland Islands, as my object in this communication is to show the gradual gradation from one bird to the other as regards the length of wing. Leaving out of the calculation Nos. 7 and 8 of Captain Hutton's last list (*Ibis*, 1873, p. 101), concerning which Dr. Buller can doubtless give us a satisfactory explanation, and taking into account only those which offer evidence of having been carefully sexed, the question for determination seems to be, whether, if there *are* two species, a large female of *H. brunnea* may overlap a small male of *H. novæ zealandiæ*, and, therefore, what is the maximum length of wing attained by the sexes of these birds? For in-

stance, if Dr. Buller is correct in his estimate of the sexes of each species, No. 16 is a large ♀ of *H. brunnea*, and the ♂ of this species must vary so much that its wing ranges between 9 and 10 inches in length, and thus Dr. Buller got hold of an exceptionally small bird, which accounts for the great disparity in the sexes of the smaller Falcon.

I am, &c.,

R. BOWDLER SHARPE.

3rd June, 1873.

SIR,—In the last number of 'The Ibis,' Mr. Blanford, in his article in 'Stray Feathers,' makes some remarks upon *Argus ocellatus*, and helps to continue a very erroneous impression regarding that species. When Mr. Wood stated in the 'Annals and Mag. Nat. Hist.' last year, that some of the feathers in my plate of this species were the same as the rectrices of *Pavo muticus*, I did not make any reply, because I thought that when one had studied a family of birds sufficiently long to attempt to write a monograph of the group, it might at least be supposed he would not be unable to discriminate the tail-feathers of one species from those of another, especially such conspicuous ones as belong to our Argus Pheasant and the Javan Peacock! But it seems I was mistaken; and therefore, when a conscientious naturalist like Mr. Blanford gives credence to such a statement without having, so far as I am aware, ever investigated the subject himself, it seems time that I should say something in the matter. Both before the publication of my plate and also since, I have carefully compared the feathers in question, preserved in the museum here, with the rectrices of *P. muticus*; and neither in form, structure, nor colour do they resemble each other in any degree. At no age does *P. muticus* possess rectrices like those figured in my work; and I was greatly surprised that any one should have thought of confounding them. As to these feathers and the single one of *P. bipunctatus* belonging to birds of another genus, it is hardly necessary to add that I do not concur in that view.

In regard to Mr. Blanford's remarks about the inadvisability

of describing species from fragments, there is doubtless much truth in what he says; but he might with equal reason go a little farther, and object to an ornithologist describing a bird before all the phases of plumage assumed in its life are known to him. I need only cite the family of Hawks, to prove that more errors have been committed by describing as distinct the same species in different stages of plumage (each of which was only, so to speak, a fragment of the entire subject), than is ever likely to result from descriptions founded solely upon heads or tails.

Great benefits have been bestowed already upon natural science by the discoveries made from fragmentary remains, and they far outweigh the comparatively few errors committed from the same cause; and until we arrive at that blissful period when mistakes shall be no more, it would be a great pity to neglect even piecemeal evidence in the study of a subject.

Every naturalist knows how easy it is to commit mistakes; happy is the man whose quiver holds the fewest of them.

Yours &c.,

D. G. ELLIOT.

SIR,—In my letter of June 1872 (*Ibis*, 1872, p. 336) I noticed the singular dearth of birds in that region of the ocean traversed by me. I have again passed over much the same route, sailing from Pará on the 17th of March, and touching at Madeira *en route* for Lisbon and England. The line we described had a considerable northern curve, as our visit to Madeira was only determined on when we found ourselves short of provisions.

We did not see a single bird after leaving the mouths of the Amazon till we came within a hundred miles of Madeira; then a solitary Petrel turned up, also we were visited by a cock Greenfinch, a Sky-Lark, a Redpole Linnet, and two young Red-headed Shrikes. I never saw so deserted a region! And the captain of our ship and another of the other line of steamers plying between Lisbon and Pará, who happened to be on board, both assured me they never saw birds on their

transit. This may certainly be called the birdless region of the ocean.

I take this opportunity of saying a word with reference to Mr. W. T. Blanford's remark (*Ibis*, 1873, p. 218) that I "must be added to the number of those who have described this bird (*Elanus melanopterus*) as laying white eggs." I received the egg described (*Ibis*, 1868, p. 242) from my friend Mr. William Atmore, and I have no doubt he correctly identified it; but, from the experience I subsequently acquired, I believe that white is *not* the normal colour of the eggs of this bird. Mr. Kotze, my son, and myself took many specimens on the Berg river in 1869; all were coloured, some more, some less.

My impression is that the amount of colour depends on the strength of the bird, and that the white egg sent to Atmore was laid by a sickly bird. My son took a nest of *Circus maurus* within sight of our windows; the eggs were nicely coloured. A few days afterwards, seeing the birds still about the nest, he again visited and found another clutch of eggs, but much lighter in colour; a third time he robbed the nest, and the eggs were pure white. I think this shows exhaustion on the part of the bird, each successive laying being whiter than the preceding.

I am, Sir, yours &c.,

E. L. LAYARD.

SIR.—It may interest the readers of 'The Ibis' to know that during the present winter the Firth of Forth has been visited by an extraordinary flock of Sea-Gulls of various species and evidently of arctic parentage. Between the towns of Kincardine and Alloa the estuary has been frequented by swarms of Kittiwakes, the surface of the water being at times literally covered with birds. While on wing the multitude was so great as to appear, when seen against the opposite woods of Dunmore, like a heavy fall of snow. These Kittiwakes were principally in immature plumage, not more than 4 per cent. of adult birds being observable. On the 27th December last, accompanied by one or two friends, I visited

the estuary, and found on that occasion between 150 and 200 Glaucous Gulls flying about in the immediate vicinity of Kincardine, besides a number of Iceland Gulls, the two species being easily recognized as they flew past. The first-named bird has a soft Owl-like flight, which is very different from that of the Great Black-backed Gull; while the Iceland Gull is distinguished by its quick flapping motion, resembling the flight of some of the larger Terns. After examining upwards of twenty Glaucous Gulls, shot in the Firth between the date I have given and the 4th of January, I find the following results:—I. Size extremely variable, the total length ranging from $25\frac{1}{2}$ inches to 30 inches, and the breadth from 58 to 64 inches. II. The birds were chiefly in the plumage of the first year, the proportion of adult birds being even less than in the case of the Kittiwake. The same variation occurs in the measurements of the Iceland Gull, so far as I can judge from an examination of four or five specimens which have been shot by my friend Mr. Harvie Brown.

This unprecedented influx of Sea-Gulls is evidently due to the presence of shoals of sprats or garvies (*Clupea sprattus*), which at full tide swarm near the surface. The fish are taken in very large quantities in the firth, and disposed of in cart-loads to the farmers in the neighbourhood, who use them as manure. No doubt, I think, need be entertained as to the origin of the invading Gulls. They can scarcely be regarded as offshoots from British nurseries; indeed the presence of so many Glaucous and Iceland Gulls clearly shows that they are migrants from arctic waters.

I am, Sir, yours, &c.,

ROBERT GRAY.

Glasgow, January 9, 1873.

The following extracts are from a letter received from our Editor, dated "Off St. Domingo, May 3rd."

"We have had a first-rate passage, so far as regards weather, but one very destitute of ornithological interest. Starting as we did, in the middle of April, I certainly thought we should come across a good many migratory birds in the Channel and

some days beyond it, and that I should find some materials out of which to concoct an ornithological letter. All the birds I saw, however, were a Yellow Wagtail (σ), which stayed with us all one day. It came on board when we were about 400 or 500 miles from land; and we carried it another 150 miles from home. Another bird was a Swallow, which turned up 250 miles or so from the Azores, and staid about all one day; next morning we were off Terceira, and it was gone. On the 26th of April I saw several ash-coloured long-winged Shearwaters and some Petrels (black with white rump); but they were too far off to make them out. This was about 1200 miles from Barbadoes. On the 27th, 900 miles from Barbadoes, I saw more Petrels, and a beetle flew round the stern of the ship for some time, but I could not catch it. On the 28th there were more Petrels about.

“ We reached Barbadoes on the 30th; and we went on shore for an hour or two, and took a drive of a few miles along the eastern shore of the island. I saw more birds than I expected, but, my guns being packed away, I did not get any skins. There were two species of Humming-birds, one doubtless *Orthorhynchus cristatus*, the other a *Eulampis* (I think, *E. holosericeus*, not *E. jugularis*). I also saw a *Certhiola*. It had no white on the wing, and no yellow on the rump, so far as I could make out*. + *Myiodiactes pusillus* was there, and a *Dendræca*, I think *D. æstiva*. A small *Quiscalus*, with white eyes, hopped about the road, and a little Finch I took to be *Loxigilla noctis*. I could have spent a few days very profitably even in Barbadoes; but we had to be on board at 4 o'clock, and started for St. Thomas's the same evening. I expect to have a day in Jamaica the day after to-morrow, to reach Colon about the 7th or 8th, and to leave Panama on the 10th.

* [I have lately obtained a specimen of the *Certhiola* of Barbadoes, which is *C. martinicana*. The *Quiscalus*, which I have likewise received, is *Q. fortirostris*, Lawr. Pr. Ac. Sc. Phil. 1868, p. 360.—P. L. S.]

THE IBIS.

THIRD SERIES.

No. XII. OCTOBER 1873.

XXXIX. *Notes on the Ornithology of Sardinia,*

By A. B. BROOKE, F.Z.S.

[Concluded from page 248.]

140. COLUMBA PALUMBUS.

Very common. Great numbers collect during autumn in the oak forests to feed on the acorns.

141. COLUMBA LIVIA.

Common all the year, breeding round the coast, and also in many localities on inland rocks.

142. COLUMBA CENAS.

Not uncommon.

143. TURTUR AURITUS.

Arrives in great numbers during the month of April.

144. PERDIX PETROSA.

Is the only Partridge in the south of the island, where it is still common in many parts, and is found both on the low mountains and plains. The cry of the cock bird during the months of April and May is very remarkable, loud and melancholy, and can be heard always in the early mornings and late evenings. I have heard several rumours of a different Par-

tridge existing in the north of the island, and I was assured by a good sportsman that he had shot *P. cinerea* there; but I never saw a specimen.

+145. *COTURNIX COMMUNIS*.

A few remain in the island all the year. Large numbers arrive in spring.

+146. *CREX PRATENSIS*.

I never saw or heard any, although they are stated by both Cara and Salvadori to pass annually in spring, the former affirming that some remain all the year.

147. *ORTYGOMETRA PORZANA*.

Passes during the spring.

148. *ORTYGOMETRA PYGMÆA*.

Of rare occurrence.

149. *ORTYGOMETRA MINUTA*.

Passes on its migration.

150. *RALLUS AQUATICUS*.

Common, and resident in the island.

151. *GALLINULA CHLOROPUS*.

Very common at all times.

+152. *FULICA ATRA*.

Extremely abundant during winter, going in large flocks of several hundreds on the different lagoons round Cagliari and Oristano. By far the greater number migrate; but a few remain and breed.

153. *FULICA CRISTATA*.

There are several specimens of this species in the museum; but I was never able to identify or secure any. They are not numerous, and appear more abundantly some winters than others.

154. *PORPHYRIO VETERUM*.

Their appearance seems accidental. Some years they are much more numerous than in others. This species has not yet been discovered breeding in the island.

155. OTIS TETRAX.

Moderately common in some parts of the large plain between Cagliari and Oristano, and also in the smaller one which runs up towards Iglesias. I found them chiefly in the flat stony places, where the cistus was only sparingly scattered and not very high. They were extremely shy and hard to get at, rising very wild, and flying generally from a quarter to half a mile, and running rapidly on alighting. Their flight is peculiar, consisting of short quick flaps of the wings; and the tertiaries, being very long, give the bird a peculiar appearance. The weight of a female was 1 lb. 13 oz.

156. ŒDICNEMUS CREPITANS.

Moderately common and resident.

+157. VANELLUS CRISTATUS.

Very common in winter. None remain during summer.

+158. SQUATAROLA HELVETICA.

A winter visitor, not very numerous.

+159. CHARADRIUS PLUVIALIS.

A spring visitor but not plentiful.

+160. EUDROMIAS MORINELLUS.

According to Cara is a regular bird of passage, spending the winter in the island.

+161. ÆGIALITES HIATICULA.

Common, and some are stated by Cara to breed in the island.

+162. ÆGIALITES MINOR.

I shot at the hot spring of Acqua Cotta on the 30th of May the only specimen I saw. Its stomach was full of the elytra of small aquatic beetles and insects.

They pass in considerable numbers along the coast of the Riviera during the early part of April.

163. ÆGIALITES CANTIANUS.

Very common all the year round along the sea-coast and low sandy shores of the lagoons, where they keep in small flocks of seven or eight. When on the ground they are ex-

tremely hard to catch sight of, as, except when feeding, they sit perfectly motionless in a little round ball, closely resembling in colour the surrounding sand.

164. *GLAREOLA PRÄTINCOLA*.

Sometimes met with during the migration, but rare.

165. *STREPSILAS INTERPRES*.

Not common; a few pass in spring.

166. *HÆMATOPUS OSTRALEGUS*.

According to Cara to be met with at all seasons, but only in small numbers.

167. *RECURVIROSTRA AVOCETTA*.

Not uncommon in winter.

168. *HIMANTOPUS MELANOPTERUS*.

An occasional winter visitor.

169. *LIMOSA ÆGOCEPHALA*.

Common during the migration.

170. *TOTANUS GLOTTIS*.

Not uncommon in winter.

171. *TOTANUS STAGNATILIS*.

Is stated by Salvadori to occur in Sardinia in spring on its passage northwards.

172. *TOTANUS FUSCUS*.

A few single birds were about the "stagnos" of St. Giusta near Oristano during the beginning of March. They are wild and independent, never seeming to care much for the company of the other Sandpipers, but when disturbed separating at once, and generally flying a long distance before lighting. Their note is very different from that of *T. calidris*.

173. *TOTANUS CALIDRIS*.

Extremely common during winter.

174. *TOTANUS GLAREOLA*.

A flock of fifteen or twenty of these birds used to keep about a small lake near S. Gavino, in the middle of the plain;

and I saw them there repeatedly until the end of April, when they disappeared. I hardly think any remain to breed in the island.

+175. *TOTANUS OCHROPUS.*

Not uncommon in winter.

176. *ACTITIS HYPOLEUCA.*

I met with one specimen during the month of March. They are common in summer.

+177. *MACHETES PUGNAX.*

On the large wild sandy plain dotted over with small stagnant pools, between the stagno of S. Giusta and the sea, I met with numerous flocks of Ruffs, varying in number from three or four up to as many as twenty, during the first week in March. They were very restless, flying backwards and forwards from one pool to another, feeding hurriedly in a close compact body. Their flight is extremely rapid, turning and twisting, showing alternately the light and dark sides in the same manner as Dunlins &c. None of the specimens I shot showed any sign of a ruff; they were all males.

+178. *TRINGA CANUTUS.*

Occurs during the winter.

+179. *TRINGA MARITIMA.*

Has been killed several times near Capo St. Elia (*Cara*). This Sandpiper is not very uncommon round the Gulf of Genoa; and therefore I can see no reason for doubting the accuracy of Signor Cara's observations on this species (*Salvadori*, Catalogue, p. 89).

+180. *TRINGA SUBARQUATA.*

Common in winter.

+181. *TRINGA CINCLUS.*

Very common in winter round the sandy shores of the lagoons.

182. *TRINGA MINUTA.*

Not uncommon during winter.. I saw several near Oris-tano in company with Dunlins.

183. *TRINGA TEMMINCKII*.

Salvadori mentions a specimen in the museum at Turin, received from Sardinia. It is of rare occurrence.

†-184. *CALIDRIS ARENARIA*.

Not uncommon.

185. *GALLINAGO GALLINULA*.

Common during winter.

. 186. *GALLINAGO MEDIA*.

Extremely abundant in the marshes round Oristano and Cagliari, and in all suitable localities.

187. *GALLINAGO MAJOR*.

Passes in spring.

†-188. *SCOLOPAX RUSTICULA*.

Used to be much more numerous than of late years, but still is to be found in considerable numbers in certain favourable localities.

†-189. *NUMENIUS ARQUATUS*.

Moderately common in winter.

190. *NUMENIUS TENUIROSTRIS*.

Occurs in the island, but is not very common.

†-191. *NUMENIUS PHEOPUS*.

Common in winter.

†-192. *IBIS FALCINELLUS*.

Occurs not uncommonly during the winter. There is a good series in the museum at Cagliari.

193. *GRUS CINEREA*.

A few pass during both migrations; and some remain through the winter. They leave in March or early in April.

-†-194. *ARDEA CINEREA*.

Very common during winter amongst the large shallow lagoons full of fish, which are most suitable and favourite breeding-places.

195. *ARDEA PURPUREA*.

There are specimens in the museum killed during the mi-

gration. This species is not very common, being merely a bird of passage; none remain to breed.

196. *EGRETTA ALBA.*

Very common in winter.

197. *EGRETTA GARZETTA.*

Common all the year, frequenting the large lagoons. Their numbers are increased during winter.

198. *BUPHUS BUBULCUS.*

Of rare and doubtful occurrence.

199. *BUPHUS RALLOIDES.*

Passes in spring.

200. *ARDEOLA MINUTA.*

Like the preceding species passes in spring, but is not common.

201. *BOTAURUS STELLARIS.*

A winter visitor. I never met with any myself; but I believe they are not uncommon.

202. *NYCTICORAX GRISEUS.*

Passes in spring. A few remain during winter.

203. *CICONIA ALBA.*

Of rare and accidental occurrence.

204. *CICONIA NIGRA.*

Commoner than the preceding species. Salvadori mentions having seen some in January at the mouth of the river Fangario, near Cagliari.

205. *PLATALEA LEUCORODIA.*

Not uncommon during winter. There are several specimens in the museum.

206. *PHÆNICOPTERUS ROSEUS.*

Large flocks of Flamingos are to be seen all the winter through on the "stagnos" of Scaffa and Quarto, which lie one on each side of Cagliari, moving backwards and forwards from one to another, according as they are disturbed. They also visit in considerable numbers some of the larger lagoons round

Oristano. I was greatly surprised to find, as late as the 7th of June, 1871, a flock of from five to six hundred of these birds, still remaining about the stagno of Quarto, near Cagliari; and during the several days I watched them, they showed no signs of restlessness, nor any desire to change their quarters, but seemed in every way to have settled for the summer. I was informed by Signor Cara (whom I always found most courteous and obliging in giving me any information he possessed) that it was extremely unusual for *such a large number* to remain during the summer, but that a *few* invariably did so. They certainly do not breed there now, as a sharp look-out is kept for their nests, and they could not escape observation. Amongst the flock I noticed nearly as many adult birds as young; otherwise I should have imagined it was only the young birds of the previous year that remained during summer. Early in the day the flock was scattered all about the stagno in small parties of forty or fifty, feeding round the shores; but towards three or four o'clock in the afternoon they all collected in one long line, extending quite a quarter of a mile, near the centre of the stagno, where they slept with their heads under their wings. They were extremely wild and shy, rising a long way off, with loud harsh cries.

207. PHENICOPTERUS ERITHACUS.

I noticed a great difference in size in many individuals of the flock above mentioned; perhaps some might have been of this species, which is included in Salvadori's list.

+ 208. CYGNUS MUSICUS.

There are no specimens in the museum at Cagliari; but they are, I believe, not uncommon during winter.

209. CYGNUS OLOR.

Varies in numbers according to the severity of the winter. Is the commonest wild Swan that visits the island.

210. ANSER FERUS.

A common winter visitor.

+ 211. ANSER SEGETUM.

Common in winter. During the autumn migration large

flocks of either this or the preceding species pass over Genoa, generally during the night, flying very high, with much loud cackling.

212. *VULPANSER TADORNA.*

Not uncommon in winter. Cara states they breed in the island.

+ 213. *RHYNCHASPIS CLYPEATA.*

Very common in winter.

214. *QUERQUEDULA CIRCIA.*

I saw several pairs on the stagnos at Oristano in March, but I do not know whether any remain to breed.

+ 215. *QUERQUEDULA CRECCA.*

Extremely numerous during winter, going in flocks of forty or fifty. Considerable numbers remain and breed.

216. *ANAS MARMORATA.*

A rare visitant; but Salvadori mentions two well-authenticated instances of its occurrence.

+ 217. *ANAS STREPERA.*

Common in winter.

+ 218. *ANAS BOSCHAS.*

Very numerous, being found during winter in large quantities on all the stagnos. Numbers remain and breed.

+ 219. *DAFILA ACUTA.*

I saw a few at Oristano; but they are by no means numerous.

+ 220. *MARECA PENELOPE.*

Extremely common in winter; but the greater number left long before any of the other Anatidæ. Several times during the first week in March, when camped out on the top of the mountains, on fine clear nights I heard the wild whistle of several flocks of Widgeon as they flew over me very high in a northerly direction.

221. *ERISMATURA LEUCOCEPHALA.*

I frequently saw this bird near Oristano in company with large flocks of Tufted Ducks &c., but never succeeded in se-

curing a specimen. They were not numerous, and seemed to go singly or in pairs; and I never saw more than two together, more frequently single birds. I watched a fine old male one day, for a long time, feeding by himself in the middle of a small lake, but always safely out of shot; he was diving strongly and vigorously, dashing himself under the water, where he remained a considerable time. Their peculiar attitude in the water, along with their short, broad, pale-blue bill, gives them a most quaint appearance.

+ 222. *FULIGULA RUFINA*.

This bird, I think, arrives with the other other Ducks and spends the winter in the island: as early in March they were moderately common at Oristano. The males have a peculiarly handsome appearance on the water, with their bright-red bills and black breast-plates shining and glistening in the sun as if they were polished. "Some breed on the little island of the stagno of 'Scaffa' amongst the reeds and canes" (Salvadori).

223. *FULIGULA FERINA*.

Abundant in winter.

224. *FULIGULA NYROCA*.

Amongst the crowds of Ducks on the different stagnos I never could distinguish this species, and I think it is one of the rarest. It is included in both Cara's and Salvadori's lists.

225. *FULIGULA MARILA*.

Of accidental occurrence.

226. *FULIGULA CRISTATA*.

This, I think, is the most numerous of the Anatidæ in Sardinia: they are to be seen sitting by hundreds on all the stagnos, generally mixed up with Mallards, Pochards, Common Teal, Garganeys, Pintails, Gadwalls, Coots, &c., with occasionally a single *Erismatura leucocephala* bobbing up and down with his white shining head in the middle.

227. *GLAUCION CLANGULA*.

This Duck is not very common. I saw a few fine adult males near Oristano.

228. *ÆDEmia FUSCA.*

Very rare. There is a single specimen in the museum at Cagliari.

+ 229. *MERGUS ALBELLUS.*

Of not uncommon occurrence in winter.

230. *MERGUS CASTOR.*

The rarest of the genus. There is one specimen in the museum, a female or young male.

+ 231. *MERGUS SERRATOR.*

Common in winter.

232. *PELECANUS ONOCROTALUS.*

Of very rare and accidental occurrence.

+ 233. *PHALACROCORAX CARBO.*

Extremely common. I one morning early in March counted forty-three in one flock flying like wild Geese from the sea to feed during the day on the stagno of "Scaffa." Many of them had the white spot on the hip.

234. *PHALACROCORAX DESMARESTII.*

There are several named specimens of this very doubtful species in the museum. They are all in immature plumage, with one exception, and differ from the young of the following species in having the breast and belly of a more decided white, with a definite median stripe of still purer colour, about an inch in breadth, running down the front of the throat.

235. *PHALACROCORAX GRACULUS.*

If the former species is indeed distinct, the occurrence of the Shag in this island is, I think, doubtful.

236. *PHALACROCORAX PYGMÆUS.*

Rare. There is one specimen preserved in the museum.

+ 237. *STERNA CASPIA.*

I did not meet with this Tern during any of my visits; but it is stated by Cara to be not uncommon, and Temminck mentions its having been found breeding in the north of the island (Man. Orn. iv. p. 454).

+ 238. STERNA ANGLICA.

Salvadori mentions having received two specimens from Sardinia, that were killed there in May 1868. Two others, killed at the same time, were presented to the museum at Cagliari.

239. STERNA CANTIACA.

Very common, and breeds in the island.

240. STERNA FLUVIATILIS.

Common in summer. I am not sure that any remain during winter.

241. STERNA MINUTA.

A small flock passed over my head one day early in May near St. Antioco, the only time I ever saw them. "They breed in the island" (Salvadori).

+ 242. HYDROCHELIDON LEUCOPTERA.

Passes in spring, but is not common.

243. HYDROCHELIDON FISSIPES.

Not uncommon during summer.

+ 244. LARUS MINUTUS.

Found at all seasons, but not numerous.

245. LARUS MELANOCEPHALUS.

From the Straits of Bonifacio and northwards this Gull was extremely common, following in the wake of the steamer, and several pairs were always in sight. By the 15th of March a great number had already assumed their black head, and the tips of their primaries were pure white; after that date along the coast of Genoa and Leghorn, where they are extremely numerous, few are to be seen in their winter dress.

On one occasion I saw a pair commit an atrocious piece of cruelty on an unfortunate small bird (a Wagtail, I think, by its flight), which was vainly trying to overtake the steamer, evidently nearly exhausted, having only sufficient strength left to clear the waves. It was at once seen by a pair of these Gulls that were hovering hungrily round the stern, and they immediately gave chase. After one or two unsuccessful swoops pluckily and skilfully evaded by the Wagtail,

one of the Gulls knocked it into the sea, lighting beside it, got up, and flew away with it in his bill; but he did not go far before he dropped it, and the poor exhausted little bird made a dying attempt to reach the steamer, his only refuge; but it was of no use, as he was almost immediately caught again and killed. I dare say this is by no means an uncommon fate of many of our smaller summer migrants.

246. *LARUS RIDIBUNDUS*.

Very common all the year.

247. *LARUS GELASTES*.

There are three very fine specimens in the museum. I never saw any. Cara states it is not uncommon, and resident.

+ 248. *LARUS CANUS*.

Not uncommon along the east coast.

249. *LARUS AUDOUINI*.

Cara mentions a specimen killed near the island of Maddalena in the north of Sardinia in 1858. I think it is extremely rare; and I never succeeded in securing a specimen. It is *said* to be not uncommon about the Straits of Bonifacio.

There is a very fine adult specimen in the Museo Civico at Genoa, which was taken near Savona. The measurements of this specimen are as follows:—Wing 14·5 inches, tarsus 2·2, beak from gape 2·4, extreme depth of beak when shut ·5.

250. *LARUS LEUCOPHÆUS*.

Extremely common about the lagoons of Cagliari and Oristano, going generally in pairs. I one day saw a very exciting chase between this Gull and a Common Bald Coot, which he had after a good deal of trouble singled out of a large flock. The chase lasted for fully five minutes, the Gull being much the fastest of the two, and the Coot only escaping by the most marvellously rapid doubling and turning, sometimes (when he got a chance) dashing himself into the middle of a large flock, which always deserted him in a most cowardly manner, scattering in all directions. At last, getting tired, he was overtaken by the Gull when a considerable height in the air, and knocked senseless into the water with a splash;

the Gull then seemed perfectly satisfied and content, and flew away, taking no further notice of him. The Bald Coot gradually recovered; and after swimming about for a few moments, his senses being evidently in a confused condition, he got up and flew away as if nothing had happened. It is curious that a few moments before I had wounded a Coot—which fell dead about a quarter of a mile from me, and, before I could reach the spot, was nearly devoured by a pair of these Gulls.

251. *LARUS FUSCUS.*

Not uncommon in autumn (*Cara*).

+ 252. *LARUS MARINUS.*

Not common.

† 253. *RISSA TRIDACTYLA.*

The occurrence of this Gull is doubtful.

† 254. *THALASSIDROMA PELAGICA.*

Common round the coast.

† 255. *OCEANITES OCEANICA.*

There is an undoubted specimen of this rare European visitant in the museum at Cagliari, first identified by Dr. Salvadori. It is stated to have been killed near the town.

† 256. *PUFFINUS CINEREUS.*

Very common all round the coast. I have noticed them especially off the S.W. corner of the island.

† 257. *PUFFINUS ANGLORUM.*

Common round the coast at all seasons.

† 258. *ALCA TORDA.*

Of rare occurrence.

† 259. *FRATERCULA ARCTICA.*

Rare and accidental.

† 260. *FRATERCULA GLACIALIS.*

There is a specimen under this name in the museum; but I think it is nothing but an ordinary variety of the preceding species.

+ 261. COLYMBUS SEPTENTRIONALIS.

Not uncommon during winter.

+ 262. COLYMBUS GLACIALIS.

Very rare. There is a specimen of an immature bird in the museum.

263. PODICEPS CRISTATUS.

Visits the large lagoons in great quantities during winter, where they are hunted and shot down systematically. None are allowed (at any rate near Cagliari) to remain to breed.

264. PODICEPS LONGIROSTRIS.

There is an extraordinary-looking specimen of a Grebe in the museum under this name; but as I was unable to handle it, I could not examine it satisfactorily.

265. PODICEPS NIGRICOLLIS.

Extremely numerous during winter, remaining until the end of March, when they nearly all leave. I am not sure whether any remain to breed.

266. PODICEPS MINOR.

Extremely common, but not so numerous as the preceding species. They are resident in the island.

XL.—On *Rallus modestus* of *New Zealand*.

By Capt. F. W. HUTTON.

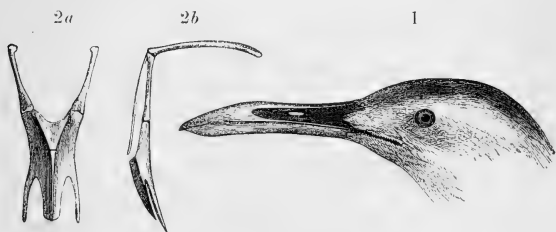
IN his remarks on *Rallus dieffenbachii* ('Birds of New Zealand,' p. 180) Dr. Buller says, "after carefully comparing therewith [*i. e.* with the type of *R. dieffenbachii*] the type specimen of Hutton's *Rallus modestus* (forwarded to me by Dr. Hector), and submitting the matter to the judgment of other competent ornithologists, I have no hesitation in considering it the same species in an immature state of plumage." It is to be regretted that Dr. Buller has not given the names of the "other competent ornithologists;" for naturalists do not generally give anonymous opinions on scientific subjects; but whoever they may be, I venture to think that they have in this case made a very serious error, and I trust that I may be allowed to state my reasons for thinking so.

I labour under the difficulty of never having seen the specimen of *R. dieffenbachii*; but I presume that it is closely allied to *R. philippensis*—in fact, that it represents that bird in the Chatham Islands. I judge so from both species having been put into the same subgenus (*Hypotaenidia*), from both being of about the same size, and from both having the colouring similar in style, and nearly so in tint; in fact so similar are they that it appears to me doubtful whether *R. dieffenbachii* should be retained as a distinct species. Now *Rallus modestus* belongs to a different subgenus (or genus, as I should prefer to call it) from *R. philippensis*, and approaches more nearly to the true type of *Rallus* as exhibited by *R. aquaticus*, although it differs from that bird also sufficiently to form at least another subgenus. The bill is rather stronger than in *R. aquaticus*, and more arched; the nostrils are oval, and placed in the middle of the groove, instead of being linear and subbasal. The wings are very short, with only about fourteen remiges, the inner of which are very small, soft, and downy, while the outer webs of the outer quills are as soft as the inner webs, as in *Ocydromus*; the fourth and fifth quills are the longest, and the first is nearly as long as the second. The thumb is very long and carries a small compressed claw at the end, which is shaped like the claws on the toes. The inner toe is nearly as long as the outer; the hind toe is short, very slender, and placed on the inner side of the tarsus; the claws are short, compressed, and blunt; the tongue is long, narrow, and fringed at the tip.

From *R. philippensis* it differs still more, as the following table of measurements will show:—

	Length.	Expanse.	Tail.	Wing.	Bill from gape.	Culmen.	Tarsus.	Hind toe.	Innertoe.	Middle toe.	Outer toe.
<i>R. dieffenbachii</i> ..	12.25	....	4.75	3.25	1.5	1.45	1.5	.6	....	1.75	....
<i>R. philippensis</i> ..	12.0	17.5	5.5	2.5	1.75	1.6	1.5	.65	1.58	2.0	1.65
Ditto, young	8.8	....	....	....	1.0	.8	1.5	.48	1.17	1.6	1.2
<i>R. modestus</i>	8.75	8.5	3.15	1.15	1.4	1.35	1.0	.35	1.11	1.4	1.13
Ditto, chick	5.3	....	....	....	1.1	1.0	1.0	.35	.98	1.2	.98

The bill is much more slender (see fig. 1), and longer in proportion to the size of the bird than in *R. philippensis*; the wings are of an entirely different structure; and the tail is very short and soft, and hidden by the coverts; the hind toe also is much more slender; and *R. philippensis* has no claw at the end of the thumb. The sterna also show a great contrast, that of *R. modestus* being very short but comparatively broad (see fig. 2a), with the crest feebly developed, the furcula being almost obsolete, and the scapula making a slightly obtuse angle with the coracoid, as in *Ocydromus** (see fig. 2b); while that of *R. philippensis* resembles in form the sternum of *Crex pratensis*.



Sternum and head of *Rallus modestus*.

Two full-grown specimens and a chick of *R. modestus* have been obtained. The one from which the skeleton in the colonial museum was prepared was caught in March 1871. Dr. F. Knox, who prepared the skeleton, informs me that it was a female, and contained well-developed ova, and that he considered it an adult bird. The other specimen, the skin of which was sent to Dr. Buller, was caught by Mr. H. Travers on the 5th of January, 1872, together with a chick that was running with it. Mr. Travers informs me that both parent birds were with the chick, that no birds of other species were about, and that when he caught the chick it cried out, the mother then ran up, and he caught her also. The peculiar claw at the end of the thumb, as well as the general dimen-

* The sternum, however, is much smaller in proportion to the size of the body in *R. modestus* than it is in *Ocydromus*.

sions of the birds, are also conclusive evidence that the chick is the young of the older bird. The bird caught in March is of the same size as the one caught in January; and the plumage of both is identical. The chick has a greyish patch on each ear, the rest of the body being covered with brownish-black down, under which feathers are beginning to come forth similar in colour to those of the old bird; the quills have not yet begun to shoot.

Now the bird caught in January must have been at least a year, and the one caught in March probably fourteen months old; yet neither of them shows any approach to the plumage of *R. dieffenbachii*, while both have the tarsi and feet much smaller, whereas the bill is nearly as long as in that species. But the dimensions given above show that the legs and feet in young Rails attain the same dimensions as in the the adult before the bill does; for the measurements given of the young *R. philippensis* are from a recently fledged specimen in the colonial museum, which, except in the head and neck, shows already a marked approach in colours to the adult, although the quills are not yet developed.

Laying aside therefore all the generic differences between the two birds that I have pointed out, we must assume, if *R. modestus* is the immature *R. dieffenbachii*, that this species differs from its nearest allies, as well as from all other Rails, in the young not assuming any signs of the adult dress until it is more than a year old and has bred, also that the legs of the chick grow to the same size as those of the immature bird in about a month, and that growth then stops for at least a year or until the adult plumage commences to be acquired—any of which suppositions, I venture to think, not many “competent ornithologists” will believe. For my part, I think the bird is quite entitled to form a separate genus.

The weight of the bird is 1·4 ounce; it inhabits rocky places on the island of Mangare, one of the Chatham group. It is worthy of remark that the Morioris call this bird “Matirakahu,” whils the Maoris call *R. dieffenbachii* “Mohoriki.”

Wellington, N. Z., March 12, 1873.

XLI.—Notes on the Trochilidæ. The Genus *Thalurania*.

By OSBERT SALVIN, M.A. &c., and D. G. ELLIOT, F.L.S., F.Z.S., &c.

[Continued from page 279.]

THE genus *Thalurania* is one of the most clearly distinguished of those composing the family of the Trochilidæ; and its members are always easily recognizable by the distribution of their colours, which exhibit great similarity among the species. Their geographical range is confined to the more tropical portions of America, no species extending south of the central provinces of Brazil, or reaching as far north as Nicaragua. *Thalurania* is essentially a lowland genus, none of the species being found in the higher mountain-ranges. The members of the genus are also forest-loving, and hence they are absent from the sterile regions of Western Peru. In Brazil *T. glaucopsis*, *T. eriphile*, and *T. wayleri* are found, the second of these extending across the Amazonian valley to the head-waters as far as the eastern slopes of Columbia. Para gives us one species, the *T. furcatoides*, barely distinguishable from the Cayenne bird, *T. furcata*. Guiana produces, besides the last mentioned, the *T. watertoni*, a rare and beautiful species. In Columbia the *T. columbica* is found, which extends northwards through the Isthmus of Panama to Nicaragua. A single species, *T. lucia*, from the Tres Marias Islands, by far the most northern locality in which any member of the genus has been found, and as much out of its range as *Psittacula cyanopygia* among the Parrots, has been described by Mr. Lawrence. The type is in the Smithsonian Institution, Washington. To the island of Trinidad a single species appears restricted; at least we have no knowledge of its occurrence on the mainland; it is the *T. refulgens*. Another species, the *T. nigrofasciata*, ranges apparently through Ecuador and portions of Peru; and the *T. hypochlora* is also found in the former country, while Columbia is given as the habitat of *T. lerchi*.

On carefully comparing the various birds composing the genus *Thalurania*, we find that eleven species can be fairly

distinguished, one of which, however, *T. lucia*, appears somewhat doubtful; but beyond those given in the present paper, we see at present no grounds for maintaining other species.

The genus *Thalurania* is apparently divisible into five sections, with sufficient characters to enable each species to be readily referred to the one to which it properly belongs. The sections are:—

- A. Species with the top of the head purplish blue.
- B. Species with top of the head dull green.
- C. Species with top of head and back jet black.
- D. Species with top of head brilliant metallic green.
- E. Species with head and neck deep rich purplish blue.

Division A.

- A. Species with entire underparts green.
 - a*. "Bill entirely black; thighs dark brown, tipped with white; feet brown above, yellow below" 1. *T. glaucopsis*.
 - b*. "Bill partly yellow; thighs nearly pure white; feet very pale" !! 2. *T. lucia*.
- B. Abdomen prussian blue 3. *T. columbica*.

Division B.

- Underparts rich purple. Tail much forked 4. *T. furcata*.
- Underparts purplish blue. Tail slightly forked .. 5. *T. furcatoides*.
- Underparts prussian blue 6. *T. nigrofasciata*.
- Back blue. Tail deeply forked 7. *T. watertoni*.

Division C.

- Size large. Tail deeply forked; underparts prussian blue 8. *T. refulgens*.

Division D.

- Back green; underparts prussian blue 9. *T. eriphile*.
- Underparts green 10. *T. hypochlora*.

Division E.

- Body brilliant metallic green. Tail forked 11. *T. wagleri*.

1. THALURANIA GLAUCOPIS.

Trochilus glaucopis, Gmel. Syst. Nat. i. p. 497.

Thalurania glaucopis, Gould, Mon. Troch. vol. ii. p. 99;

Intr. Trochil. p. 76.

Hab. Brazil.

This well-marked species, one of the largest of this genus, is an inhabitant of Eastern Brazil, where it is apparently very common.

We have examined the following specimens:—

Rio Janeiro: one (*Youds*), Mus. S. & G. Bahia: one (*Wucherer*), Mus. S. & G. Brazil: two, Mus. S. & G.; two (*ex Gould*), Mus. D. G. E.; one (*Verr.*), Mus. P. L. S.

†2. THALURANIA LUCIÆ.

Thalurania luciæ, Lawr. Ann. Lyc. Nat. Hist. N. Y. (1862), vol. vii. p. 2.

Hab. Tres Marias Islands.

Of this species we have never seen a second example, the type being in the collection of the Smithsonian Institution. It is the most northern species of the genus—the *T. eriphile* (*venusta*, Gould) having been, before the discovery of the present bird, always considered as going further north than any of its relatives, viz. to Nicaragua. According to Mr. Lawrence *T. luciæ* closely resembles *T. glaucopis*! the differences being that the Brazilian bird has “the bill entirely black, the covering of the thighs dark brown tipped with white, and the feet brown above and bright yellow below, whereas in the new species the bill is partly yellow, the thighs nearly pure white, and the feet very pale.” We should hardly consider the characters thus given by Mr. Lawrence sufficient to establish a species.

†3. THALURANIA COLUMBICA.

Ornismya columbica, Bourc. & Muls. Rev. Zool. 1843, p. 2.

Thalurania columbica, Gould, Mon. Troch. vol. ii. pl. 106;

Intr. Troch. p. 78.

Thalurania venusta, Gould, P. Z. S. 1850, p. 163; Intr. Troch. p. 78.

Hab. Costa Rica, Veragua, and Columbia.

With numerous specimens before us from all the different localities, we do not find that the form named by Mr. Gould *T. venusta* is separable from the present bird. In the original description *T. venusta* is compared to *T. furcata*, from which it certainly differs. But the latter does not appear to be its closest ally. Mr. Gould describes his specimen of *T. venusta*, from the volcano of Chiriqui, as having the head, neck, and back a "beautiful shining ultramarine blue," which renders it "unlike every other member of the genus. In specimens before us from Veragua, Costa Rica, and Panama, we do not find this coloration to exist, but, on the contrary, the back of the neck, behind the blue cap, and the upper portion of the back are black, precisely as in *T. columbica*. There seems to be a slight variation in length of bill; but this is not confined to any particular locality, as we find examples from the same place possessing bills of different lengths; so that this can only be looked upon as an individual peculiarity. The range of the species seems to be from Nicaragua southward through the Isthmus of Panama into Columbia.

We have examined the following specimens:—

Costa Rica: three (*Arcé*), Mus. S. & G. Veragua: five (*Arcé*), Mus. S. & G.; one (*Arcé*), Mus. D. G. E. Panama: one (*Arcé*), one (*Hughes*), three (*McLennan*), Mus. S. & G.; one (*McLennan*), Mus. P. L. S. Columbia: two (*Stevens*), three (*Nelson*), Mus. S. & G.; three, Mus. D. G. E.

4. THALURANIA FURCATA.

Trochilus furcatus, Gmel. Syst. Nat. vol. i. p. 486.

Thalurania furcata, Gould, Mon. Troch. vol. ii. pl. 101; Intr. Troch. p. 77.

Hab. Cayenne.

This species, described long ago by Gmelin, is very distinct from all others of this genus. It is an inhabitant of Guiana, where it is very common, and hundreds of specimens are shipped annually to Europe.

Our specimens are as follows:—

Cayenne: one (*Edinburgh*), Mus. P. L. S.; one (*Gould*), three (*Verreaux*), Mus. D. G. E.; three, Mus. S. & G.

5. THALURANIA FURCATOIDES.

Thalurania furcatoides, Gould, Intr. Mon. Troch. p. 77.

Thalurania forficata, Cab. & Hein. Mus. Hein. p. 24, Th. iii.

Thalurania subfurcata, Heine, Journ. für Ornith. 1863, p. 181.

Hab. Para.

This is the Lower-Amazonian form of *T. furcata*, and while closely resembling that species, apparently differs constantly in possessing a much shorter and less forked tail. In the distribution of the colours of its plumage and their hues, it assimilates closely to *T. furcata*.

We include among the synonyms of this species the *T. subfurcata* of Heine, as we do not recognize any characters given by him in his description to lead us to consider it distinct from *T. furcatoides* from the same locality.

Para: one (*Verr.*), Mus. D. G. E.

6. THALURANIA NIGROFASCIATA.

Trochilus nigrofasciatus, Gould, P. Z. S. 1846, p. 89.

Thalurania nigrofasciata, Gould, Mon. Troch. vol. ii. pl. 104; Intr. Troch. p. 78.

Thalurania tschudii, Gould, P. Z. S. (1860), p. 312; Intr. Troch. p. 78.

Thalurania viridipectus, Gould, P. Z. S. 1848, p. 13.

Hab. Ecuador and Peru.

This species was first described by Mr. Gould in 1846 from specimens obtained in Ecuador. In 1860 Mr. Gould named a bird contained in the museum at Neuchatel, collected by Dr. Tschudi in Peru, *T. tschudii*. Specimens of this form have also been procured by Mr. Hauxwell at Pebas, and by Mr. Bartlett at Chyavetas and Chamicuros; and Mr. Hauxwell has also sent from Pebas examples of *T. nigrofasciata*. The chief difference between these forms, as stated by Mr. Gould, and which has induced him to give them each specific rank, is, that the green of the throat in *T. nigrofasciata* is carried down upon the breast somewhat to a point, and surrounded by a narrow black band, while *T. tschudii* has the throat-mark truncated in shape and destitute of a black band. That the

black is not always present, however, is evidenced by the fact that Mr. Gould had named examples among his *T. nigrofasciata* destitute of this band, *viridipectus*. This mark therefore cannot be taken as an indication of specific value. The shape of the throat-mark also varies greatly in a number of individuals; and two are now lying before us, from Elliot's collection, obtained by Mr. Bartlett at Chyavetas and Chamicuros respectively, of which the former has the green of the throat extending well down on the breast, with a slight indication of black edging, while the latter has a square truncated mark destitute of any black band whatever. It would therefore appear that these two forms cannot be separated specifically, but that the single species should stand as *T. nigrofasciata*, the name first applied to it by Mr. Gould, and that it extends through Ecuador into Peru.

We have examined the following specimens:—

Rio Napo: two (*ex Gould*), Mus. P. L. S.; one (*ex Gould*), Mus. D. G. E. Ucayali: one (*ex Gould*), Mus. D. G. E. Ecuador: one (*Buckley*), Mus. S. & G. Pebas, Peru: two (*Hauxwell*), Mus. S. & G. Chamicuros: two (*Bartlett*), Mus. D. G. E. Chyavetas: two (*Bartlett*), Mus. D. G. E. Guiana, Oyapock: five (*Verr*), Mus. D. G. E.

7. THALURANIA WATERTONI.

Trochilus watertoni, Bourc. P. Z. S. 1847, p. 44.

Thaluria watertoni, Gould, Mon. Troch. vol. ii. pl. 100; Intr. Mon. Troch. p. 76.

Hab. British Guiana.

This very distinct species was described by Bourcier from a specimen in the Loddiges collection obtained by Mr. Waterton on the Mibiri creek, near the river Essequibo. It is remarkable for its very long and deeply-forked tail. But few specimens of it are known, and it still remains a desideratum to our collections.

8. THALURANIA REFULGENS, Gould, P. Z. S. 1852, p. 9; id. Mon. Troch. vol. ii. pl. 102; id. Intr. Mon. Troch. p. 77.

Hab. Trinidad.

This bird, among the largest of this group, is apparently a

valid species, and seems restricted to the island of Trinidad, where it is not uncommon. It may probably also be found in Venezuela; but we have not seen any specimens from that country.

Our specimens are:—

Trinidad: one (*Bourcier*), one (*Whitely*), Mus. D. G. E.

9. THALURANIA ERIPHILE.

Ornismya eriphile, Less. Hist. Nat. Colibris, p. 148, pl. 25.

Thalurania eriphile, Gould, Mon. Troch. vol. ii. pl. 108;

Intr. Mon. Troch. p. 79.

Trochilus verticeps, Gould, Jard. Contr. Ornith. 1851, p. 79, pl. 71.

Thalurania verticeps, Gould, Mon. Troch. vol. ii. pl. 107; Intr. Mon. Troch. p. 78.

Trochilus fannyi, Bourc. et Delatt. Rev. Zool. 1846, p. 310.

Thalurania fanniæ, Gould, Intr. Mon. Troch. p. 78.

Hab. Brazil, Ecuador, and Columbia.

This species was described and figured by Lesson in his 'Histoire Naturelle des Colibris' from specimens obtained in Brazil; and Mr. Gould gave to the same bird from Ecuador the name of *verticeps*. We say the same bird; for, with specimen from both localities before us, we are unable to detect any difference whatever between them, and therefore have no hesitation in placing Mr. Gould's name as a synonym of *eriphile*, bestowed upon the species by Lesson. It will probably be found to range from Brazil up the Amazonian valley into Ecuador.

In 1846 Messrs. Bourcier and Delattre described a bird from Columbia as *T. fanniæ*. It is apparently inseparable from the present species. Mr. Gould compared a specimen from the "Andes of Quindiu," collected by Warszewicz, with Bourcier's type, and found the only differences to be that Bourcier's specimen was a little smaller, and the abdomen purple-blue instead of cold prussian blue. Regarding these slight variations of no specific value, we have placed *T. fanniæ* among the synonyms of *T. eriphile*.

Our specimens are:—

Brazil: one (*Leadbeater*), Mus. P. L. S.; one, Mus. S. & G.; one (*Bourcier*), one (*Verr.*), Mus. D. G. E. Ecuador: one (*ex Gould*), Mus. P. L. S.; two (*ex Gould*), Mus. S. & G.; two (*Whitely*), one (*Bourcier*), one (*ex Gould*), Mus. D. G. E.

10. THALURANIA HYPOCHLORA.

Thalurania hypochlora, Gould, P. Z. S. 1870, p. 104.

Hab. Citado, in Ecuador.

This species was lately described by Mr. Gould from a single specimen brought from Ecuador by Mr. Buckley. It is very distinct, having *T. eriphile* for its nearest ally, but differing materially from it in having the underparts green instead of blue.

+11. THALURANIA WAGLERI.

Ornismya wagleri, Less. Hist. Nat. Ois. Mouch. pl. 203, pl. 73.

Thalurania wagleri, Gould, Mon. Troch. vol. ii. p. 109; Intr. Mon. Troch. p. 79.

Hab. Brazil.

This species may be at once distinguished from all the members of this genus by the male having the entire head and neck of a brilliant purplish blue. It is a native of Brazil.

Our specimens are:—

Brazil: one (*ex Gould*), Mus. S. & G.; one (*Bourcier*), one (*Sallé*), one (*Whitely*), Mus. D. G. E.

Besides the species above mentioned, there remain two others, on which we can give no opinion. These are:—

(1) THALURANIA LERCHI.

Thalurania lerchi, Muls. & Verr. Ann. Linn. Soc. Lyons (1868).

Hab. Columbia.

This bird was described by Messrs. Mulsant and Verreaux, in 1868. We have not seen the type, which we believe to be unique, and are unable to give any opinion regarding it.

(2) THALURANIA IOLÆMA.

Thalurania iolæmus, Von Pelz. Ornith. Bras. p. 57.

Hab. Ypanema, Brazil.

Not having seen the type of this species, we are unable to form an opinion regarding it.

XLII.—Notes on Chinese Ornithology.

By ROBERT SWINHOE, F.Z.S. &c.

THE last good thing I got at Ningpo was a very fine female specimen of *Ceryle lugubris*, shot by a friend near a stream at the foot of the mountains. The strangest part of the plumage of this bird is the pretty russet-coloured axillaries tinted like salted salmon. Curiously enough, Sharpe makes no mention of this in his 'Monograph of the Kingfishers,' thereby leading me to consider I had got a new species, until I was put right by a reference to Jerdon's 'Birds of India.' In the monograph the Himalayan bird is described in the text as having brownish-black legs; but the plate shows them, together with the claws, of a tile-red. My specimen is smaller than the Nagasaki bird, whose measurements are given, though not so small as the Himalayan; and I agree with Mr. Sharpe that it is not possible to put the two birds apart.

I have only seen *Ceryle guttata* up the country here on one or two occasions. It is fond of streams and canals flanked by trees and thick bushes, among which it sits watching for its prey. When disturbed it starts silently and flies down stream, keeping within a yard or so of the water. I have never seen it hover, like its congener, at a good height above the water. In fact, it more nearly resembles in manners the King of the Shrimps (*Alcedo bengalensis*) than any of our other species.

Ceryle rudis is a very rare bird in Ningpo; and I have only seen it on one or two occasions. On the Yangtse it did not occur till we were nearly up in Szechuen, where the river was well south.

I was relieved of my charge at Ningpo, and took up my

residence in Shanghai on the 7th February. Here I shall remain till the middle of the month (April), when the weather will have sufficiently moderated in the north to allow of my going to my new post at Chefoo. In Shanghai, in spite of my paralytic infirmities, I have been able to get about on the wheelbarrows that serve the natives of the settlement for hansom-cabs. I take a wheelbarrow to market every other morning, and have done so for the whole two months I have spent in this very pleasant town. By this means I have studied the wild fowl which pass the shooting-grounds that provide the market, and have gained some tolerable additions to my collection. I had not been in Shanghai more than a week, when one sunny morning, with the thermometer at freezing-point, as I was passing under a group of willows which overhang the road, my attention was attracted by a strange noise overhead, and, looking up, I saw a party of Waxwings. There were about fifteen of them, sitting like Hawfinches about the trees, with ruffled plumage, as if nipped by the cold. They were all engaged in the chorus, which consisted of a series of jingling notes like the sound produced by light pieces of metal shaken together, with a slight additional noise of sniffing. Is this the garrulousness indicated by the name *Ampelis garrula*? If so, the author of the name must have had a very sensitive ear. They flew away in small parties, those remaining continuing the song, until all had taken wing. On the 1st March I was delighted to see a number of them on a tree in my own garden, dropping down on to the lilac trees and feeding on their black berries. I secured three specimens, two males and a female. These were tinged with soot-colour, like, but not so strongly as our Sparrows, which arises in these last from their habit of repairing for warmth to the chimney-stacks on the tops of our houses. A Waxwing, shot in the country, was given me which was free from such stain. I took down the following notes on my first three specimens:—

Ampelis garrula, ♂. Spec. A. Length 7·4 inches. Wing 4·6; first quill ·12 shorter than second, the longest, falls ·87 short of tip of tail, 1·6 longer than tip of tertiaries. Tail

2·5, of twelve nearly equal feathers; under tail-coverts $\frac{1}{2}$ inch short of tail-tip; upper tail-coverts ·92 short of tail-tip. Six vermilion wax tips on each wing.

B, ♀. Length 7·4 inches. Wing 4·42, first quill ·10 shorter than second. Yellow terminal spots on outer webs of quills pale and washed out. Five wax tips on left side, seven on the right. Slightly more yellowish on the belly. Under tail-coverts reach to end of tail.

C, ♂. Length 7·2 inches. Wing 4·4, first and second quill equal and longest. Terminal quill-spots pale and mixed with white, but yellower than in B. Red wax tips, four on each side. Under tail-coverts reach to ·14 from tip of tail.

The sexes were determined by dissection. The stomachs contained seeds of berries, and a few larvæ of insects. The trachea of the male is larger and broader than that of the female.

A look into 'The Ibis' for January 1873 takes me back for a few minutes to Ningpo. Mr. Blyth (page 80) speaks of the occurrence in India of both *Rallus indicus* and *R. aquaticus*. At Tientsin I got the former, as recorded in my last catalogue. I was therefore not a little surprised to get at Ningpo, on the 20th November, a veritable *R. aquaticus*. It was a male, with yellow iris and red bill, wanted the facial mark, and was of somewhat small size.

On the 26th February I found a fine male specimen of the Solitary Snipe hanging up in the Shanghai market. As this is the first instance of my procuring this species in China, I will give a short account of it.

Gallinago solitaria, ♂. Length 11·8 inches. Wing 6·3, reaching to $\frac{1}{2}$ an inch of end of tail; first quill slightly longer than the second and longest, ·3 longer than the longest tertiary. Tail 2·9; *outer* rectrix 1·35 shorter than centrals and about ·12 broad; *second* rectrix rather broader and longer; *third* double the breadth and about ·22 longer; *fourth* broader again, and ·28 longer; *fifth* much broader than the last, and ·31 longer than the first or outer; the sixth and some five or seven others (number imperfect in the specimen) ordinary scolopacine tail-feathers. Bill from forehead 3 inches, from

gape 2·9, depth at base ·38, colour yellowish brown, black on apical third, greenish at base. Ear large, ·25 below eye in direct line. Tibia bare for ·32; length of tarse 1·4, of middle toe and claw 1·65; outer toe longer than inner; colour of toes yellowish brown strongly tinged with green; claws black. The black of the upper part of the plumage is glossed with purple.

Dissection. Stomach oval, flattened at its sides, lined with a movable thick rugose epithelium, containing small young *Viviparæ* and remains of freshwater insects. Intestines thin; cæca at some distance from the anus, very long and bulging at ends as in *G. scolopacina*.

The plumage of this specimen answers to the description in the 'Fauna Japonica' of the Solitary Snipe, but differs in the colour of the rump, and in the want of bars on the tertiary quills. If the authors of that work took their description from a Japanese specimen, then we must suppose that the species varies greatly. But I cannot help suspecting that the account is taken in fact from a Nepalese specimen as well, especially as Bonaparte separated the two birds. I must wait till I get more specimens; but I half believe that our bird is a conspecific of the Himalayan, and will have to stand as *G. japonica*, Bp. A friend from Ningpo, who was visiting me the other day, recognized the bird at once. He said he had shot them at Ningpo in winter. He has sprung them in retired places at the foot of the hills. When flushed they only fly a short distance and then drop. They are so large that they are sometimes mistaken for Woodcocks. There was a pair in Père David's museum at Pekin.

Snipes have been abundant in the market throughout my stay here; but *G. scolopacina* has been the only species. I have not detected a single *G. horsfieldi*. On the 4th April the first spring Snipes, *G. megalæ*, were offered for sale.

Archibuteo aquilinus is a commoner bird here than *Buteo japonicus*; I have procured two of the former to one of the latter. From the market I have also got *Circus cineraceus*, several of *Accipiter nisus*, and one young male *Falco aesalon*. I find that Père Heude's new Hawk (see 'Ibis,' January,

p. 96) is nothing but this species in young plumage. The market-men are unfortunately given to cutting off the claws of rapacious birds, that they may pass together with Rooks Jackdaws, Blue Magpies, Laughing Thrushes, &c. &c. for *gibier*; and if one is not sharp, one's servants are apt to serve up as game some curious species.

On the 26th March I was delighted to find a fine male specimen of Gould's "Post-horse Dotterel," *Eudromias veredus*, in nearly complete summer plumage, hanging in the market. This was also the first specimen of this species that I had procured. Why it was so far advanced in summer suit, when Sand-plovers generally are so late in changing, I cannot make out, unless this species is an earlier breeder. I took down the following notes from the fresh bird:—

Eudromias veredus, ♂. Length 9 inches. Wing 6·4, extending half an inch beyond the tail, and ·7 longer than the tertiaries. Tail 2·45, of twelve nearly equal feathers, the two centrals ·15 longer. Bill deep olive-brown, blacker on the terminal portion; length from forehead ·98, from gape 1·25. Eyelids greyish black. *Legs light brownish flesh-colour*; feet washed with grey, blackish on joints; claws black. Bare tibia 1 inch; tarse 2; middle toe ·9, its claw ·2. Throat and forehead pure white. Nape, eyebrow, and cheeks whitish, washed with buff and somewhat mottled and shaded with olive-brown. (In full nuptial plumage the whole head, except the crown, and neck become white; at least this is so in Père David's specimen in museum at Pekin.)

Dissection. Testes long ovate, about $\frac{1}{4}$ inch long, and white. Cæca long, thickening at ends. Gizzard small and oval, with strong lateral muscles, containing only a few small whitish worms, fragments of small mollusk-shells, and a few small pebbles.

I have fortunately a fine pair of *Eudromias asiaticus*, kindly presented me by Dr. Leopold v. Schrenck, of St. Petersburg, to compare with my Shanghai bird. The Russian specimens are marked, the male in full summer plumage, "shot June 1853, on the river Syr-Parja," and the female in winter plumage, "shot 30th January, 1858, on the river Syr-Parja."

The female has shorter wings than the male, and longer toes. The labels bear the name *Charadrius caspius*, Pall., and I suppose the river named is somewhere near the Caspian Sea (I cannot find it on any map I have access to*). Both the Russian specimens have the basal white patch on the outer web of the remiges, so that there can be no doubt that Mr. Harting is right, and Dr. O. Finsch, wrong in their identifications of two species ('Ibis,' 1870, p. 201, and 1872, p. 146). The Russian bird is the true *C. asiaticus* of Pallas. The characters given by Dr. Finsch for discriminating the species are excellent, except that he has guessed the colour of the legs of our bird from a dried skin. Neither of the illustrations to Mr. Harting's paper on these *Charadrii* ('Ibis,' 1870, p. 201) gives the complete summer plumage; and the colour of the legs of his *Eudromias veredus* is of course also an unfortunate guess. The pale collar round the neck, and the white wing-spot, both of which are unaccountably omitted, would in a drawing be far better distinctive characters. Where Mr. Harting found my authority for the occurrence of the western representative in "Northern China," I am unable to divine. Such an error ought to have been corrected long ago.

Out of our China list should be expunged the "White-eye," or "Ferruginous" Duck, *Aithya ferina*; for I now find that I took for it a female of Baer's Duck, *Fulix baeri*, and without sufficient scrutiny admitted the species. In spite of Mr. G. R. Gray, who insisted that it was a cross between *Anas boschas* and *Fulix cristata*, Baer's Duck turns out to be a good species; but it is by no means common, for I have only found four males and two females in the market. In my description of the male in P. Z. S. 1871, p. 419, I have given "greater wing-coverts white." It should be "secondaries white." And in the line above, where the head and neck are stated to be "black reflecting deep green," "and purple" should be added. The description is otherwise correct; but it is as well to mention that the vent is pure white, and the abdomen mottled across with brownish, and that in all my specimens, both male and female, the angle of the chin is

* Should not the name be Syr-Daria *i. e.* the Jaxartes?—P. L. S.

white, showing a distinct spot. As I have not before given dimensions, I will do so now:—

Fulix baeri (Radde), ♂. Length 18·5 inches. Wing 8·25; first quill ·1 longer than second, and largest. Tail 3·0, of fourteen stiff feathers, pointed, and nearly uniformly graduated, outer ·82 shorter than centrals. Wing falls 1·75 short of tail-tip. Bill from forehead's protruding angle 1·45, to gape 2; uniform breadth ·82. Small piece of tibia bare; tarse 1·48; middle toe and claw 2·45. In this specimen the head and neck are deep black reflecting purple, with a patch of deep chestnut on each side of crown.

Fulix baeri (Radde), ♀. Length 17·5 inches. Wing 7·7 from flexure to tip, 1·2 longer than tertiaries, 1·5 short of tail-tip. Tail 2·8, much graduated; laterals ·9 shorter than centrals; under tail-coverts ·95 shorter than tail-tip, upper tail-coverts 1·1 shorter. Bill 1·55 to forehead, 2 to rictus; height at base ·78; breadth ·90, a little narrower at base, and darker in colour than in the male. Tibia bare at joint; tarse 1·5; middle toe and claw 2·4.

Head and neck blackish brown with dull reflections; a patch of reddish brown on each side at base of bill; chin white mottled with reddish brown. Breast yellower and more diluted than in male, the colour not reaching down so low. Flanks brown. The rest as in male, but duller.

The commonest diving Duck in the market has been the Crested Duck (*Fulix cristata*), then Baer's Duck, then the Scaup (*F. marila*), and lastly the Golden-eye (*Bucephala clangula*). A few Velvet Scoters, *Ædemia fusca*, were offered. I bought an adult male, and was surprised to find what a large and hugely muscular stomach it had, containing bits of thick bivalve shells. A *Meretrix*, one inch in width, was in its œsophagus. I have not seen a single Black Duck, neither *Æ. nigra*, nor *Æ. americana*. The latter is the species the Russians have sent me from the Aleutian Isles, though they call it *Æ. nigra*. They do not distinguish the two conspecies.

The ordinary wild Ducks of the market have been the Mallard, the Yellow-nib (*A. zonorhyncha*), the Teal, the Shoveller, the Pintail, the Widgeon, the Falcated Teal, and the Spectacle-

Teal (*Eunetta falcata* and *E. formosa*), all about equally common. The Gadwall is sometimes exposed, but may be called a somewhat rare Duck. It was not till nearly the end of March that I saw the first Garganey; and then they became the commonest species in the market. The Sheldrake I saw only on one or two occasions. The Mandarin Duck is also brought for sale, but oftener alive than dead. Other Ducks are very seldom brought alive; and I could not induce the marketmen to get me live samples of the species I sought, though I offered tempting prices for them. The females of the Pintail and the Widgeon rarely have the male-like speculum on the wing—a fact which is not noted in Yarrell's 'British Birds.'

Of Geese *Anser albifrons* has been the commonest, then *A. segetum*, then *A. cygnoides (ferus)*. *A. cinereus* and *A. erythropus* did not show at all. I found them last year in the early winter. There have been also only a few Swans (*Cygnus bewicki*), and no Cranes, but two or three Bustards (*Otis tarda*).

In the first week in April the market was cleared of game by order of the Municipal Council; so now a few shore-birds are all that one sees hanging up in a stall here and there. Of these the most numerous have been the Dunlin, next the large Stint (*Tringa crassirostris*), and then the Knot (*T. canutus*), all in more or less summer plumage. The *Limosa uropygialis* has also been brought in large numbers, some in the unspotted winter coat, some with zigzag bands on the underparts, apparently the intermediate plumage of early spring, and some with bright yellowish-red underparts. The males differ from the females in their much smaller size and much shorter bills. I subjoin the measurements of the two:—

Limosa uropygialis, Gould, ♂. Length 15·25 inches. Wing 9, surpassing tail by $\frac{1}{2}$ an inch, $1\frac{1}{2}$ longer than tertiaries. Tail 3·25, ·9 longer than upper tail-coverts, ·2 longer than under tail-coverts, 1·1 shorter than tip of toe extended backwards—of twelve rectrices, all equal, except the two centrals, which are ·2 longer than the rest. Bill recurved, 3·1 from forehead, 1·25 from gape; basal portion flesh-coloured tinged with grey,

blackish brown on more than apical half. Bare part of tibia 1·2; tarse 2·25; middle toe and claw 1·42; colour greyish black, whitish on reticulations.

Limosa uropygialis, Gould, ♀. Length 18 inches. Wing 9·6, surpassing tail by ·6; 1·4 longer than tertiaries. Tail 3·6, 1·9 short of tip of toe. Bill recurved, 4·85 from forehead, from gape 4·93; colour olive-grey, flesh-colour near base, blackish brown on culmen and for greater part of length. Bare tibia 1·25; tarse 2·5; middle toe and claw 1·7.

Dissection of female. Mass of small eggs. Cæca ·9 from anus, nearly equal, ·6 long, uniformly thin and somewhat pointed. False cæcum twice as thick, curled, also ·6 long, 10·50 inches from anus. Intestine 12·75 inches long. Gizzard of an irregular heart-shape, with ·9 of proventriculus; length 1·4, breadth ·9; epithelium bright indian yellow, containing a few flat flask-shaped small seeds of some shore-plant.

Of the other Godwit, *Limosa brevipes*, G. R. Gray, I have seen but one specimen, and that a male, picked up on the 28th March. Its neck is washed with reddish, and its underparts obscurely barred. I give my note from the fresh bird.

Limosa brevipes, G. R. Gray, ♂. Length 15·50 inches. Wing 7·4, reaching to end of tail, ·68 longer than tertiaries. Tail 3·1, ·95 longer than upper tail-coverts, ·25 than lower tail-coverts, 2·75 short of tip of toes extended backwards—of twelve rectrices, the two outer on each side and the two centrals being ·15 longer than the rest. Iris deep brown. Bill straight, from forehead 3·7, same length from gape; under mandible ·2 shorter than upper; colour blackish brown on apical third, the rest pale yellowish brown. Bare tibia 1·48; tarse 2·7; middle toe 1·4, its claw ·5, curved outwards and broadly pectinated; colour olive-black, with pale reticulations.

Dissection. Trachea simple with close-set narrow rings. Intestines large and watery, with thick pointed cæca, right one longer than left, which is about ·78 long, and about ·7 from anus; too far gone to seek for the false cæcum or to measure length. Gizzard an irregular oval about 1·35 long

by 1·1 broad, with strong lateral tendons, epithelium dark, containing bits of silica and a few small white worms.

Of Sandpipers I have met with from time to time one or two specimens of the following :—*Tringoides hypoleucus*, *Totanus fuscus*, *T. calidris*, *T. ochropus*, and *T. glareola*. The *T. brevipes* has not appeared.

The Great Stint differs more in point of size between the sexes than perhaps any other Stint. The female is also less spotted on the underparts than the male at this season; and red feathers are appearing on the backs of both, like those seen on that of *Tringa cinclus* on the approach of summer. I have the following jottings on the two sexes :—

Tringa crassirostris, T. & S., ♂. Length 10·5 inches. Wing 7, surpassing tail by ·2, and tertiaries by ·7. Tail 2·85, of twelve rectrices, the two centrals exceeding the rest by ·1. Bill from forehead 1·78, from gape the same; colour olive-black, browner near base of lower mandible. Tibia bare for ·7; tarse 1·55; middle toe 1 inch, its claw ·25; colour yellowish olive-grey, blackish grey on toes, with black claws.

Tringa crassirostris, T. & S., ♀. Length 11·25 inches. Wing 7·4, first quill the longest, ·28 longer than second, half an inch longer than the tail, 1·1 longer than the tertiaries. Tail 3·15. Bill 1·73. Tarse 1·43; middle toe 1 inch, its claw ·25.

Dissection of male. Trachea simple with narrow close rings. Testes, one ·2 long, the other very minute, both pure white. Cæca situate $\frac{1}{2}$ an inch from anus, unequal in length, the larger ·8 long, broad at base, tapering to a point. The false cæcum about 9·50 from anus, curled, ·4 long, ·15 thick at base, ending in a point. Intestine thick and white, 24 inches long. Gizzard 1·3 long by ·9, oval, and flattish at the sides, with powerful tendons, empty, with a thick yellowish epithelium.

The market of Shanghai, carefully watched the winter through, would yield a fine collection of Chinese sea-birds. It is not supplied from the lakes of the interior, but from the neighbouring sea-coast, and especially, I am told, from the mud flats outside the sea-wall that girds the city of Fung Hien

on Hangechow Bay, with which there is direct canal communication from this.

Before leaving Shanghai for the present, it would be as well to say a few words on the birds that frequent her gardens during the winter. The commonest resident is of course the little House-Sparrow (*Passer montanus*), as familiar and as noisy as its congener at home, and certainly as dingy and as soot-bedaubed as its cousin of London. It roosts and breeds under the eaves of houses as elsewhere; and I cannot say that I can detect from recollection any difference between the manners and notes of the two species. The bird of the gardens is the large variety of the Green Bulbul (*Ixos sinensis*), with its rich loud notes. It feeds on the berries of the many cultivated bushes in winter, eats insects in summer, and breeds in as exposed places as the Hedge-Sparrow in England. The "Family Bird" (*Munia acuticauda*) is the next common, chirping and swinging its tail violently from side to side as it peers at you from the branches above. They build their large round nests in the evergreens, usually about 20 feet from the ground, in which the parent birds roost the winter through. A pair are building a nest in a creeping-rose over my veranda. They have been a week at it, and it is now all but finished. The Tomtit (*Parus minor*) is singing out lustily his double love-note, very like that of his large brother (*P. major*) at home, as all his other notes are also. He has been here all the winter, and will no doubt stay to breed. You find him in most of the gardens. Picking about at the roots of bushes may be seen an occasional Thrush (*Turdus pallens*) and the little winter Blue-tail Robin (*Ianthia cyanura*); but the Blackbird seldom enters the town, and it is only now and then that you see a pair of Magpie Robins chasing and screeching after each other*. A Blue Magpie (*Cyanopoliis cyanus*) or a Shrike

* A Magpie has its nest in a large tree in the compound of a mercantile firm. The same birds and the same nest infested a tree in a garden a few doors off, where the birds reared their young from year to year until last year, when a cat destroyed the progeny. The birds carried away the nest twig by twig and set up on the tree which they now occupy. Swallows have been here since the beginning of this month, and are looking up their last year's nests in the rafters of the Chinese shops.

(*Lanius schach*) sometimes shows itself, with a crowd of small birds crying after it; and among the Sparrows of the road you occasionally see an odd Bunting (*Emberiza spodocephala*) or two. On the trees of some of the larger inclosures I have noted, when cold, Bulfinches, Hawfinches, Mountain-Finches, Redpolls, and *Eophona melanura*, and, as I have mentioned, Waxwings, sometimes also an odd party of Bottle-Tits (*Mecistura glaucogularis*) and *Suthora webbiana*. But the country around, with its alluvial soil, its cultivated lands, and tall-growing willows and other trees encircling villages and cemeteries, abounds in all the birds that frequent the level country of this latitude of China, and affords quite a contrast to the flat land about Ningpo, with its marine soil and stunted vegetation. The Chinese Rook (*Corvus pastinator*), which in Ningpo is a winter visitant only, remains about Shanghai; and to my delight I have just discovered a rookery a few miles out of town, at the lounge at the end of the Bubbling-Well Road, the great evening drive of this place. The Rooks are building on the tall *Salisburia* trees about the temple. One tree has as many as nine nests. This is the first year of the establishment.

Shanghai, 14th April, 1873.

XLIII.—*Additions to the List of Birds of Nicaragua.*

By P. L. SCLATER.

IN 'The Ibis' for last year (p. 311), Mr. Salvin has given us a valuable article on the birds of Nicaragua, based principally upon the collections of Mr. Thomas Belt, lately resident at the gold-mines of Chontales. Mr. Belt has recently asked me to determine for him the specimens in another small collection which he has made in the same district. As this contains examples of several species not represented in the former series, I have thought it desirable to record their names, in order to complete our knowledge of the ornithology of this interesting district as far as possible.

These additional species are:—

1. TROGLODYTES FURVUS (Gm.).
2. EUPHONIA MINUTA, Cab.
3. † GUIRACA CÆRULEA (Linn.).
4. PYRGISOMA LEUCOTIS (Cab.).
5. ICTERUS PECTORALIS, Wagl.
6. † ICTERUS GIRAUDI, Cassin.
7. CYANOCITTA MELANOCYANEA (Hartl.).
8. † SYNALLAXIS PUDICA, Scl.
9. † MYIOBIUS SULPHUREIPYGIUS, Scl.
10. TYRANNUS MELANCHOLICUS (Vieill.).
11. † PITHYS BICOLOR, Lawr.
12. † GRALLARICULA PERSPICILLATA, Lawr.
13. † EUMOMOTA SUPERCILIARIS (Jard. et Selb.).
14. † HERPETOTHERES CACHINNANS (Vieill.).
15. † GLAUCIDIUM PHALÆNOIDES (Daud.).
16. † TIGRISOMA CABANISI, Heine.
17. † PORZANA CONCOLOR (Gosse).

Most of these seventeen species are well-known forms prevalent throughout Central America. But it may be remarked that the occurrence of *Cyanocitta melanocyanea* and *Eumomota superciliaris* so far south is new to us. The former does not seem to present any point of distinction from Guatemalan specimens. But the *Eumomota* differs slightly from my skins of this bird (obtained in Guatemala and Honduras) in having the green colour much paler both above and below, and the chestnut of the back and belly lighter and of a more buffy tinge.

There remains, however, still much to be done to complete our knowledge of the avifauna of Nicaragua, and it is very desirable that some one should continue Mr. Belt's investigations.

XLIV.—*Notes on Birds observed at Para.* By E. L. LAYARD, Esq., H.B.M. Consul.—*With Descriptions of two new Species.* By P. L. SCLATER.

(Plates XIV. & XV.)

THE collection on which these notes are founded was got together chiefly in my early morning walks, from sunrise to 9 o'clock or a little later. It was commenced at the end of June 1872, and therefore only includes such birds as I could get during the dry season; this terminates in December. Last year our rains began about the 15th January, and up to the date on which I write (January 28th) have been pretty continuous. Some fine days have certainly intervened; and then the temperature has been lovely, and the early mornings in the forest inexpressibly delightful. Now, however, the early mornings break with the sun behind clouds, and the forest is wet and heavy with mist, while underfoot it is mire up to one's ankles. Of course in case of the least brush through the bushes in search of a wounded bird, you are drenched from head to foot.

Mr. Hayes, an American gentleman, who, though not a naturalist, is very observant of the ways of birds &c., told me that all the large fruit-eating birds, Parrots, Toucans, &c., come up from the southward at the end of December, or beginning of January, fleeing before the rainy season, and return in a similar manner from the north about June, when the dry season sets in. This I have found to be the case, as I daily see flocks of Parrots pass high overhead, my attention being directed to them by their shrill cries. Toucans, except the two small *Araçaris* sent, I have not yet seen. These the natives do not call "Toucans," but "Araçari," confining the former appellation to those species with the large bills.

I fancy this (January) must be the *spring* of the year, as all the trees are getting their new bright-green foliage, and I see very many birds are breeding, though such a thing as finding a nest is next to impossible.

With few exceptions very little can be learnt of the *habits*

of birds in this country. It is singular how barren of life the forests really are, and the paucity of *individuals*, as compared with *species*, is likewise remarkable. I have shot almost every thing I have seen, and skinned most of them; and yet, to the 215 specimens sent, there are 115 species. Then, too, the gloom in the forest is so great that rarely can you tell what bird you see and fire at, till it is actually in your hand. The most gaudy species appears simply a dark opaque body against the semitransparent tapestry of green. You fire, dodge round the smoke, which always hangs in the bushes, just in time to see a body heavier than a leaf fall to the thick carpet of *Lycopodium* and other low shrubs. You mark the exact leaf it struck in its fall, cut your way into the spot, and in three instances out of five don't find your bird!! The least mistake of a leaf where all are so similar, the least struggle of your prize, and you may as well "hunt for a needle in a pottle of hay." Only as late as yesterday I shot a fine Hawk close to my house; my servant and myself saw it fall, and marked the place accurately; but we hunted in vain for it for more than an hour, climbing the bushes, shaking them, and questing about like hounds, but all to no purpose. I have saved my chickens from the marauder, but would willingly give him a couple (though they are 4s. 6d. or 5s. a piece) for his maw, if I could bring him to life, and have another chance at him!

Under these circumstances how can the habits of our feathered friends be studied? In this neighbourhood there are no open spaces, all is forest-clad. On the 21st inst., however, I paid a visit to a Fagenda some 10 miles up the river Acará, the next stream to the Guamá. Just below the house was an open swampy piece of ground; and here for the first time I saw a flock of Plovers, probably *Hoplopterus cayanus*, and a Snipe (*Scolopax frenata*?). I regret to say that my companion failed in getting the first, and that I missed the second.

On the voyage I was much struck with the absence of life along the river's banks; with the exception of a solitary small white Heron and a pair of Swallows (*Progne chalybea*), we did not see a single bird. The tide was low, and the mud banks extended some distance; not a wader tenanted them.

The forest came down to the tidal range; not a Kingfisher or Jacamar flashed in the sunlight from spray or tree-top! How different from the animation of such a spot in Ceylon, the east coast of Africa, or even the Cape of Good Hope!

Another thing strikes me as singular; the Gulls and Terns are conspicuous by their absence! Here is a splendid reach of water several miles wide, extending right down to the sea, about ninety miles; and yet not a Gull or a Tern has been visible on it, to my knowledge, the whole time I have been here! I always look out anxiously for a sight of their lovely soft grey colours, but in vain!

(June 20, 1873) I had written thus far and packed my specimens and notes for transmission to England, when I received instructions to return home immediately, in order to proceed to take charge of the British Consulate in the Fiji Islands, where I shall probably be before this article reaches my brethren of the B. O. U. Of course I brought home my own collection, and now have to thank Mr. Selater for his kindness in identifying my specimens*.

It is singular that at the moment of embarkation I should have seen two new birds to add to my list, namely a Swallow (*Hirundo albiventris*) and a Tern (*Phaethusa magnirostris*?).

1. *TURDUS PHÆOPYGUS*, Cab.

Shot from a small flock of perhaps half a dozen individuals that flew across an open road in the forest, the Strada Braganza. Stomach contained seeds. I could not make out the sex, but fancied it a ♂.

2. *TURDUS FUMIGATUS*, Licht.

Kept as singing birds in cages, called "Sabia" by the people. Found in the neighbourhood of Pará. Feeds on berries. Shot one 1st October, 1872.

26th January, 1873. I daily hear a bird singing in the early morning, with a note just like the European Thrush. I am told this is the "Sabia;" and though I have not myself seen it singing, I have no doubt that this is really the songster that produces the only music I have heard in the forest.

* The names and arrangement used are those of the new Nomenclator Avium Neotropicalium.—P. L. S.

3. *DONACOBIVS ATRICAPILLUS* (L.).

A pair of these curious birds were shot by me on the 21st of January, 1873, at a farm some ten miles from Pará, up the river Acará. They had a clear loud piping whistle, and frequented dense bushy swamps, where I saw several more. Stomachs contained insects.

4. *TROGLODYTES FURVUS* (Gm.).

Generally seen in pairs, creeping along fences and chasing each other through the orange-trees in my garden. It is a noisy, restless bird; and its song and actions at once reminded me of the European Wren. I once killed this species from the summit of a high tree at the side of a forest-road; but this was the only instance where I saw it ascend to any height.

+ 5. *VIREOSYLVIA OLIVACEA* (L.).

This solitary specimen was shot from a tree in flower; and the stomach was full of the comminuted petals and other portions of the flowers.

6. *HYLOPHILUS SEMICINEREUS*, Scl. & Salv*.

Shot in the forest. Stomach contained insects and berries.

+ 7. *PROGNE CHALYBEA* (Gm.).

I first saw this large Swallow on Christmas-day. A little flock of them were flying to and out of a hole in a hollow tree in the square near my house; some of them carried dry grass bents, apparently, and portions of soft lichens gathered from trees. On the 28th I shot one, a ♀, with the ovaries much distended. No others were about that day; but I subsequently procured them in the same locality, and at a farm-house near Pará. They perch readily and habitually on trees.

+ 8. *STELGIDOPTERYX RUFICOLLIS* (Vieill.).

This Swallow is not uncommon; but, except in a few favoured localities in the town, I never saw it in any numbers together. It feeds on minute flies, and perches readily on trees. It is certainly resident in Pará all the year round, though it is very scarce from September to December, on the 27th of which month I procured a pair, ♂ and ♀, after noting their absence since September.

* This rare species was originally described from specimens obtained by Mr. Wallace in the same district, see P. Z. S. 1867, p. 570.—P. L. S.

9. *HIRUNDO ALBIVENTRIS*, Bodd.

As I was going off to the steamer to embark for England, a pair of Swallows (which I at once recognized in Mr. Sclater's collection as of this species) flew about our boat for some time, and gave me every opportunity of observing them closely.

+10. *HIRUNDO ERYTHROGASTRA*, Bodd.

This species keeps about the church-towers in the town of Pará, and never seems to go into the country. I did not, therefore, secure one; but I am satisfied of its identity from seeing specimens in Mr. Sclater's cabinet.

11. *DACNIS CAYANA* (L.).

A few specimens of this lovely species were procured in different parts of the forest; their stomachs contained vegetable matter and insects.

12. *CEREBA CYANEA* (L.).

Native name for ♀ "Spirito Santo."

These lovely birds are found generally scattered from fruit- to forest-trees. I am told they only make their appearance in the early morning or after sun-down. They are not uncommon, and a fine male shot by me on the 16th of October was evidently under the breeding-influence. Stomach contained insects.

13. *CEREBA CÆRULEA* (L.).

Two of these lovely little birds, both males, were shot on the blossoms of an "Ingah" tree in my neighbour's garden, in company with *Dacnis cayana*. Their stomachs contained comminuted flowers. The ♂ showed the breeding-*στοργή* to an immense extent. I obtained the ♀ in a grove of *Urania* trees near Charmont; but the species is rare.

14. *CERTHIOLA CHLOROPYGA*, Cab.

This little Creeper is not uncommon in gardens; but I never saw it in the forest. A pair made a domed nest in an orange-tree close to my window, in July, but deserted it. They completed it in three days; it was lightly built, being quite transparent, and composed of grass bents dry. They feed on insects.

15. *EUPHONIA VIOLACEA* (L.).

Shot up the Acará river, about ten miles from Pará; its stomach contained mucilaginous seeds.

16. *EUPHONIA CAYANA* (L.).

Shot in a deserted garden (August 4th). Stomach contained seeds.

17. *TANAGRELLA VELIA* (L.).

I shot this pretty species feeding on the dark purple berries of a forest-tree left in some cleared land. Another, probably a ♂, was in company with it, but it flew off to the forest (October 16th, 1872). These are the only two I have seen; they must be rare.

18. *CALLISTE FLAVIVENTRIS* (Vicill.).

One or two specimens procured round Pará, frequenting high trees, on the seeds of which they were feeding.

19. *TANAGRA EPISCOPUS*, L.

These birds fly in small flocks of five or six individuals, feeding on berries, seeds, insects, and such like. They breed about July or August, to judge from the testes of the ♂ killed, and are not at all uncommon and widely distributed.

20. *TANAGRA PALMARUM* (Max.).

Shot from a forest-tree, 16th October. Stomach contained purple berries.

21. *RAMPHOCÆLUS JACAPA* (L.).

Common in all gardens and open places overgrown with *Solanum* (such as the Travessas, or cross roads) about Pará. Feeds on seeds and berries; breeds, I think, about June and July, from the young birds procured.

Its native name is "Pipilli," from the cry. It is the commonest of all our birds, and oftenest falls a victim to the gun, being shot by mistake for other species.

22. *TACHYPHONUS MELALEUCUS* (Sparm.).

Shot in my garden at Nazaré, 27th Nov., 1872. Stomach contained insects and seeds.

23. ARREMON SILENS (Bodd.).

Shot in a Travessa overgrown with *Solanum* (7th Dec.). Stomach contained small seeds. A second specimen (male) afterwards shot in the forest.

24. SALTATOR MAGNUS (Gm.).

Several specimens procured in the forest, feeding on purple berries in the month of September.

25. ORYZOBORUS — ?

Shot in an old piece of cleared land fast returning to forest. In the stomach were a number of grass-seeds.

The specimen procured is a female of some species of this genus, probably *O. crassirostris*, but, not being in good order, cannot be identified with certainty.

26. SPERMOPHILA MINUTA (L.).

This pretty little species frequented the long grass in my garden at Nazaré, in conjunction with the other little *Spermophile*; but it is scarce and very difficult of approach. It feeds on the grass-seeds.

27. SPERMOPHILA GUTTURALIS (Licht.).

These little Finches are common on all cleared lands and gardens, feeding on grass-seeds. Two or three are generally found together; and in my garden at Nazaré a considerable flock of them inhabit the grass in front of my windows. They climb up the stalks to devour the seeds.

A single rather large white egg was brought to me as the egg of this species; it was found in my garden in December.

28. VOLATINIA JACARINA (L.).

A large flock of these birds frequented the long grass in my garden at Nazaré, feeding on the seeds, for which they climb up and cling to the long stalks. I see many old couples feeding their young ones (which resemble the female in colour); so the breeding-season must be nearly at its close. The skins of these little birds are extremely tender, rendering them very difficult to preserve.

29. CORYPHOSPINGUS CRISTATUS (Gm.).

Shot in a deserted garden on some low shrubs. Stomach empty. August 5th, 1872.

30. *COTURNICULUS MANIMBE* (Licht.).

These Linnets are generally seen in pairs, hopping about in the grass or in the road in front of my house. They devour grass-seeds and insects, and are very expert in catching the latter, darting at them like Wagtails. I feel sure I have seen these birds *walk* as well as *hop*.

31. *OSTINOPS VIRIDIS* (Bodd.).

Procured in the neighbourhood of Pará by Señ. Penna and presented to me. I also saw it once on the wing (a small party of three) near the Strada Braganza.

32. *CASSICUS AFFINIS*, Sw.

Not uncommon in certain localities about Pará, breeding in companies and forming long bag-shaped nests hanging from the branches of trees. They are very noisy near their nesting-places; and their voices are very harsh and loud. Their food is berries.

An egg, taken from a tree on which this and the next were building in company, was a bluish white speckled with black.

33. *CASSICUS PERSICUS* (L.).

The "Japim" is abundant round Pará, nesting in communities, and forming large purse-shaped structures. I have seen them nesting from early July to November. The bird has a strong disagreeable smell, which clings to the skin after preservation. It feeds on fruits, berries, seeds, Indian corn, and such like. Its call is very loud and uttered on the wing as well as when the bird is resting. It is a very active, restless creature, always on the move. Its eggs are large, bluish white, blotched, spotted, and streaked with dark brown (black).

34. *ICTERUS CROCONOTUS* (Wagl.).

I shot a specimen of this bird, the only one seen; but it fell into the river and I could not secure it.

35. *LEISTES GULANENSIS* (L.).

Procured by Señor Penna in the neighbourhood of Pará; but I never saw it alive.

36. *TODIROSTRUM MACULATUM* (Desm.).

The only specimen procured of this species I shot on the

18th of September, 1872. Its stomach contained a large seed, or berry, swallowed whole.

37. *COLOPTERUS GALEATUS* (Bodd.).

Shot on the 4th of January, 1873, darting at insects at rest on the underside of leaves, the snap of its bill being audible at several yards distance. Unfortunately my charge, small as it was, cut it all to pieces; so I could not distinguish the sex.

+ 38. *MIONECTES OLEAGINEUS*, Cab.

The only specimen procured of this little bird was shot on the 1st of October, 1872, from a high tree. Its stomach contained insects.

39. *PHYLLOMYIAS SEMIFUSCA*, Scl.

This little Tyrant is common in gardens, generally in pairs, frequenting the orange-trees and feeding on insects. I found them here, at San Juaõ, in July; and they are still here while I write (beginning of November). They probably migrate during the rainy season.

40. *ORNITHION INCANESCENS* (Max.).

Killed in my garden at Nazaré (November 11th)—a single specimen.

41. *TYRANNISCUS GRACILIPES*, Scl.

Found in gardens. Feeds on insects.

42. *ELAINEA PAGANA* (Licht.).

Shot in my garden (4th of August). Stomach contained large green seeds.

+ 43. *LEGATUS ALBICOLLIS* (Vieill.).

This broad-billed Flycatcher I killed on a forest-tree on the 4th of August, 1872. Its stomach contained insects.

44. *MYIOZETETES SIMILIS*, Spix.

The lesser "Bem-te-vie" has just the same habits as the larger bird, *Tyrannus melancholicus*, but is scarcer. It feeds indiscriminately on seeds and insects. I shot one on the ground by the side of a pond, picking up flies.

45. *RHYNCHOCYCLUS MEGACEPHALUS* (Sw.).

Shot from a tree in the forest on the 25th of June, 1872, its stomach being full of small coleoptera.

46. *MUSCIVORA REGIA* (Gm.).

When first observed, this beautiful Flycatcher was darting at flies and small insects (with which its stomach was afterwards found filled) from a bare twig, to which it frequently returned. It captured them on the wing as well as reposing on the leaves or branches; and the snap of its bill was quite audible at fifteen or twenty paces. On my firing it fell wounded; and when I ran forward to pick it up, the crest was thrown open in the most beautiful manner, as if in defiance, and, uttering a harsh scream, it seized my fingers with bill and claws, fighting vigorously (10th December, 1872).

Two days after this, I fancy I saw another, in a different and most gloomy part of the forest of Braganza, not far from Nazaré. The present specimen was killed about half a mile from my house, in the forest.

47. *MYIOBIUS NÆVIUS* (Bodd.).

I shot this pretty little Flycatcher (27th November, 1872) in my garden at Nazaré, from the top of a cajeu tree. Its stomach was crammed with insects.

48. *EMPIDONOMUS VARIUS* (Vieill.).

Shot in my garden at San Juaõ; others seen at different times. They perch usually on the top of the trees, on a bare branch, from which they sally out after insects. Seeds were also found in the stomach of one examined. They utter a harsh note. (16th October, 1872.)

49. *TYRANNUS MELANCHOLICHUS*, Vieill.

The "bem-te-vie" is common all round Pará. It frequents alike the forest and the garden, perching on the summits of trees, and usually selecting a bare branch whence to utter the loud cry from which it gets its name. It devours indiscriminately insects, leaves, seeds, &c.

† 50. *MILVULUS TYRANNUS* (L.).

This Flycatcher appeared first on the 7th of August, 1872. I found a small flock, on going out at daylight, on the top-

most branches of a tall tree in my garden. Though fired at several times, and hit with the first shot, the best-tailed bird returned again and again to the same branch, till I secured him. The flock kept about for a month, and then disappeared. Other flocks were in various places in the neighbourhood at the same time.

They hawked after flies, sallying out from their resting-places, turning over and twisting about very nimbly and gracefully, spreading their tails, and making them assume a pretty lyrate form. Sometimes before rain, when swarms of flying ants would be issuing forth from the nests in the trees, these birds would be very active; then, when darting about, their brilliant white undersides contrasted beautifully against the dull leaden blue of the storm-clouds "big with wind and rain."

† 51. *PIPIRA LEUCOCILLA* (L.).

Shot on the 27th of September, 1872, off a forest-tree. Stomach contained one huge seed, undigested and swallowed whole.

† 52. *PIPIRA AURICAPILLA*, Licht.

I saw a single specimen of this bird in the forest near Nazaré, but failed to secure it. I received skins from Pebas.

53. *CHIROXIPHIA PAREOLA* (L.).

A single specimen shot in dense forest, 27th September, 1872. Stomach full of dark blue vegetable matter.

54. *CHIROMACHÆRIS MANACUS* (L.)

On the 29th of September I shot several of these little birds, male and female, from a forest-tree, on the fruits of which they were feeding. Had I stayed at the tree, I believe I could have shot fifty. They kept dropping in singly every moment, as did other species, quite unmindful of my presence and of the noise of the gun. They make a curious rattling noise (I suspect, by some movement of the oddly shaped wing-feathers), which constantly betrays their presence in the forests.

55. *PACHYRHAMPHUS ATRICAPILLUS* (Gm.).

Very scarce about Pará; inhabits the forest.

56. *ATTILA THAMNOPHILOIDES* (Spix).

Shot in the forest (27th September, 1872). Stomach full of comminuted berries.

57. *IODOPLEURA ISABELLÆ* (Parz.).

This curious bird, both when sitting on the tree in company with its mate, and when in the hand, reminded me of a Martin; indeed, when I fired at it I fancied it actually was a hen Swallow. Its stomach contained a large berry, swallowed whole, which filled the centre cavity. I never saw but the two here named.

58. *PHÆNICOCERCUS CARNIFEX* (L.).

Shot in a forest about ten miles from Pará. Stomach contained seeds.

59. *SYNALLAXIS GUIANENSIS* (Gm.).

A single specimen of this elegant little bird occurred to me along the side of a road, creeping about low bushes and uttering a mewling note. I watched it some time before I could get a shot, as it wound its way through the densest tangled mass of sticks &c., every now and then darting on an insect (4th January, 1873).

60. *XENOPS GENIBARBIS*, Ill.

Caught in the house.

61. *GLYPHORHYNCHUS CUNEATUS*, Licht.

This singular bird I shot creeping up the stem of a forest-tree (14th August, 1872). It was very nimble, dodging me round the trunk: only with the greatest difficulty I killed it. It remained clinging to the tree after death, and I was obliged to cut a long sapling and detach its death-hold. The stomach contained insects.

62. *DENDRORNIS EYTONI*, Scl.

Female, shot from the trunk of a huge tree in the most damp and gloomy forest I have yet visited. Another, probably the male, was in company, but flew off on the discharge of the gun (6th February, 1873).

63. *DENDROPLEX PICUS* (Gm.).

I shot this Creeper (21st September, 1872) on a forest-tree on which was a large ant's nest. When opened its stomach was found full of ants.

64. *PICOLAPTES LAYARDI*, Sclater, sp. nov.* (Plate XIV.)

Bill and feet horn-coloured. Iris brown.

A single example of this bird was shot on the 21st of August, running up the trunk of a ceiba tree. I think it was feeding on the ants that had constructed huge clay nests on several branches. Its stomach contained the remains of insects. On the 20th of December I saw one on a fence; he hopped *sideways* from post to post, sometimes 12 or 18 inches apart. At length he caught a large spider and began hammering and beating it on the fence, I suppose to get rid of its long legs, as he swallowed the body when he had effected this.

65. *THAMNOPHILUS MAJOR*, Vieill.

Shot on the Quama side of the town by Mr. Englehart. I know nothing of its habits; and its stomach was empty.

66. *THAMNOPHILUS PALLIATUS*, Licht.

Shot in dense scrub, mewing just like a cat (7th December, 1872). Its stomach contained insects.

67. *THAMNOPHILUS AMAZONICUS*, Scl.

Generally found in pairs, creeping about the underwood in the forest, searching for insects and uttering loud cries. They

* [This apparently new species may be described as follows:—

PICOLAPTES LAYARDI, sp. nov.

Supra terreno-fuscus ferè unicolor, capite obscuriore: alis extus et caudâ totâ cum uropygio rufis: subtus cineraceus, striis latis albis, utrinque nigro marginatis omnino aspersus; gulâ albâ purâ: subalaribus cinnamomeis; remigum primariorum parte apicali intus obscuriore: rostro corneo, subtus pallidior, pedibus plumbeis: long. tota 7·3, alæ 3·3, caudæ 2·9, rostri a rictu lin. dir. 1·2.

Hab. in vicin. urbis Pará imp. Brasil. (*Layard*).

Mus. P. L. S.

Obs. Sp. aff. *P. fuscicapillo*, et, sicut hæc, pileo unicolori insignis, sed minor, rostro brevior et debilior et striis corporis inferi latoribus et magis albis distinguenda.—P. L. S.]

spring up at insects on the underside of leaves; and the snap of their bills is audible for a long distance.

+68. *THAMNOPHILUS DOLIATUS* (L.).

Shot on the ground while harrying a swarm of *Eciton* ants (Sept. 18th, 1872), with which its stomach was filled.

69. *THAMNOPHILUS SIMPLEX*, Sclater, sp. nov.* (Plate XV.)

I shot these two birds (male and female) close together in the woods near the Lazar Hospital, Pará (10th January, 1873). Their stomachs contained comminuted insects. Before I shot them I saw the female creeping about the branches of the low underwood, seizing her prey off the underside of leaves. The male did not show himself till I had reloaded and placed the female in my collecting-bag: he then darted across the path; but I was too quick for him, and dropped him as he pitched on the opposite side.

+70. *CERCOMACRA TYRANNINA*, Scl.

Shot on the ground in the forest, feeding upon ants (September 18th, 1872).

71. *FORMICIVORA GRISEA* (Bodd.).

Shot in the "travessa" (or cross street) near my house in Nazaré, creeping about the bush in search of insects, at which it darted when at rest under leaves (9th December, 1872).

72. *PYRIGLENA ATRA* (Sw.).

Shot on the ground feeding on a foraging army of *Saüba*

* [I have not been able to find any described species of *Thamnophilus* which agrees with this pair of birds, and I therefore characterize them as follows:—

THAMNOPHILUS SIMPLEX, sp. nov.

♂. Cinereus ferè unicolor, alis caudâque interne obscurioribus: campterio et punctis paucis tectricum alarium necnon rectricum externarum marginibus angustis albis: tectricibus subalaribus et primariorum marginibus interioribus albicantibus: rostro et pedibus nigris: iride castaneâ: remigibus quarto et quinto longissimis: long. tota 5.5, alæ 2.6, caudæ 2.2. ♀. Rubiginosa, pileo intensiore, ventre magis cinnamomeo, medialiter pallidiore: alis et caudâ intus nigricantibus.

Hab. in vicin. urbis Pará, imp. Brasil. (*Layard*).

Mus. P. L. S.

Obs. Sp. *Th. stellato*, Spixi, proxima, sed crassitie minore et alis extus ferè immaculatis diversa.—P. L. S.]

ants, 10th August, 1872. Male shot 14th December, 1872. Many of these birds accompanied an army of *Eciton* ants, feeding on the insects they disturbed.

+ 73. *GLAUCIS HIRSUTA* (Gmel.).

Shot while probing the flowers of a parasitic plant very early in the morning. Common in my jugha tree (13th November, 1872).

74. *PYGMORNIS PYGMÆUS* (Spix).

This minute species I shot in my kitchen, hunting spiders. Its humming was singularly loud. I also obtained a specimen hovering over the "ingha" flowers, 13th November, 1872. It is not uncommon in the forests, about low shrubs, especially *Strelitzia*, and is found in the darkest and gloomiest recesses, where the sun's rays never penetrate.

+ 75. *FLORISUGA MELLIVORA* (L.).

Common about Pará, in October, and hovers much in the air to capture minute flying ants as they emerge from their nests in the trees.

76. *CAMPYLOPTERUS OBSCURUS*, Gould.

This "Sabre-wing" is not uncommon about Pará when the "ingha" tree is in blossom, about November. Like the preceding it hovers much in the air, capturing ants.

+ 77. *LAMPORNIS VIOLICAUDA*, Bodd.

Three of these lovely little birds, seen 27th November, 1872, in my garden at Nazaré, hovering over the flowers of the arrowroot. I killed a pair, which proved to be male and female. Their stomachs contained small flies; but when held up by the feet at least a tea-spoonful of honey dropped from their bills.

78. *THALURANIA FURCATOIDES*, Gould.

Shot on ingha trees, to which they seem very partial; indeed all our Humming-birds may be found on this tree when in flower.

79. *EUCEPHALA CÆRULEA*.

Shot in my neighbour's garden at San Juaõ, while probing

the flowers of the ingha (23rd September, 1872), also several in my own garden (13th November, 1872). About the commonest Humming-bird we have when the ingha is in flower.

+ 80. *PANYPTILA CAYENNENSIS* (Gm.).

This lovely Swift, the only one I have seen, dashed into my dining-room and was captured on the 19th of September, 1872.

1st December, 1872. Several Swifts seen this day flying very high above the common Spring-tail (*C. poliura*). I think, from their shape, they must belong to this species.

+ 81. *CHÆTURA POLIURA* (Temm.).

From the 16th of June to the 3rd of September I continually saw small parties of these birds high up in the air, but never by any chance within gunshot. On the 3rd of September they suddenly became more plentiful, and descended to earth; since that date they fly low, and I see them everywhere. Their best times are early morning and late in the evening, when they make successful raids on the swarms of flying ants which then emerge from their nests.

+ 82. *CHÆTURA SPINICAUDA* (Temm.).

Common throughout the year.

+ 83. *NYCTIBIUS JAMAICENSIS* (Gm.).

I captured this species at sea off Maranhão, but saw many flying about Pará during June, July, and part of August; then they disappeared. They generally fly in parties, keeping wide apart, each on his line, and hawk after insects. Their flight, when high in the air, is just like that of a Gull; when they descend it is like that of *Caprimulgus*.

84. *NYCTIDROMUS ALBICOLLIS* (Gm.).

Shot on the evening of the 29th November, 1872, sitting under a mango-tree in the road. Watched it for some time flying up at beetles, of which it had several entire in its stomach, which chiefly contained stinking plant-bugs. This bird had a chigo embedded in its leg—not the first instance I have met with where this parasite had established itself on birds. A *Thamnophilus* which I shot had about a dozen on its thighs, and must have suffered greatly.

85. *LUROCALIS SEMITORQUATUS* (Gm.).

Shot in Strada Braganza. Stomach contained comminuted insects.

86. *CAMPEPHILUS TRACHELOPYRUS* (Malh.).

This fine Woodpecker I shot on the 6th Feb. 1873, in a "travessa," not far from my house. When wounded it had a loud harsh scream. Its stomach was full of large yellow grubs and the pupæ of some wood-borer.

87. *DRYOCOPUS LINEATUS* (L.).

Shot in the neighbourhood of Pará. Their stomachs contained small insects and the ants which frequent trees and make large clay nests on them. They rap with great violence and rapidity; and the sound they cause may be compared to the springing of a watchman's rattle.

88. *CELEUS CITRINUS* (Bodd.).

Walking one morning on the road to Una, soon after day-break, a bird darted across the road from some Assaige palms, and pitched in a mango-tree. I instantly threw up my gun and fired; but nothing fell. On going to examine the spot, I saw a queer object sitting huddled up on a thick branch, which presently fell; and on lifting it I found I had killed this strangely coloured Woodpecker. It had been feeding on ants and their eggs. The smell of this bird is most offensive, and, I find, permanent in the dried skin.

89. *CELEUS JUMANA* (Spix).

While placing some Araçaris in my collecting-bag, this Woodpecker flew into a tree over my head, and was there and then added to my *spolia*. I was surprised to find its stomach filled with the same fruits as the Araçaris had been feeding on, berries as large as peas, swallowed whole.

90. *CHLORONERPES RUFICEPS* (Spix).

A single pair, male and female, shot on a dead tree in the Charmont Road. Their stomachs contained numbers of a naked, yellow, wood-boring caterpillar, doubtless obtained from the tree on which they were killed. Another was in company, but escaped.

91. MELANERPES RUBRIFRONS (Spix).

I found several of these Woodpeckers frequenting a lot of dead trees in the square not far from my house, and succeeded in obtaining a pair. I was surprised to find that they went *inside* the tree-trunks and hammered away. This accounts for my having frequently traced the hammering of Woodpeckers to what I felt sure must be the tree where the workman was engaged, and yet not being able to find him.

The stomachs of those I shot were full of grubs, insects, ants, and yellow hard seeds. I frequently saw them fly off into the air and catch insects, returning again to the dead limb from which they started. In their flight at these times they were very Swallow-like, so much so that I often mistook them for the large Swallow, *Progne chalybea*, which was flying about at the same time.

92. BUCCO HYPERRHYNCHUS, Bp.

I watched this powerful bird for some time before I shot it, on 4th January, 1873. It was hopping about the thick branches of a large tree, and in all its actions reminded me of a "Kinghunter" (*Halcyon*). In its stomach I found a large green *Cetonia*, just crushed and swallowed whole. I subsequently obtained two more, and was struck with their extreme stupidity.

Three birds were in company on a very high tree. I had only my little collecting-gun, with a quarter of a dram of powder and dust-shot, but, selecting the lowest, fired at him. He swung round on his twig and hung suspended. I loaded quickly and aimed at the next, who never moved; at the first report he fell dead, and the third remained. I fired again, without effect; but the next shot brought it down. On firing again at the clinging bird it dropt into a lower tree, and lodged where I could not get it.

93. BUCCO RECTUS, Bodd.

I found three of these birds on some low trees in an abandoned clearing covered with second growth. Though I shot one, the other two remained quietly on the tree and allowed me to load again and fire. Even when wounded, the last one

merely flew off, took a circle, and returned. Their stomachs contained insects torn into fragments—I presume, by the curious double hook of the powerful bill.

94. CHELIDOPTERA TENEBROSA (Pall.).

Several shot at a plantation about ten miles from Pará. They frequented the topmost twigs of some mangos and the ends of the palm-fronds, flying off in quest of insects, and returning to the same spot on effecting a capture. When I first saw them flying I involuntarily exclaimed “an *Artamus!*” so closely did they resemble them in all their actions. Their stomachs contained insects. I subsequently obtained this species at Pará.

95. UROGALBA AMAZONUM, Sclater.

I once saw this species in the forest, and shot at it; but it escaped wounded. It was in February.

+96. CROTOPHAGA ANI (L.).

Found in small flocks about the edges of the forest and in deserted gardens. Unless killed on the spot, they creep away and climb up the bushes so that it is next to impossible to find them. They feed on fruit and insects, especially *Gryllæ*, which they swallow whole. A small flock inhabit my garden at Nazaré. They mew like a cat, and utter a call just like that of the Curlew, which is so well indicated in their French name “Courlis.” In the mornings, early, I see them sitting on the summit of a small mango-tree, each with its wings expanded, and with their backs turned to the sun, to catch all its warmth. When uttering the before-named cry, they depress the head and elevate the tail and wings.

+97. DIPLOPTERUS NÆVIUS (Gmel.).

On the 27th of September, 1872, soon after daylight, I shot one of these Cuckoos in the act of drying its plumage on the top of a small bush. It sat with all its feathers ruffled out, wings drooping, and tail expanded. In the stomach were the remains of small grasshoppers. I am told that, when its plumage is damp, it cannot fly at all and is easily captured by the hand.

+98. *PIAYA CAYANA* (L.).

A pair shot (several others being seen) in a forest about ten miles from Pará. Stomachs filled with insects and soft fruits. One was shot at the gas-works, 1st December, 1872, a female, with ovaries very small. Stomach containing a whole large locust. The bird is called here "alma di gatto" (soul of the cat); its Indian name is "tiquarra."

+99. *PIAYA MINUTA* (Vieill.).

The first specimen of this Cuckoo was given me in a bad condition by Mr. Englehart, shot on the Guama side of the town. The stomach was too decomposed to reveal its contents. The next I shot about ten miles from Pará, in a garden. It crept through the bushes and trees just like a *Colius*, always, on my approaching it, flying out on the opposite side. Its stomach contained spiders and caterpillars.

100. *PTEROGLOSSUS INSCRIPTUS*, Gould.

This rare Araçari I shot from a small flock in the forest along the Strada Braganza on the 5th of September. The flock consisted of this and the next species, one of which I killed at the same time. They frequented the tops of the highest trees, and clung to the branches even after death. A native hunter with me divested himself of his clothes, and in a few moments climbed up to an immense height by means of the pendent lians, and threw down the dead birds. The ease with which the Indian mounted to the great height was a sight to see and admire.

101. *SELENIDERA GOULDI* (Natt.).

This Araçari was shot in company with the last, which the Indian with me declared to be its female; dissection, however, showed them to be both males. Stomach contained fruits.

I have lately (January 1873) found this species nesting in holes of dead trees in company with Woodpeckers; but their "procreant cradles" are quite inaccessible to any thing but a flying creature. I shot several woodpeckers from the tree; and at every discharge the Toucan would come to the entrance-hole, cautiously and with a slow deliberate movement pro-

trude its head, and take a survey round; then, on catching sight of me below, the head would be as cautiously withdrawn. The deliberation of the whole affair was most ludicrous.

102. *BROTOGERYS TUIPARA* (Gm.).

Shot on the 14th February, 1872, one of a pair. Stomach contained berries. The wood-cutters declared the birds had a nest in a huge tree standing in the clearing making for the railway-station, and that the female frequented the spot for days, calling for its mate.

103. *ASTURINA MAGNIROSTRIS* (Gmel.).

This pretty Sparrow-Hawk was shot near the gasworks, Pará, on the 24th of November, 1872. Its stomach contained locusts.

+ 104. *NAUCLERUS FURCATUS*.

27th November, 1872. Walking this morning behind my house, I watched a Fork-tailed Kite for about ten minutes soaring over the trees about 100 yards from me. Having only my long collecting-gun and No. 10 shot, I could not fire with any effect. 1st December, 1872. Six of these beautiful Kites about my house today; by the time I had loaded my large gun they had sailed out of range. Since this date they all disappeared.

+ 105. *BUTEOLA BRACHYURA* (Vieill.).

Shot off the summit of a dead tree in the "Largo San Braz," the square near my house in Nazaré. Stomach empty.

+ 106. *SPIZAETUS TYRANNUS* (Max.).

A single specimen (male) of this fine Hawk, shot near the gas-works at Pará on the 12th October, 1872. Stomach empty. Testes very small.

+ 107. *FALCO DEIROLEUCUS*, Temm.

Shot on 3rd February, 1873, near the Pará gas-works, from the summit of an immensely high tree. It suffered three shots to be fired at it with a small revolver; at length a ball struck it in the throat and came out through the top of the head. Its stomach was empty.

+ 108. URUBITINGA SCHISTACEA.

This fine Hawk was also killed near the gas-works at Pará, on the 11th of August, by Mr. Wilson, the superintendent. I know nothing of its habits, and its stomach was empty.

+ 109. CATHARTES ATRATUS.

This hideous but useful bird was the first that greeted my sight when I landed at Pará. Before daylight, as is my wont in tropical climates, I was up and out of doors. We had landed at 10 o'clock the previous night. I saw a strange-looking object, resembling a bird with outstretched wings, on the end of a neighbouring house. It was still too dark to distinguish objects; but I went into the house and got my faithful companions, my binocular glasses. On my return there were two; and while I tried to make out what they could be, up came a third, and a fourth, and a fifth, till a whole row sat on the ridge awaiting the daylight and the sun's rays to dry their wings. This is the way they sit on trees; and more ungainly brutes cannot be imagined. They are the great scavengers of the place, and most useful in that respect.

They roost in company, and begin their disgusting duties as soon as the sun is up. About 9 or 9.30 they sail away into the upper regions of the air, where they remain till 3 or 4 o'clock, when they again descend to earth. They retire to rest long after sundown, at the end of the brief twilight.

About ten miles from Pará, on a sugar-estate up the river, I saw a species with yellow about the head; but speeding along in a steamboat I could not stay to shoot one.

110. ZENAIDA MACULATA.

I have seen but few specimens of this Dove; the first I found one morning just after daylight, on a tree by the roadside near my house in San Juaõ. Its stomach contained berries. They feed much on the ground, and run with great swiftness, as do the little *Chamæpelieæ*.

+ 111. CHAMÆPELIA PASSERINA.

This pretty little ground-Dove is not uncommon in open places along roads, gardens, &c. It is generally found in pairs, male and female; and from the appearance of the organs of the male, and also from finding young birds not fully fledged,

I should think they breed about June and July. It feeds on grass-seeds.

112. *CHAMÆPELIA TALPACOTI*.

Killed in my garden at Nazaré. The stomach contained seed.

+ 113. *CRYPTURUS PILEATUS*.

Shot alongside a native path at the back of my house in Nazaré; one also seen in my garden, 18th December, 1872. It is called "Inambu" by the Brazilians.

+ 114. *ARDEA AGAMI*, Gm.

A single specimen, in young plumage, killed by a native on an igaripé near Pará, was purchased by me in the flesh.

+ 115. *TIGRISOMA BRASILIENSE*.

These curious birds are often kept tame about houses, to destroy the mosquitos and other insect plagues; but they are too dirty in their habits for companionship. I saw two specimens on a bank of mud not far from Pará, but could not stop the steamer to get them.

+ 116. *TOTANUS SOLITARIUS*, Wilson.

Shot on the margin of a pond near Pará. Stomach full of insects.

+ 117. *TRINGA MINUTILLA*, Vieill.

I once saw a small flock of these little Sandpipers cross a boat in which I was seated. Senr Penna subsequently obtained a specimen in the neighbourhood.

118. *PORZANA MELANOPHÆA*.

This little Rail was shot on the river Guama near Pará, and was given me in a state of decomposition; so I could not ascertain the colour of the iris or the contents of the stomach.

119. *PARRA JACANA*.

Two specimens procured—one in adult, the other in young plumage. The latter flew into the veranda of my neighbour, Mr. Hayes, who kindly presented it to me.

120. *STERNA MAGNIROSTRIS*.

The day I left Pará several of these birds were in the river opposite the town.

XLV.—*On the Birds of the Province of Kattiawar in Western India.* By J. HAYES LLOYD, Capt. Bombay Staff Corps.

SURASTRENE of the Greeks, Saurashtra of Sanskrit literature, and Kattiawar of the present day, is a peninsular-shaped tract of country on the west coast of India, situated between $69^{\circ} 5'$ and 72° of east longitude and $23^{\circ} 10'$ and $20^{\circ} 40'$ of north latitude. It is bounded on the north and north-west by the waste tract of the Runn and by the Gulf of Kuchh, on the south-west and south by the Arabian Sea, and on the east by the Gulf of Cambay; while on the north-east it is connected with the mainland of Gujerat by the district of Ahmedabad. Speaking generally, the country presents an undulating surface, with a gradual rise towards the centre, whence a number of streams taking their rise flow in opposite directions and empty themselves respectively into the Gulf of Kuchh, the Arabian Sea, and the Gulf of Cambay. Near the coast on the north-west occurs a cluster of hills—the highest rather over 1500 feet—known as the Burda hills, for the most part thinly covered with brushwood, but with some of the inner and more sheltered valleys moderately wooded. In the opposite or south-eastern extremity of the peninsula the country again presents a rugged broken surface, much intersected by streams, and rising in some parts into bold rocky hills, the principal elevation being Mount Shuttroonjai, sacred to the first Tirthunker of the Jain hierarchy, and a great place of resort for pilgrims. In the south are two remarkable tracts. The smaller of these consists of a range of wooded hills disposed in a semicircle, from the base of which towers to the height of 2500 feet the granite peaks of Mount Geernar, a hill renowned in Sanskrit literature, its summit crowned by temples dating far back into the past, and its base bearing the rock-cut inscriptions of Pryadarse. The other and larger tract lies a few miles further south, and consists of a succession of ranges and lofty hills running in irregular directions, the whole thickly wooded and known as the Geer.

Excepting these last-mentioned tracts of the Geernar and the Geer, with the country in their immediate vicinity, the

province of Kattiawar may be described as treeless; and a traveller entering the country by any of the ordinary routes, such as Jooria on the north, Wudwan and Gogo on the east, and Porebundor on the west, might, unless his business or pleasure took him to the southern portion, traverse the country in most directions and finally quit the province without having learnt the existence of any thing in the shape of a forest. He would pass over extensive plains of black soil with intervening tracts of stony sterile undulations and occasional sandy wastes, diversified in parts by low-lying districts, where, during the hot-weather months, the surface is covered with a saline efflorescence, and the rivers and wells supply only brackish water; but in the way of trees, a few poor-looking specimens in the neighbourhood of villages, together with an occasional *Ficus* in the corner of a field, and a garden or grove in the vicinity of some of the large towns, are all that he is likely to meet with. If the traveller happened to be of an ornithological turn of mind, he would, after encountering such birds as *Aquila navioides* (*fulvescens*), *A. bonellii*, *Lanius arenarius*, *Butalis grisola*, *Erythrosterna parva*, *Otocompsa leucotis*, *Saxicola picata* and *S. deserti*, *Citrinella huttoni*, *Houbara macqueenii*, and *Chettusia gregaria*, probably consider that he had acquired a good idea of the character of the avifauna of Kattiawar, and proceed to describe it as having European and African affinities, with an admixture of desert forms. After a more lengthened residence, however, he could not fail at certain seasons of the year to meet with forms for the occurrence of which, until he had discovered the existence of the Geernar and Geer forests, he would be greatly puzzled to account. In the earlier period of my own experience of the province, the southern districts were unknown to me. I had traversed the country in every other direction and come to the conclusion that Kattiawar, so far as looks went, was not unlike Kuchh, with a very similar avifauna. This opinion was first shaken by meeting with a solitary example of *Corvus levaillanti*—not that the bird was beyond the limits of its range, but because I had previously only seen it in the neighbourhood of hills and forests, or in districts more or less wooded, and felt puzzled by its oc-

currence in a treeless district near the shores of the Gulf of Kuchh. My surprise, however, was still greater on successively encountering in the most unlikely-looking places examples of *Palæornis rosa*, *Buchanga cærulescens*, *Copsychus saularis*, *Cyornis jerdoni*, *C. tickelliae* (so-called), *Graucalus macei*, and *Zosterops palpebrosus*, while my feelings amounted to consternation at sight of *Crocopus phænicopterus* on a peepul-tree in the dreary salt-districts of the east. It was impossible to reconcile the occurrence of such forms with the physical features of the country, as known to me; and a solution of the problem was anxiously looked for. In course of time an opportunity offered for a short trip; and I at once set my face toward the south, marching hurriedly to where, on clear days, the peaks of the Geernar loomed faint and blue on the horizon. I spent two days on that wonderful hill; and then tearing myself reluctantly from a contemplation of ancient palaces, Buddhist temples, and 2000-years-old inscriptions, all speaking silently of creeds, dynasties, and races long past away, I pushed on and wandered for three days in the forests of the Geer, returning from my trip with but few birds actually added to my collection, but with the mystery of the Malabar forms explained.

Any one who has travelled westwards from the plains of the Deccan will be able to recall the changes which occur in the aspect of the country as the Ghauts are approached—how the black cotton-soil becomes a loam, getting lighter in quality and colour as the surface of the country rises—how trees gradually appear, at first stunted and dotted about on low hills and then more numerous, until the traveller finds himself at last riding through a hilly woody country over a laterite soil, the soft red dust of which, stirred up by his progress, floats round him and settles on the bushes on either side of the track. Very similar was the approach to the Geer; in a ride of a few miles I seemed to have passed from Kattiawar to the Mawul country bordering the Ghauts or to parts of the Konkan. Even the trees helped to complete the illusion; for, with the exception of one or two strange forms numerous enough to be a feature in the scene, the bulk of the trees in

the Geer were of the same species as those forming the Konkan and Ghaut forests—*Tectona grandis*, *Terminalia glabra*, *T. belerica*, *Nauclea parviflora*, *Garruga pinnata*, *Odina nodier*, *Cassia fissula*, *Pongamia glabra*, *Diospyros exsculpta*, *Sterculia urens*, *Emblica officinalis*, *Schrebera swietinioides*, and many others—not such fine trees as their brethren further south, but still of the same species I had become so familiar with years before in the Konkan and Ghaut districts. Of course, with the discovery of a tract of country presenting such physical conditions as above described, much of what had previously puzzled me was accounted for. Any number of *Buchanga cærulescens*, *Crocopus phænicopterus*, *Cyornis jerdoni*, &c. would not have astonished me; their absence in fact, would have been unnatural.

But though the presence of these isolated wooded and mountainous regions in Kattiawar explains the occurrence of certain unexpected forms in the avifauna of the province, there are other questions suggested by them of great interest, to which I will briefly allude before passing on to the enumeration of species.

One of these questions is the extent to which the laws of geographical distribution are dependent on physical conditions—a subject referred to by Dr. Stoliczka*, and in illustration of which these Geernar and Geer jungles, in their bearing on the avifauna of Kattiawar, offer a marked instance, supplying a parallel to that of Mount Aboo, quoted by him as modifying the avifauna of Rajpootana. Another and little-understood subject is that of *restricted* migration. Many of our Indian resident species are known to move from one part of the country to another, quitting certain districts and appearing in others, or moving from plains to hills at different seasons of the year. Sometimes this is for the purpose of breeding—as in the case of the Kites, which leave the neighbourhood of Bombay, and some Shrikes, which leave Kattiawar, to breed in other districts. At other times it seems to be connected with the question of food-supply, as in the case of many of the Insectorcs, which visit the open country during

* J. A. S. B. xvi. p. 218.

some of the cold-weather months and retire to wooded regions for the hot weather and rains; or lastly, it may be due to a desire for lower temperature, as exemplified, apparently, by *Gallus sonnerati*, which in the Southern Konkan, where the species is common, invariably quits the lowlands on the approach of hot weather and betakes itself to the forests on the summit of the Ghauts and other elevated ranges. In Kattiawar many instances of this migratory impulse are observable. Thus *Lanius arenarius*, *L. vittatus*, and *L. erythronotus* quit the country when the breeding-season approaches; while *Acridotheres ginginianus* and *Ploceus baya* arrive in numbers to breed, and disappear afterwards; *Palæornis rosa* appears in flocks in the plains during the rains and cold season, retiring to the Geer for the hot weather; while *Corvus leuallanti*, *Cyornis jerdoni*, *Graucalus macei*, and many others visit the plains in the cold weather, but spend the hot weather and rains in the Geernar and Geer forests.

It has been stated by one who has contributed much towards our knowledge of Indian ornithology, that the character of the avifauna of a country is determined as much by the forms absent as by those present; and he has so far acted on the theory as to record the forms which he failed to meet with in his somewhat restricted experience of a particular district. In view of the curious impulse which leads many species to quit districts at different seasons of the year, any generalization of the nature referred to must, I think, be taken with much reservation. An experience ranging over every season of the year and extending to every part of Kattiawar would alone justify an observer in recording the absence of a particular form from the province; and the same may be said, I believe, of every other district in India.

In order to furnish as complete information as possible of the avifauna of a tract of country so little known to ornithologists as Kattiawar, I have included in the following list all species met with during my residence in the country, distinguishing those of which I never actually shot an example. My thanks are due to Mr. R. B. Sharpe for assistance in identifying some of my specimens and for the kind manner

in which he has facilitated generally my study of the collections in the British Museum.

The nomenclature and numbers are those of Jerdon's 'Birds of India.'

2. *OTOGYPS CALVUS*.

Not uncommon; but, as a rule, only solitary individuals are met with. I once saw four sitting about on a low rocky hill.

4. *GYPUS INDICUS*.

A Vulture that I believe to be of this species is common; but I never shot one.

On several occasions I noticed about the cliffs and valleys of the Geerwar, and once out in the plains, a large Vulture of a rich rufous or bay-colour, which seemed very distinct from *G. indicus*. It may possibly have been Mr. Hume's *Gyps fulvescens*; but I never succeeded in getting at one, whilst its evident partiality for hills and forests is against the supposition.

5. *GYPUS BENGALENSIS*.

This is the commonest Vulture in the province, breeding in the cold season. A pair in my garden at Limree were busy building their nest in the middle of September.

The town of Gondul is a favourite locality with this Vulture, almost every banyan- and tamarind-tree in the neighbourhood being occupied in the season by one or more pairs; and the hoarse cries they utter *in copulá*, as also the constant shrieking and cackling of the young, used to be a source of great annoyance.

6. *NEOPHRON GINGINIANUS*.

Not uncommon, but somewhat locally distributed.

16. *HYPOTRIORCHIS CHICQUERA*.

Common.

17. *TINNUNCULUS ALAUDARIUS*.

Common.

29. *AQUILA NÆVIOIDES*.

Much has been written as to the specific distinctness of the African *A. nævioides* from the Indian *A. fulvescens* vel *fusca*.

All observers, I believe, admit that they are very closely allied; but some would separate the two races, mainly, it would seem, on the grounds of a supposed difference in size. Mr. Blyth, Mr. Blanford, and others insist on the African bird being larger and more robust than the Indian; and if this difference were constant, it would, in conjunction with geographical distribution, entitle the two forms to rank as separate species. But of late specimens have been obtained in India which are admitted to be true *A. nævioides*, and we have therefore the somewhat remarkable fact of two distinct species with exactly similar phases of plumage, and only differing in point of size, both inhabiting India. On examining specimens of the two forms, however, it is at once apparent that African examples of *A. nævioides* differ as much in the matter of size, *inter se*, as they do, taken in a body, from the Indian *A. fulvescens*, while some African specimens are actually smaller than average Indian examples. My own belief is that African and Indian birds are referable to one and the same species, viz. *A. nævioides* of Cuvier, which in north-western India attains the development of the typical African form, but runs gradually smaller as it extends to the eastward. Parallel instances of decrease in size with extension of range might easily be quoted. In Kattiawar, where the species is common, the large form prevails. A pair of these birds once joined me in pursuit of a mongoose; but, luckily for the latter, there were a number of bushes about, and by dodging in and out and round these he finally escaped. The Eagles seemed to enjoy the fun; and as they always followed each other quickly in their stoops, and as I was always on the other side of the bush ready for the mongoose as he scudded round with his tail stuck out like a bottle-brush, the unfortunate little wretch had, for about five minutes, rather a bad time of it.

33. NISAETUS BONELLII.

Not common.

38. CIRCAETUS GALLICUS.

Common.

42. HALIAETUS FULVIVENTER.

Not uncommon in the vicinity of large sheets of water, such as the Null, the Ajuk Ghair, and similar places. A pair of these birds had their nest in a peepul tree opposite my tent at Baolee, near the Null; and I had daily opportunities of watching their actions, which have been well described by Mr. Hume ('Rough Notes,' pt. 1. no. 2). Before leaving the place, in February, I secured the two young birds, and kept them for some time in an aviary at Rajkote. Whilst still in the immature plumage (dark brown above, rather paler below) they were liberated by a servant during my temporary absence; by mistake! he said.

48. POLIORNIS TEESA.

Very common. On one occasion a bird of this species surprised me by pursuing and striking down a hen Florikin (*Sypheotides auritus*) that I had wounded.

51. CIRCUS SWAINSONII.

Very common.

52. CIRCUS CINERACEUS.

Very common.

These two species make their appearance in great numbers before the close of the rains, *C. cineraceus* arriving in the middle of September, and *C. swainsonii* about a fortnight later. A young female of *C. swainsonii*, killed on the 11th November, is in the immature plumage, with the whole underparts a uniform unstreaked rufous buff colour. A fine series of specimens that I possessed of both these species was unfortunately destroyed*.

* My collection suffered greatly from the risks ordinarily attending residence in India, aggravated by constant travelling. Negligence of servants on the march, upsetting of carts, depredations by dogs, cats, and insects, have all at times wrought woe to me; but amongst my greatest losses I count the destruction by white ants of a number of Kattiawar bird-skins: many of these I found no opportunity of replacing, though the birds were not rare; others represented species which I had never met with but once during three years' residence in the country.

54. *CIRCUS ÆRUGINOSUS*.

Common in the neighbourhood of marshes and lakes, and frequently met with hunting along rushy streams.

55. *HALIASTUR INDUS*.

Common along the shores of the Gulf of Kuchh and in the vicinity of large inland lakes. A specimen, killed on the 25th of October, on the shores of the Gulf of Kuchh, is in the pale brown immature plumage.

56. *MILVUS GOVINDA*.

Notwithstanding the number of Kites seen, I am obliged to confess I never shot one. They did not, however, appear to me to differ in any way from ordinary *M. govinda*.

59. *ELANUS MELANOPTERUS*.

I never met with this species, except on one occasion, when I shot an example at a place called Togana, in the west; unfortunately the specimen was one of those afterwards destroyed; but the details given in my notes are:—Length 12·5 inches, wing 10·25, irides crimson, cere yellow, legs pale yellow, second quill longest.

68. *OTUS BRACHYOTUS*.

I have met with this species in the cold weather when shooting in the grass preserves.

69. *ASCALAPHIA BENGALENSIS*.

Common.

76. *ATHENE BRAMA*.

Very common.

82. *HIRUNDO RUSTICA*.

Hirundo javanica, Scopoli.

Common.

In November of 1871 there was some very unseasonable weather in Kattiawar. Three days of heavy rain, with a cold east wind, destroyed an immense quantity of grain collected in the village thrashing-yards, and killed numbers of sheep, goats, and cattle all over the province. On one of these days I observed a party of Swallows sitting about on the ground, and shot one, which, at the time, I took to be *H. rustica*, and

on account of the draggled state of the plumage was on the point of throwing away. This specimen has been identified by Mr. R. B. Sharpe with *Hirundo javanica* of Scopoli. The ferruginous colouring of the throat comes lower down than in *H. rustica*; and the black pectoral band is reduced in front to a narrow line; while the underparts are white, with a faint tinge of rufous. Length of wing 4·3.

84. *HIRUNDO RUFICEPS.*

Common.

86. *HIRUNDO FLUVICOLA.*

I shot two out of a small party of these Swallows flying about the rocky bed of a river near the town of Dhrole; and on another occasion, when lying out on the shores of the Gulf of Kuchh waiting for Waders, a single bird of this species flew round close to me. I have not noticed it on any other occasion. Length of wing 3·5.

90. *COTYLE CONCOLOR.*

Occasionally met with. A pair built their nest against the rafters of the veranda of my house in Rajkote. Length of wing 4·1.

100. *CYPSELUS AFFINIS.*

Common.

112. *CAPRIMULGUS ASIATICUS.*

Not uncommon. Length of wing 5·6.

113. *CAPRIMULGUS MAHRATTENSIS.*

I have only met with this species in the rushes along the bed of the river near Gondul, where it was not uncommon. Length of wing 6·5.

114. *CAPRIMULGUS MONTICOLUS.*

Common. Length of wing 7·5.

117. *MEROPS VIRIDIS.*

Very common. I found them breeding in a bank near Sirsai in April.

123. *CORACIAS INDICA.*

Common.

129. HALCYON SMYRNENSIS.

Common. Wing 4·6, bill at front 2·4.

134. ALCEDO BENGALENSIS.

Not common. A specimen shot at Gondul has the bill 1·6 along the culmen, with the wing 3, and is scarcely distinguishable from *A. ispida*.

136. CERYLE RUDIS.

Very common.

144. MENICEROS BICORNIS.

Only met with in the neighbourhood of the Geerwar and Geer forests.

148. PALÆORNIS TORQUATUS.

Very common.

149. PALÆORNIS ROSA.

Common. Large flocks of this species are met with in all parts of the province during the rains and cold season; but in the hot season they leave the plains and retire to the wooded regions of the Geernar and Geer.

160. PICUS MAHRATTENSIS.

I shot a female of this species in the Geer, the only example I ever met with in Kattiawar; but I cannot now trace the specimen.

180. BRACHYPTERNUS AURANTIUS.

This species is common in the Geernar and Geer forests.

197. XANTHOLEMA HÆMACEPHALA.

Common. I have repeatedly seen these birds fly down to the trunk of a tree and cling like a Woodpecker; but I never saw them climb.

205. HIEROCOCCYX VARIUS.

I have only met with this Cuckoo in the neighbourhood of the Burha hills at the commencement of the rains.

212. COCCYSTES JACOBINUS.

I have obtained this species in a grass preserve near Rajkote during the rains.

214. EUDYNAMYS HONORATA.

E. orientalis, Jerdon.

Very common.

217. CENTROPUS RUFIPENNIS.

Common. A pair built a great untidy-looking nest in a lime-bush in the Durbar Garden at Gondul, and brought up five young.

222. TACCOCUA AFFINIS?

A bird of this genus was common about twenty miles east of Rajkote; but unluckily the tract they inhabited was also a favourite haunt of panthers, and every time I saw the bird I was, rifle in hand, searching for the nobler game. On each occasion I made up my mind that I would visit the place for the express purpose of shooting a *Taccocua*; but somehow, as soon as I got there, some evil spirit entered into me and compelled me to exchange the gun for the rifle, and I finally quitted the province *Taccocua*-less.

234. ARACHNECHTHRA ASIATICA.

Very common.

255. UPUPA NIGRIPENNIS.

Common.

256. LANIUS LAHTORA.

Very common.

257. LANIUS ERYTHRONOTUS.

Rare.

260. LANIUS VITTATUS.

Very common.

262. LANIUS ARENARIUS.

Not uncommon.

Of these Shrikes *L. lahtora* is a permanent resident; the others disappear during the hot weather and rains, to breed elsewhere.

265. TEPHRODORNIS PONDICERIANA.

Common.

270. *GRAUCALUS MACEI.*

Common. This is one of the species visiting the plains of Kattiawar during the cold weather, and retiring to the Geernar and Geer forests for the rains and hot season. It is somewhat remarkable that of the numbers of this bird that I have seen and shot, not only in Kattiawar, but in the Konkan province, not one should have had the throat and breast unbarred. The measurements also were in all cases less than those given by Dr. Jerdon in his 'Birds of India,' and by Mr. Blanford (J. A. S. B. xli. p. 157). My specimens ranged from 10·5 to 11 inches in length, wing 6·2 to 6·4.

278. *BUCHANGA ALBIRICTUS.*

Dicrurus macrocercus, Jerdon.

Very common.

281. *BUCHANGA CÆRULESCENS.*

Not common. Chiefly confined to the wooded regions of the Geernar and Geer, but visiting the plains in the cold season. Wing 4·9.

288. *TCHITREA PARADISI.*

Not common. Only met with in the Geer.

292. *LEUCOCERCA AUREOLA.*

L. albofrontata, Jerdon.

Not uncommon. Wing 3·2.

299 *bis.* *BUTALIS GRISOLA.*

Rare. I obtained one specimen at Rajkote in the cold season.

305. *CYORNIS JERDONI.*

Common in the neighbourhood of the Geernar and Geer, and visiting gardens and groves in the open country. On a former occasion I expressed an opinion (Ibis, 1872, p. 197) that *C. tickelliae*, Blyth, was the female of *C. jerdoni* (*sanguineus*). In reply to this, Lord Walden stated (Ibis, 1872, p. 330) that *C. tickelliae* was distinguishable by having white lores. Now, not only is no mention made of white lores in Mr. Blyth's original description of *C. tickelliae* (J. A. S. B. xii. p. 941), but this feature is present in some of my female spe-

eimens of *C. jerdoni*, the said specimens presenting other and very evident signs of immaturity. Since my arrival in England I have had the pleasure of looking through Lord Walden's series and of discussing the subject with him; and I believe he is now satisfied that *C. tickellæ* is not a distinct species, but only the female of *C. jerdoni*.

323 bis. ERYTHROSTERNA PARVA.

Rare. A male, shot in November, has the rufous throat, but not quite so bright as another shot at Matheran in January. This species, like the last, is to be met with occasionally in groves and gardens in the open country.

345. PITTA BENGALENSIS.

During my short trip to the Geer I was one day stalking a lion, and saw several of what I believe were this species. One, in particular, surprised me by perching on the branch of a leafless tree and emitting a succession of loud double notes, giving me while so employed a good opportunity of studying his markings. Under the circumstances I thought I might put off securing a specimen, and accordingly sacrificed science to sport. Of course I never saw a *Pitta* again, and should not be at all surprised if the Kattiawar bird turn out to be a new species.

351. PETROCOSYPHUS CYANEUS.

Not common. I shot a female and saw the male near the top of the Geernar mountains in the middle of April.

385. PYCTORHIS SINENSIS.

Rare.

434. MALACOCIRCUS MALABARICUS.

Common. Length of wing 4.1.

This species and *M. terricolor* seem to me very doubtfully separable.

436. MALACOCIRCUS MALCOLMI.

Common. Length of wing 4.6.

438. CHATARRHÆA CAUDATA.

Common. Length of wing 3.

459. *OTOCOMPSA LEUCOTIS*.

I only once met with this bird, in a grove at Mahdoopoon, on the west coast; and my specimens were subsequently destroyed; but I believe it is common in the Oakhammandel districts in the extreme west, and also in the neighbourhood of the Burda hills.

462. *PYCNONOTUS PUSILLUS*.

P. hæmorrhous, Jerdon.

Very common.

467. *IORA ZEYLONICA*.

Common in the neighbourhood of the Geernar and Geer.

472. *ORIOLOUS MELANOCEPHALUS*.

I once saw in the Geer a Black-headed Oriole, which I think was more likely to have been this species than *O. ceylonensis*.

475. *COPSYCHUS SAULARIS*.

Only met with in the neighbourhood of the Geernar and Geer, where it is not uncommon.

480. *THAMNOBIA CAMBAIENSIS*.

Common. Many specimens are intermediate in colouring between *T. cambaiensis* and *T. fulicata*.

481. *PRATINCOLA CAPRATA*.

Common. Wing 2·6 to 2·8.

483. *PRATINCOLA INDICA*.

Very common. In most of my specimens the tail-feathers show some white at the base, not visible until the upper tail-coverts are pulled aside. Length about 5·15; wings average 2·7.

489. *SAXICOLA PICATA*.

Common. Average length 6·4; wings average 3·6.

491. *SAXICOLA ISABELLINA*, Rüppell.

S. ænanthe, Jerdon.

Very common. Length 6 to 6·5. Wing 3·6 to 3·8.

492. *SAXICOLA DESERTI*.

Very common. Wing 3·6 to 3·75.

497. *RUTICILLA RUFIVENTRIS.*

Not common.

516. *ACROCEPHALUS DUMETORUM.*

Very abundant in the cold season in gardens and groves.

530. *ORTHOTOMUS LONGICAUDA.*

Common.

535. *PRINIA STEWARTI.*

Not common. Length 5 inches; wing 1.9.

539. *CISTICOLA SCHENICOLA.*

Common.

543. *DRYMÆCA INORNATA.*

Very common.

553. *PHYLLOPNEUSTE RAMA.*

Common. In appearance this bird resembles a miniature *Acrocephalus dumetorum*.

582. *SYLVIA AFFINIS.*

Not uncommon in the cold season.

596. *PIPASTES ARBOREUS* = *P. agilis*, Sykes.

Common. A grove near the town of Dhorajee was much frequented by this species.

631. *ZOSTEROPS PALPEBROSUS.*

Common. This bird is, I think, a permanent resident in the province. I have shot it in gardens in the plains during March, and in the Geernar and Geer jungles towards the close of the hot weather.

645. *PARUS CINEREUS.*

Only obtained in the Geernar and Geer jungles, where it is common.

660. *CORVUS LEVAILLANTI*, Lesson.

C. culminatus, Jerdon.

Common in the Geernar and Geer jungles, and met with occasionally in the open country. It is the only Crow on the summit of the Geernar.

663. *CORVUS SPLENDENS.*

Very common.

674. *DENDROCITTA RUF.*

Common where there are gardens, as at Gondul and Dhorajee.

684. *ACRIDOTHERES TRISTIS.*

Very common.

685. *ACRIDOTHERES GINGINIANUS.*

About the first or second week in May this species appears in great numbers, taking possession of all the old wells and building in the holes and crevices. According to my observations their nidification is at least a fortnight earlier than that of *A. tristis*. After the rainy season is over their numbers gradually diminish, until only an occasional pair are met with where before there were hundreds.

687. *TEMENUCHUS PAGODARUM.*

I do not remember to have met with this bird in the western parts of the province. In the eastern districts it was occasionally seen; and at the Pandree talao, near Licuree, I found it comparatively numerous.

690. *PASTOR ROSEUS.*

Very common in the cold season.

694. *PLOCEUS BAYA.*

During the monsoon these birds are met with breeding in colonies in all parts of the country; but they disappear after nidification is over. For a long time I did not know what became of them; but when in the neighbourhood of the Geer, in April, I saw a large flock of plain-coloured Finch-like birds, which, from a near view, appeared to be this species in non-breeding-plumage. Kattiawar examples are referable to the small race. Wing 2.75, bill at front 0.65.

703. *MUNIA MALABARICA.*

Common.

706. *PASSER INDICUS.*

Very common.

711. *PASSER FLAVICOLLIS.*

The only place I ever met with this species was Liniree, in the eastern division, where I twice obtained specimens, which, however, were subsequently destroyed.

716. *CITRINELLA HUTTONI.*

Common.

756. *MIRAFRA ERYTHROPTERA.*

Shortly before and during the rainy season this species is very abundant; afterwards it almost entirely disappears.

758. *AMMOMANES PHENICURA.*

Common.

760. *PYRRHULAUDA GRISEA.*

Common.

765. *SPIZALAUDA MALABARICA*, Scopoli.

Spizalauda deva, Sykes (*Cf.* Blanford, *Ibis*, 1873, p. 222).

Lord Walden has kindly shown me a copy of Sonnerat's work, containing a figure of Scopoli's bird, and I have no doubt the above identification is correct. A specimen in my collection is much mottled with white.

772. *CROCOPUS PHENICOPTERUS.*

Common in the wooded regions of the south, and extending occasionally to other parts of the country.

788. *COLUMBA INTERMEDIA.*

Very common.

794. *TURTUR CAMBAYENSIS.*

Very common.

795. *TURTUR SURATENSIS.*

Abundant in the wooded tracts of the south.

796. *TURTUR RISORIA.*

Very common.

797. *TURTUR HUMILIS.*

Obtained in all parts of the country, with the exception of the forest-tracts, but nowhere abundant.

800. *PTEROCLES FASCIATUS.*

Common. The first time I met with this species was in the Than districts, where, one evening, a small party of four or five came to drink after dusk, alighting silently on the shingle in front of my tent. It was too dark to make out what they were; but I set them down in my mind as Goat-suckers, and was much surprised on taking a random shot to find I had got this Sandgrouse. As a rule, they are met with on low rocky hills or amongst cactus-bushes, and seem to avoid the bare plains.

802. *PTEROCLES EXUSTUS.*

Very common.

803. *PAVO CRISTATUS.*

Very common.

819. *FRANCOLINUS PICTUS.*

Common.

822. *ORTYGORNIS PONTICERIANA.*

Common.

827. *PERDICULA ASIATICA.*

Common.

829. *COTURNIX COMMUNIS.*

A fair bag of Grey Quail can be made in some parts of the province; but they are by no means generally distributed.

836. *EUPODOTIS EDWARDSI.*

Common.

837. *HOUBARA MACQUEENI.*

Rare. Met with occasionally in the north and north-west of the province.

839. *SYPHEOTIDES AURITUS.*

Abundant in the rains.

840. *CURSORIUS COROMANDELICUS.*

Common. According to Dr. Stoliczka (*J. A. S. B.* xli. p. 250), all the Courier Plovers found in Kuchh are referable to *C. jamesonii*, Jerdon. The same species will probably be

met with in the Kattiawar districts adjoining the Runne, a part of the province I was unfortunately never able to visit.

844. *SQUATAROLA HELVETICA*.

I have obtained this bird on the coast in winter plumage.

845. *CHARADRIUS LONGIPES*.

Not uncommon.

846. *ÆGIALITIS GEOFFROYI*.

Very common along the Gulf of Kuchh.

847. *ÆGIALITIS MONGOLICUS*.

Æ. pyrrhothorax, Jerdon.

Associating in large flocks with the above.

850. *ÆGIALITES MINUTUS*.

Common.

852. *CHETTUSIA GREGARIA*.

I have twice obtained this species, once near Wodwan, and again near Gondud; but the specimens have been destroyed.

855. *LOBIVANELLUS GOENSIS*.

Very common.

856. *SARCIOPHORUS BILOBUS*.

Common.

858. *ESACUS RECURVIROSTRIS*.

I have only once obtained this bird, getting a single example out of a small party that were running about the stony bed of a river near Togana.

859. *ÆDIGNEMUS CREPITANS*.

Very common.

860. *STREPSILAS INTERPRES*.

Not common.

862. *HÆMATOPUS OSTRALEGUS*.

Common. Jerdon gives the bill as 4 inches long! A specimen in my collection has it 3 inches—considerably longer and thinner than European examples.

863. *GRUS ANTIGONE*.

Common.

865. GRUS CINEREA.

Common in the cold weather.

866. ANTHROPOIDES VIRGO.

Very abundant in the cold season.

871. GALLINAGO SCOLAPACINA.

Abundant in the season.

873. RHYNCHÆA BENGALENSIS.

Not common. I believe it to be a permanent resident, as I have shot it during the early part of the rains in some of the rushy tanks of the Than district.

875. LIMOSA ÆGOCEPHALA.

Common. A winter visitant.

877. NUMENIUS LINEATUS, Cuv.

Common.

878. NUMENIUS PHÆOPUS.

Common.

882. TRINGA SUBARQUATA.

883. TRINGA CINCLUS.

I found these two species associating in large flocks on the shores of the Gulf of Kuchh during the cold season.

888. CALIDRIS ARENARIA.

I found this species not uncommon along the Gulf of Kuchh in the cold season.

892. ACTITIS OCHROPUS.

Common.

893. ACTITIS HYPOLEUCOS.

Very common.

897. TOTANUS CALIDRIS.

Very common.

898. HIMANTOPUS CANDIDUS.

Common.

899. RECURVIROSTRA AVOCETTA.

The Avocet is very abundant on the Null and other sheets of water. I have frequently observed them swimming.

901. *HYDROPHASIANUS CHIRURGUS*.

Not uncommon in weedy tanks. Near Baolee, on the Null, several could always be shot on a small sheet of water a little to the west of the village.

902. *PORPHYRIO POLIOCEPHALUS*.

Common. Great numbers of this species are to be found in the acres of sedge and rush round the Null, also at the Lake of Sacla, and in some of the rushy streams on the west coast.

903. *FULICA ATRA*.

Very common.

907. *GALLINULA PHENICURA*.

I have seen this species on several occasions, and once watched a pair feeding a few yards off on the bank of a little stream that ran past my tent-door; but I never shot an example.

915. *LEPTOPTILOS ARGALA*.

I have never shot one of these birds, though I have seen them frequently.

917. *MYCTERIA AUSTRALIS*.

Common.

923. *ARDEA CINEREA*.

Common.

924. *ARDEA PURPUREA*.

I have met with this Heron frequently in marshes and rushy streams on the west coast.

926. *HERODIAS EGRETTOIDES*.

Common.

927. *HERODIAS GARZETTA*.

Common.

928. *DEMIEGRETTE ASHA*.

Common by the sea-side. At Balacherry, on the Gulf of Kuchh, *H. egrettoides*, *H. garzetta*, and *Demi egretta asha* were equally abundant.

929. *BUPHUS COROMANDUS.*

Very common.

930. *ARDEOLA LEUCOPTERA.*

Common.

937. *NYCTICORAX GRISEUS.*

Common.

938. *TANTALUS LEUCOCEPHALUS.*

Very common.

939. *PLATALEA LEUCORODIA.*

Not uncommon. At the village of Warodea, a few miles west of Limree, is a small tank much frequented by Spoon-bills; and I have often watched them sitting on a particular tree, balancing themselves awkwardly on the branches and keeping up a curious creaking noise, quite unlike the note of a bird.

941. *THRESKIORNIS MELANOCEPHALUS.*

Not uncommon.

942. *GERONTICUS PAPILLOSUS.*

Common.

943. *FALCINELLUS IGNEUS.*

Common on all the large lakes, and met with at such of the small tanks as were overgrown with rushes or weeds.

944. *PHENICOPTERUS ANTIQUORUM.*

Immense flocks are to be seen on all the large lakes and also on the coast.

950. *SARKIDIORNIS MELANONOTUS.*

Common.

951. *NETTAPUS COROMANDELIANUS.*

I obtained this species on the lake at Bullol, east of Limree.

952. *DENDROCYGNA AUSUREE.*

Not common.

954. *CASARCA RUTILA.*

Not common.

957. *SPATULA CLYPEATA.*

959. *ANAS PÆCILORHYNCHA.*

961. *CHAULELASMUS STREPERUS.*

962. *DAFILA ACUTA.*

963. *MARECA PENELOPE.*

964. *QUERQUEDULA CRECCA.*

All very common.

965. *QUERQUEDULA CIRCIA.*

I have shot this species only on the Null.

968. *AYTHYA FERINA.*

Once obtained on the Null.

969. *AYTHYA NYROCA.*

Common.

971. *FULIGULA CRISTATA.*

Not uncommon. I have shot many in the neighbourhood of Baolec.

978. *LARUS FUSCESCENS*, Licht.

(See Blyth, *Ibis*, 1867, pp. 176, 314.)

Common on the shores of the Gulf of Kuchh. Back and wings pale brownish grey; primaries grey, with a blackish band confined to the tip of the innermost primary, but increasing in width to the outermost, which is almost entirely blackish brown, with a white spot near the tip. Bill yellow, red at the lower angle; legs and feet yellow. Wing 18·5 inches, bill at front 2·2.

980. *XEMA BRUNNEICEPHALA.*

(See Stoliczka, *J. A. S. B.* xli. p. 256).

Quills in the adult white, with a black band, narrower on the inner primaries, increasing in width to the outer; the 4th, 5th, 6th, and 7th primaries are white-tipped, the 3rd has no white tip; the 1st and 2nd have a large subterminal white spot. Wing 13·5 inches. A young bird shot in October has the wing-coverts mottled with brown; the quills brown, without the white subterminal spot, and the tail with a dark brown terminal band. The white of the head and neck is

mottled with dusky, and the brown spot behind the ear-coverts is very distinct. Wing 13.

983. GELOCHELIDON ANGLICUS.

Very common.

985. SEENA AURANTIA.

Very common.

989. THALASSEUS ———.

At Balacherry, on the Gulf of Kuchih, I frequently noticed a sea-Tern, which I believe to have been *Th. bengalensis*, but which may have been the larger species. I never obtained a specimen.

1004. PELECANUS ———.

Pelicans, both grey and white, are not uncommon both on the coast and on the large inland lakes, but they take good care to keep out of shot.

1005. GRACULUS CARBO.

Common on the Null.

1008. PLOTUS MELANOGASTER.

Common.

XLVI.—Letters, Announcements, &c.

The following letters, addressed "To the Editor of 'The Ibis,'" have been received:—

SIR,—In the 'Proceedings' of the Zoological Society for 1865, p. 823, I described the Harrier of New Caledonia under the name of "*Circus wolfi*." Since that time some eminent ornithologists have expressed the opinion that this Harrier is not really distinct from *C. gouldi* of Australia and New Zealand; I am therefore desirous of calling attention to a recent corroboration of my view as to the specific distinctness of these two Harriers, which will be found in page 16 of the introduction to Mr. Buller's valuable 'History of the Birds of New Zealand.'

Mr. Buller and I carefully compared the adult males of *C. wolfi* and *C. gouldi*, and were both convinced that the two species are quite distinct.

Mr. Buller writes respecting *C. wolfi*, "it appears to me to be readily distinguishable from our bird (*C. gouldi*) by its blackish crown and ear-coverts, and likewise by the much darker colour of its wing-coverts."

I may add that *C. wolfi* is equally distinct from *C. spilonotus*, to which Professor Schlegel was disposed to refer it, but which I have never seen from any locality south of Singapore.

I am yours, &c.

J. H. GURNEY.

Northrepps, Norwich,
August 11, 1873.

SIR,—In 'The Ibis' for 1870, p. 67, Messrs. Elwes and Buckley quote a letter written by me in which I express an opinion that two Eagles obtained by those gentlemen from M. Alléon, who procured them during their northward vernal migration near the Bosphorus, were specimens of *Aquila nævioides* in an unusually dark phase of plumage.

I was confirmed in this opinion by finding in one of these specimens two small particoloured scapular feathers, which appeared to me to indicate that the bird was commencing the assumption of the particoloured plumage which always distinguishes adult South-African specimens of *Aquila nævioides*, and in which the great majority of the feathers are coloured partly rufous and partly purplish brown, the two tints being both present and sharply defined and contrasted on the same feather.

This specimen is now in the hands of Mr. W. E. Brooks, of Assensole, Bengal, who has been so good as to inform me that it is identical with the Indian *Aquila bifasciata* in fully adult plumage—a stage in which *A. bifasciata* was unknown to me until I became acquainted with it from the result of Mr. Brooks's zealous investigations in India.

Mr. Brooks has further been so good as to me send two small particoloured feathers, plucked from a specimen of *Aquila bi-*

fasciata shot at Futtehgurh, in Northern India, by Mr. A. Anderson, which closely resemble the particoloured feathers of *Aquila nœvioides*, and prove that this phase of plumage also occurs in *A. bifasciata*, though, I apprehend, only occasionally, and not as the invariable form of adult dress, which it is in the case of South-African specimens of *A. nœvioides*. Under these circumstances I have now no doubt that I was wrong in considering the two Eagles brought from the Bosphorus to be dark specimens of *Aquila nœvioides*.

Mr. H. E. Dresser, in a paper recently communicated to the Zoological Society, stated that he has lately examined one of the Bosphorus Eagles procured from that locality by Capt. Elwes, and considered it to be "an adult or, rather, a very old specimen of *Aquila orientalis*."

Mr. Brooks, however, as already mentioned, positively identifies the Bosphorus Eagle in his possession with *Aquila bifasciata*.

Are then *A. orientalis* and *A. bifasciata* one and the same species? I can hardly think so, as, though undoubtedly very nearly related, the specimens of *A. orientalis* which I have examined are *on the average* smaller and darker birds than the examples of *A. bifasciata* which have come under my notice.

This being the case, I concur with Mr. Dresser in the opinion which he has expressed in the paper above referred to, that the question of the identity or otherwise of *A. orientalis* and *A. bifasciata* must remain an open one till a larger number of specimens (and especially immature specimens of *A. orientalis*) have been obtained for comparison than we have at present access to for that purpose.

I am yours, &c.

J. H. GURNEY.

Chefo, 30th April, 1873.

Sir,—I have a few more words to say of my doings in ornithology at Shanghai. I did not leave Shanghai till the 23rd of April, and so had several more opportunities of visiting the market since I last wrote*. On the 14th I procured

* Vide *suprà*, p. 364.

another male Post-horse Dotterel (*Eudromias veredus*, Gould), in more advanced plumage than the last, with the crown of its head changing also into white; so I really believe, as I imagined from a view of a specimen in Père David's museum at Pekin (v. P. Z. S. 1870, p. 430), that in the fully mature summer plumage the male has the whole head white. On the 19th I got a pair of the same species. The female was much less developed in change of dress. Her upper plumage was all bordered with buff, like that of a young bird; and her breast was olive-brown moulting into chestnut, many feathers broadly margined with yellowish grey, the black line below the breast-band showing not very conspicuously. She had longer wings than any of the three males procured, and longer tarsi.

The 16th April was a day of great luck for me. Baskets on baskets of Knots (*Tringa canutus*, L.), Chinese Knots (*T. crassirostris*, T. & S.), and Tip-tilted* Godwits (*Limosa uropygialis*, Gould) filled every dealer's shop; and among these there was great choice of specimens. The first were for the most part in summer plumage, the females being larger than the males. The second were in summer dress on the underparts; but the upper feathers were only reddened here and there. Of these the females were a good deal larger than the males. Of the Godwits, the small-sized birds, or males, were nearly all in summer plumage; but I could not find the large long-billed female in any dress more advanced than the zigzag-banded intermediate style; plenty of them were still in winter costume. A basket of little birds was then shown me; and from among a number of the Common and Broad-billed Stints I was delighted to pick out a pair of Tip-tilted Sandpipers, two male Curlew Stints, several Australian Stints (*Tringa acuminata*, Horsf.), two Mongolian Sand-Plovers, and, best joy of all, two *Spoonbill Stints*! The Broad-bills (*Tringa platyrhyncha*, Temm.) were some in winter and some in summer costume, and some in intermediate. I could distinguish no constant difference in size between the sexes. The Tip-tilted Sandpipers (*Terekia cinerea*) were in summer

* Thanks to the Poet Laureate for this much-wanted adjective.

dress, and showed no difference between the sexes (determined by dissection). I took down the following details from the fresh male :—

Terekia cinerea, ♂. Length 9·5 inches. Wing 5·15, reaching to end of tail; first quill longest, ·3 longer than tip of tertiaries. Tail 2·2, of twelve slightly graduated feathers, outer ·25 shorter than centrals. Feet, stretched backwards, slightly exceeding tail, say by ·2. Bare part of tibia ·75; tarse 1·15; middle toe ·85, its claw ·2. Legs orange clay-colour. Bill recurved, from forehead to tip 1·9, from gape 2·05; yellowish olive-brown at base and rictus, blackish brown on the rest.

Dissection. Intestine thick, 11 inches long; cæcoid appendage 5 inches from anus, ·5 long, and curled inwards at tip; cæca ·75 from anus, 1·6 long. Stomach an irregular oval 1 long by ·6 broad. Epithelium firmly fixed, containing dry mud and bits of small black beetles.

The two Curlew Stints (*Tringa subarcuata*) were both males and only partially moulted. The Australian Stints were all males in summer plumage.

The two Mongolian Plovers, *Ægialites mongolus* (Pall.), were also both males: one was just beginning to acquire the summer dress; the other retained its winter peculiarities.

Of the two Pigmy Spoonbills, one is in winter plumage, the other commencing to blush into its summer redness. Both proved males. I took the following note from them while fresh :—

Eurynorhynchus pygmaeus, ♂. Length 6¼ inches. Wing 3·85, not exceeding tail; first quill little longer than the second, exceeding the tertiaries by ·2. Tail 1·75; outer rectrix ·2 longer than second and third, ·1 longer than fourth and fifth, ·15 shorter than centrals; thus is the tail doubly forked. Bare part of tibia ·55; tarse ·85; middle toe ·71, its claw ·15; all olive-black. Bill from forehead ·90, also olive-black.

Dissection. Bones of the head soft and easily broken. Trachea simple. Stomach circular, flattish at sides, about ½ inch broad. Epithelium thick and loose, containing fragments of

small bivalve shells and two entire minute univalves. Intestine thick and whitish, narrower near rectum, 10·5 inches long; cæcoid appendage 4·75 from anus, ·3 long, ·1 thick; cæca ·75 from anus, 1·2 long, bulging towards ends, and ending in a point.

These birds were perfect strangers to the marketmen; and they had no name for them.

On the 17th I noticed a few of the eastern Little Stint (*T. salina*, Pall.), and of Temminck's Stint (*T. temmincki*); but these are too small to meet much attention from the pot-suppliers. Spring Snipe (*Gallinago megala*, mihi) were just arriving from the south, and mixed with them a few Pin-tailed Snipes (*G. horsfieldi*, Gray). I had hunted in vain for this last species before. The only Snipe obtainable during winter about Shanghai is the common *G. scolopacina*. The Pin-tail does not appear to remain in that neighbourhood, as it does about Amoy, Canton, and in Formosa.

On the 18th I found a solitary Pigmy Curlew (*Numenius minutus*, Gould); and almost every day afterwards there were one or two in the market. I took notes on the first male.

Numenius minutus, ♂. Length 12·5 inches. Wing 7·5, ·13 longer than tail, ·85 longer than tertiaries; first quill longest. Tail 3·2, ·6 longer than under tail-coverts, 1·2 longer than upper tail-coverts; outer rectrix ·3 shorter than centrals. Bare part of tibia 1 inch; tarse 2·23, middle toe 1·3; its claw ·2; colour light yellowish grey, dark on joints of toes, claws black. Bill from forehead 1·88, from gape 2·18, curved downwards, fleshy buff on basal two thirds, blackish brown on apical third and on culmen.

Dissection. Male with small testes. Intestine thick, ·19 inch long; cæca 1 inch from anus, ·75 and ·65 long, ·15 thick, and pointed; cæcoid appendage 8·5 inches from anus, ·5 long, and pointed. Gizzard oval, with very strong lateral tendons, 1·15 long by ·9 broad; epithelium thick, containing fragments of shells and some rice-like seeds.

I got two more males, one the same size as the above, the other smaller, with shorter legs and toes. No females were brought.

With the small Curlew a few of the eastern Black-tailed Godwit, *Limosa brevipes*, came in. These were all males, and in nearly full summer plumage.

The Eastern Golden Plovers (*Charadrius fulvus*) were now frequent. I give the measurements of a fresh male in nearly complete summer dress:—

Charadrius fulvus, ♂. Length 9·5 inches. Wing 6·5, exceeding tail by ·5; tip of wing ·85 beyond tertiaries, first quill longest. Tail 2·6, of twelve slightly graduated feathers; the two centrals longest by ·2. Bare part of tibia ·7; tarse 1·78; middle toe 1·3, its claw ·18. The legs stretched backwards reach beyond the tail 1·3. Beak from forehead ·9, from gape 1·1.

One bird I was constantly on the look-out for but never found—to wit, the Eastern Grey Snipe, *Pseudoscolopax semi-palmatus*, Blyth.

Yours, &c.

R. SWINHOE.

Wellington, N. Z., 1st July, 1873.

SIR,—In the introduction to Dr. Buller's 'Birds of New Zealand' a specimen of *Tribonyx mortieri* is mentioned as having been brought from New Zealand by Mr. Bills, which bird Mr. Bills stated was captured near Lake Waihora, in Otago. On reading this I remembered that I had seen a specimen of *Tribonyx mortieri* in the gardens of the Otago Acclimatization Society shortly before Mr. Bills left New Zealand; and suspecting that this was the bird that Mr. Bills took home, I wrote to Mr. A. C. Purdie, Curator of the Otago museum, and asked him to find out for me the history of this bird. The following is an extract from his answer:—

“The Rail (*Tribonyx mortieri*) that you say is described by Dr. Buller as from New Zealand, is the same that you saw in the Society's gardens. It was brought from Hobarton by Mr. Clifford, and was presented to the Society by Sir Morton Allport, of Hobarton, when Mr. Clifford was there

on a visit. *This was the only bird of the kind taken home by Mr. Bills last year.*

“How Mr. Bills could think of stating that the bird had been caught on the shores of any lake in New Zealand, he can best explain, as I have no doubt that he knew its whole history.”

I remain, &c. &c.,

F. W. HUTTON.

The following extracts are from letters received from our Editor:—

“Guatemala, 20th June.

“Since we arrived here I have had no opportunities of collecting birds, as Guatemala lies in the middle of an open plain, and we have not yet secured horses so as to be able to make excursions. The only bird-work I have done has been overhauling a small museum kept by the Sociedad Economica de Guatemala, and where they are trying to make a collection of all the natural-history products of this country. The leading spirit is Don Juan Rodriguez, who has done some good work for foreign collectors of Coleoptera, and who is a very excellent fellow. Of course the society have a good deal to do before they can boast of any thing like a complete collection of birds; but I found a few interesting species in their cases. They have a *Dendroeca* I believe to be Coues’s *D. gracia*, which I never obtained myself, and a specimen of *Threnetes ruckeri*, also new to Guatemala. I saw also a mottled specimen of *Buteo albonotatus*.

“I have had no time yet to look up any of my old shooting-places at Dueñas; but I hear that considerable changes have taken place, and that a large amount of land has been put under cultivation. The slopes of the Volcan de Fuego, which in former times were all brushwood, are now cultivated for corn crops. The upper forests remain much the same, so far as I could see. However, I hope to look them up shortly.”

“Guatemala, August 5th.

+ “Two days ago I got several specimens of *Panyptila mel-*

noleuca from the old place. *Oreophasis* has turned up in Vera Paz. I have seen several skins from there, but have not yet ascertained exactly where they were shot.”

Publications received.—Mr. Claude M. Wyatt sends us the ornithological portion of the ‘Report of the Ordnance Survey of the Peninsula of Sinai,’ which contains short notes on the species of birds met with by Mr. Wyatt and other recent observers. Several of Mr. Tristram’s recent novelties were obtained, *e.g.* *Sylvia deserti*, *Drymæca eremita*, and *Amydrus tristrami*. The list will be useful for local reference. Six large lithographic plates (uncoloured) give illustrations of some of the rarer species.

Dr. A. M. Ross forwards the first number of the ‘Canadian Ornithologist’ (Toronto, 1873), a new monthly record of information concerning Canadian ornithology, of which he is Editor.

Dr. O. Larcher, of Paris, sends the first fascicle of a new serial entitled ‘Mélanges de Pathologie Comparée et de Tératologie,’ which contains several articles relating to the pathological anatomy of birds—a branch of the subject not hitherto much studied.

From Baron Droste we have received the Report of the 19th meeting of the German Ornithologists’ Association*, which took place at Cassel in May of last year. Here will be found much to interest students of the Palæarctic ornis.

Hr. F. Leybold has lately published at Santiago, Chili, a very interesting account of a month’s excursion from that city over the Andes into the Argentine Republic†, and has been kind enough to send a copy to the Acting Editor of this journal. Many notes are introduced respecting the birds observed and obtained. Not only this, but descriptions of two

* Bericht über die Versammlung der Deutschen Ornithologen-Gesellschaft zu Cassel abgehalten am 23. und 24. Mai 1872. Herausgegeben von dem Geschäftsführer der Gesellschaft Ferd. Baron Droste und dessen Stellvertreter Dr. Bernhard Borggreve. Münster: 98 pp. 8vo.

† Escursion a las Pampas Argentinas. Hojas de mi diario. Por Federico Leybold. Santiago: 1873. 108 pp. 8vo.

new species are given, proposed to be called *Columbina auri-squamata* and *Conurus glaucifrons*. The latter, Dr. Finsch informs us, is *Conurus acuticaudatus*, Vieillot. The former remains yet to be recognized in Europe.

We have likewise received copies of a reprint of Mr. Blackwall's 'Researches in Zoology' (London, 1873), presented by the author, and of the 'Report of the Commissioner of Agriculture for the year 1871,' presented by the Department of Agriculture of the U. S. A.

Some remarkable additions have recently been made to our knowledge of the extinct forms of bird-life. Not to speak of the completion of Prof. A. Milne-Edwards's 'Ornithologie Fossile,' which has made us acquainted with so many new genera of fossil birds, Prof. Owen has recently published in the 'Transactions' of the Zoological Society the description of an Australian Struthious form allied to *Dromæus* (*Dromornis australis**), and has communicated to the Geological Society † that of a still more wonderful ornithic type provided with teeth (*Odontopteryx tolpiacus*), founded upon a skull exhumed from the Sheppey clay. As a pendant to the latter, Prof. Marsh has lately ‡ described a new "subclass of fossil birds" (ODONTORNITHES), founded on two "dentigerous" forms from the upper cretaceous shale of Kansas—*Ichthyornis dispar* and *Apatornis celer*. Lastly a new gigantic fossil egg has been discovered in Southern Russia, and its unknown producer called *Struthiolithus chersonensis* § by Dr. A. Brandt.

* Trans. Zool. Soc. viii. p. 381.

† See 'Nature,' July 10th (p. 215).

‡ Am. Journ. of Science and Art, vol. v.

§ Bull. Ac. Sc. St. Pétersbourg, xviii. p. 159.

THE IBIS.

THIRD SERIES.

SUPPLEMENT, 1873.

XLVII.—*Index to the Ornithological Literature of 1872.* By
P. L. SCLATER, M.A., Ph.D., F.R.S., and O. FINSCH, Ph.D.

AIKEN, C. E.

[See HOLDEN, JR., C. R.]

ALLEN, J. A.

1. *Remarks concerning the Geographical Variation in Mammals and Birds.* Proc. Bost. Soc. N. H. xv. pp. 156–159.

These remarks relate principally to the general laws of decrease in the size of individuals of the same species with decrease in latitude, and of their comparatively darker plumage in the southern than in the northern borders of their habitats, of which instances are given.

2. *Geographical Variation in North-American Birds.* Proc. Bost. Soc. N. H. xv. pp. 212–219.

Mr. Allen seeks to give the general results that have followed upon the investigation of the large series of specimens of North-American birds in the Smithsonian Institution and Museum of Comparative Zoology. These results, as already shown by the author in previous papers (Bull. Mus. Comp. Zool. ii. no. 3, and iii. no. 6), prove that “intergrada-

tion has been frequently traced between widely different forms, a gradual coalescence in scores of instances having been positively established, and rendered extremely probable in a large number of others."

There can be no question of the importance of Mr. Allen's investigations, or, in our opinion, that he is perfectly right in regarding the so-called "hybrids" between representative species as in fact transitional forms.

3. *Ornithological Notes from the West*. Am. Nat. 1872, pp. 263-275, 342-351, 394-404.

Résumé of observations of birds made during the author's expedition to Kansas, Colorado, and Great-Salt-Lake Valley in 1871.

4. *Notes of an Ornithological Reconnoissance of portions of Kansas, Colorado, Wyoming, and Utah*. Bull. Mus. Comp. Zoology, iii. no. 6 (1872).

Contains the results of field-work, on the western plains and in the central portions of the Rocky Mountains, achieved by an expedition sent out by the Cambridge Museum in 1871 and 1872. The expedition commenced work at Fort Leavenworth, Missouri, and collected at intervals thence westward to the Great-Salt-Lake Valley. Lists are given of species collected at eight different stations, with remarks on the different local forms and variations of the species, besides habits and plumages. A summary shows that examples of 228 species were obtained. The general result is the confirmation of Mr. Allen's conclusions arrived at in his well-known "Winter-Birds of East Florida" (Bull. Mus. Comp. Zool. ii. no. 3), and the discovery of several well-marked geographical races not previously chronicled.

ALLIS, T.

On the Skeleton of the Apteryx. Journ. Linn. Soc. xi. p. 523.

Notice of the exhibition of two photographs of a mounted skeleton of this bird.

ALTUM, PROF.

Der weissrückige Buntspecht (Picus leuconotus) Brutvogel in der Mark Brandenburg. Zool. Gart. 1872, pp. 369-371.

A case of the breeding of this rare Woodpecker in Brandenburg is stated, and the young bird described.

ANDERSON, A.

1. *Notes on the Raptorial Birds of India*. Part ii. P. Z. S. 1872, pp. 68–81.

Continues notes commenced in P. Z. S. 1871, and gives detailed descriptions of "*Aquila hastata*, Less.," in various plumages.

2. *Additional Notes on the Raptorial Birds of North-Western India*. P. Z. S. 1872, pp. 619–623.

Principally relates to the Imperial Eagles, of which the author recognizes two Indian species—*A. crassipes* (Hodgs. MS.) and *A. bifasciata*, Gray.

3. *Letter from*. Ibis, 1872, pp. 81–83.

On the nidification of the Whiskered Tern, *Sterna leucopareia* (*Hydrochelidon indica* of Jerdon). Contains an account of this bird's breeding in Oudh.

4. *On the Nidification of certain Indian Birds*. Part i. Ibis, 1872, pp. 237–239.

Describes the nidification of *Burnesia lepida*, Blyth (= *Maurus gracilis*) in the tamarisk-covered islands of the Ganges.

ANDERSSON, C. J.

- Notes on the birds of Damara Land and the adjacent Countries of South-West Africa*. By the late CHARLES JOHN ANDERSSON. Arranged and edited by JOHN HENRY GURNEY. London: 1872, 8vo. pp. 394.

[See GURNEY, J. H.]

ANTINORI, A.

[See SALVADORI, T.]

AUSTEN, MAJOR GODWIN.

- Exhibition of a Skin of Ceriornis blythii*. P. Z. S. 1872, pp. 496–497.

This rare bird was obtained near Sima-Goding, in the Naga Hills, at about 7000 feet altitude.

BAKODY, DR. THEODOR.

- Ueber das combinirte Vorkommen der Trichina spiralis im Ver-*

dauungs canal der Hühner. Zeitschrift für wissenschaftl. Zoologie von v. Siebold und Köllker, vol. xxii. 1872, pp. 422-427, with 1 plate (Taf. xxxiv.).

An interesting account of the occurrence of *Trichina* in the intestinal canal of our common House-hen, but not in the muscular flesh.

BALL, V.

Notes on a Collection of Birds made in the Andaman Islands by Assistant-Surgeon G. E. DOBSON, M.B., during the months of April and May. J. A. S. B. 1872, pp. 273-290 (abstracted Pr. A. S. B. 1872, pp. 150, 151).

The collection contained 184 specimens belonging to 62 species, of which 19 had not previously been recorded from the island. *Graucalus dobsoni* is described as new.

BELING, FORSTMEISTER.

Der Fischreiher und die Sternschnuppen. Zool. Gart. 1872, pp. 141-148 (and p. 284).

Refers to the evacuations produced by Herons after digesting frogs. A further notice on this subject is given by K. Müller (*l. c.* p. 222).

BELT, THOMAS.

[See SALVIN, OSBERT.]

BEMMELEN, A. A. VAN.

Fortpflanzung des gemeinen Pelikans (Pelecanus onocrotalus) in Gefangenschaft. Zool. Gart. 1872, pp. 264, 265.

Gives an account of this Pelican breeding in the zoological gardens of Rotterdam.

BENEDEN, P. J. VAN.

Oiseaux de l'Argile Rupelienne et du Crag d'Anvers. Journ. de Zool. i. pp. 284-288.

Describes various birds' bones found in the above-mentioned formations of Belgium, and refers them to the following species:—*Larus raemdonckii*, *Vanellus selysii*, *Anas creccoides*, *Rupelornis definitus*, *Fulica dejardinii*, *Anas scaldi*, and *Cygnus herrenthalsi*.

BIANCONI, G. G.

Ulteriori osservazioni intorno al Femore, alla Tibia ed al

Metatarso di Æpyornis. Mem. Ac. Bologn. ser. 2. iii. pp. 141-165 (6 plates).

A continuation of previous papers of the author on the same subject. His former opinion that *Æpyornis* must be referred to the Vulturidæ and not to the Struthiones, is maintained.

BLANFORD, W. T.

1. *Letter from.* Ibis, 1872, pp. 84-87.

On *Prinia adamsi*, which is referred to *Drymæca* and described, with its nest and eggs, from specimens obtained by Mr. Fairbank on the Upper Godavery. Also mentions the occurrence of *Buteo plumipes* in Sikim.

2. *Account of a Visit to the Eastern and Northern Frontiers of Independent Sikkim, with Notes on the Zoology of the Alpine and Sub-alpine Regions.*—Part II. Zoology. J. A. S. B. 1872, pp. 30-73.

The second part of Mr. Blanford's paper here given is devoted to an account of the Vertebrata collected or observed during his recent journey in Sikkim, a few remarks being added on Tibetan animals, the "principal object of his visit having been to examine this almost purely Palæarctic Fauna." A fine series of the birds was obtained; and numerous notes are given. A new genus, *Rhyacornis*, is formed for *Ruticilla fuliginosa*. New species described are *Otocoris elwesi* and *Montifringilla ruficollis*.

3. *Notes on a Collection of Birds from Sikkim.* J. A. S. B. 1872, pp. 152-170, pls. vii. and viii.

Gives an account of a collection made in Sikkim by Mr. L. Mandelli, to which are added notes on species obtained by Mr. Blanford himself at low elevations. New species described are *Phylloscopus pallidipes*, *Pellorneum mandellii*, and *Propasser saturatus*. These are all well figured.

BLYTH, EDWARD.

Letter from. Ibis, 1872, pp. 87-90.

Denies the occurrence of *Haliaetus albicilla* in Lower Bengal, and gives a list of Khásia birds obtained by the botanist Samuel Griffith, and erroneously stated in Moore and Hors-

field's Catalogue to be from Afghanistan. Suggests that *Yunx indica* of Gould is not Indian, but is founded on a specimen of the African *Yunx pectoralis*.

BOCAGE, J. V. BARBOZA DU.

Aves das possessões Portuguezas da Africa occidental. Jour. Sc. Lisb. 1872, pp. 66-71.

Contains an account of a new collection of birds made by Sr. Anchieta on the river Coroca, south of Mossamedes. There were 99 skins, referable to 46 species. A *Dryoscopus* is regarded as new but not named; and a *Turtur* described is doubtfully referred to *T. decipiens*.

BORGGREVE, DR. B.

[See DROSTE, FERDINAND BARON.]

BRANDT, DR. ALEXANDER.

Ueber ein grosses fossiles Vogelei aus der Umgegend von Cherson. Bull. Ac. Imp. St. Pét. xviii. p. 158; Mém. Biol. viii. p. 730.

See translation of this paper in 'The Ibis' for January 1874.

BREHM, A. E.

1. *Gefangene Vögel.* Erster Theil, Erster Band: *Pfleger und Pfleglinge, Sittiche und Körnerfresser.* 1 vol. pp. 620, tab. iv. Leipzig und Heidelberg: C. F. Winter, 1872.

In conjunction with Bodinus, Bolle, Cabanis, Finsch, Girtanner, and many other ornithologists, the well-known popular author gives a full history of birds kept in confinement, and of the manner of feeding and keeping them, &c. The first volume of this very useful work contains the Parrots and Grain-eaters, of which 628 species are described, most of them by Dr. O. Finsch.

2. *Remarks on the Breeding of Textor alecto and other Birds in the Berlin Aquarium.* J. f. O. 1872, pp. 239.

BREHM, REINHOLD.

Remarks on the Rapacious Birds of Spain. J. f. O. 1872, p. 395.

These remarks were addressed to a special meeting of the Deutsche ornithologische Gesellschaft, and are accompanied by a discussion on the much-disputed *Aquila adalberti*.

BREWSTER, DR. T. M.

1. *Letter from.* Ibis, 1872, p. 334.

On the occurrence of *Dendræca castanea* near Boston in May 1872.

2. *On the remarkable abundance of the Bay-breasted Warbler, Dendroica castanea, both in the vicinity of Boston and in Southern Wisconsin.* Proc. Bost. Soc. N. H. xv. pp. 192, 193.
3. *Notice of the occurrence of Empidonax pusillus in Wisconsin.* Proc. Bost. Soc. N. H. xiv. p. 303.
4. *Notice of specimens of Oporornis agilis obtained near Cambridge, Mass.* Ibid. p. 4.

BREWSTER, W.

[See MAYNARD, C. J.]

BROOKS, W. E.

1. *On the Imperial Eagles of India.* P. Z. S. 1872, pp. 502-504, and Pr. A. S. B. 1872, p. 64.

Mr. Brooks recognizes two species hitherto united under the name Imperial Eagle, and describes them as *Aquila crasipes* and *A. bifasciata*. (Cf. ANDERSON, A.)

2. *On a new Species of Phylloscopus.* Ibis, 1872, pp. 22, 23.

Describes *P. tytleri* from Cashmere and Simla, allied to *P. viridanus*.

3. *On the Breeding of Reguloides superciliosus, Reguloides proregulus, Reguloides occipitalis, and Phylloscopus tytleri.* Ibis, 1872, pp. 24-31.

Describes the nidification of these birds as observed by the author at Gulmærg, in Cashmere, "a beautiful mountain-common about 3000 feet above Srinugger," in May and June.

4. *On a new Sylvia from India.* Ibis, 1872, pp. 180, 181.

Melizophilus striatus, discovered at Naoshera, Punjab, by Capt. Cock. [= *Drymæca inquieta*, Rüpp. See Blanford, Ibis, 1874, p. 76.]

5. *Letter from.* Ibis, 1872, pp. 469-470.

Contains remarks upon Mr. Hume's six new species described in 'The Ibis' for April 1872, p. 107.

6. *Notes on the Ornithology of Cashmir.* J. A. S. B. 1872, pp. 73-86.

Contains short notes on birds met with in Cashmir in May and June 1871. *Certhia hodgsoni*, *Sitta cashmirensis*, *Dumeticola major*, *Horeites pallidus*, *Phylloscopus tyleri*, *Motacilla cashmirensis*, and *Alauda guttata* are described as new.

7. *On two undescribed Cashmir Birds.* J. A. S. B. 1872, pp. 327-329.

These are called *Accentor jerdoni* and *Troglodytes neglectus*.

8. *The Swans of India.* Proc. A. S. B. 1872, pp. 63, 64.

Gives reasons for including *Cygnus olor* and *Cygnus ferus* amongst the birds of India.

9. *On a new Indian Sylvia.* Proc. A. S. B. 1872, p. 66.

[See No. 4.]

10. *On a new Species of Reguloides.* Proc. A. S. B. 1872, pp. 148-150.

Reguloides subviridis, from the north-west provinces, "not uncommon," but hitherto wrongly referred to *R. viridipennis*, Blyth.

BRUCE, H. J.

- Some of the Familiar Birds of India.* Am. Nat. 1872, pp. 460-471.

Notes on birds observed by the author at or near Rahiru, on the bank of the Mula river, in the broad valley of the Godavery.

BRUHIN, TH. A.

1. *Unsere gefiederten Wintergäste.* Zool. Gart. 1872, pp. 157, 158.

Notice of a few birds of Wisconsin, but far from being what one would expect from the title.

2. *Zur nordamerikanischen Vogelsprache.* Zool. Gart. 1872, pp. 187-188 and 221-222.

An endeavour to express the call-notes of certain North-American birds in words.

BUCKLEY, HENRY.

On some new or rare Bird's Eggs. P. Z. S. 1872, pp. 625-626.

The species referred to are *Falco polyagrus*, *Elanoides furcatus*, and *Ictinia mississippiensis*, all from North America.

BUCKLEY, T. E.

[Sec SHELLEY, G. E.]

BULLER, WALTER L.

1. *A History of the Birds of New Zealand.* London: Van Voorst, 4to.

Of this important work (since completed) four parts were issued in 1872. Part I. contains figures of the following species:—*Hieracidea novæ zealandiæ*, *Circus gouldi*, *Spiloglax novæ zealandiæ*, *Sceloglax albifacies*, *Stringops habroptilus*, *Nestor meridionalis*, *Nestor notabilis*, *Platycercus novæ zealandiæ*, *Platycercus auriceps*, *Heteralocha acutirostris*. Part II.:—*Eudynamis taitensis*, *Orthonyx albicilla*, *Orthonyx ochrocephala*, *Pogonornis cincta*, *Prothemadera novæ zealandiæ*, *Xenicus longipes*, *Xenicus gilviventris*, *Sphenæacus punctatus*, *Sphenæacus rufescens*, *Turnagra hectori*, *Turnagra crassirostris*. Parts III. & IV.:—*Creadion carunculatus*, *Glaucopis cinerea*, *Glaucopis wilsoni*, *Carpophaga novæ zealandiæ*, *Coturnix novæ zealandiæ*, *Ocydromus australis*, *Ocydromus earli*, *Rallus dieffenbachii*, *Rallus philippensis*, *Ortygometra affinis*, *Ortygometra tabuensis*, *Notornis mantelli*, *Thinornis novæ zealandiæ*, *Ardea sacra*, *Ardea novæ hollandiæ*, *Casarca variegata*, *Spatula variegata*, *Fuligula novæ zealandiæ*, *Hymenolæmus malacorhynchus*, *Larus bulleri*, *Larus dominicanus*.

2. *Letter from.* Ibis, 1872, pp. 332, 333.

On the species of *Hieracidea*, advocating the existence of two species in New Zealand.

3. Trans. & Proc. N. Z. Inst. vol. v. 1872 (iss. 1873), p. 405.

Some remarks on *Stringops greyi*, *Hieracidea brunnea*, and *Nestor occidentalis*.

BURMEISTER, DR. H.

Synopsis of the Lamellirostres of the Argentine Republic.
P. Z. S. 1872, pp. 364-370.

Twenty-four species are enumerated, and notes given on their localities, frequency of occurrence, and other matters.

CABANIS, DR. JEAN.

1. *Journal für Ornithologie.* XX. Jahrgang. Dritte Folge, 3. Band, mit 1 schwarzen u. 1 farbigen Tafel. (Leipzig, 1872: L. A. Kittler.)

The coloured plate represents the beautiful Tanager *Nemosia rourei*, Cab.; but no letterpress is given. The species was described two years ago (J. f. O. 1870, p. 459).

2. *Remarks on Falco lanarius, F. jugger, and F. mexicanus.*
J. f. O. 1872, p. 156.

The new generic term, *Pingohierax*, is proposed for these species.

3. *Remarks on Turdus auroreus, Pall.* This is said not to be the young of *T. sibiricus*, as hitherto believed, but the young of the American *T. nævius*, for which Cabanis has proposed the generic name *Hesperocichla*.
J. f. O. 1872, p. 157.

4. *Remarks on the male of Centurus polygrammus, Cab.,*
from Tehuantepec. J. f. O. 1872, p. 157.

5. *Descriptions of Ægialitis occidentalis, nov. spec., and Ægialitis gracilis, nov. spec.,* the latter from Tehuantepec; the habitat of the former is not mentioned. J. f. O. 1872, p. 157.

6. *Remarks on the Thamnophiline genus Diallyctes (major, Vieill. &c.),* of which are characterized as new *Diallyctes semifasciatus*, from Para, Guiana, and Venezuela, and *Diallyctes granadensis*, from Bogota. J. f. O. p. 233. (On the former, vide Finsch, P. Z. S. 1870, p. 567, *Thamnophilus major*.)

7. *On Cuculus canorus, its non-occurrence in Siberia,* where it is represented by *C. indicus* and *C. canorinus*. Radde's *C. canorus* is said to be *C. striatus*, Drap. Ibid. p. 235.

8. *On Oreocinclla lunulata, O. heinei, and O. macrorhyncha,* all from Australia and Tasmania. Ibid. p. 236:

9. Remarks on *Pyrrhula cassini*, Baird, as a Siberian species, of which the specimen first described from Alaska by Baird is considered to be an American straggler, and description of *Pyrrhula cineracea*, a new species from Siberia. *Ibid.* p. 315.
10. Descriptions of the following species, of which the names were published in the *Journ. f. Orn.*, 1866:—*Strix amauronota*, Cab., *Gerygone simplex*, Cab. (*modesta*, Cab., *l. c.* 1866, p. 10), *Cisticola semirufa*, Cab., *Dermophrys jagori*, Cab., *Oxyerca (Uroloncha) jagori*, Cab., *Gallinago heterocerca*, Cab. (= *heterura*, Cab., *l. c.* 1866, p. 28), all from Luçon, Philippines. *Ibid.* p. 317.
11. Description of *Oriolus formosus*, nov. spec., from Siou, Sangir Islands. *Ibid.* p. 392.

COLLETT, ROBERT.

1. *Remarks on the Ornithology of Northern Norway*. Forhandl. Vidensk. Selsk. Christiania, 1872, pp. 189–223.

This memoir embraces the ornithological facts resulting from the author's researches during the summers of 1871 and 1872 on the northern and central portions of the Norwegian coast, the results of 1870 having been already published* elsewhere. The notes are ample and of much value to students of distribution. Full details are given respecting the "*Rypeora*," usually supposed to be a hybrid between *Tetrao tetrix* ♂ and *Lagopus albus* ♀, but, according to our author, between the male Ptarmigan and Greyhen. Mr. Collett calls this form *Lagopus tetrici-albus*.

2. *Om Kraniets Assymetri hos Nyctala tengmalmi*. Vidensk. Selsk. Forhandl. Christiania, 1872, pp. 68–73 (with woodcuts).

For the most part a translation from the paper of the same author (*P. Z. S.* 1871, p. 739).

COUES, ELLIOTT, Assistant-Surgeon U. S. Army.

1. *Key to North-American Birds: containing a concise account of every species of living and fossil bird at present known from the continent north of the Mexican and United-States boundary*. Salem, 1872, 1 vol. 632 pp. large 8vo.

* Ornithologiske Bemærkninger til Norges Fauna (*Nyt Mag. f. Naturv.* xviii. p. 161).

This important work consists of three parts:—(1) the *Introduction*, containing a popular elementary treatise on the leading principles of ornithology; (2) the *Key*, being an artificial analysis of all the genera and subgenera in one continuous table; (3) the *Synopsis*, containing a systematic synopsis of all the North-American species. The orders, families, and genera are all characterized, and every species shortly described. Few references and no synonyms are given. Many woodcuts are introduced. This is, in our opinion, by far the best popular handbook on the birds of any part of the world yet published.

2. *Observations on Picicorvus columbianus*. Ibis, 1872, pp. 52–59.

An introductory article upon the life-history of this little-known species. Its synonymy is appended.

3. *Contributions to the History of the Blue Crow of America*. Ibis, 1872, pp. 152–158.

A similar article upon *Gymnokitta cyanocephala*.

4. *Studies of the Tyrannidæ*. Part I. *Revision of the Species of Myiarchus*. Proc. Acad. Phil. 1872, pp. 56–81.

Dr. Coues acknowledges 9 species of this difficult genus, dividing some of them into varieties, but is of opinion “that there are only four forms that do not intergrade.” We may remark that *Tyrannus irritabilis* of Vieillot, was *not* founded on Azara's *Suiriri pardo y roxo*, as Dr. Coues will see by turning to the original reference*. Dr. Coues should therefore alter his *Myiarchus crinitus*, var. *b*, *irritabilis*, l. c. p. 65, to var. *erythrocerus*. But in our opinion this “variety” is sufficiently distinct for specific rank.

5. *Material for a Monograph of the Spheniscidæ*. Proc. Acad. Phil. 1872, pp. 170–212, plates iv., v.

A valuable contribution to our knowledge of the Penguins, but deficient from non-access to specimens from properly determined localities. Dr. Coues acknowledges 2 species of *Aptenodytes*, 3 of *Pygoscelis*, 5 of *Eudyptes*, and 2 of *Spheniscus*—one of the last-named being divided into 2 “varieties.”

* Cf. Scl. et Salv. P. Z. S. 1868, p. 631.

Dr. Coues can never have seen the true *Spheniscus humboldti*; or he would not have united it to *S. magellanicus*.

6. *Osteological notes on the Spheniscidæ*. Proc. Bost. Soc. N. H. xiv. p. 251.

[See HYATT, PROF. ALPHEUS.]

DARWIN, F.

[See GARROD, A. H.]

DAVID, LE PÈRE ARMAND.

1. *Rapport adressé à MM. les Professeurs-Administrateurs du Muséum d'Histoire Naturelle*. Nouv. Arch. du Mus. d'Hist. Nat. vii. Bull. p. 75.

An interesting narrative of Père David's travels and important zoological discoveries in the interior of China.

2. *Observations Zoologiques faites dans la province de Tché-Kiang*. C. R. lxxv. (1872) pp. 64-65.

Contains remarks on an *Ibis* allied to *I. nippon*, which he proposes to call *Ibis sinensis*; on an *Elanus*, very shortly described as *E. sinensis*; and on a *Falco sacroides*, not described at all!

3. *Note sur une espèce nouvelle de Paradoxornis, découverte en Chine, sur un lac du Kiangsou*. C. R. lxxiv. p. 1449, et R. Z. 1872, p. 359.

Paradoxornis heudei, named after its discoverer Père Heude, missionary priest at Shanghai.

4. *Quelques Renseignements sur l'Histoire Naturelle de la Chine Septentrionale et Occidentale*. J. N. China Branch Roy. Asia. Soc. 1871-72, pp. 228-229.

A letter, dated August 1872, containing an outline of the writer's travels and discoveries in China, and of his principal discoveries in every branch of natural history.

DEGREAU, LAURENT.

- La Puissance de l'aile, ou l'Oiseau pris au vol, classification alaire, précédé d'une préface de Charles Poncy*. 1 vol. 8vo: Marseille et Paris, 1871.

We only know this work from the notice of it, R. Z. 1872, p. 238.

DEVIC, MARCEL.

Sur quelques passages d'un écrivain arabe du X^e siècle, relatifs aux oiseaux gigantesques de l'Afrique sud-orientale.
Compt. Rend. lxxv. (1872) pp. 1782-1784.

Contains extracts from the "Merveilles de l'Inde" of an Arab writer of the 10th century relating to a gigantic bird on the Zanzibar coast, of which portions of the quills were used as water-pots!

DILLON, J. F.

Letter from. Ibis, 1872, pp. 470, 471.

On a specimen of *Elanus melanopterus*, said to have been killed in Ireland.

DODERLEIN, PIETRO.

1. *Avifauna del Modenese e della Sicilia.* Fascicolo quarto, pp. 173-264 (Palermo, 1872).

(See Ibis, 1872, p. 422.)

2. *Alcune Generalità intorno la Fauna Sicula dei Vertebrati.*
Ann. Soc. Mod. anno vi. (1872).

Contains some general remarks on the Sicilian avifauna.

DORNER, DR. H.

1. *Nachrichten aus dem zool. Garten in Hamburg.* Zool. Gart. pp. 97-107.

Relates to the Manu-mea, *Didunculus strigirostris*. Previous observations on the habits of this rare bird are collected and compared with those of a living specimen brought over by Dr. Graffe, and now in the zoological gardens at Hamburg. A woodcut illustrates the bird.

2. *Die Papageien-Ausstellung der zoologischen Gärten zu Hamburg.* Svo, pp. 48. Hamburg, 1872.

This seems to be entirely extracted from Finsch's monograph of the Parrots, as are also the short descriptions of the 78 species of living Parrots which were exhibited—a fact which the compiler ought to have mentioned.

DRESSER, H. E.

1. *Exhibition of, and remarks on, some Skins and Eggs of various Species of Reguloides and Phylloscopus.* P. Z. S. 1872, pp. 25, 26.

The species are those mentioned by Mr. Brooks in his

paper in 'The Ibis' (*q. v.*), and also *Phyllopneuste brehmi*, Homeyer, obtained by Mr. Robson near Constantinople, which is considered by Mr. Dresser to be the same as an Indian species, *P. tristrami*, Brooks, MS.

2. *Exhibition of, and remarks upon, the Skins of various Eagles* (Aquila). P. Z. S. 1872, pp. 863-865.

Mr. Dresser's remarks relate to the Imperial and Tawny Eagles and their allies. The Spanish Imperial Eagle is recognized as distinct from *A. mogitnik* and called "*A. adalberti*, R. Brehm."

[See also SHARPE and DRESSER.]

DROSTE, FERDINAND BARON.

Die Vogelschutzfrage. Münster: 1872 (E. C. Brunn).

An essay on what birds are useful and what injurious in agriculture, horticulture, and forestry, and in general. A systematic catalogue of 110 principal species shows their differences in these various respects.

DROSTE, FERDINAND BARON, and BORGGREVE, DR. B.

Bericht über die 19. Versammlung der deutschen Ornithologen-Gesellschaft zu Cassel. Münster: 1872 (E. C. Brunn).

This report contains, besides the general account of the proceedings of the German Ornithologists' Society, several special essays, noticed under the heads of their authors' names.

EHLERS, PROF.

Die Entwicklung des Luftröhrenwurmes der Vögel *Syngamus trachealis*. Zool. Gart. pp. 25-28 (from the Sitzungsber. der phys.-med. Soc. zu Erlangen, 1871).

An interesting account of the development of this parasite, which is so dangerous to birds.

ELLIOT, D. G.

1. *A Monograph of the Phasianidæ or Pheasants*. Part vi.

This part (which concludes this splendidly illustrated work) contains figures of *Calophasis ellioti*, *Pucrasia darwini*, *Phasianus sammerringi*, var. *scintillans*, and a male hybrid between *Thaumalea amherstiae* and *T. picta*, besides the title-pages, index, introduction, &c. of the two volumes.

2. *On Nyctale kirtlandi*. Ibis, 1872, pp. 48-52.

Maintains that this so-called species is the young of *N. tengmalmi*, and that *N. richardsoni*, the North-American representative of *N. tengmalmi*, is not really specifically distinguishable.

[But see RIDGWAY, Am. Nat. 1872, p. 283.]

3. *Descriptions of two Genera of Paradiseidæ, with remarks on some of the Species*. Ibis, 1872, pp. 111-114.

The genera described are *Xanthomelus* (proposed by Bonaparte in 1854) for *Oriolus aureus*, Linn., and *Amblyornis*, gen. nov., for *Ptilorhynchus inornatus* of Schlegel. Mr. Elliot also refers *Sericulus xanthogaster* of Schlegel to the genus *Chlamydodera*.

4. *Description of a supposed new Species of Humming-bird of the Genus Eriocnemis*. Ibis, 1872, pp. 293-295.

Describes *E. dyselius*, sp. nov., from an unknown locality.

5. *The Humming-birds of the West Indies*. Ibis, 1872, pp. 345-357.

Gives a complete list, with critical remarks, of the Trochilidæ of the Antilles. The name *Chrysolampis chlorolæmus*, Elliot, is changed to *Lampornis calosoma*. A table showing the geographical distribution of the West-Indian Trochilidæ in the different islands is appended.

ELWES, H. J.

- A Revision of the Genus Henicurus*. Ibis, 1872, pp. 250-262, plate ix.

A concise but complete account of the species of this well-marked genus, of "doubtful affinity," though usually placed with the Wagtails. Nine species are recognized, and full particulars given of each of them.

FEILDEN, CAPT. HENRY W.

- The Birds of the Færoe Islands*. Zool. pp. 3210-3225 and 3245-3257.

Contains some interesting notes, but mainly based on Müller's excellent article "Færöernes Fuglefauna" (Vid. Medd. ser. 2. iv. p. 1).

FINSCH, DR. OTTO.

1. *Remarks on some Birds of New Zealand.* Trans. & Proc. N. Z. Inst. vol. v. 1872, pp. 206-212.

Short notices of 43 species, chiefly as regards their specific value and systematic position: *Petroica longipes* and *P. albifrons* are referred to the genus *Myioscopus*, Reich., and *Petroica macrocephala* and *P. toitoi* to *Myiomoira*, Reich. *Ocydromus australis*, Sparrm., is said to be different from *O. troglodytes*, Gm. *Larus melanorhynchus*, Bull., *L. jamesoni*, Hutt., and *L. bulleri*, Potts, are referred to *L. pomare*, Bruch, of which the author has examined the types in the museum of Mayence.

2. *On Charadrius asiaticus and C. damarensis.* Ibis, 1872, pp. 144-147.

Dr. Finsch's view is that the larger of these two Plovers, which is called by Mr. Harting (Ibis, 1870, p. 209) *Eudromias veredus*, is the true *Charadrius asiaticus* of Pallas. (But see what Mr. Swinhoe says, Ibis, 1870, p. 365.) The smaller, Dr. Finsch would call *Charadrius damarensis*.

3. *Remarks on the "Synopsis of the Genus Chettusia (Lobivanellus), with a description of a new Species, by J. A. Ogden."* Proc. Acad. Phil. 1872, p. 32.

Shows that Mr. Ogden's supposed new species, *Chettusia nivifrons*, is *Limnetes crassirostris* (De Filippi), and gives other critical remarks on Mr. Ogden's paper.

4. *Zur Ornithologie der Samoa-Inseln.* Journ. f. Orn. 1872, pp. 30-58.

A revised list of the birds of this Pacific group, enumerating 51 species. *Phlegænas samoensis* and *P. vitiensis* are names proposed for the species of these islands respectively, in case, as the author believes, they prove to be different.

5. *Revision der Vögel Neuseelands.* Journ. f. Orn. 1872, pp. 81-112, 161-188, et 240-274.

A continuation of former papers on the Ornithology of New Zealand. Of 149 species enumerated as inhabiting these islands, 14 are considered doubtful. *Apteryx mantelli* is regarded as only separable as a race of *A. australis*.

6. *Ueber eine Vögelsammlung aus den Küstenländern der chinesischn-japanischen Meere.* Verhandl. k. k. zool.-bot. Gesellsch. Wien, vol. xxii. pp. 253-272.

Contains an account of 57 species of birds, mostly collected by Capt. Paul Conrad in Japan. Three species from Corea (*Scops japonicus*, *Anthus pratensis*, and *Phalaropus cinereus*) are, so far as we know, the first recorded birds from this part of Eastern Asia, if we except some rather problematical species of Schlegel. As usual, the author gives many valuable notes on identifications and on other points.

7. *Ueber die von Frau Amalie Dietrich in Australien gesammelten Vögel.* Verhandl. k. k. zool.-bot. Gesellsch. Wien, vol. xxii. 1872, pp. 315-340.

Enumerates 205 Australian birds, mostly collected in Queensland by Frau Dietrich for the Museum Godeffroyanum. Many remarks and descriptions of unknown stages of plumage are added.

8. *Zur Ornithologie Nordwest-Amerikas.* Abhandl. des naturwiss. Vereins zu Bremen, Band iii. 1872, pp. 17-86.

Contains an account of 55 species of birds from Alaska, which the Lubeck museum received from Mr. Heller, of San Francisco. Many valuable notes on synonymy are given. The species collected by Von Kittlitz at Sitka are included, and a useful list is added of the species figured in the unpublished plates of J. F. von Brandt, which are often referred to as "Brandt, Orn. Ross." or "Brandt, Icon. Av. Ross."

[See also HARTLAUB, DR. G.]

FINSCH, DR. O., and HARTLAUB, DR. G.

- Kritik über: Giebel's 'Thesaurus Ornithologiae.'* Journ. f. Orn. 1872, pp. 225-230.

A free but truthful criticism on this important publication, giving many references to the numerous and dreadful blunders which it contains.

FISCHER, JOH. VON.

- Verzeichniss der Vögel des St. Petersburger Kreises.* Journ. f. Orn. pp. 385-390.

An enumeration of 147 species of birds observed in this district of Russia by the writer.

FRASER, HON. CAPTAIN T.

A description of the Earnsclough Moa Cave. Trans. & Proc. N. Z. Inst. vol. v. 1872 (iss. 1873), pp. 102-105.

Records an interesting discovery of Moa-bones along with parts of the skin and egg.

FRAUENFELD, GEORG, RITTER VON.

Die Frage des Vogelschutzes. Ein Vortrag gehalten im Verein zur Verbreitung naturwissenschaftlicher Kenntnisse in Wien, 1872.

The author is well acquainted with the subject, and answers the questions relating to it very satisfactorily.

FREYBERG, BARON VON.

Beobachtungen über die Gefrässigkeit unseres Kukuks, Cuculus canorus. Zool. Gart. 1872, pp. 339, 340.

Interesting facts concerning the quantity which a young Cuckoo needs for daily food.

FRICTSCH, DR. ANTON.

Die Vögel Böhmens. (Schluss.) Journ. f. Orn. 1872, pp. 366-384.

In the last part of this paper a special enumeration of the species of birds inhabiting and visiting Bohemia is given, raising the total number, including the stragglers, to 297.

GARROD, ALFRED HENRY.

1. *On the Mechanism of the Gizzard in Birds.* P. Z. S. 1872, pp. 525-529.

The author propounds a new view of the action of the gizzard in birds, which he regards as a simple crushing organ, without any (or with very little) lateral or grinding movement.

2. *Notes on the Anatomy of the Huia Bird (Heteralocha gouldi).* P. Z. S. 1872, pp. 643-647.

Shows that *Heteralocha* is truly Passerine, allied to the Sturnidæ, and not related to *Upupa*, as usually supposed.

3. *Note on the Tongue of the Psittacine Genus Nestor.* P. Z. S. 1872, pp. 787-789.

The author shows that the tongue of *Nestor* is by no means fashioned like that of the Lories, and concludes that this genus should not be referred to the Trichoglossinæ.

4. *Note on some of the Cranial Peculiarities of the Woodpeckers.* Ibis, 1872, pp. 357-360.

Mr. Garrod describes a small median bone between the palatines in Woodpeckers, and supported like a vomer on the basisphenoid rostrum. This he believes to be the vomer, which Prof. Huxley believed to be wanting in this group. The bone is figured in a woodcut of the palate of *Gecinus viridis*, p. 359.

GARROD, A. H., and DARWIN, F.

- Notes on an Ostrich lately living in the Zoological Society's Gardens.* P. Z. S. 1872, pp. 356-363.

Contains remarks on the anatomy, and in particular describes and figures a new bone attached to the anterior border of the pubic portion of the os innominatum. The bird examined died from copper-poisoning, caused by swallowing a large number of copper coins.

GIEBEL, DR. C. G.

1. *Thesaurus Ornithologiae. Repertorium der gesammten ornithologischen Literatur und Nomenclator sämmtliche Gattungen und Arten der Vögel nebst Synonymen und geographischer Verbreitung.* 1 vol. in 2 Halbbänden. Lexiconf. pp. 868. Leipzig: F. A. Brockhaus, 1872.

The well-known Professor of Halle, who has already furnished zoological literature with many works on various branches, has now entered on ornithology, and with a work which all ornithologists would salute with the utmost pleasure and thankfulness if it had been carried out in a somewhat better way. The title promises very much; but the work itself proves to be merely a compilation of a laborious writer who has collected an enormous mass of names and synonyms, without such understanding of the subject as the author of such a pretentious work ought to have. Some of the numerous and indescribable blunders and errors in the bibliographical part are corrected in the reprint of pp. 193-212 appended to the second half-volume. To this volume the author also appends a reprint of his "defence" (*Zeitschr. f. ges. Naturw.* 1872, pp. 130-137) against the criticisms which appeared in 'Literarisches Centralblatt für Deutschland' von

Prof. Fr. Zarnke (No. 9, 2 März, 1872, pp. 215-217), and directs his attacks chiefly against Dr. Hartlaub, although the author of these criticisms is really Dr. Finsch (*l. c.* p. 318).

2. *Thesaurus Ornithologiae. Selbstanzeige des Verfassers.* Journ. f. Orn. 1872, pp. 65-67.

A Report of the author on his own work and on the mode of its preparation, explaining that he did all he could to make it as complete as possible. As regards this point we need only refer to the criticisms of Drs. Finsch and Hartlaub (*v. ant.* p. 448), which give a good idea of the imperfections and errors of the work.

3. *Über die Gattung Peltops, Wagl.* Zeitschr. für die gesammten Naturw. neue Folge, 1872, Band v. pp. 481-485.

Compares and distinguishes the characters of *Peltops* and *Cymbirhynchus*. According to his pterylographical researches the author is led to believe in a relation between *Peltops* and *Todus*. But compare Selater's remarks, *Ibis*, 1872, p. 177.

4. *Vogelschutzbuch. Die nützlichen Vögel unserer Aecker, Wiesen, Gärten und Wälder. Nothwendigkeit ihrer Pflege und Schonung u. ihre hohe Bedeutung für die Vertilgung schädlicher Thiere.* 3. Auflage, Berlin, 1872. Wiegand und Hempel, 8vo, pp. 162, with 88 woodcuts (heads and feet).

After some general remarks on this subject, descriptions of 75 species of birds considered "useful" are given, together with notes on their habits, distribution, &c.

5. *Zeitschrift für die gesammten Naturwiss. Neue Folge,* 1872, Band v.

Merely as a matter of curiosity we notice that p. 429 includes a criticism on Finsch and Hartlaub's 'Vögel Ost-Africas' (see *Ibis*, 1870, p. 433), which characterizes this elaborate work as scarcely of any use, &c., a subjective opinion in which no working ornithologist will agree.

GIRTANNER, DR. A.

Ornithologischer Streifzug durch Graubünden ausgeführt im Juni 1871. Verh. der St. Gallischen naturw. Ges. 1870-71; and Separatabdruck: St. Gallen, 1872 (Zollikofer), pp. 72, 8vo.

A very interesting and attractively written account of several excursions in the high Alps and of the birds observed amongst them, especially *Aquila fulva* and *Fregilus graculus*. Some new evidence that *Gypaetus barbatus* sometimes attacks mankind is given.

GLASER, PROF. L.

Zur Sperlingsfrage. Zool. Gart. 1872, pp. 292-301.

After a recapitulation of the pros and cons whether our *Passer domesticus* is a useful bird or not, the author comes to the conclusion that the question is not yet to be settled.

GODMAN, F. DU CANE.

Notes on the Resident and Migratory Birds of Madeira and the Canaries. Ibis, 1872, pp. 158-177, 209-224.

Mr. Godman visited Teneriffe, Palma, and Gran Canary in the spring of 1871, and subsequently Madeira. After a short account of his ornithological experiences, he gives a complete list of the resident and regular migratory birds of Madeira and the Canaries, with remarks principally on their time of occurrence and distribution. The species included in the list are 85 in number. The two species of *Columba*, *C. laurivora* and *C. trocaz*, which have been much confounded together, are carefully discriminated, and a third of the group (from Teneriffe) described as *Columba bollii*.

GODWIN-AUSTEN, MAJOR H. H.

Third list of Birds obtained in the Khasi and Garo hill-ranges, with some corrections and additions to the former lists. J. A. S. B. 1872, pp. 142-143.

Gives 25 species additional to former lists, and notices several alterations in nomenclature.

GOEBEL, H.

Ueber Aquila pennata und minuta. Journ. f. Orn. 1872, pp. 454-463.

After an extensive and systematic report on the eggs, nests, colour and call of the parent birds observed and collected by him near Uman, in Russia, the author comes to the conclusion that, after all his researches, he is unable to say whether

A. minuta is distinguishable as a species from *A. pennata* or not.

GOULD, JOHN.

1. *The Birds of Asia*. Part xxiv. London: 1872.

Mr. Gould's yearly part contains figures of the following species: *Strix indica*, *Strix candida*, *Trochalopteron phœniceum*, *Trochalopteron formosum*, *Pitta arquata*, *Pitta megarhyncha*, *Ithaginis geoffroyii*, *Cerionis blythii*, *Turdinus brevicaudatus*, *Yuhina diademata*, *Pellorneum palustre*, *Gallinula phœnicura*, *Eurynorhynchus pygmaeus*, *Passer ammodendri*, *Cypselus infumatus*.

2. *The Birds of Great Britain*. Parts xxi., xxii. London: 1872.

These two parts (bearing the dates August and September) contain figures of the following species: *Neophron percnopterus*, *Anas boschas*, *Nyroca leucophthalmos*, *Cygnus olor*, *Cygnus fesus*, *Cygnus minor*, *Tetrao urogallus*, *Calamoherpe palustris*, *Euspiza melanocephala*, *Curruca orphea*, *Melanocorypha calandra*, *Squatarola helvetica*, *Falcinellus igneus*, *Machetes pugnax*, *Falco gyrfalco*, *Falco islandus*, *Falco candicans*, *Milvus migrans*, *Petrocossyphus cyanus*, *Budytes cinereocapilla*, *Actiturus bartramius*, *Botaurus lentiginosus*, *Rhodostethia rossii*, *Ancylocheilus subarquata*, *Actochelidon cantiana*, *Phalacrocorax graculus*.

3. *Exhibition of, and Remarks on, a Specimen of Ross's Gull* (*Larus rossi*) in Adult Summer Plumage. P. Z. S. 1872, p. 1.

4. *Descriptions of two new Species of Humming-Birds*. Ann. & Mag. N. H. ser. 4. ix. pp. 195, 196 (1872).

The two species here described are called *Heliangelus micraster*, from St. Lucas, near Loxa, in Ecuador; and *Chlorostilbon pumilus*, from Citado and Pallatanga, in Ecuador.

5. *On a new Species of Thrush pertaining to the Genus Oreocincla*. Ann. & Mag. N. H. ser. 4. ix. p. 401 (1872).

Oreocincla iodura, from "Queensland and Northern Australia."

6. *On two new Species of Birds.* Ann. & Mag. N. H. ser. 4. x. p. 114 (1872).

Dicaeum retrocinctum, from the Philippines, and *Colluricincla parvissima*, from "Rockingham Bay, East Australia."

7. *Descriptions of three new Species of Humming-birds.* Ann. & Mag. N. H. ser. 4. x. pp. 452-453 (1872).

The three species here described are called:—*Iolæma white-lyana*, from Cosnipata, province of Cusco, in the Peruvian Andes; *Adelomyia chlorospila*, from San Antonio, in the Peruvian Andes; and *Adelomyia cervina*, from near Medellin, in Columbia.

GRAY, ROBERT.

1. *Letter from.* Ibis, 1872, pp. 201, 202.

On a specimen of Balearic Crane (*Grus pavonina*) shot near Dalry, in Ayrshire.

2. *Letter from.* Ibis, 1872, pp. 335, 336.

On Pallas's Sand-Grouse seen in Ayrshire.

GRAYSON, COL. ANDREW J.

On the Physical Geography and Natural History of the Island of the Tres Marias and of Socorro, off the Western Coast of Mexico. By Col. ANDREW J. GRAYSON. Edited by GEO. N. LAWRENCE. Proc. Bost. Soc. N. H. xiv. pp. 261-302.

Contains an account of the late Col. Grayson's expeditions to the islands of Tres Marias and Socorro, off the western coast of Mexico, and Catalogues of their birds. In Tres Marias 53 species were met with, amongst which was a new Humming-bird of the genus *Pyrrhophæna*, named by Mr. Lawrence *P. graysoni*. Other species, peculiar but already described, are *Granatellus francescæ*, Baird, and *Icterus graysoni*, Cassin.

Socorro, belonging to the Revillagigedo group, was visited by Col. Grayson in 1867. Here 14 species were obtained, amongst which were the new species described by Lawrence and Baird in 1871. (See Ibis, 1872, p. 440.)

GULLIVER, GEORGE.

On the Œsophagus of the Pied Hornbill (Toccus melano-leucus): being an Appendix to a paper on the Taxonomic

Character of the Muscular Sheath of that Tube as regards Sauropsida. P. Z. S. 1872, pp. 16-18.

Mr. Gulliver shows that this bird has no transversely striated muscular fibre on the œsophagus, and agrees in this respect with the rest of the class Aves.

GUNDLACH, DR. JEAN.

Neue Beiträge sur Ornithologie Cubas. Nach Eigeners 30-jährigen Beobachtungen zusammengestellt. Journ. f. Orn. 1872, pp. 401-432.

A continuation of this highly valuable paper, mentioned in our last Index (Ibis, 1871, p. 431), treating of the species of Turdidæ, Sylviidæ, Sylvicolidæ, Tanagridæ, Tyrannidæ, Muscicapidæ, and Hirundinidæ.

GÜNTHER, DR. A.

Note on a Deformed Example of Cariama cristata. Ann. & Mag. N. H. ser. 4. x. p. 67.

The specimen described is in the British Museum: it has an abnormally short neck and legs.

GURNEY, JOHN HENRY.

1. *Notes on the Birds of Damara Land and the adjacent Countries of South and West Africa.* By the late CHARLES JOHN ANDERSSON. Arranged and edited by JOHN HENRY GURNEY. London: 1872. 8vo, pp. 394.

A valuable contribution to our knowledge of South-African ornithology. Besides Andersson's notes, remarks on questions of synonymy, distribution, &c. are added by the editor. The species commented upon are 428 in number, "observed either as residents, as migrants, or as accidental visitors in that part of South-western Africa, of which Damara Land is the central portion," identified in most cases by the editor from personal examination. The frontispiece gives a map of the district; and three lithographic plates are added of the sternum and trachea of *Mächirhamphus anderssoni*.

2. *Letter from.* Ibis, 1872, p. 83.

On a supposed Indian specimen of *Athene noctua*, which is identified as *A. brama*, and on *Otus brachyotus* from the Sandwich Islands.

3. *Letter from.* Ibis, 1872, p. 327-330.

Notes on certain Accipitres from the island of Formosa, on *Aquila clanga*, *Oreocincla*, on the incubation of the Ostrich, and on the occurrence of *Somateria stelleri* in the North Pacific.

4. *Letter from.* Ibis, 1872, pp. 472, 473.

Refers the Spanish Eagles typical of *Aquila adalberti* in the Norwich Museum to *Aquila imperialis*.

HANF, P. BLASIUS.

Ornithologische Beobachtungen am Furtteiche zu Mariahof im Jahre 1871. Verhandl. der k. k. zool.-botan. Gesellsch. Wien, Band xxii. 1873, pp. 399-404.

Pater Hanf gives notices of the birds observed by him during their migration in spring and autumn on the Furt lake, near Judenburg, in Styria. Amongst these are *Anthus richardi* and *A. rufogularis*.

HANSMAN, DR. A.

Unter den Cormoranen. Journ. f. Orn. 1872, pp. 310-314.

A record of an excursion to the breeding-places of Cormorants in the neighbourhood of Stettin.

HARTING, JAMES EDMUND.

A Handbook of British Birds, showing the Distribution of the Resident and Migratory Species in the British Islands, with an Index to the Records of the Rarer Visitants. London: 1872. 8vo, pp. 198.

This is a list of British birds, with an account of the time of occurrence and distribution of each Species in the British Isles. The first part contains "British birds, properly so called, being residents, periodical migrants, and annual visitants." The second enumerates "the rare and accidental visitants," and is likely to be exceedingly useful to students of the British ornithology, as giving under the head of each species an exact account of the place and time of every occurrence and a reference to the work in which it is recorded.

HARTLAUB, DR. G.

Bericht über die Leistungen in der Naturgeschichte der Vögel während des Jahres 1871. Wiegmann's Arch. Jahrg. xxxviii. 1872.

Dr. Hartlaub's report on the progress of our favourite branch of biology in 1871 is drawn up with his usual care and accuracy. We regret to have to add that after twenty-five years' performance of this arduous task, Dr. Hartlaub cannot undertake to continue it longer. We believe Herr August von Pelzeln, of Vienna, is to be his successor.

[See also FINSCH, Dr. O.]

HARTLAUB, G., and FINSCH, O.

On a Fourth Collection of Birds from the Pelew and Mackenzie Islands. P. Z. S. 1872, pp. 87-114.

Contains an account of a collection formed in the Island of Uap, of the Mackenzie group, by Mr. Kubary (a traveller in the service of Mr. Godeffroy of Hamburg), and of birds collected by Capts. Heinsohn and Peters (masters of vessels belonging to Mr. Godeffroy) partly in the same island and partly in the Pelews. Eleven species are thus added to the fauna of the Pelew Islands, making 53 in all, and 14 to that of the Uap, the only explored island of the Mackenzie group, where only 6 were previously known. The new species described are 9:—*Noctua podargina* and *Caprimulgus phalæna* from the Pelews; *Zosterops hypolais*, *Z. oleaginea*, *Rhipidura versicolor* and *Campephaga nesiotis* from Uap; *Campephaga monacha* and *Phlegænas canifrons* from the Pelews, and *Phlegænas yapensis* from Uap.

HEUGLIN, TH. VON.

1. *Reisen nach dem Nordpolarmeer in den Jahren 1870 und 1871.* Erster Theil. 1 vol. 8vo. Braunschweig: 1872.

This volume contains the narrative of the expedition. Many incidental allusions to birds are introduced. The second volume will contain an account of the scientific results of the expedition.

2. *Ornithologie Nordost-Africas, der Nilquellen, und Küsten-Gebiete des Rothen Meeres und des nordlichen Somalilandes.* Lexiconf. (Cassel: Theodor Fischer). 1872, Lief. 32—? (pp. 853-1044).

We fully agree with the many complaints of the irregular appearance of this large work, and are not able to state how

many parts were issued in 1872, as they bear no sign of date or number. As far as we can ascertain, pp. 850-1044 were issued, containing the Gallinæ, Struthionæ, and Grallæ as far as *Dromas ardeola*. The following birds are figured:— Tab. i. *Falco semitorquatus*; iii. *Circætos zonurus*, ad. et jun.; vi. *Merops cyanophrys*; vii. *Atticora griseopyga*; ix. *Catruscus apicalis*; x. *Tricholais elegans*; xi. *Eremomela griseo-flava*; xiii. *Bessornis heuglini*; xv. *Elminia longicauda minor*; xvi. *Muscicapa minima*, *M. aquatica*; xvii. *Stenostira plumbea*, ad. et jun.; xix. a. *Hyphantica hæmatocephala*; xxiii. *Geocoraphus modestus*; xxiv. *Corythæix leucolophus*; xxv. b. *Schizhoris personata*; xxvi. *Psittacus citreicapillus*; xxvii. Heads of *Pogonorhynchus rolletii*, *P. leucocephalus*, and *P. diadematus*; xxviii. *Barbatula uropygialis*; xxx. *Francolinus schlegelii*.

3. *Notes on the Birds of Novaja Zemlia and Waigats Island*. Ibis, 1872, pp. 60-65.

A short account of the ornithological results of the author's voyage to Novaja Zemlia in 1871. The list of birds of Waigats Island and Novaja Zemlia appended contains 43 species, besides others seen but not obtained during Hr. v. Heuglin's expedition.

4. *Die Rosenthal'sche Expedition nach dem Nordpolarmeer. Ornithologie von Novaja Semlja und der Waigatsch-Insel*. Journ. f. Orn. 1872, pp. 113-128.

An enumeration of the birds of Novaja Semlja, 31 of which were observed by the author himself during his last arctic voyage, the others by Von Baer and Gillett, amounting altogether to 43 species.

5. *Nachtrag zur Ornithologie von Novaja-Semlja und der Waigatsch-Insel*. Journ. f. Orn. 1872, p. 464.

Falco æsalon is added to the avifauna of this arctic region.

6. *Nachrichten über Novaja-Semlja. Auszug aus einem Schreiben an Hrn. v. Middendorf*. Bull. Ac. Imp. St. Pétersb. xvi. p. 566; Mém. Biol. viii. pp. 220-225.

Gives a short account of the above-mentioned visit to Spitzbergen and Waigatsch, and of the birds observed and obtained.

HOCKER, J.

Schwarze Eier Hausenten, *Anas boschas*. Journ. f. Orn. pp. 232, 233.

On a case of a Duck laying black eggs.

HOLDEN, JR., C. H.

Notes on the Birds of Wyoming and Colorado Territories; with additional Memoranda by C. E. AIKEN. Proc. Bost. Soc. N. H. xv. pp. 193-211.

Contains observations on 142 species, mostly collected near the Black Hills in the northern part of Colorado and Southern Wyoming. Eggs of many interesting species were obtained.

HOLDSWORTH, E. W. H.

1. *Catalogue of the Birds found in Ceylon, with some Remarks on their Habits and Local Distribution, and Descriptions of two New Species peculiar to the Island*. P. Z. S. 1872, pp. 404-483, tt. xvii.-xx.

A very complete catalogue, preceded by explanatory remarks on the general character of the Ceylonese avifauna. The range of the species and critical notes on their affinities and habits are given. The new species described are *Arrenga blighi* and *Zosterops ceylonensis*. These are both figured, as are also *Erythrosterna hyperythra*, *Brachypteryx palliseri*, and *Zosterops palpebrosus*. The total number of Ceylonese birds enumerated is 323, of which 37 are restricted to the island.

2. *Letter from*. Ibis, 1872, pp. 473, 474.

Relates to the occurrence of *Emberiza huttoni* in China.

HOLTZ, LUDWIG.

1. *Ueber Molobrus-Eier, zu Cantagallo in Brasilien von C. Euler gesammelt*. Journ. f. Orn. 1872, pp. 193-201.

A continuation of the author's former paper on this subject (Journ. f. Orn. 1870, pp. 15-19) and in the same tedious style, but curiously enough without naming the species. The figures of "*Molobrus-Eier*" on tab. i. (figs. a-e) belong to this paper, although they are not cited at all.

2. *Aquila pennata*. Journ. f. Orn. 1872, p. 286-305.

In his usual lengthy manner the author describes a series of this species and their eggs, taken by him near Uman, in

Russia, and comes to the conclusion that *Aquila minuta*, Brehm, is *not* a good species.

3. *Die Raubvögel Neu-Vorpommerns und der Inseln Rügen, Usedom und Wollin.* Mittheilungen aus dem naturw. Verh. von Neu-Vorpommern und Rügen, 3. Jahrg. 1871, pp. 12-39.

This paper was overlooked in our last Index; 28 species of diurnal and nocturnal Rapaces are recorded, with notes on their nest, breeding, &c.; a single instance of the occurrence of *Vultur fulvus* is stated.

HOMeyer, E. F. von.

1. *Die sibirischen Laubvögel.* Journ. f. Orn. 1872, pp. 201-239.

Relates to 9 species of Warblers obtained from Siberia by L. Taczanowski, and their distinctive characters; but the determinations of the species and their synonyms are apparently in some cases wrong. Thus *Phyllopneuste indica* (p. 203) has nothing to do with *P. magnirostris*, Bl.; *P. evermanni* (p. 204) is the true *magnirostris*, Bl., and not *evermanni* of Bonaparte; *P. coronatus*, "T. & S." is *P. viridanus*, Bl., &c.

2. *Ferd. Baron Droste, Bericht über die xviii. Versammlung der deutschen Ornithologen-Gesellschaft, 1870.* Journ. f. Orn. 1872, pp. 305-309.

A correction in respect of the occurrence of a number of species mentioned in the above-cited pamphlet.

3. *Bemerkungen über einige Vögel Norddeutschlands mit besonderer Rücksicht auf die Vögel Pommerns.* Journ. f. Orn. 1872, pp. 332-340.

Short remarks on the occurrence of a number of species in this part of Germany.

HUDSON, W. H.

1. *On the Birds of the Rio Negro of Patagonia; with Notes by P. L. SCLATER.* P. Z. S. 1872, pp. 534-550, t. xxxi.

A very interesting series of notes on the birds obtained by the author during a visit to Carmen, on the Rio Negro of Patagonia. Altogether 126 species were procured, 93 of which are also found on the pampas of Buenos Ayres. The species

are determined and notes are added by Mr. Sclater. One species (*Cnipolegus hudsoni*) is described by Mr. Sclater as new, and figured, pl. xxxi.

2. *On the Habits of the Swallows of the Genus Progne met with in the Argentine Republic; with Notes by P. L. SCLATER.* P. Z. S. 1872, pp. 605-609.

The Swallows spoken of are three of the genus *Progne*, on the species of which Mr. Sclater gives a note.

3. *Notes on the Habits of the Churinche (Pyrocephalus rubineus).* P. Z. S. 1872, pp. 808-810.

4. *Further Observations on the Swallows of Buenos Ayres.* P. Z. S. 1872, pp. 844-846.

Gives notes on the habits of *Atticora cyanoleuca* and *Hirundo leucorrhœa*.

HUME, ALLAN.

1. *Descriptions of Six new Species of Indian Birds.* Ibis, 1872, pp. 107-111.

The species described are:—*Chrysomitris thibetana* and *Dumeticola cyanocarpa*, from Sikim; *Horornis erythrogegens* and *Horeites brunnescens*, from Darjeeling; *Siphia minuta*, from Sikim; and *Drymœpus rufescens*, widely diffused in Northern India.

2. *Letter from.* Ibis, 1872, pp. 468-469.

Contains a list of birds obtained in Scinde.

3. *Notes on a few Species of Barmese Birds.* Proc. A. S. B. 1872, pp. 70, 71.

These were collected by Capt. Fielden at Thayetmyo, and include *Lithofalco fieldeni* [see Walden *infra*, p. 491] and *Micropternus barmanicus*, "a race" of *M. phaiiceps*.

4. *Novelties.* Str. Feath. i. pp. 1-10 (1872).

Ptionoprogne cinerea, from Sindh; *Saxicola alboniger*, from Sindh; *Pellorneum palustre*, from the Khasia Hills; *Puffinus persicus*, from the coast of Kurrachee; *Pomatorhinus obscurus*, from Mount Aboo; *Ephialtes brucei*, from near Ahmednuggur; *Drymoipus insignis*, from Saugor, Mount Aboo, and Raipoor; *Ninox obscurus*, from the Nicobars; *Mirafra immaculata*, from

the neighbourhood of Mussoorie; *Procarduelis mandellii*, from Darjeeling; and *Eudromias tenuirostris*, from Burmah.

5. *Falco barbarus in India*. Str. Feath. i. pp. 19–21 (1872).

A male of this species procured by Dr. Stoliczka in Cutch and a female from Central India are described.

6. *On the Breeding of Elanus melanopterus*. Str. Feath. i. pp. 21–26 (1872).

Describes the breeding of this species as observed by Mr. F. R. Blewitt in the Sumbulpoor district, and by Mr. Adam near Sambhur in Rajpootana.

7. *The Wagtails of India*. Str. Feath. i. pp. 27–31 (1872).

Remarks on the grey and black Wagtails allied to *Motacilla alba*.

8. *Phœnicopterus minor*, *Geoff. St. Hil.* Str. Feath. i. pp. 31–35 (1872).

Identifies *Phœnicopterus rubidus*, Feilden (Ibis, 1868, p. 496) with the female of *P. minor*, and gives Mr. Adam's notes on its occurrence at the Sambhur Lake, in Rajpootana.

9. *A New? Polyplectron*. Str. Feath. i. pp. 35–36 (1872).

Describes some tail-feathers (!) of a *Polyplectron* obtained in the Looshaie country, and proposes, if the bird be really new, to name it *intermedius*!

10. *Otocaris (sic!) elwesi*, *Blanford*. Str. Feath. i. pp. 36–38 (1872).

Identifies this species with *O. longirostris*.

11. *The Skylarks of India*. Str. Feath. i. pp. 38–41 (1872).

Comes to the conclusion that there are only two good Indian species, *Alauda arvensis* and *A. malabarica*.

12. *Fringilauda nemoricola*, *Hodgson*, *Fringilauda sordida*, *Stol.* Str. Feath. pp. 41–43 (1872).

States reasons for identifying Dr. Stoliczka's species with that of Hodgson.

13. *Contributions to the Ornithology of India*. Str. Feath. i. pp. 44–49 (1872).

States the main results of the author's expedition to Sindh

and up the Mekran coast. 1200 skins were obtained, representing 250 species, of which 18 were new to the Indian avifauna.

14. *First Draft of a Conspectus of the Avifauna of India and its Dependencies.* Str. Feath. i. pp. 49-50 (1872).

Announcement of an intended work under this title.

HUTTON, CAPT. F. W.

1. *Letter from.* Ibis, 1872, pp. 83, 84.

Contains the synonyms of two of Foster's Petrels, *Procellaria tristis* and *P. gavia*.

2. *On the Flight of Birds.* Ibis, 1872, pp. 139-143.

3. *Letter from.* Ibis, 1872, p. 201.

States that his supposed new species, *Colluricincla concinna* = *Graucalus melanops*. [But see below, No. 6.]

4. *On the Flight of the Black-backed Gull* (*Larus dominicanus*). Trans. & Proc. N. Z. Inst. vol. v. pp. 140-144.

5. *Notes on some of the Birds brought by Mr. Henry Travers from the Chatham Islands, with Descriptions of new Species.* Trans. & Proc. N. Z. Inst. vol. v. pp. 222-224.

Relates to nine species, of which *Miro traversi* and *Rallus modestus* are considered new. The species previously called *Phalacrocorax africanus* is now also considered to be new (i. e. *P. featherstoni*, Bull.).

6. *Notes on Colluricincla concinna.* Trans. & Proc. N. Z. Inst. vol. v. pp. 226, 227.

The bird in question is not *Graucalus melanops*, as previously stated by the author, but a good species, which should stand as *Graucalus concinnus*. A few more instances of the occurrence of this species in New Zealand are recorded.

7. *On the Geographical Relations of the New-Zealand Fauna.* Trans. & Proc. N. Z. Inst. vol. v. pp. 227-256.

The birds in this excellent article are treated of at pp. 231-239; and many interesting facts are noticed.

[See also TRAVERS, H. H.]

HYATT, PROF. ALPHEUS.

1. *Catalogue of the Ornithological Collection of the Boston*

Society of Natural History. Proc. Bost. Soc. N. H. xiv. pp. 237-251.

[Treats of the Spheniscidæ in the collection, commencing with remarks on the general characters of the family, especially on the pterylography.] *Spheniscus demersus* is united with *S. magellanicus*, we believe, quite erroneously; but it seems that there is only one young specimen of the former and one adult of the latter available for comparison. Some osteological notes by Dr. Elliott Coues are added.

2. *Annual Report as Custodian of the Museum of the Boston Society of Natural History.* Ibid. xv. p. 164.

A notice of the state of the collection of birds and eggs and of the principal additions thereto is given, p. 179.

IRBY, L. HOWARD.

Letter from. Ibis, 1872, pp. 199-201.

Contains several additions to Mr. H. Saunder's "List of the Birds of Southern Spain," and a list of the Sylviidæ of the vicinity of Gibraltar.

JERDON, T. C.

Supplementary Notes to the 'Birds of India.' Ibis, 1872, pp. 1-22, 114-139, 297-310, plates i. and vii.

A series of notes accumulated by the late lamented author of the 'Birds of India' from all quarters, with a view of ultimate incorporation in a new edition of his well-known work. They relate to the Accipitres and Insectores as far as the end of the Merulidæ (vol. i. and vol. ii. to p. 75) of Dr. Jerdon's arrangement. *Polyphasia passerina* and *Turdus dissimilis* are figured.

JESSE, W.

[See LABOUCHERE, H. M.]

JOBERT.

Recherches sur la Structure intime du bec de la Spatule (Platalea). Compt. Rend. lxxv. (1872) pp. 1780-1782.

Abstract of a description of the minute anatomy of the bill of the Spoonbill.

KOCH, GOTTLIEB VON.

1. *Die Stellungen der Vögel.* Für Präparatoren, Ausstopfer

und Freunde der Vögel. II. Heft. Mit 130 Figuren auf 10 Tafeln. 8vo, 1872. Heidelberg: C. Winter.

We have received several excellent recommendations of this little book on taxidermy, but have not seen it.

2. *Briefliches von den Moorweihern bei Erlangen.* Journ. f. Orn. 1872, pp. 138, 139.

Sixty-one species of birds were observed during a three days' stay on the swamps of Erlangen.

KRÜPER, DR. TH.

1. *Ueber den Zwergadler, Aquila pennata, Brutvogel in Macedonien.* Journ. f. Orn. 1872, pp. 59–64.

Observations on the breeding of *Aquila pennata* and *A. naevia* in the woods of Neochori, near Salonica.

2. *Ueber den kurzfüssigen Sperber, Nisus badius, Brutvogel in Macedonien.* Journ. f. Orn. 1872, pp. 129–131.

The species observed by Dr. Krüper is *Nisus* (sive *Accipiter*) *brevipes*, Severzow, and not *N. badius*. The well-known collector writes of the nests and eggs found by him in the neighbourhood of Salonica.

LABOUCHERE, H. M., and JESSE, W.

Bird-Life. By Dr. A. E. Brehm. Translated from the German. London: 1872. Parts iv., v., vi. Large 8vo.

Three parts of this work were published last year. See *Ibis*, 1872, p. 193, for a notice of the work.

LANDOIS, DR. H.

Jahres-Bericht 1872, des Westfälischen Vereins für Vogelschutz, Geflügel- und Singvogelzucht. 8vo. Münster.

Report of a local Society, not containing much of general interest.

LAWRENCE, GEORGE N.

Descriptions of new Species of Birds of the Genera Icterus and Synallaxis. Ann. Lyc. N. Y. x. pp. 184–186.

These are *Icterus formosus*, from Tehuantepec, and *Synallaxis maculata*, from Western Peru. [The latter = *S. stictothorax*, Sclater.]

[See also GRAYSON, COL. ANDREW J.]

LAYARD, E. L.

Letter from. Ibis, 1872, pp. 336-338.

Contains remarks on the birds seen during a voyage to Pará.

LEE, DR. R. J.

On the Sense of Sight in Birds, accompanied by a description of the Eye, and particularly of the ciliary muscle in three Species of the Order Rapaces. Proc. Roy. Soc. and Ann. & Mag. N. H. ser. 4. x. pp. 142-150 (1872).

LEGGE, VINCENT.

[See SCLATER, P. L.]

LIEBE, DR. K. Th.

Die der Umgebung von Gera angehörigen Brutvögel. Verhandl. der Gesellsch. von Freunden der Naturwiss. in Gera. III. Band, 1868-1872, pp. 26-55.

The considerable number of 129 species are noticed as breeding-birds near Gera and its environs. *Turdus pilaris* becomes more common every year.

LLOYD, J. HAYES.

1. *Letter from.* Ibis, 1872, pp. 197, 198.

Gives reasons for belief that *Cyornis tickellæ* is the female of *C. banyumas*. [Cf. WALDEN, VISCOUNT, *infra*, p. 490.]

2. *Letter from.* Ibis, 1872, p. 202.

On *Hypsipetes neilgherriensis* and *H. ganeesa*, giving a description of the latter.

LOEWIS-KUDLING, O. VON.

Frühzeitiges Erscheinen der Zugvögel in Liefland im Frühjahr 1872. Zool. Gart. 1872, pp. 282, 283.

Gives dates of the arrival of 18 species of birds in Livonia in the spring of 1872, and comparisons with the dates in former years.

LÜHDER, WILHELM.

Über die Raben Neu-Vorpommerns und Rügens. Mittheil. aus dem naturw. Vereine von Neu-Vorpommern und Rügen. 3. Jahrg. 1871, pp. 40-52.

Nine species are spoken of in this paper, which was omitted in our last Index; it contains besides some good observations.

MAIR, MAJOR, W. G.

Notes on Rurima Rocks. Trans. & Proc. N. Z. Inst. vol. v. 1872 (iss. 1873), pp. 151-153.

The locality lies in the Bay of Plenty; *Graculus varius* and *Anthornis melanura* were the only birds observed here.

MANTELL, W. B. D.

On Moa-beds. Trans. & Proc. N. Z. Inst. vol. v. 1872, (iss. 1873), pp. 94-97.

An account of several localities where Moa-bones have been found by the author.

MARCHAND, A.

Notes sur les Poussins des oiseaux d'Europe. R. Z. 1872, pp. 91-96, 161-164, 192-197.

Descriptions of the down-stages of plumage in various European birds. Those of *Sterna caspia* and *Haliaetus albicilla* are figured.

MAREY.

Mémoire sur le Vol des Insectes et des Oiseaux. Ann. Sc. Nat. 5^e sér. xv. art. 13.

A learned disquisition upon the mode of flight in insects and birds.

MARSH, PROF. O. C.

1. *Discovery of a remarkable Fossil Bird.* Silliman's Journ. n. s. iii. p. 56, and Ann. & Mag. N. H. ser. 4, ix. p. 326 (1872).

Hesperornis regalis. (See below.)

2. *Description of Hesperornis regalis, with notices of Four other new Species of Cretaceous Birds.* American Journ. Sc. & Arts. ser. 3, vol. iii. p. 360, and Ann. & Mag. N. H. ser. 4, x. pp. 212-217.

Hesperornis is made the type of a new family allied to the Colymbidæ. The remains, belonging to five individuals, were discovered in the grey shale of the Upper Cretaceous of western Kansas. The other species described are *Graculavus velox*, *G. pumilus*, and *G. anceps* (belonging to a new genus of Cormorants), and *Palæotranga vagans*, allied to *P. littoralis* previously described.

3. *Notice of some New Tertiary and Post-Tertiary Birds.*
Am. J. Sc. ser. 3. iv. pp. 256-262.

The species described are *Aletornis nobilis*, *A. pernix*, *A. venustus*, and *A. gracilis*, from the Lower Tertiaries of Wyoming; *Uintornis lucaris*, from the same strata; *Catarractes affinis*, *Meleagris altus*, *M. celer*, and *Grus proavus*, from the Postpliocene of the Atlantic coast. *Aletornis* is a new genus of "Wading-birds"! *Uintornis*, a new genus of Scansores, "probably allied to the Woodpeckers"!

MARSHALL, C. H. T., and MARSHALL, G. F. L.

Letter from, Ibis, 1872, p. 327.

Remarks on *Megalæma marshallorum* and *Calorhamphus hayi*.

MARSHALL, G. F. L.

[See MARSHALL, C. H. T.]

MARSHALL, W.

1. *Ueber die knöchernen Schädelhöcker der Vögel.* Niederl. Arch. Zool. i. pp. 133-179 (2 plates).

A well-ordered essay upon the bony protuberances of the skull in certain birds. These are discussed as exhibited in the *Lamellirotres*, Pigeons, Gallinacæ, *Grues*, Cassowaries, and finally Hornbills, where the formation attains its most extraordinary development in *Buceros scutatus*, s. *galeatus*. Two plates are devoted to the illustration of some of these structures, including that of the last-named species.

2. *Beobachtungen über den Vogelschwanz.* Niederl. Arch. Zool. i. pp. 194-210 (plate).

An essay upon the bird's tail and its component vertebræ, as observed in the various modifications presented in different forms of birds. Two well-executed plates are given in illustration.

MARTENS, E. VON.

Ueber die Höcker am Schädel einiger Vögel. Zool. Gart. 1872, pp. 209-216.

An abstract of the paper of Hr. W. Marschall (*vide supra*).

MARTIN, PH. L.

Chr. Ludw. Brehm's Vogelhaus und seine Bewohner, oder Pflege und Züchtung der in Käfigen und Volieren zu haltenden einheimischen u. tropischen Schmuck- und Singvögel. 3. Aufl. 8vo, pp. 162. Weimar, 1872: Voigt.

A new edition of this useful work, which may be recommended to all who are interested in keeping and breeding cage-birds.

MAYNARD, C. J.

A Catalogue of the Birds of Coos Co., N. H., and Oxford Co., Me.; with annotations relative to the Breeding-Habits, Migrations. By C. J. MAYNARD.—*With Notes by WILLIAM BREWSTER.* Proc. Bost. Soc. N. H. xiv. pp. 356-385.

A local list of the birds of two adjacent districts of Maine and Newhaven; 164 species are enumerated.

MEYER, DR. R.

1. *Notice of the occurrence of Somateria mollissima in November near Assenheim in Hesse.* Zool. Gart. pp. 56, 57.

Further instances are given by Jäckel (*l. c.* p. 123).

2. *Zwei Kükseier in einem Neste des Rothkehlchens (Lusciola rubecula).* Zool. Gart. 1872, pp. 185, 186.

On the same subject, *vide* Beling (*l. c.* p. 318).

3. *Ankunft und Abzug der Schwalbenarten in diesem Jahre.* Zool. Gart. 1872, pp. 337-339.

On the extraordinarily early arrival of the Swallows in several parts of Germany.

MILNE-EDWARDS, ALPHONSE.

1. *Résumé des Recherches sur les Oiseaux Fossiles.* C. R. vol. lxxiv. p. 1030, and Ann. Sc. Nat. 5^e sér. xvi. art. 2.

A résumé of the principal discoveries made since 1856 in fossil birds, which the author has embodied in his great work on this subject, now completed.

2. *Investigations on Fossil Birds.* Ann. & Mag. N. H. ser. 4. x. pp. 72-75 (1872).

A translation of the above-mentioned article.

MÖBIUS, PROF. K.

Norderoog, ein Brutplatz der Brand-Seeschwalbe, Sterna cantiaca, im Schleswigschen Wattenmeere. Zool. Gart. 1872, pp. 202-204.

The number of *Sterna cantiaca* breeding on this small island is believed to amount to 20,000.

MOOSE, EDWARD S., Ph.D.

On the Tarsus and Carpus of Birds. Ann. Lyc. N. Y. x. pp. 141-158 (2 plates).

An important contribution to the questions raised by the recent discoveries (of Huxley, Gegenbauer, and Dana) of the existence of tarsal bones in birds and of their exact homologies. The embryos of many American species are examined, and the bones of their legs and wings described and figured.

MORTON, JAMES.

Notes on some of the New-Zealand Birds. Trans. & Proc. N. Z. Inst. vol. v. 1872, pp. 225, 226.

Three species are recorded, amongst them a *Platycercus*, which Mr. Morton thinks to be different from *P. auriceps*. According to an appended note by Capt. Hutton this is *P. alpinus*.

MURIE, JAMES.

1. *On the Skeleton of Todus, with remarks as to its allies.* P. Z. S. 1872, pp. 664-680, t. lv.

An exhaustive description of the skeleton of *Todus*, with well-drawn figures of details (pl. lv.). The Todidæ are finally characterized as a family of "Coccygomorphs."

2. *On the Cranial Appendages of the Horned Tragopan.* P. Z. S. 1872, pp. 730-736, tt. lx.-lxi.

These singular structures are fully described and figured.

3. *On the Genus Colius, its Structure and Systematic Place.* Ibis, 1872, pp. 262-280, pl. x.

After a *résumé* of the views of former writers concerning the correct position of this anomalous genus, Dr. Murie describes at full length the skeleton of *Colius leucotis*, and discusses the affinities of the group. The conclusion arrived at is, that it is necessary to constitute for it an order, Colio-

morphæ, "annectent between the Coccygomorphæ and Coracomorphæ."

[It may be remarked that *Hypocolius*, Bp., mentioned by Dr. Murie as "admitted by some" as a genus of Colies, has really nothing whatever to do with them, having been founded on a true Passerine form allied to *Campephaga*. See Ibis, 1868, p. 181.]

4. *On the Motmots and their Affinities*. Ibis, 1872, pp. 383-412, pls. xiii.-xv.

The author commences by describing more or less completely the skeletons of *Momotus lessoni*, *M. ruficapillus*, and *Eumomota superciliaris*. The alliances of the Momotidæ are then discussed at some length, considered osteologically, and a résumé of known facts and opinions concerning them is given. The conclusion arrived at is that along with the Todidæ, the Momotidæ constitute a section of the "Syndactyle birds," which is proposed to be called "Serratirostres."

NATHUSIUS (KÖNIGSBORN), W. VON.

Ueber den inneren Bau einiger Gänse-Eier mit doppeltem Dotter, nebst einigen weiteren Bemerkungen über Species-Unterschiede bei Eierschalen. Journ. f. Orn. 1872, pp. 321-332, with a plate (t. ii.).

An important contribution to the anatomy of the bird's egg and an account of further microscopical researches in examination of the shells as regards distinction of species.

NEWTON, ALFRED.

1. *A History of British Birds, by the late William Yarrell, V.P.L.S., F.Z.S.* Fourth edition. Parts iii. & iv. 8vo. London: February and July 1872.

These two numbers finish the Owls and carry us as far as the Sylviidæ of the Order Passeres. Like the preceding numbers, they are replete with additional information from modern and ancient sources alike. The variations from the usual nomenclature employed are in some cases rather startling (e. g. *Scops giu* and *Aluco flammeus*); but Prof. Newton gives us good arguments (in most cases almost incontrovertible) for the usage adopted.

2. *Exhibition of, and remarks on a specimen of Ross's Gull* (Larus rossi). P. Z. S. 1872, p. 1.

3. *On an undescribed Bird from the Island of Rodriguez*. Ibis, 1872, pp. 31-34.

The bird is a Parrot of the genus *Palæornis*, proposed to be called *P. exsul*. Unfortunately only one female specimen has yet been obtained.

4. *Osteology of the Solitaire*. Ann. & Mag. N. H. ser. 4. ix. pp. 168, 169 (1872).

Remarks on a footnote in Prof. Owen's article on this subject in the Trans. Zool. Soc. vii. p. 519.

5. *Osteology of the Solitaire*. Ann. & Mag. N. H. ser. 4. ix. p. 321 (1872).

A rejoinder to Prof. Owen's reply to the above-mentioned remarks.

6. *On the Specific Name of the Black Redstart*. Ann. & Mag. N. H. ser. 4. x. pp. 227, 228 (1872).

Discusses the origin of the specific term *tithys*, which seems to have sprung from *τιτίς*, and which Prof. Newton now writes *titys*.

OELLACHER, DR. JOSEF.

Die Veränderungen des unbefruchteten Keimes des Hühneries im Eileiter u. bei Bebrütungsversuchen. Zeitschr. f. wissensch. Zoologie, vol. xxii. 1872, pp. 181-234, with Tafel xiii., xiv., & xv.

A physiological essay upon the development of the egg in the oviduct, based upon very careful and minute researches.

OGDEN, J. A.

[See FINSCH, DR. OTTO].

OTTO, HR.

Ueber die Stimme und Stimmwerkzeuge der Vögel. Sitzungsber. der naturw. Gesellsch. Isis in Dresden. 1872, p. 107.

A slight notice of some verbal remarks on this subject.

OWEN, PROFESSOR.

1. *On Dinornis* (Part xviii.): *containing a Description of the Sternum and Pelvis, with an attempted Restoration of Aptornis defossor, Ow.* Trans. Z. S. viii. pp. 119-126,

plates xiv.-xvi. (Read June 6th, 1871; published September 1872.)

Aptornis defossor was a large Ralline bird allied to *Notornis*. Pl. xvi. gives the restoration of the entire skeleton, with a skeleton of *Ocydromus australis* introduced for comparison.

2. *Osteology of the Solitaire*. Ann. & Mag. N. H. ser. 4. ix. pp. 241, 242 (1872).

Prof. Owen's reply to Prof. Newton's remarks in the same volume of the 'Annals,' p. 168.

PELZELN, AUGUST VON.

1. *Ueber eine neue Schleiereule*. Journ. f. Orn. 1872, pp. 23, 24.

The species is called *Strix insularis*, and is carefully described from a specimen in the Vienna collection from the "Island St. Vincent," which Von Pelzeln suspects to be that of the Cape-Verd group.

2. *Ueber Geschlechtsdifferenzen bei den Meliphagiden der Sandwich-Inseln*. Journ. f. Orn. 1872, pp. 24-30.

In this very interesting paper the author shows, from the rich materials in the Imperial Cabinet at Vienna, that in most of the species belonging to the genera *Mohoa*, *Drepanis*, *Himatione*, *Hemignathus*, and *Loxops* both sexes are coloured precisely alike.

3. *Ueber eine Sendung von Vögeln von den Aru-Inseln und Molukken*. Verhandl. der K. K. zoolog.-bot. Gesellschaft. Wien, Band xxii. 1872, pp. 425-430.

Notes on 28 species, one of which is new, *Pachycephala senex* (p. 429).

POTTS, THOMAS H.

1. *Notes and Descriptions of some Birds lately added to the Museum, Canterbury, New Zealand*. Ibis, 1872, pp. 35-39.

The new species described are *Apteryx haasti*, *Rallus pictus*, and *Larus bulleri*. (See Buller's 'Birds of New Zealand' on these species.)

2. *Letter from*. Ibis, 1872, p. 325.

Relates to a supposed new *Gerygone* observed in the middle

island of New Zealand, and requests a description of the egg of *Eudynamis taitensis*.

3. *Notes on Keropia crassirostris*, Gmel ("Piopio"). Journ. Linn. Soc. xi. pp. 505-509.

Describes the habits and nesting of this bird.

4. *Notes on Birds of New Zealand*. Zool. 1872, p. 3052.
Some interesting observations on *Anarhynchus frontalis*.

5. *On the Birds of New Zealand (Part iii.)*. With Illustrations. Trans. & Proc. N. Z. Inst. vol. v. pp. 171-205.

A continuation of the former papers of the author, who must be regarded as one of the best workers on the New-Zealand avifauna. Thirty-two species are treated in this valuable paper.

The nests (pl. xvii.) of *Certhiparus novæ zealandiæ* and *Creadion carunculatus*, and (pl. xviii.) heads of *Rallus pictus* and *R. pectoralis* are figured. *Gerygone sylvestris*, *Himantopus picatus*, and *Prion australis* are described as new.

PREEN, C.

- Die Ausrottung der Singvögel*. Journ. f. Orn. 1872, pp. 209-224, & 275-286.

A very clear and excellent essay, written to show that laws intended to stop the catching of singing-birds altogether go too far, and that it ought to be permitted to keep them in confinement in limited numbers.

PRZEWALSKI, CAPTAIN.

- Briefliche Mittheilungen aus Ost-Asien*. Journ. f. Orn. 1872, pp. 137, 138.

Enumerates 19 species of birds observed during a voyage from Kiachta to Peking, amongst them *Falco islandicus* and *Buteo japonicus*.

REICHENOW, DR. ANTON.

- Briefliche Reiseberichte aus West-Africa*. Journ. f. Orn. 1872, pp. 390-392.

A letter to the Secretary of the German Ornithological Union, containing observations on birds seen in the environs of Accra.

REINHARDT, J.

Et Tillæg til Grönlands Fuglefauna. Vid. Medd. 1872, pp. 132-134.

Two species, *Pandion haliaëtus* and *Botaurus stellaris*, are added to the author's former list of Greenland birds. The avifauna of Greenland now consists of about 125 species, of which 56 are accidental visitors.

REY, DR. EUGÈNE.

1. *Synonymik der europäischen Brutvögel und Gäste. Systematisches Verzeichniss nebst Angaben über die geographische Verbreitung der Arten unter besonderer Berücksichtigung der Brutverhältnisse.* Gr. 8vo, pp. 257. (Halle: Schwedtschke, 1872.)

This little work will be of value to those ornithologists who have no access to a good library, as it gives references to the principal works on European ornithology, but by no means a full synonymy, as the title would lead one to believe. It is to be regretted that a lot of species which certainly never did occur in Europe, for instance, *Podoces panderi*, *Neophron pileatus*, *Phyllopneuste javanica*, Horsf. (which is really a *Zosterops*), are included; otherwise the book might have become a good successor to Schlegel's 'Revue critique' of 1844.

2. *Zur Ornithologie von Portugal.* Journ. f. Orn. 1872, pp. 140-155.

In 1869 the author visited Portugal, and gives his observations made in the Provinces of Estremadura and Algarve during a stay of two months; 111 species are enumerated.

3. *Ueber die Eier der Ulula lapponica.* Journ. f. Orn. 1872, p. 233.

Description of the eggs of this species, received by Mr. Schlüter, of Halle, from Kittila, in Lapland.

4. *Aus meinen Erfahrungen in der Vogelzucht.* Zool. Gart. 1872, pp. 87, 88.

Notes on the power of reproduction in certain birds, and on a new kind of food for species of *Estrelida*, &c.

5. *Zur Fortpflanzungsgeschichte unseres Kukuks*. Zool. Gart. 1872, pp. 241-243.

Relates rather to the eggs of *Molothrus sericeus* than to those of the Cuckoo.

6. *Fünf neue Bürger von Halle*. Zool. Gart. 1872, pp. 270-276.

Pernis apivorus, *Turdus pilaris*, *Emberiza hortulana*, *Muscicapa atricapilla*, and *M. albicollis* are given as birds breeding near Halle.

RIDGWAY, R.

1. *On the Relation between Colour and Geographical Distribution in Birds, as exhibited in Melanism and Hyperchromism*. Am. J. Sc. ser. 3. iv. pp. 454-460.

The author maintains that the two chief modifications of colour met with in North America in the case of widely distributed species are:—(1) a melanistic tendency, and (2) a greater brightness or increased prevalence of the three primary colours. Examples are given of the operation of these laws, as shown by the modifications in colour of the species of *Chrysomitris*, *Myiarchus*, *Geothlypis*, *Cardinalis*, *Carpodacus*, *Cyanura*, &c.

2. *Relationship of the American White-fronted Owl*. Am. Nat. 1872. pp. 283-285.

Mr. Ridgway controverts Mr. Elliot's conclusions (Ibis, 1872, p. 50) that *Nyctale albifrons sive kirtlandi* is the young of *Nyctale tengmalmi*, and that the latter is not distinguishable from *N. richardsoni*. He shows that the first-mentioned bird is the young of *Nyctale acadica*, a much smaller species, and separates the two last-mentioned birds as geographical varieties.

RIEDEL, T. G. F.

- Letter from, containing Remarks on the True Locality of Tanysiptera riedeli*. P. Z. S. 1872, p. 1.

The correct locality is "Kordo," an island in the Bay of Geelvink.

RIVA FU RODOLFO, ANTONIO.

- Rapporto sopra una Sylvia rarissima, presa nel circondario di Lugano*. Atti Soc. Ital. xv. pp. 106-108 (1872).

Reports the occurrence of *Cyanecula suecica* near Lugano in September 1869.

RODD, E. H.

Notes on the Ornithology of Cornwall, for the years 1871-72. J. Inst. Cornw. 1872, pp. 85-87.

Gives an account of the occurrence of the North-American *Totanus flavipes* in Cornwall, and of several other lesser rarities.

ROSS, A. M.

A Classified Catalogue of the Birds of Canada. Toronto: 1872. 8vo, pp. 9.

A list of the scientific names only.

ROWLEY, G. DAWSON.

Exhibition of a Specimen of the North-American Zonotrichia albicollis, taken near Brighton. P. Z. S. 1872, p. 681.

RUSS, DR. KARL.

Die gefiederte Welt. Zeitschrift für Vogelliebhaber,-Züchter und -Händler. Berlin (Louis Gerschel): 1. Jahrg. 1872.

A new fortnightly periodical, which will interest all those engaged and connected in any way with keeping and breeding cage-birds and domestic fowls. The contents of the first volume are too varied and miscellaneous to permit special mention here. We may notice, however, that the keeping of small exotic cage-birds in Germany apparently increases. The periodical also contains reports on living birds on sale in several places, as well as on exhibitions of birds, &c.

SALVADORI, TOMMASO.

1. *Fauna d'Italia. Parte seconda. Uccelli.* Milano. Fasc. 2-15, 8vo.

The bird-parts of this work (which forms part of a larger undertaking entitled 'L'Italia, sotto l'aspetto fisico, storico, artistico e statistico') are now all issued, and form a volume of 352 pages. The total number of species attributed to the Italian fauna is 414. In the introduction a very complete and useful list of publications and authorities on Italian ornithology is given.

2. *Nota intorno al Garrulus lidthii*. Atti Acc. Tor. vii. pp. 473-476 (1872).

This note gives an account of two living specimens of *Garrulus lidthii*, Bp., obtained by Cav. Botto, of Genoa, from the interior of Japan, and placed in the Zoological Gardens of Florence. One of these specimens died in January 1873; the other was sold to M. Vekemans, of Antwerp. [This bird is now in the Jardin d'Acclimatation at Paris.] The discovery of the true habitat of this species is of much interest.

SALVADORI, T., ed ANTINORI, A.

1. *Intorno ad un nuovo genere di Saxicola*. Atti Acc. Tor. viii. p. 32 (1872).

Saxicola leucolama from the Bogos country, allied to *S. leucomela*.

2. *Intorno al Cypselus horus*. Atti Acc. Tor. viii. pp. 94-96 (1872).

Revives *Cypselus horus*, of Hartlaub and Finsch's MSS., of the Blue Nile, as a distinct species from *C. affinis*.

SALVIN, OSBERT.

1. *Remarks on the Mniotiltine Genus Geothlypis*. Ibis, 1872, pp. 147-152.

A diagnostic table of the known species is given; and a new form belonging to the group of *G. æquinocialis* is described as *G. chiriquensis*. Very full details as regards range and distribution are added.

2. *A further Revision of the Genus Leucopternis, with a Description of a new Species*. Ibis, 1872, pp. 239-243, pl. viii.

The new species, described and figured as *L. plumbea*, is from Ecuador. It makes the tenth of this peculiar Neotropical genus, to which *Asturina schistacea*, Sund., is now proposed to be referred.

3. *Notes on the Birds of Nicaragua, based upon a Collection made at Chontales by Mr. Thomas Belt*. Ibis, 1872, pp. 311-323.

Mr. Belt's collection contained 130 skins, referable to 73 species. Other authorities (Delattre, Sallé, Holland, Wick-

ham, &c.) raise the total number of known Nicaraguan birds to about 150. The general character of the avifauna, as deduced from the list, is rather that of Costa Rica than Guatemala and the north. No known species appears to be restricted entirely to Nicaragua.

SAUNDERS, HOWARD.

1. *On a new Species of Green Woodpecker from Southern Europe.* P. Z. S. 1872, pp. 153, 154.

The species is described as *Gecinus sharpei*. It is from Southern Spain, and is a form of *G. viridis*.

2. *On the Occurrence of Falco barbarus and Cypselus pallidus on the Continent of Europe.* P. Z. S. 1872, p. 356.

Specimens, referred to these two species, were obtained at Granada, in Spain.

3. *On the Introduction of Anser albatrus, of Cassin, into the British Avifauna.* P. Z. S. 1872, pp. 519-521.

Two Geese, shot on the south coast of Wexford, are referred to this species.

4. *Letter from.* Ibis, 1872, pp. 79-80.

Account of a specimen of *Larus melanocephalus* killed near Barking Creek in 1866.

5. *Letter from.* Ibis, 1872, pp. 80, 81.

Remarks on the question of the present existence of *Francolinus vulgaris* in Sicily.

SCHLEGEL, H.

Jaarboekje van het Koninklijk Zool. Genootsch. Natura Artis Magistra, 1872:—

1. *De Satijnvogel*, *Ptilonorhynchus holosericeus*: pp. 154-158.

2. *De Witte Kraanvogel*, *Grus leucogeranus*: pp. 173-175.

The usual popular descriptions are given by Prof. Schlegel in this almanack. Both species are illustrated by two plates, of which we cannot speak with much approbation.

SCHMIDT, JACOB.

Notice of a male Oidemia nigra shot in April near Frankfurt on the Main. Zool. Gart. 1872, pp. 253, 254.

SCHMIDT, DR. MAX.

Fortpflanzung des Mönchsittichs (*Bolborhynchus monachus*)
in *Gefangenschaft*. Zool. Gart. 1872, pp. 257-263.

An interesting account of the breeding and hatching of this nest-building Parrot, and of their successful wintering in an open aviary in the zoological garden at Frankfort.

SCLATER, P. L.

1. *A Revision of the Species of the Fringilline Genus Sycalis*.
Ibis, 1872, pp. 39-48, pls. ii. & iii.

Nine species are recognized as known to the author, and are fully described. *Sycalis pelzelni* is a new name for a species previously referred wrongly to *S. chloropsis*. *S. chrysops*, *S. lutea*, and *S. aureiventris* are figured. A tenth, apparently valid species (*S. citrina*, Pelz.), is not known to the author.

2. *Observations on the Systematic Position of the Genera*
Peltops, *Eurylæmus*, and *Todus*. *Ibis*, 1872, pp. 177-180.

Peltops is stated to be a "Muscicapine" form allied to *Monarcha*. The *Eurylæmidæ* are Passerines,—probably "paleogean representatives of the Cotingidæ." *Todus* is certainly a Coccoyomorph allied to *Hylomanes* (Momotidæ).

3. *On a new Parrakeet of the Genus Loriculus from the*
Philippine Islands. *Ibis*, 1872, pp. 323-325, pl. xi.

The new species is *L. chrysonotus* from Zebu, Philippines, described and figured (pl. xi.) from specimens living in the Zoological Society's Gardens. It is represented in Luzon by *L. culacissi*, and in Negros and Panay by *L. regulus*.

4. *Report on Additions to the Society's Menagerie for De-*
cember 1871. P. Z. S. 1872, p. 23.

Notices arrival of *Ramphastos cuvieri* and *Turdus pæci-*
lopterus.

5. *On Kaup's Cassowary* (*Casuarus kaupi*), and on the
other known Species of the Genus. P. Z. S. 1872, pp.
147-150, t. ix.

Identifies a Cassowary living in the Zoological Society's gardens with *Casuarus kaupi* of Rosenberg. Dr. Schlegel has referred specimens of the same bird (which is from New Guinea) to *C. bennetti*, but incorrectly, both species being now

represented in the Zoological Society's living collection. The whole bird is figured (pl. ix.), and cuts of head are likewise given.

6. *Report on Additions to the Society's Menagerie in January 1872.* P. Z. S. 1872, p. 183.

Notices arrival of *Aptenodytes pennanti* and *Stringops habroptilus*.

7. *Report on Additions to the Society's Menagerie in February 1872.* P. Z. S. 1872, pp. 493-496.

Notices arrival of adult *Casuarius bicarunculatus*, which is figured (pl. xxvi.).

8. *Exhibition of a Skin of the Yellow-billed Cuckoo* (*Coccyzus americanus*) *from Buenos Ayres.* P. Z. S. 1872, p. 496.

(Cf. CABANIS, J. f. O. 1873, p. 73. *Coccygus euleri* is no doubt the same bird.)

9. *Notes on the Birds of the Rio Negro of Patagonia.* P. Z. S. 1872, pp. 534-550.

These are attached to Mr. Hudson's paper on this subject (see above, p. 460). *Cnipolegus hudsoni* is described as new, and figured, pl. xxxi. A list of Mr. Hudson's collection is given, p. 548, and general remarks added.

10. *Report on Additions to the Society's Menagerie in March 1872.* P. Z. S. 1872, p. 602.

Notices arrival of *Centropus phasianus*, *Struthidea cinerea*, *Chauna chavaria*, and *Spheniscus humboldti*.

11. *Note on the Swallows of the Genus Progne.* P. Z. S. 1872, p. 605.

Recognizes only four species. (See HUDSON, W. H., above, p. 461.)

12. *Notes on the Birds of St. Lucia.* P. Z. S. 1872, pp. 647-653.

Footnotes to Mr. Semper's paper (*q. v.*) and list of additional species to former list, P. Z. S. 1871, p. 263.

13. *Exhibition of a Specimen of Coccyzus erythrophthalmus killed in Ireland.* P. Z. S. 1872, p. 681.

14. *Additional Notes on rare or little-known Animals now or lately living in the Society's Gardens.* P. Z. S. 1872, pp. 688-690.

[A new *Crax* is described, from a specimen living in the gardens, as *Crax incommoda*. The locality is not known.]

15. *Report on Additions to the Society's Menagerie in May 1872.* P. Z. S. 1872, pp. 728, 729.

Notices arrival of examples of *Anas pæcilorhyncha* and *Argus giganteus*.

16. *Exhibition for Mr. Vincent Legge of a pair of a new Species of Ceylonese Bird, proposed to be called Prionochilus vincens.* P. Z. S. 1872, pp. 729, 730.

17. *Report on Additions to the Society's Menagerie in June, July, August, and September, 1872.* P. Z. S. 1872, pp. 789-795.

Notices arrival of examples of *Numida vulturina*, *Loriculus chrysonotus* (vide suprà), *Callipepla gambelli*, *Nestor notabilis*, and three species of *Cyanorhamphus* from New Zealand, amongst which is *C. alpinus* (Buller), a disputed species.

18. *Report on Additions to the Society's Menagerie in October and November 1872.* P. Z. S. 1872, pp. 860-862.

Notices arrival of *Apteryx australis* (verus), *Tribonyx mortieri* and other birds.

19. *Exhibition of a Nest of the Tijereta (Milvulus tyrannus) containing eggs of Molothrus bonariensis.* P. Z. S. 1872, pp. 862, 863.

The nest was forwarded by Mr. Hudson in reference to his remarks, P. Z. S. 1870, p. 548 *et seq.* Additional remarks are now given.

SCOTT, W. D.

Partial List of the Summer Birds of Kanawha County, West Virginia; with Annotations. Proc. Bost. Soc. N. H. xv. pp. 219-227.

A list, with short notes, of 86 species obtained during two months' field-work in this locality.

SEMPER, J. E.

Observations on the Birds of St. Lucia; with Notes by P. L. Sclater. P. Z. S. 1872, pp. 647-653.

A series of notes on the birds mentioned in Mr. Sclater's list, P. Z. S. 1871, p. 263, and also on some additional species now determined by Mr. Sclater.

SHARPE, R. B.

1. *Exhibition of Specimens of Blue Rock-Thrushes* (Petrocossyphus). P. Z. S. 1872, p. 496.

The author's view is that the blue and red *P. manilla* of China is simply the immature form of the blue *P. solitarius sive cyanus*, and that *P. affinis*, Blyth, of India, is the same bird in an intermediate stage.

(Cf. SHARPE and DRESSER, B. of Europe, pt. x.)

2. *Contributions to the Ornithology of Madagascar*. Part iii. P. Z. S. 1872, pp. 866-869, pl. lxxiii.

Describes a collection of Mr. Crossley from the country south-east of Antananarivo, containing examples of 14 species. Of *Oxylabes madagascariensis* the adult and young are figured.

3. *On Recent Collections of Birds from the Fantee Country, in Western Africa*. Ibis, 1872, pp. 66-74.

Contains an enumeration of species additional to former lists of Fantee Birds published in 'The Ibis' (1869 and 1870), making in all 271 species.

4. *Description of some new Species of Birds in the National Collection*. Ann. & Mag. N. H. ser. 4. x. pp. 450, 451 (1872).

These are *Sitta tephronota*, from Central Asia; *Diaphorophya blisseti*, from the Gold Coast; and *Trichastoma rufipennis*, from Gaboon.

SHARPE, R. B., and DRESSER, H. E.

- A History of the Birds of Europe, including all the Species inhabiting the Western Palearctic Region*. London. 4to. Parts x.-xv. (1872.)

Part x. *Petrocossyphus cyanus*, *Turdus merula*, *Turdus torquatus*, *Monticola saxatilis*, *Parus cyanus*, *Turdus pilaris*, *Emberiza hortulana*, *Picus syriacus*. Parts xi. & xii. *Parus lugubris*, *Picus lilfordi*, *Picus minor*, *Gecinus canus*, *Picoides tridactylus*, *Parus borealis*, *Emberiza cia*, *Emberiza melanocephala*, *Lanius lahtora*, *Telephonus erythropterus*, *Surnia ulula*, *Surnia funerea*, *Parus ledouci*, *Parus ater*, *Parus britannicus*, *Sterna hirundo*, *Tringa minutilla*. Part. xiii. *Vultur*

monachus, Lanius minor, Gecinus sharpii, Sitta krueperi, Turdus iliacus, Alauda arborea, Otis tetrax, Anas angustirostris. Part xiv. *Nyctala tengmalmi, Sitta neumayeri, Loxia curvirostra, Nyroca ferruginea, Acredula tephronota, Acredula rosea, Acredula caudata, Cossypha gutturalis.* Part xv. *Gypaetus barbatus, Acredula irbyi, Larus marinus, Loxia pityopsittacus, Limosa lapponica, Limosa ægocephala, Plectrophanes lapponicus.*

SHARPE, R. B., and USSHER, H. T.

On Three new Species of Birds from the Fantee Country.
Ibis, 1872, pp. 181-183.

The species described are *Hapaloderma constantia, Pholidornis rubrifrons,* and *Huhua shelleyi.*

SHELLEY, G. E.

A Handbook to the Birds of Egypt. London: 1872. Royal 8vo, pp. 342.

After introductory chapters containing a sketch of the author's travels in Egypt, a complete account of its known birds is given. Each species is shortly described, and notes as to times and places of occurrence are given. The species included are 352. The following species are well figured:—*Crateropus acaciæ, Saxicola monacha, Calamodyta melanopogon, Emberiza intermedia, Erythrospiza githaginea, Centropus ægyptius, Merops ægyptius, Merops viridis, Caprimulgus ægyptius, Buteo ferox, Turtur auritus, Turtur sharpii, Rhynchæa capensis, Erismatura leucocephala, Rhynchops flavirostris, Larus ichthyaetus.* There was much need of such a work as this, which will be most useful to the numerous inhabitants of more northern climes who now prefer to pass their winter in the sunshine of the Nile.

SHELLEY, G. E., and BUCKLEY, T. E.

Two Months' Bird-collecting on the Gold Coast. Ibis, 1872, pp. 281-293.

The two months were passed by these enterprising collectors at Cape-Coast Castle and Accra. A list of 37 species not included in Mr. Sharpe's papers is given, raising the

total number of known Fantee birds to 308. Many notes are given of other species observed and their habits.

SPERLING, ROWLAND M.

Letter from. Ibis, 1872, pp. 74-79.

On certain Procellariidæ observed in the Antarctic Seas, and on birds noticed on the River Plate.

STEENSTRUP, JAP.

Om de Mærker, som Knoklerne i fuglenes ophulkede Foderboller bære af Opholdet i fuglenes Maver, samt om disse Mærkers Betydning for Geologien og Archæologien. Vidensk. Medd. 1872, pp. 213-236, with a plate.

The author believes that some of the bone-caves in Southern Europe may have originated from the remnants of meals left by Birds of Prey, and describes the manner in which bones passing through bird's stomachs are acted upon by the gastric juice.

STOLICZKA, F.

Notice of the Mammals and Birds inhabiting Kachh. J. A. S. B. 1872, pp. 211-258. (Abst. Pr. A. S. B. 1872, pp. 120-122).

Of birds 160 species were collected during a recent official visit. These are enumerated, and many good notes given. *Pratincola macrorhyncha* is described as new from two "probably female" specimens. [N. B. Kachh is the new-fashioned way of spelling Cutch.]

STÖLKER, DR. CARL.

1. *Beiträge zur Pathologie der Vögel.* Journ. f. Orn. 1872, pp. 1-19.

Account of various cases of diseases of birds observed by the author, and of interest chiefly to those who keep birds in confinement.

2. *Ueber Aufzucht des Reissfinken in Gefangenschaft* (Padda [Oryzornis] oryzivora, *Rchb.*). Journ. f. Orn. 1872, pp. 19-23.

A careful account of the breeding and hatching of this well-known exotic cage-bird and of the development of the young birds.

3. *Nachtrag sur Vogel-Fauna der Kantone St. Gallen und Appenzell.* Verhandl. der St. Gallischen naturw. Ges. 1870-71, und Separatabdr.: St. Gallen, 1872. Zolliker. 8vo, pp. 18.

Eighteen species are added to the number of birds observed in this part of Switzerland, of which the total amounts to 230 species.

4. *Gutachten über Vogelschutz im weitesten Sinne.* 8vo, pp. 38.

The author, invited by the 'Thurgauische Thierschutzverein,' gives his views on the question of the protection of birds, which are very practically treated of in this small brochure. Our copy, we may remark, has no notice of date or publisher.

STONE, J.

- Le Faisan de lady Amherst.* Bull. Soc. d'Accl. 1872, pp. 1-3.

An account of the introduction of this bird and its reproduction in this country.

SUNDEVALL, C. J.

- Methodi Naturalis Avium disponendarum Tentamen.* Stockholm. 1 vol. 8vo. (1872.)

The nature and contents of this important work have been explained in a previous number of this journal (*anteà*, p. 322).

The following is a list of the new genera proposed, and of the alterations in generic names suggested by Prof. Sundevall:—

Page

4. Penthodyta: emend. pro Pentholæa, Cab.
 „ Pinarochroa, g. n. *Saxicola sordida*, Rüpp.
 5. Thamnocicla: emend. pro Thamnolæa, Cab.
 6. Cistodyta, g. n. *Drymæca scotoptera*, Sund.
 „ Drymodyta, g. n. *Malurus timniens*, Licht.
 „ Spiloptila, g. n. *Malurus clamans*, Rüpp.
 7. Scotocerca, g. n. *Malurus inquietus*, Rüpp.
 „ Chlorodyta, g. n. *Drymæca flavida*, Strickl.
 „ Herpystera, g. n. *Drymæca bairdi*, Cass.
 8. Sylviella: emend. pro Sylvieta, Lafr.
 „ Aëthorhynchus, g. n. *Iora lafresnayii*, Hartl.

- ✓ 9. *Drymædus*: emend. pro *Drymodes*, Gould.
 11. *Timelia*: emend. pro *Timalia*, Horsf.
 „ *Mannoothera*, g. n. *Brachypteryx sepiaria*, Horsf.
 „ *Hadropezus*: subst. pro *Turdinus*, Blyth.
 13. *Antimimus*, g. n. *Turdus rufus*, Linn.
 21. *Cyanolestes*: emend. pro *Cyanolanius*, Bp.
 22. *Entomoletes*: subst. pro *Chaptia*, Hodgs.
 24. *Pachyprora*, g. n. *Muscicapa capensis*, Linn.
 „ *Hypsipus*: subst. pro *Lanioturdus*, Waterh.
 25. *Empidodothera*: subst. pro *Cryptolopha*, Blyth.
 32. *Agriospiza*, g. n. *Fringilla flavirostris*, Linn.
 33. *Corydospiza*, g. n. *Fringilla alaudina*, Kittl.
 40. *Lophopsarus*: subst. pro *Fregilupus*, Less.
 44. *Gymnocorax*: emend. pro *Gymnocorvus*, Less.
 50. *Melitograis*, g. n. *M. striata*, sp. nov.
 54. *Spizocorys*, g. n. *Alauda conirostris*, Sund.
 59. *Colorhamphus*, g. n. *Myiobius parvirostris*, Gould.
 62. *Hylocosmia*: subst. pro *Cotinga*.
 63. *Paictes*: subst. pro *Philepitta*.
 69. *Camptolophus*: subst. pro *Plyctolophus*, Vieill.
 „ *Rhodurus*, g. n. *Psittacus erithacus*, L.
 „ *Anoplorhynchus*: subst. pro *Anodorhynchus*, Spix.
 71. *Coriophilus*: emend. pro *Coriphilus*, Waph.
 „ *Calliptilus*: subst. pro *Phigys*, Less.
 73. *Mesospilus*, g. n. *P. rafflesii*, auct.
 75. *Smilorhis*, g. n. *Megalema leucotis*, Sund.
 86. *Eurostopus*: emend. pro *Eurostopodus*, Gould.
 99. *Phapiscus*: subst. pro *Phapitreron*, Bp.
 „ *Nesopelia*, g. n. *Zenaida galapagensis*, Gould.
 100. *Stigmatopelia*, g. n. *Columba senegalensis*, L.
 „ *Spilopelia*, g. n. *Columba chinensis*, L.
 „ *Cosmopelia*, g. n. *Phaps elegans* (Temm.).
 105. *Leuchybris*: subst. pro *Nyctea*, Thunb.
 „ *Smilonyx*: subst. pro *Ketupa*, Less.
 + 106. *Nyctihierax*: subst. pro *Surnia*, Dum.
 107. *Asturisca*: subst. pro *Asturina*, Vieill.
 109. *Hamirostrum*: emend. pro *Rostrhamus*, Less.
 110. *Gypiscus*, g. n. *Vultur pileatus*, Burch.
 116. *Hyloperdix*: subst. pro *Arboricola*, Hodgs.
 118. *Opetioptila*: subst. pro *Aburria*, Reich.
 130. *Limnobænus*, g. n. *Gallinula rubiginosa*, Temm.
 131. *Porphyriola*: emend. pro *Porphyryla*, Blyth.
 142. *Calopetes*: subst. pro *Daption*, Steph.
 145. *Lipocentrus*: subst. pro *Phœnicoparrus*, Bp.
 „ *Brenthus*: emend. pro *Branta*, Scop.

146. *Hyonetta*: subst. pro *Cairina*, Flem.
 147. *Dendronessa*: emend. pro *Dendrocygna*, Sw.
 „ *Pseudocycnus*: emend. pro *Pseudolor*, Gray.
 149. *Melonetta*: subst. pro *Harelda*, Leach.
 155. *Toxocorys*: subst. pro *Certhilauda*, Sw.

The only new species described seems to be *Melitograis striata* from New Guinea, belonging to the *Meliphaginæ*.

SWINHOE, R.

Descriptions of two new Pheasants and a new Garrulax from Ningpo, China. P. Z. S. 1872, pp. 550-554.

The Pheasants are named *Phasianus ellioti*, from the mountainous region of Che-kiang, and *Pucrasia darwini*, from the same district. The *Garrulax*, called *G. picticollis*, is also from these mountains.

TACZANOWSKI, L:

1. *Notiz über die ostsibirischen rauhfüssigen Bussarde.* Journ. f. Orn. 1872, pp. 189-192.

The birds are described; but the determination of the species seems not to be exactly decided upon.

2. *Bericht über die ornithologischen Untersuchungen des Dr. Dybowski in Ost-Sibirien.* Journ. f. Orn. 1872, pp. 340-366, und 433-454.

An enumeration of the birds collected and observed by Dr. Dybowski between Irkutsk, Kultuk, and the Kosogal Lake, in the Baikal district, and near Darasun, in Dauria, including the notes of the collector on breeding, eggs, migration, &c. The first two parts of this very interesting and valuable paper relate to 120 species. Probably new are *Turdus hyemalis*, Dybowski (p. 439), and *Pæcilia brevirostris*, Dybowski (p. 444). The very interesting, if substantiated, occurrence of *Turdus aliciaë*, Baird, is mentioned (p. 440).

TAYLOR, GEORGE CAVENDISH.

Ornithological Observations in the Crimea, Turkey, Sea of Azov, and Crete, during the years 1854-55; with Remarks on the Sivash, or Putrid Sea. Ibis, 1872, pp. 224-237.

TAYLOR, REV. RICHARD.

An Account of the First Discovery of Moa-remains. Trans. & Proc. N. Z. Inst. vol. v. 1872 (iss. 1873), pp. 97-101.

The author states that he was the first who discovered Moa-bones and sent them over to Professor Owen, but that they did not reach their destination so soon as those given by a sailor to Mr. Rull.

TRAVERS, H. H., and HUTTON, F. W.

Notes on some Birds from the Chatham Islands, with Descriptions of two new Species. Ibis, 1872, pp. 243-250.

Gives an account of Mr. Travers's collection during an eight months' residence on the islands, which lie 475 miles east of New Zealand. The new species are *Petroica traversi* and *Rallus modestus*.

TRAVERS, W. T. L.

On the Birds of the Chatham Islands, by H. H. Travers; with Introductory Remarks on the Avifauna and Flora of the Islands in their relation to those of New Zealand. Trans. & Proc. N. Z. Inst. vol. v. 1872, pp. 212-222.

Observations and notes on 38 species of birds made by Mr. H. H. Travers during his recent visit to these islands. N.B. "*Graculus africanus*" should stand as *G. featherstoni*, Buller; [see also Hutton, F. W.].

TRIPPE, T. M.

Notes on the Birds of Southern Iowa. Proc. Bost. Soc. N. H. xv. pp. 229-243.

A list with short notes of 162 species observed during two years' residence in Southern Iowa.

TRISTRAM, H. B.

1. *On a new Sylviad from Palestine.* Ibis, 1872, pp. 296-297.

The new species is *Sylvia melanothorax*, from the Jordan Valley, allied to *S. melanocephala*. Other rare species, obtained during the recent expedition to Moab, are mentioned.

2. *Letter from.* Ibis, 1872. pp. 334, 335.

On a small flock of Pallas's Sand-Grouse (*Syrrhaptes paradoxus*) observed on the coast of North Northumberland.

TSCHUSI-SCHMIDHOFEN, VICTOR, RITTER VON.

1. *Schützet und heget die Vögel. Ein Mahnruf an alle Land- u.*

Forstwirthe, Jäger und Freunde der Vögel. 8vo, pp. 36, with 7 woodcuts. Wien: 1872. (Faesy & Frick.)

The protection of birds, a subject at present so much talked about, is very carefully treated, and all the questions concerned with it satisfactorily answered. The useful birds and those which do damage are enumerated. We may remark, however, that the usefulness of birds is modified by the country wherein they live; so, *e. g.*, *Corvus cornix*, which is correctly enumerated amongst the useful birds, cannot be considered so in Scandinavia, being a great destroyer of the eggs of Waterfowl in that country.

2. *Ornithologische Mittheilungen aus Oesterreich* (1871). Journ. f. Orn. 1872, pp. 131-137.

Observations on 18 species of birds, the most interesting of which are *Acanthis linaria*, found breeding in the Salzburgerian Alps, *Nucifraga caryocatactes*, in Upper Styria, and the occurrence of a flock of hundreds of *Pastor roseus* near Pönowitzsch, in Carinthia, in the beginning of June.

VIAN, JULES.

Causeries Ornithologiques. R. Z. 1872, pp. 33-48, 81-90, 321-330.

Treats of *Aquila leucorypha*, from the Ural, *Emberiza cioides*, *Anthus cervinus*, *Parus lugubris*, *Alauda pispoletta*, *A. sibirica*; of the so-called "spurious" primary in birds; of *Falco peregrinoides*, *Lanius phænicurus*, and *L. superciliosus*.

VOGEL, GEORG.

Die Fortpflanzung des Tannenhähers im Jura Solothurns. Verhandl. der St. Gallischen naturw. Gesellsch. 1871-72, and Separatabdruck: St. Gallen 1873. Zollikofer. 8vo, pp. 32.

A full account of the nesting, breeding, and habits of *Nucifraga caryocatactes* in the Jura.

USSHER, H. T.

[See SHARPE, R. B.]

WALDEN, ARTHUR, VISCOUNT.

1. *Letter from.* Ibis, 1872, pp. 330, 331.

Remarks upon *Cyornis tickelliae* and *C. Jerdoni*, and the question of their identity.

2. *On a Collection of Birds recently made by Mr. A. H. Everett in Northern Borneo.* Ibis, 1872, pp. 360-383, pl. xii.

Mr. Everett's collection contained examples of about 50 species, of which the most interesting are *Argusianus grayi*, *Pityriasis gymnocephalus*, and *Setornis cringer*. Of the last a figure is given. A short account of the authorities on Bornean ornithology is given, and full remarks on the synonymy and range of the species in the collection.

3. *Letter from.* Ibis, 1872, pp. 471, 472.

Identifies *Lithofalco fieldeni*, Hume, with *Polihierax insignis*, Walden, and specimens named "*Erythrosterna parva*, in nuptial plumage" by Mr. Hume, with *Siphia (Menetica) hyperythra*, Cabanis, of Ceylon.

4. *Description of a new Species of Porzana from the Himalayas.* Ann. & Mag. N. H. ser. 4. ix. p. 47 (1872).

Porzana bicolor, obtained near Darjeeling.

5. *Description of a supposed new Species of Cuckoo from Celebes.* Ann. & Mag. N. H. ser. 4. ix. pp. 305, 306 (1872).

Hierococcyx crassirostris, from the northern part of the island.

6. *On some supposed new Species of Birds from Celebes and the Togian Islands.* Ann. & Mag. N. H. ser. 4. ix. pp. 398-401 (1872).

These are *Loriculus quadricolor*, from the Togian Islands; *Myzomela chloroptera* and *Hyloterpe sulfuriventer*, from Celebes; *Criniger aureus*, from the Togian Islands; and *Cisticola grayi*, from Celebes.

7. *On a new Species of Timalia from Eastern India.* Ann. & Mag. N. H. ser. 4. x. pp. 61, 62 (1872).

Timalia jerdoni, from the Khasia Hills, hitherto referred to *T. pileata* of Java, but distinct.

8. *On two new Species of Birds from the Philippine Islands.* Ann. & Mag. N. H. ser. 4. x. pp. 252, 253 (1872).

These are *Hyloterpe philippinensis*, from Luzon, and *Orthotomus castaneiceps*, from Guimaras.

9. *A List of the Birds known to inhabit the Island of Celebes.* Trans. Zool. Soc. viii. pp. 23–108, pls. iii.–x. (Read May 2nd, 1871; published May 1872.)

A complete treatise on what is yet known of the birds of this debatable land between the Indo-Malayan and Austro-Malayan regions. After a general disquisition on the 191 known species and on the results to be arrived at from an examination of them and the genera to which they belong, a complete list of the species is given, with synonyms and critical remarks. Three species are described as new—*Lalage leucopygialis*, *Munia brunneiceps*, and *Calornis neglecta*. The following species are figured—*Trichoglossus meyeri*, *Buceros exaratus*, ♂ et ♀, *Artamus monachus*, *Geocichla erythronota*, *Myiolestes helianthea*, *Hypothymis puella*, *Cyornis rufigula*, *Volvocivora morii*, *Lalage leucopygialis*, *Munia brunneiceps*, *Zosterops intermedia*, *Zost. atrifrons*, *Acridotheres cinereus*, and *Ægialites peronii*. Special accounts are given of the known species of *Centrococcyx* and *Calornis*, and much information about *Phænicophaes* and about the Hornbills of Celebes.

10. *Appendix to a List of Birds known to inhabit the Island of Celebes.* Trans. Zool. Soc. viii. pp. 109–118, pls. xi.–xiii. (Read May 7th, 1872; published May 1872.)

Appendix to the previous memoir, giving an account of Dr. A. B. Meyer's recent collections in Celebes. After additional observations on species already included, in the course of which *Broderipus celebensis* is described as new, particulars of 12 additional species are given. *Teraspiza rhodogastra*, *Graucalus temminckii*, and *Hierococcyx crassirostris* are figured.

WALDEN, ARTHUR, VISCOUNT; and LAYARD, E. L.

On Birds recently observed or obtained in the Island of Negros, Philippines. Ibis, 1872, pp. 93–107, pls. iv.–vi.

Mr. L. C. Layard's collection from this hitherto ornithologically unexplored island contains examples of 17 species. *Chrysocolaptes xanthocephalus*, *Dicrurus mirabilis*, and *Ianthæna griseogularis* are described as new and figured. Important rectifications are given as to the synonymy of other species.

WOOD, T. W.

On the two (?) unknown Species of Argus Pheasant. Ann. & Mag. N. H. ser. 4. x. p. 67 (1872).

Remarks on the feathers of these supposed species as figured in Elliot's monograph.

WOOD, WILLIAM, M.D.

Instructions for preparing Birds' Eggs. Am. Nat. 1872, pp. 281, 282.

Recommends an egg-blowing instrument invented by Mr. E. W. Ellsworth, of East Windsor, Hill., Conn., and gives sound advice to inexperienced collectors.

XLVIII.—*List of Periodicals in which Ornithological Papers have appeared in 1872.* By F. H. WATERHOUSE, Librarian to the Zoological Society of London.

I HAVE drawn up the following list at Mr. Sclater's request. The titles are arranged nearly in the same order as that in which they occur in the Society's Library Catalogue. Copies of all of them, with very few exceptions, are in the library under my charge.

AMSTERDAM.

Jaarboekje van het Koninklijk Zoologisch Genootschap Natura Artis Magistra. 1872. pp. 175.

BERLIN.

Zeitschrift für die gesammten Naturwissenschaften : neue folge (Giebel). Band v. and vi. 1872.

Zeitschrift für Vogelliebhaber, -Züchter und -Händler. 1872.
Archiv für Naturgeschichte. Jahrgang xxx., 1872.

BOLOGNA.

Memorie dell' Accademia di Scienze dell' Istituto. Ser. 2, vol. iii. 1872.

BOSTON.

Proceedings of the Boston Society of Natural History. Vol. xiv. p. 420, xv. p. 256. (1872.)

BREMEN.

Abhandlungen herausgegeben vom naturwissenschaftlichen Vereine. Band iii. (1872.)

CALCUTTA.

Journal of the Asiatic Society of Bengal. Vol. xli. 1872, pp. 351.

Proceedings of the Asiatic Society of Bengal. January to December, 1872.

Stray Feathers. Vol. i. no. 1 (1872), pp. 50.

CAMBRIDGE, MASS. U. S. A.

Bulletin of the Museum of Comparative Zoology. Vol. iii. no. 6, 1872.

CHRISTIANIA.

Forhandlinger i Videnskabs-Selskabet. 1872.

COPENHAGEN.

Videnskabelige Meddelelser fra den naturhistoriske Forening i Kjöbenhavn. 1872.

DRESDEN.

Sitzungsberichte der naturwissenschaftlichen Gesellschaft Isis in Dresden. 1872.

FRANKFURT-AM-MAIN.

Der zoologische Garten. Jahrg. xiii. pp. 388.

GERA.

Verhandlungen der Gesellschaft von Freunden der Naturwissenschaften in Gera. Band iii. 1868-72.

GREIFSWALD.

Mittheilungen aus dem naturwissenschaftlichen Vereine von Neu-Vorpommern und Rügen. Jahrg. 3, 1871.

HAARLEM.

Niederländisches Archiv für Zoologie (Selenka). Vol. i. Heft 2. (1872.)

LEIPZIG.

Journal für Ornithologie (Cabanis). .Dritte Folge, Band iii.
1872.

Zeitschrift für wissenschaftliche Zoologie (Siebold & Kölliker).
Vol. xxii. 1872.

LISBON.

Jornal de Sciencias Mathematicas, Physicas e Naturales.
No. 13. 1872.

LONDON.

Annals and Magazine of Natural History. Ser. 4, vols. ix.
& x. January to December, 1872.

The Ibis. 1872, pp. 491.

The Zoologist. Vol. xxx. 1872, pp. 2877-3340.

Journal of the Linnean Society of London. Vol. xi. no. 55,
pp. 425-492.

Transactions of the Zoological Society of London. Vol. viii.
pts. 1-3. 1872, pp. 234.

Proceedings of the Zoological Society of London. 1872,
pp. 927.

MILAN.

Atti della Società Italiana di Scienze Naturali. Vol. xv.
fasc. 1 & 2. 1872.

MODENA.

Annuario della Società dei Naturalisti. Anno vi. 1872.

MÜNSTER.

Jahres-Bericht 1872, des westfälischen Vereins für Vogel-
schutz, Geflügel- und Singvogelzucht.

Bericht über die xix. Versammlung der deutschen Ornitho-
logen-Gesellschaft zu Cassel. 1872.

NEW HAVEN, MASS. U. S. A.

The American Journal of Science and Arts. Ser. 3, vols. iii.
& iv. 1872.

NEW YORK, U. S. A.

Annals of the Lyceum of Natural History of New York.
Vol. x. nos. 1-7. 1872.

PARIS.

- Annales des Sciences Naturelles. 5^e sér. tomes xv. & xvi. (1872.)
- Comptes Rendus hebdomadaires des Séances de l'Académie des Sciences. Tomes lxxiv., lxxv. (1872.)
- Bulletin de la Société Zoologique d'Acclimatation. 2^e série, tome ix. 1872, pp. 944.
- Revue et Magasin de Zoologie. Vol. xxiv. 1871-72, pp. 503.
- Journal de Zoologie (Gervais). Vol. i. 1872, pp. 548.

PHILADELPHIA, U. S. A.

- Proceedings of the Academy of Natural Sciences of Philadelphia. 1872, pp. 322.

ST. GALLEN.

- Verhandlungen der St. Gallischen naturwissenschaftlichen Gesellschaft. 1870-71.

ST. PETERSBURG.

- Bulletin de l'Académie Impériale des Sciences de St. Pétersbourg. Tomes xvii. & xviii. 1872.
- Mélanges biologiques tirés du Bulletin. viii. 1872.

SALEM, MASS. U. S. A.

- American Naturalist. Vol. vi. nos. 1-12. 1872.

SHANGHAI.

- Journal of the North-China Branch of the Royal Asiatic Society. 1871-72, pp. 260.

TRURO.

- Journal of the Royal Institution of Cornwall. 1872, pp. 112.

TURIN.

- Atti della R. Accademia delle Scienze di Torino. vii. 1872.

VIENNA.

- Verhandlungen des zoologisch-botanischen Vereins in Wien. xxii. 1872, pp. 742.

WELLINGTON.

- Transactions and Proceedings of the New-Zealand Institute. Vol. v. 1872, pp. 487.

I N D E X.

- Acanthis linaria*, 490.
Acanthorhynchus tenuirostris, 109.
Accentor alpinus, 240.
 — *jerdoni*, 438.
 — *modularis*, 240.
Accipiter erythrocnemis, 135.
 — *fuscus*, 18.
 — *nisus*, 154, 364.
Acipenser ruthenus, 55.
Acredula caudata, 483.
 — *irbyi*, 483.
 — *rosea*, 483.
 — *tephronota*, 483.
Acridotheres cinereus, 79, 492.
 — *fuscus*, 79.
 — *ginginianus*, 401, 412.
 — *mahrattensis*, 79.
 — *tristis*, 313, 412.
Acrocephalus dumetorum, 412.
Actitis glareola, 317.
 — *hypoleuca*, 67, 68, 317, 339, 417.
 — *ochropus*, 417.
Actiturus bartramius, 453.
Actocheilidon cantiaca, 453.
Adelomyia cervina, 454.
 — *chlorospila*, 454.
Ægialites cantianus, 337.
 — *hiaticula*, 337.
 — *minor*, 337.
 — *mongolus*, 425.
 — *peronii*, 492.
Ægialitis cantianus, 264, 266.
 — *curonica*, 316.
 — *dubia*, 316.
 — *geoffroyi*, 316, 416.
 — *gracilis*, 440.
 — *hartingi*, 96, 217, 325, 326, 327.
Ægialitis hiaticula, 67, 266, 325.
 — *longipes*, 263, 327.
 — *marginatus*, 265.
 — *minor*, 266.
 — *minuta*, 316.
 — *minutus*, 416.
 — *mongola*, 317.
 — *mongolicus*, 416.
 — *nigrifrons*, 266.
 — *occidentalis*, 440.
 — *pecuarius*, 261, 262, 263, 265.
 — *pyrrhothorax*, 416.
 — *sanctæ-helenæ*, 260, 262, 266.
 — *semipalmata*, 325.
 — *sennaarensis*, 263.
 — *tenuirostris*, 326.
 — *tricoloris*, 266.
 — *varius*, 261, 262, 266.
Ægiothus rufescens, 64.
Ægolius brachyotus, 58.
Ægotheles novæ-hollandiæ, 107.
Agelaius assimilis, 28.
 — *humeralis*, 28.
 — (*Nesopsar*) *nigerrimus*, 28.
Agromyias leucopygialis, 172.
Aithya ferina, 366.
Aix galericulata, 123.
Alauda arborea, 245, 483.
 — *arvensis*, 62, 213, 221, 245, 462.
 — *conirostris*, 487.
 — *gulgula*, 221, 222.
 — *guttata*, 438.
 — *malabarica*, 222, 462.
 — *pispoletta*, 490.
 — *sibirica*, 490.
Alca torda, 348.
Alcedo bengalensis, 302, 361, 407.
Alcedo ispida, 236, 407.
 — *paradisea*, 108.
 — *quadribrachys*, 258.
 — *sacra*, 19.
 — *semitorquata*, 258, 281.
 — *venerata*, 20.
Alctornis gracilis, 468.
 — *nobilis*, 468.
 — *pernix*, 468.
 — *venustus*, 468.
Alseonax latirostris, 308.
Aluco flammeus, 155, 471.
Amadina erythrocephala, 29.
 — *guttata*, 116.
Ametornis abnormis, 13.
Ammomanes phœnicura, 414.
Ampelis cinerea, 114.
 — *garrula*, 60, 362.
Amydrus tristrami, 429.
Anarhynchus frontalis, 92, 474.
Anas albeola, 46.
 — *angustirostris*, 483.
 — *boschas*, 71, 343, 366, 453, 459.
 — *cærulescens*, 45.
 — *coromandeliana*, 122.
 — *creccoides*, 434.
 — *cristata*, 46.
 — *jubata*, 45.
 — *leucophrys*, 123.
 — *lophyra*, 46.
 — *marmorata*, 343.
 — *pæcilorhyncha*, 420, 482.
 — *scaldi*, 434.
 — *strepera*, 343.
 — *superciliosa*, 85, 123.
 — *zonorhyncha*, 367.
Ancylocheilus subarquata, 453.
Anser albatrus, 479.
 — *albifrons*, 71, 368.

- Anser caerulescens*, 45.
 — *cinereus*, 70, 368.
 — *cygnoides*, 368.
 — *erythropus*, 368.
 — *ferus*, 342, 368.
 — *hyperboreus*, 45.
 — *segetum*, 71, 342, 368.
Anthochaera carunculata, 110.
 — *inauris*, 109.*
Anthornis melanura, 22, 467.
Anthropoides virgo, 417.
Anthus aquaticus, 245.
 — *arboreus*, 61, 245.
 — *campestris*, 245.
 — *cervinus*, 61, 245, 490.
 — *pratensis*, 61, 245, 448.
 — *richardi*, 456.
 — *rufogularis*, 456.
Autrostomus carolinensis, 108.
 — *imperator*, 103, 104.
Apatornis celer, 430.
Aptenodytes forsteri, 104.
 — *fosteri*, 103.
 — *minor*, 103.
 — *pennanti*, 103, 104, 481.
 — *rex*, 103, 104.
Apternis tridactylus, 59.
Apteryx australis, 447, 482.
 — *haasti*, 473.
 — *mantelli*, 447.
Aptornis defossor, 472, 473.
Aquila adalberti, 99, 436, 445, 456.
 — *bifasciata*, 99, 422, 423, 433, 437.
 — *bonellii*, 147, 149, 398.
 — *chrysaetus*, 58, 149.
 — *clanga*, 456.
 — *crassipes*, 99, 433, 437.
 — *fulva*, 452.
 — *fulvescens*, 398, 402, 403.
 — *fusca*, 402.
 — *hastata*, 433.
 — *imperialis*, 98, 456.
 — *leucorypha*, 490.
 — *minuta*, 452, 453, 460.
 — *mogilnik*, 99, 224, 445.
Aquila naevia, 224, 465.
 — *naevioides*, 281, 398, 402, 403, 422, 423.
 — *orientalis*, 423.
 — *pennata*, 452, 453, 459, 465.
Arachnechthra asiatica, 408.
 — *flammaxillaris*, 312.
 — *frenata*, 312.
 — *lotenia*, 229.
Aramides cayennensis, 122.
Archibuteo aquilinus, 364.
 — *hemiptilopus*, 225.
Ardea agami, 396.
 — *asha*, 318, 319.
 — *caerulea*, 38.
 — *canadensis*, 38.
 — *cinerea*, 252, 340, 418.
 — *comata*, 283.
 — *goliath*, 283.
 — *gularis*, 318, 319.
 — *jugularis*, 319.
 — *novæ hollandiæ*, 120, 439.
 — *pacifica*, 38.
 — *purpurea*, 340, 418.
 — *saera*, 319, 320, 439.
 — *scapularis*, 121.
 — *schistacea*, 319.
 — *sibilatrix*, 137.
 — *virgo*, 38.
 — *vittata*, 38.
Ardeola leucoptera, 419.
 — *minuta*, 341.
Ardetta cinnamomea, 73, 74.
 — *eurhythmia*, 73, 74.
 — *minuta*, 259.
 — *podiceps*, 259.
 — *sinensis*, 73, 74.
Argus giganteus, 482.
 — *ocellatus*, 330.
Argusianus grayi, 491.
Arremon silens, 380.
Arrenga blighi, 459.
Artamus leucopygialis, 309.
 — *leucorhynchus*, 309.
 — *monachus*, 492.
Arundinax aedon, 307.
 — *canturiens*, 180.
 — *minutus*, 180.
 — *olivaceus*, 307.
Ascalaphia bengalensis, 405.
Asio accipitrinus, 155.
 — *otus*, 155.
Astur nisus, 58.
Astur novæ-hollandiæ, 107.
 — *palumbarius*, 58, 154.
Asturina magnirostris, 394.
 — *pucherani*, 136.
 — *schistacea*, 478.
Athene brama, 405, 455.
 — *noctua*, 455.
 — *torquata*, 18.
Atticora cyanoleuca, 461.
 — *griseopyga*, 458.
Attila rufigularis, 113.
 — *thamnophiloides*, 385.
Aythya ferina, 420.
 — *nyroca*, 420.
Balearica regulorum, 286.
Barbatula leucotis, 255.
 — *uropygialis*, 458.
Batis affinis, 168, 169.
 — *capensis*, 160, 161, 176.
 — *minima*, 161, 169, 177.
 — *molitor*, 161, 166, 168, 169, 176.
 — *orientalis*, 161, 165, 176.
 — *pririt*, 161, 168, 169, 176.
 — *senegalensis*, 161, 163, 164, 165, 166, 169, 176, 177.
Bernicla jubata, 45, 46.
 — *leucopsis*, 71.
Bessornis heuglini, 458.
Blandfordius striatulus, 222, 224.
Bolborhynchus monachus, 134, 480.
Botaurus lentiginosus, 453.
 — *stellaris*, 341, 475.
Brachyotus accipitrinus, 228.
Brachypodius fuscoclavescens, 224, 306.
 — *melanocephalus*, 306, 307.
Brachypterus aurantius, 407.
Brachypteryx palliseri, 459.
 — *sepiaria*, 487.
Brachyramphus marmoratus, 46.
Bradyornis modesta, 140.
Bradypterus cetti, 244.

- Broderipus acrorhynchus*, 306.
 — *andamanensis*, 305.
 — *celebensis*, 306, 492.
 — *chinensis*, 306.
 — *coronatus*, 306.
 — *formosus*, 306.
 — *frontalis*, 306.
 — *indicus*, 306.
Brotogerys tuipara, 116, 394.
 — *virescens*, 117.
Bubo hemachalanus, 225.
 — *maximus*, 58, 225.
 — *virginianus*, 137.
Bucco hyperrhynchus, 391.
 — *tectus*, 391.
Bucephala clangula, 367.
Buceros africanus, 319.
 — *albirostris*, 193.
 — *buccinator*, 179.
 — *coronatus*, 30.
 — *cristatus*, 178.
 — *cylindricus*, 178, 179.
 — *exaratus*, 492.
 — *fistulator*, 179.
 — *galeatus*, 468.
 — *malabarius*, 30.
 — *monoceros*, 30.
 — *rhinoceros*, 29, 205.
 — *scutatus*, 468.
 — *sharpii*, 177, 178, 179.
 — *subcylindricus*, 179.
Buchanga albirictus, 409.
 — *andamanensis*, 310.
 — *cærulescens*, 399, 400, 409.
 — *leucopygialis*, 230.
Budytes cinereocapilla, 453.
 — *cinereocapillus*, 61.
 — *flava*, 245, 282.
 — *rayi*, 282.
 — *viridis*, 308.
Buphaga africana, 256.
 — *erythrorhyncha*, 256.
Buphus bubuleus, 341.
 — *coromandus*, 419.
 — *ralloides*, 341.
Burnesia lepida, 433.
Butalis grisola, 398, 409.
 — *latirostris*, 308.
Buteo albonotatus, 428.
 — *ferox*, 484.
 — *japonicus*, 364, 474.
 — *lagopus*, 58, 150.
 — *lineatus*, 106.
Buteo plumipes, 435.
 — *pteroles*, 136.
 — *vulgaris*, 58, 150.
Buteola brachyura, 394.
Butorides cyanurus, 137.
 — *javanicus*, 321.
Caccabis rubra, 36.
Calamodyta aquatica, 244.
 — *canturiens*, 180.
 — *melanopogon*, 244, 484.
 — *phragmitis*, 61.
Calamoherpe arundinacea, 25, 244, 259.
 — *babæcula*, 259.
 — *baticata*, 259.
 — *bæticula*, 259.
 — *canturiens*, 179, 180.
 — *gracilirostris*, 259.
 — *palustris*, 25, 453.
Calandrella brachydactyla, 98, 154, 245.
 — *buckleyi*, 142.
 — *reboudia*, 98.
Calialeyon coromanda, 302.
Calidris arenaria, 70, 340, 417.
Callipepla gambelli, 482.
Calliste flaviventris, 379.
Calobates melanops, 231.
Calœnas nicobarica, 35.
Calophasis ellioti, 445.
Calorhamphus hayi, 468.
Calornis neglecta, 492.
Calyptorhynchus banksi, 33.
 — *solandri*, 118.
Campephaga monacha, 457.
 — *nesiotis*, 457.
Campephilus boiei, 133.
 — *melanoleucus*, 33.
 — *trachelopyrus*, 390.
Campylopterus obscurus, 388.
Canceroma canerophaga, 39.
 — *cochlearia*, 39.
Caprimulgus ægyptius, 484.
 — *asiaticus*, 406.
Caprimulgus crassirostris, 107.
 — *cristatus*, 107.
 — *europæus*, 59, 236.
 — *longipennis*, 107.
 — *macrodipterus*, 107.
 — *mahrattensis*, 406.
 — *megacephalus*, 107.
 — *monticolus*, 406.
 — *novæ-hollandiæ*, 107.
 — *phalæna*, 457.
Carbo squamatus, 124.
 — *sulcirostris*, 124.
Carduelis elegans, 247.
Cariama cristata, 455.
Carine noctua, 155.
Carpodacus edwardsii, 218.
 — *erythrinus*, 64.
Carpophaga, sp., 34.
 — *ænea*, 314.
 — *novæ-zealandiæ*, 439.
 — *palumboides*, 225, 315.
Casarca rutila, 419.
 — *variegata*, 439.
Cassicus affinis, 381.
 — *persicus*, 381.
Casuaris bennetti, 480.
 — *bicarunculatus*, 481.
 — *kaupi*, 480.
Catarractes affinis, 468.
Cathartes atratus, 395.
 — *gryphus*, 16.
Catrisicus apicalis, 458.
Cecropis hyperythra, 230.
Celeus cinnamomeus, 118.
 — *citrinus*, 390.
 — *jumana*, 390.
 — *multicolor*, 118.
Centrococeyx andamanensis, 305.
Centropus ægyptius, 484.
 — *affinis*, 206.
 — *andamanensis*, 305.
 — *antiquus*, 206.
 — *chlororhynchus*, 230.
 — *eurycerus*, 230.
 — *phasianus*, 481.
 — *philippinensis*, 206.

- Centropus rectunguis*, 230.
 — *rufipennis*, 230, 408.
 — *sinensis*, 230.
Centurus polygrammus, 440.
Cercomacra tyrannina, 387.
Cereba cærulea, 378.
 — *cyanea*, 378.
Ceriornis blythii, 433, 453.
Certhia hodgsoni, 438.
 — *lunata*, 110.
 — *melanura*, 22.
 — *novæ-hollandiæ*, 109.
 — *olivacea*, 22.
 — *pacifica*, 21.
 — *sannio*, 22.
 — *tenuirostris*, 109.
Certhiola chloropyga, 378.
 — *martinicana*, 334.
Certhiparus novæ-zealandiæ, 474.
Ceryle amazona, 133.
 — *americana*, 133.
 — *guttata*, 361.
 — *lugubris*, 96, 361.
 — *rudis*, 361, 407.
 — *torquata*, 133.
Chæmarrhornis leucocephalus, 96.
Chætornis striatus, 80.
Chætura caudacuta, 108.
 — *poliura*, 389.
 — *spinicauda*, 389.
Chalcophaps indicus, 315.
Chamæpelia passerina, 395.
 — *talpacoti*, 396.
Charadrius asiaticus, 366, 447.
 — *cantiana*, 326.
 — *caspius*, 366.
 — *damarensis*, 447.
 — *frontalis*, 263.
 — *fulvus*, 316, 325, 366, 427.
 — *hiaticula*, 325, 326.
 — *isabellinus*, 263.
 — *kittlitzii*, 260, 263, 267.
 — *longipes*, 325, 326, 416.
 — *minor*, 316.
 — *nivifrons*, 265.
 — *pastor*, 263.
Charadrius pectoralis, 263.
 — *pecuarius*, 260, 261, 262, 264, 266, 267, 325, 327.
 — *placidus*, 326.
 — *pluvialis*, 67, 337.
 — *varius*, 260, 262, 264.
Chatarrhæa caudata, 410.
Chaulelasmus strepera, 71.
 — *streperus*, 420.
Chauna chavaria, 481.
Chelidon urbica, 59, 225, 237.
Chelidoptera tenebrosa, 392.
Chettusia gregaria, 398, 416.
 — *nivifrons*, 447.
Chibia hottentotta, 112.
Chionis alba, 37.
Chiromachæris gutturosa, 114.
 — *manacus*, 384.
Chiroxiphia pareola, 384.
Chlamydochen, 46.
Chloronerpes ruficeps, 390.
Chlorostilbon pumilus, 453.
Chroicocephalus minutus, 72.
 — *ridibundus*, 72.
Chrysococcyx smaragdi-neus, 259.
 — *splendidus*, 259.
Chrysocolaptes xanthocephalus, 492.
Chrysolampis chlorolæmus, 446.
Chrysomitris spinus, 64, 247.
 — *thibetana*, 461.
Chrysoptilus agricola, 134.
 — *boiæi*, 134.
 — *cristatus*, 132, 134, 138.
Ciconia alba, 341.
 — *australis*, 39.
 — *nigra*, 341.
Cinclorhamphus cruralis, 80.
Cinclosoma punctatum, 112.
Cinclus aquaticus, 238, 60.
Cinnyris talatala, 255.
Circaetus zonurus, 458.
Circaetus antarcticus, 17.
 — *gallicus*, 149, 403.
 — *pectoralis*, 281.
Circus æruginosus, 154, 233, 234, 405.
 — *assimilis*, 233.
 — *cineraceus*, 155, 233, 234, 364, 404.
 — *cinereus*, 131.
 — *cyaneus*, 155, 233, 234.
 — *cyaneus*, 58.
 — *gouldi*, 421, 422, 439.
 — *hudsonius*, 233.
 — *maurus*, 332.
 — *melanoleucus*, 233.
 — *pallidus*, 96, 224, 233, 234.
 — *ranivorus*, 233.
 — *spilonotus*, 233, 422.
 — *swainsoni*, 224, 233, 234, 404.
 — *wolffi*, 421, 422.
 — *wolffi*, 233.
Cisticola ayresii, 257.
 — *cursitans*, 257.
 — *grayi*, 491.
 — *schenicola*, 412.
 — *semirufa*, 441.
Citrinella huttoni, 414, 398.
Cittacincela macroura, 25.
Clangula albeola, 46.
Cnipolegus hudsoni, 461, 481.
Coccythraustes vulgaris, 247.
Coccyzus jacobinus, 407.
Coccyzus americanus, 481.
 — *erythrophthalmus*, 481.
 — *geoffroyi*, 291.
Colaptes agricola, 132, 134.
Colius leucotis, 470.
 — *senegalensis*, 116.
 — *striatus*, 116.
Collocalia affinis, 302.
 — *brevirostris*, 303.
 — *fuciphaga*, 303.
 — *innominata*, 224, 303.
 — *linchi*, 302.
Colluricincla concinna, 463.

- Colluricincla parvissima*, 454.
 — *selbii*, 114.
Colopterus galeatus, 382.
Columba, sp., 34.
 — *bollii*, 452.
 — *chinensis*, 487.
 — *cristata*, 36.
 — *intermedia*, 414.
 — *laurivora*, 452.
 — *leucocephala*, 34.
 — *livia*, 335.
 — *melanoleuca*, 35.
 — *œnas*, 335.
 — *pallida*, 118.
 — *palumbus*, 66, 335.
 — *picata*, 35.
 — *senegalensis*, 487.
 — *sylvatica*, 314.
 — *trocaz*, 452.
Columbina aurisquamata, 430.
Columbus auritus, 73.
 — *glacialis*, 349.
 — *septentrionalis*, 349.
Conurus acuticaudatus, 430.
 — *glaucofrons*, 430.
Copsychus saularis, 25, 307, 399, 411.
Coracias affinis, 80.
 — *garrula*, 80, 236.
 — *indica*, 80, 406.
 — *strepera*, 27.
Coracina cinerea, 114.
Coracopsis mascarina, 32.
Corvus auritus, 26, 112.
 — *collaris*, 80.
 — *corax*, 65, 248.
 — *cornix*, 65, 248, 490.
 — *corone*, 65, 248.
 — *culminatus*, 75, 76, 77, 78, 312, 412.
 — *frugilegus*, 65, 248.
 — *graculinus*, 27.
 — *levaillanti*, 398, 401, 412.
 — *levaillantii*, 312.
 — *melanops*, 113.
 — *monedula*, 65, 248.
 — *pastinator*, 372.
 — *sibiricus*, 115.
 — *splendens*, 75, 76, 77, 78, 412.
 — *strepera*, 27.
Coryphospingus cristatus, 380.
Corythaix leucolophus, 458.
Corythaix musophagus, 255.
Corythornis cristata, 281.
Corythus enucleator, 64.
Cossypha gutturalis, 484.
Cotinga pompadora, 114.
Coturniculus manimbe, 381.
Coturnix chinensis, 120.
 — *communis*, 336, 415.
 — *novæ zealandiæ*, 439.
Cotyle cineta, 281.
 — *concolor*, 406.
 — *obsoleta*, 214.
 — *riparia*, 59, 237.
 — *rupestris*, 237.
Cracticus torquatus, 114.
Crateropus acaciæ, 484.
Crax incommoda, 482.
Creadion carunculatus, 28, 439, 474.
Crex pratensis, 67, 336, 351.
Criniger aureus, 491.
Crocopus phœnicopterus, 399, 400, 414.
Crotophaga ani, 392.
Cryptornis antiquus, 206.
Crypturus pileatus, 396.
Cuculus canorinus, 440.
 — *canorus*, 59, 236, 440.
 — *flabelliformis*, 118, 119.
 — *honoratus*, 303.
 — *imperatus*, 119.
 — *indicus*, 440.
 — *micropterus*, 304.
 — *pallidus*, 118.
 — *pluvialis*, 33.
 — *striatus*, 440.
 — *vetula*, 33.
Cultrides pucherani, 287, 288.
 — *rufipennis*, 288.
Curruca atricapilla, 241.
 — *melanocephala*, 143, 241, 243.
 — *orphea*, 453.
Cursorius coromandelicus, 415.
 — *gallicus*, 266.
 — *jamesonii*, 415.
Cyanecula suecica, 61, 477.
Cyanocephalus wiedi, 103.
Cyanocitta melanocyanea, 373.
Cyanocorax cayanus, 27.
 — *pileatus*, 133.
Cyanopoliis cyanus, 371.
Cyanopterus querquedula, 71.
Cyanorhamphus alpinus, 482.
Cygnus atratus, 46.
 — *bewicki*, 368.
 — *ferus*, 438, 453.
 — *herrenthalsi*, 434.
 — *olor*, 342, 438, 453.
 — *minor*, 453.
 — *musicus*, 342.
Cymbirhynchus macro-rhynchus, 19.
Cynthia cardui, 267.
Cyornis banyumas, 466.
 — *jerdoni*, 399, 400, 401, 409, 410, 491.
 — *rufigula*, 492.
 — *sanguineus*, 409.
 — *tickelliae*, 399, 409, 410, 466, 491.
Cyphorhinus musicus, 111.
Cypselus affinis, 406, 478.
 — *apus*, 59, 237.
 — *bataviensis*, 231.
 — *caffer*, 281.
 — *horus*, 478.
 — *infumatus*, 453.
 — *melba*, 236.
 — *pallidus*, 479.
 — *subfuscatus*, 231.
Dacelo concreta, 231.
Dacnis cayana, 378.
Dafila acuta, 71, 343, 420.
 — *bahamensis*, 46.
Danais chrysippus, 267.
Daulias luscinia, 240, 241.
 — *philomela*, 241.
Demiegretta asha, 418.
 — *concolor*, 318, 320.
 — *greyi*, 318.
 — *gularis*, 320.
 — *jugularis*, 320.
 — *sacra*, 318, 320.
Dendrocitta rufa, 412.
Dendrocolaptes brunnei-ceps, 133.
Dendrocygna ausuree, 419.
 — *autumnalis*, 122.
Dendroeca æstiva, 334.
 — *castanea*, 437.
 — *graciæ*, 428.
Dendroica castanea, 437.

- Dendroplex picus*, 110, 386.
Dendornis eytoni, 385.
 — *pardalotus*, 110.
Dermophrys jagori, 441.
Diallactes granadensis, 440.
 — *major*, 440.
 — *semifasciatus*, 440.
Diaphorophya blissetti, 156, 172, 173, 174, 175, 177.
 — *castanea*, 171, 172, 177.
 — *concreta*, 171, 172, 174, 177.
Diaphorophya blisseti, 483.
 — *leucopygialis*, 172.
Dicaeum retrocinetum, 454.
Dicrurus macrocercus, 409.
 — *mirabilis*, 492.
Didunculus strigirostris, 444.
Diomedea brachyura, 51.
 — *exulans*, 51, 123.
 — *exulans grisea*, 51.
 — *spadicea*, 51.
Diplopterus nævius, 392.
Dissemurus affinis, 310.
 — *brachyphorus*, 310.
Domicella taitiana, 117.
Donacobius atricapillus, 377.
Drepanis pacifica, 21.
Dromæus novæ-hollandiæ, 120.
Dromas ardeola, 458.
Dromornis australis, 430.
Drymœca bairdi, 486.
 — *eremita*, 429.
 — *flavida*, 486.
 — *inornata*, 412.
 — *inquieta*, 437.
 — *scotoptera*, 486.
Drymœpus rufescens, 461.
Drynoica flavicans, 254, 259.
 — *melanorhyncha*, 259.
 — *pallida*, 259.
 — *subflava*, 259.
 — *subbruficapilla*, 254.
 — *terrestris*, 257, 258.
Drymoipus insignis, 216, 217, 461.
 — *jerdoni*, 217.
 — *rufescens*, 217.
Drymoipus sylvaticus, 216, 217.
Drymornis bridgesi, 133.
Dryocopus lineatus, 300.
 — *martius*, 59.
Dryodromas nigriceps, 139.
Dumeticola cyanocarpa, 461.
 — *major*, 438.
Edolius setaceus, 112.
Egretta alba, 341.
 — *garzetta*, 341.
Elainea martinica, 113.
 — *pagana*, 382.
 — *riisii*, 114.
Elanoides furcatus, 439.
Elanus melanopterus, 218, 332, 405, 444, 462.
 — *sinensis*, 443.
Elminia longicauda minor, 458.
Emberiza aureola, 62.
 — *cia*, 246, 483.
 — *cioides*, 490.
 — *cirlus*, 246.
 — *citrinella*, 63.
 — *hortulana*, 246, 476, 483.
 — *huttoni*, 459.
 — *intermedia*, 484.
 — *melanocephala*, 246, 483.
 — *miliaria*, 246.
 — *pusilla*, 63.
 — *rustica*, 63.
 — *schaenicla*, 63.
 — *schaeniclus*, 246.
 — *spodocephala*, 372.
Empidonax pusillus, 437.
Empidonomus varius, 383.
Entombia smyrnensis, 302.
Eophona melanura, 372.
Ephialtes asio, 19.
 — *brucei*, 216, 461.
Eremomela griseo-flava, 458.
Eriocnemis dyselius, 446.
Erismatura dominica, 137.
 — *leucocephala*, 343, 484.
Erithacus rubecula, 240.
Erythropus amurensis, 96, 280.
Erythrospiza githaginea, 484.
Erythrosterna hyperythra, 459.
 — *leucura*, 80.
 — *parva*, 81, 398, 410, 491.
Esacus recurvirostris, 416.
Estrellda astrild, 282.
 — *bella*, 115.
 — *carmelita*, 259.
 — *temporalis*, 115.
Eucephala cærulea, 388.
Eudromias asiaticus, 365.
 — *morinellus*, 337.
 — *tenuirostris*, 217, 324, 462.
 — *veredus*, 365, 366, 424, 447.
Eudynamis honorata, 303.
 — *malayana*, 303.
 — *taitensis*, 439, 474.
Eudynamis honorata, 408.
 — *nigra*, 34.
 — *orientalis*, 74, 408.
Eudyptila minor, 104.
 — *undina*, 104.
Eudytes arcticus, 72.
 — *glacialis*, 72.
 — *septentrionalis*, 72.
Eulabes andamanensis, 313.
 — *intermedia*, 313.
Eulampis holosericeus, 334.
 — *jugularis*, 334.
Eumomota superciliaris, 373, 471.
Eunetta falcata, 368.
 — *formosa*, 368.
Euphona lichtensteinii, 116.
Euphonia cayana, 379.
 — *minuta*, 373.
 — *violacea*, 379.
Euplectes taha, 255.
Eupodotis edwardsi, 415.
Eurynorhynchus pygmaeus, 453.
Eurynorhynchus pygmaeus, 425.
Eurystomus orientalis, 108, 302.
Euspiza melanocephala, 62, 453.
Falcinellus igneus, 419, 453.
Falco æsalon, 57, 153, 364.
 — *albicollis*, 17.

- Falco albus*, 107.
 — *angolensis*, 106.
 — *australis*, 17.
 — *barbarus*, 151, 218, 462, 479.
 — *brunneus*, 18, 327.
 — *candicans*, 453.
 — *cenchris*, 153.
 — *deiroleucus*, 394.
 — *eleonoræ*, 152.
 — *formosus*, 106.
 — *gyrfalco*, 57, 453.
 — *harpe*, 18.
 — *islandicus*, 474.
 — *islandus*, 453.
 — *jugger*, 440.
 — *lanarius*, 440.
 — *leucurus*, 17.
 — *mexicanus*, 440.
 — *novæ-hollandiæ*, 107.
 — *novæ-zelandiæ*, 17, 18.
 — *peregrinoides*, 490.
 — *peregrinus*, 57, 150.
 — *picatus*, 17.
 — *plumbeus*, 106.
 — *polyagrus*, 439.
 — *sacroides*, 443.
 — *saker*, 151.
 — *semitorquatus*, 458.
 — *subbuteo*, 57, 153.
 — *tinnunculus*, 57, 153, 246.
 — *vespertinus*, 57, 153.
Falculia palliata, 201.
Falcunculus frontatus, 115.
Ficedula pallida, 97.
Florisuga mellivora, 388.
Formicivora grisea, 387.
Francolinus afer, 282.
 — *garipeensis*, 282.
 — *levaillanti*, 282.
 — *pictus*, 415.
 — *pileatus*, 282.
 — *schlegelii*, 458.
 — *vulgaris*, 479.
Fratercula arctica, 348.
 — *glacialis*, 348.
Fregilupus madagascariensis, 200.
 — *varius*, 200.
Fregilus graculus, 28, 452, 248.
Fringilauda nemoricola, 462.
 — *sordida*, 462.
Fringilla alaudina, 487.
Fringilla chloris, 247.
 — *cælebs*, 64, 247.
 — *flavirostris*, 487.
 — *leucocephala*, 116.
 — *montifringilla*, 64.
 — *temporalis*, 115.
Fulica alba, 44, 295.
 — *atra*, 336, 418.
 — *cristata*, 336.
 — *dujardini*, 434.
 — *flavirostris*, 44.
Fuligula cristata, 71, 344, 420.
 — *ferina*, 71, 344.
 — *marila*, 71, 97, 344.
 — *novæ zealandiæ*, 439.
 — *nyroca*, 71, 344.
 — *rufina*, 344.
Fulix baeri, 366, 367.
 — *cristata*, 366, 367.
 — *marila*, 367.
Galbula paradisea, 108.
Galerida cristata, 213.
Gallierex cinereus, 317.
Gallinago gallinula, 340.
 — *heterocerca*, 441.
 — *heterura*, 441.
 — *horsfieldi*, 364, 426.
 — *japonica*, 364.
 — *major*, 283, 340.
 — *media*, 340.
 — *megala*, 364, 426.
 — *scolopacina*, 364, 417, 426.
 — *solitaria*, 363.
 — *stenura*, 318.
Gallinula alba, 44, 45.
 — *chloropus*, 268, 336.
 — *cristata*, 317.
 — *flavirostris*, 44.
 — *phœnicura*, 418, 453.
 — *rubiginosa*, 487.
Gallus bankiva, 35.
 — *sonnerati*, 401.
Garrulax chinensis, 26.
 — *picticollis*, 488.
 — *sinensis*, 112.
Garrulus affinis, 225.
 — *brandti*, 225.
 — *glandarius*, 225, 226, 248.
 — *hyrcanus*, 225.
 — *japonicus*, 225.
 — *lidthii*, 478.
Gecinus canus, 59, 483.
 — *sharpei*, 479.
Gecinus sharpii, 484.
 — *viridis*, 235, 450, 479.
Gelochelidon anglicus, 421.
Geocichla erythronota, 492.
 — *rubecula*, 112.
Geocoraphus modestus, 458.
Geopelia striata, 34.
 — *tranquilla*, 267.
Geothlypis æquinoctialis, 478.
 — *chiriquensis*, 478.
Geranoæetus melanoleucus, 131, 136.
Geranospiza cærulescens, 135.
Geronticus calvus, 39.
 — *cayennensis*, 39.
 — *papillosus*, 419.
Gerygone modesta, 441.
 — *simplex*, 441.
 — *sylvestris*, 474.
Glareola pratincola, 338.
Glaucaudium phalænoides, 373.
Glaucaudion clangula, 71, 344.
Glaucaudis ænea, 276, 277.
 — *affinis*, 275, 276.
 — *dohrni*, 275, 276.
 — *fraseri*, 278.
 — *hirsuta*, 275, 276, 388.
 — *lanceolata*, 275, 277.
 — *mazepa*, 275, 276.
 — *melanura*, 275, 277.
 — *ruckeri*, 277, 278.
Glaucoptes cinerea, 439.
 — *wilsoni*, 439.
Glyphorhynchus cuneatus, 385.
Gracula saularis, 25.
 — *strepera*, 27.
Graculavus anceps, 467.
 — *pumilus*, 467.
 — *velox*, 467.
Graculus africanus, 489.
 — *carbo*, 421.
 — *featherstoni*, 489.
 — *lucidus*, 232.
 — *melanoleucus*, 124.
 — *melanops*, 113.
 — *punctatus*, 53.
 — *sulcirostris*, 124.
 — *varius*, 467.
Grallaria brevicauda, 26.

- Grallaria varia*, 112.
Grallaricula perspicillata, 373.
Granatellus francescæ, 454.
Graucalus concinnus, 463.
 — *concretus*, 312.
 — *dobsoni*, 312, 434.
 — *layardi*, 311, 312.
 — *lineatus*, 312.
 — *macei*, 310, 311, 399, 401, 409.
 — *melanops*, 463.
 — *nipalensis*, 310.
 — *striatus*, 312.
 — *swainsoni*, 312.
 — *temminckii*, 492.
Grus americana, 81.
 — *antigone*, 38, 416.
 — *canadensis*, 38, 81.
 — *cinerea*, 70, 81, 340, 417.
 — *leucogeranus*, 479.
 — *pavonina*, 454.
 — *proavus*, 468.
Grypus spixi, 276.
Guiraca cerulea, 373.
Gygis candida, 123.
Gymnokitta cyanocephala, 442.
Gymnorhinus cyanocephalus, 133.
Gypaetus barbatus, 148, 452, 483.
Gypohierax angolensis, 106.
Gyps bengalensis, 402.
 — *fulvescens*, 402.
 — *fulvus*, 145, 258.
 — *indicus*, 402.
 — *kolbii*, 258.

Habropyga subflava, 282.
Hæmatopus fuliginosus, 120.
 — *ostralegus*, 67, 338, 416.
 — *unicolor*, 120.
Hæmatornis cheela, 298.
 — *elgini*, 299.
Halecyon sacra, 19.
 — *sancta*, 20.
 — *sanctus*, 20.
 — *smyrnenensis*, 407
 — *venerata*, 20.
Haliaetus albicilla, 58, 149, 435, 467.
 — *fulviventris*, 404.
 — *vocifer*, 281.
Haliastur indus, 405.

Haliastur sulcirostris, 124.
 — (*Microcarbo*) *stictcephalus*, 124.
Hapaloderma constantia, 484.
 — *marina*, 254.
Harelda glacialis, 71.
Harpophalietus coronatus, 136.
Heliangelus micraster, 453.
Hemichelidon latirostris, 308.
Henicurus frontalis, 228.
 — *sinensis*, 228.
Herbivox canturiensis, 180.
Herodias andamanensis, 318, 320.
 — *concolor*, 318.
 — *egrettoides*, 418.
 — *garzetta*, 418.
 — *pannosa*, 319.
Herpetotheres cachinans, 373.
Hesperornis regalis, 467.
Heteralocha acutirostris, 201, 439.
 — *gouldi*, 449.
Hiaticula pecuaria, 263.
Hieracidea australis, 327.
 — *brunnea*, 18, 101, 102, 328, 329, 330, 439.
 — *novæ-zealandiæ*, 18, 100, 101, 102, 329, 439.
Hierax sericeus, 95.
Hierococyx crassirostris, 491, 492.
 — *varius*, 407.
Himantopus candidus, 417.
 — *melanopterus*, 338.
 — *picatus*, 474.
Hirundinea ferruginea, 27.
Hirundo albigularis, 281.
 — *albigularis*, 376, 378.
 — *caudacuta*, 108.
 — *cucullata*, 281.
 — *erythrogastra*, 378.
 — *fluvicola*, 406.
 — *fuciphaga*, 303.
 — *gutturalis*, 231, 309.
 — *javanica*, 231, 405, 406.
 — *leucorrhœa*, 461.
 — *pacifica*, 108.
 — *ruficeps*, 406.
 — *rustica*, 59, 237, 405, 406.
 — *semirufa*, 254.

Homochlamys cantans, 180.
 — *canturiensis*, 180.
 — *lusciniæ*, 179, 180.
 — *minutus*, 180.
Hoplopterus cyanus, 375.
Horreites brunnescens, 461.
 — *pallidus*, 438.
Horornis erythrogenys, 461.
Houbara macqueeni, 415.
 — *macqueenii*, 398.
Huhua shelleyi, 484.
Hydrochelidon fissipes, 346.
 — *indica*, 433.
 — *leucoptera*, 346.
Hydrophasianus chirurgus, 122, 418.
Hydropsalis torquata, 134.
Hyetomantis pluvialis, 33.
Hyetornis pluvialis, 33.
Hylophilus semicinereus, 377.
Hyloterpe philippinensis, 492.
 — *sulfuriventer*, 491.
Hymenolæmus malacorrhynchus, 439.
Hyphantica hæmatocephala, 458.
Hyphantornis capitalis, 29.
 — *mariquensis*, 284.
 — *nigriceps*, 255.
 — *subaureus*, 255, 282.
 — *superciliosus*, 140.
Hypocheira chalybeata, 29.
Hypotaenidia australis, 42, 43.
 — *celebensis*, 41, 43.
 — *philippensis*, 41, 42, 43.
 — *striata*, 40, 41.
 — *torquata*, 43.
Hypothymis azurea, 309.
 — *puella*, 492.
 — *tytleri*, 308.
Hypotriorchis chicquera, 402.
 — *femoralis*, 131, 135.
Hypsipetes ganeesa, 466.
 — *neilgherriensis*, 466.

Ianthia cyanura, 371.
Ianthœna griseogularis, 492.

- Ianthœnas palumboides*, 315.
Ibis falcinellus, 340.
 — nippon, 249, 443.
 — rubra, 121.
 — sinensis, 443.
Ibyceter formosus, 106.
Ichthyornis dispar, 430.
Icterus ater, 28.
 — croconotus, 381.
 — formosus, 465.
 — giraudi, 373.
 — graysoni, 454.
 — nigerrimus, 28.
 — pectoralis, 373.
Ictinia mississippiensis, 439.
 — plumbea, 106.
Ieracidea brunnea, 18.
 — novæ-zeelandiæ, 18.
Indicator xanthonotus, 225.
Iodopleura isabellæ, 385.
Iolæma whitelyana, 454.
Iora lafresnayii, 486.
 — zeylonica, 411.
Irena puella, 306.
Irrisor aterrimus, 191, 196, 211.
 — cæruleus, 191.
 — caudacutus, 191.
 — cyaneus, 191.
 — cyanomelas, 191, 210.
 — erythrorhynchus, 191, 194, 195, 196, 197, 199, 206, 209, 210, 211.
 — lamprolophus, 191.
 — minor, 191.
 — senegalensis, 196, 209.
 — sibilator, 191.
Ispidina natalensis, 259.
 — picta, 252.
Ithaginis geoffroyii, 453.
Ixos sinensis, 371.

Keropia crassirostris, 26, 474.
Ketupa flavipes, 129.
 — magnifica, 127.
Kittacincla albiventris, 307.

Lagonosticta polionota, 141.
 — rubricata, 141.
 — rufopicta, 142.
Lagopus albus, 66, 441.

Lalage leucopygialis, 492.
Lampornis calosoma, 446.
 — violicauda, 388.
Laniarius atrococcineus, 255.
 — quadricolor, 282.
Lanioturdus torquatus, 170, 176.
Lanius arenarius, 398, 401, 408.
 — auriculatus, 237.
 — chinensis, 26.
 — collaris, 60, 238.
 — curvirostris, 114.
 — erythronotus, 401, 408.
 — excubitor, 60, 237.
 — frontatus, 115.
 — lahtora, 408, 483.
 — lucionensis, 309.
 — meridionalis, 238.
 — minor, 237, 483.
 — phœnicurus, 490.
 — schach, 372.
 — superciliosus, 490.
 — torquatus, 114.
 — vittatus, 401, 408.
Larus argentatus, 72.
 — audouini, 347.
 — bulleri, 439, 447, 473.
 — canus, 72, 347.
 — dominicanus, 439, 463.
 — eburneus, 52.
 — fuscescens, 420.
 — fuscus, 72, 348.
 — gelastes, 347.
 — ichthyæetus, 484.
 — jamesoni, 447.
 — leucophæus, 347.
 — marinus, 72, 348, 483.
 — melanocephalus, 346, 479.
 — melanorhynchus, 447.
 — minutus, 346.
 — parasiticus, 52.
 — pomare, 447.
 — raemdonckii, 434.
 — ridibundus, 347.
 — rossi, 453, 472.
Laurillardia longirostris, 207.
Legatus albicollis, 382.
Leistes guianensis, 381.
Leptoptila rufaxilla, 119.
Leptoptilos argala, 418

Lestris buffoni, 97.
 — parasitica, 52.
 — pomatorhina, 72.
Leucocerca albofrontata, 409.
 — aureola, 409.
Leucopolius pecuarius, 263.
Leucopternis albicollis, 17.
 — plumbea, 478.
Leucosarcia picata, 35.
Limnatornis paludicola, 207.
Limnetes crassirostris, 447.
Limosa ægocephala, 69, 338, 417, 484.
 — brevipes, 369, 427.
 — lapponica, 484.
 — rufa, 69.
 — uropygialis, 368, 369, 424.
Linota cannabina, 247.
 — rufescens, 97.
Lithofalco feildeni, 461, 491.
Lobivanellus goensis, 416.
 — lateralis, 283.
Lophophorus impeyanus, 120.
Lophornis gouldi, 279.
 — ornata, 20.
 — reginæ, 280.
 — stictolophus, 280.
Loriculus chrysonotus, 480, 482.
 — culacissi, 480.
 — quadricolor, 491.
 — regulus, 480.
 — vernalis, 298.
Loxia bella, 115.
 — curvirostra, 65, 247, 483.
 — guttata, 116.
 — leucoptera, 65.
 — nitida, 115.
 — panicivora, 115.
 — pityopsittacus, 483.
 — psittacea, 21.
 — turdus, 26.
Loxigilla noctis, 334.
Lunda cirrhata, 46, 104.
Lurocalis semitorquatus, 390.
Lusciniopsis canturiens, 180.
 — luscinioides, 244.
Lusciola rubecula, 469.

- Machetes pugnax*, 339, 453.
Machirhamphus andersoni, 455.
Macrodipteryx longipennis, 107.
Macronyx capensis, 282.
Macropteryx comatus, 231.
Macropygia amboinensis, 315.
 — *emiliana*, 315.
 — *leptogrammica*, 315.
 — *phasianella*, 315.
 — *rufipennis*, 314.
 — *tenuirostris*, 315.
 — *tusalia*, 315.
Malacocercus striatus, 229.
Malacocircus malabariensis, 410.
 — *malcolmi*, 410.
 — *terricolor*, 410.
Malacopteron luscina, 180.
Malurus clamans, 486.
 — *cyaneus*, 111.
 — *gracilis*, 433.
 — *inquietus*, 486.
 — *lambertii*, 111.
 — *longicaudus*, 111.
 — *tinniens*, 486.
Manorhina melanophrys, 110.
Mareca albogularis, 225, 321.
 — *gibberifrons*, 321.
 — *penelope*, 71, 343, 420.
 — *punctata*, 321.
Mascarinus madagascariensis, 32.
Mecistura glaucogularis, 372.
Megalama caniceps, 124, 125.
 — *leucotis*, 487.
 — *marshallarum*, 468.
 — *sykesi*, 125.
 — *viridis*, 124, 125.
 — *zeylanica*, 125.
Megalophonus apiatus, 285.
 — *chenianus*, 286.
 — *nævius*, 286.
 — *rufipileus*, 285.
Megalurus palustris, 80.
Megapodius nicobaricus, 225.
Melanerpes flavifrons, 118.
Melanerpes rubrifrons, 391.
Melanocorypha calandra, 245, 453.
Meleagris altus, 468.
 — *celer*, 468.
 — *gallopavo*, 35, 36.
 — *mexicana*, 35.
Meliphaga novæ-hollandiæ, 109.
 — *phrygia*, 22.
Melithreptus lunatus, 110.
Melitograis striata, 487, 488.
Melizophilus provincialis, 242, 243.
 — *sardus*, 143, 241, 242, 243.
 — *striatus*, 223, 437.
Meniceros bicornis, 407.
Menura superba, 111.
Mergus albellus, 71, 345.
 — *castor*, 71, 345.
 — *serrator*, 71, 345.
Merops ægyptius, 484.
 — *apiaster*, 236.
 — *badius*, 108.
 — *carunculatus*, 109.
 — *cinnatus*, 109.
 — *cyanophrys*, 458.
 — *erythrocephalus*, 301.
 — *indicus*, 301.
 — *jaunoir*, 21.
 — *leschenaulti*, 302.
 — *novæ-zelandiæ*, 109.
 — *nubicoides*, 255.
 — *ornatus*, 108.
 — *phrygius*, 22.
 — *quinticolor*, 231, 301.
 — *viridis*, 406, 484.
Micropterus barmanicus, 461.
 — *phaiiceps*, 461.
Milvago australis, 17.
 — *leucurus*, 17.
Milvulus tyrannus, 383, 482.
Milvus forskahli, 281.
 — *govinda*, 228, 405.
 — *ictinus*, 147, 150.
 — *melanotis*, 228.
 — *migrans*, 150, 453.
 — *regalis*, 58.
Mimus carolinensis, 25.
 — *orpheus*, 25.
Mionectes oleagineus, 382.
Mirafra assamica, 217.
Mirafra erythroptera, 414.
 — *immaculata*, 217, 461.
Miro traversi, 463.
Mohoa braccata, 21.
Molothrus bonariensis, 482.
 — *sericeus*, 476.
Momotus lessoni, 471.
 — *ruficapillus*, 471.
Monticola cyanus, 239.
 — *saxatilis*, 239, 483.
Montifringilla ruficollis, 435.
Moquinus albicaudus, 170.
 — *andonus*, 170.
Motacilla alba, 61, 219, 220, 244, 462.
 — *cashmiriensis*, 219, 438.
 — *cyanea*, 111.
 — *dukhunensis*, 219.
 — *hodgsoni*, 219.
 — *hudsoni*, 219.
 — *japonica*, 219.
 — *luzonica*, 219.
 — *luzoniensis*, 219.
 — *personata*, 219, 220.
 — *sulphurea*, 245.
 — *superba*, 111.
 — *vallanti*, 255.
Munia acuticauda, 371.
 — *brunneiceps*, 492.
 — *malabarica*, 413.
Muscicapa albicapilla, 113.
 — *albicollis*, 476.
 — *aquatica*, 458.
 — *atricapilla*, 237, 476.
 — *capensis*, 161, 487.
 — *cinereo-alba*, 308.
 — *collaris*, 237.
 — *cyanea*, 157.
 — *erythrogastra*, 112.
 — *grisola*, 59, 237, 308.
 — *latirostris*, 308.
 — *martinica*, 113, 114.
 — *martinica cristata*, 113.
 — *melanoptera*, 157.
 — *minima*, 458.
 — *molitor*, 166.
 — *pectoralis*, 115.
 — *pondiceriana*, 308.
 — *poonensis*, 308.
 — *pririt*, 168.
 — *pristinaria*, 161.
 — *scita*, 175.

- Muscicapa senegalensis*, 163.
 — *sibirica*, 308.
 — *tenella*, 175.
Muscipeta pristinaria, 161.
 — *senegalensis*, 168.
Muscivora regia, 383.
Muscylvia senegalensis, 163.
Mycteria australis, 39, 418.
Myiagra nitida, 113.
Myiarchus crinitus, 442.
 — *erythrocerus*, 442.
 — *irritabilis*, 442.
Myiobius martinicus, 113.
 — *nævius*, 383.
 — *parvirostris*, 487.
 — *sulphureipygius*, 373.
Myiodytes pusillus, 334.
Myiolestes helianthea, 492.
Myiophila concreta, 174, 175.
Myiozetetes similis, 382.
Myzomela chloroptera, 491.
 — *sanguinolenta*, 109.
Nasica bridgesi, 133.
 — *gracilirostris*, 133.
Nauclerus furcatus, 394.
Nectarinia affinis, 86.
 — *asiatica*, 86, 87.
 — (*Arachnechthra*) *brevirostris*, 86.
Nemosia rourei, 440.
Neomorphus geoffroyi, 287, 288, 289, 291, 292, 294.
 — *pucherani*, 287, 288, 293, 294, 295.
 — *rufipennis*, 287, 288, 292, 294, 295.
 — *salvini*, 287, 291, 295.
Neophron ginginianus, 402.
 — *perenopterus*, 453.
 — *pileatus*, 475.
Nesopsar nigerrimus, 28.
Nestor meridionalis, 32, 439.
 — *notabilis*, 439, 482.
 — *occidentalis*, 439.
Nettapus albipennis, 122.
 — *coromandelianus*, 419.
 — *coromandelicus*, 96.
Ninox obscurus, 217, 461.
Nisaetus bonellii, 403.
Nisus badius, 465.
 — *brevipes*, 465.
Noctua podargina, 457.
Nothura maculosa, 131.
Notornis? alba, 44.
 — *mantelli*, 92, 295, 439.
Nucifraga caryocatactes, 65, 248, 490.
Numida verreauxii, 255.
Numenius arquata, 68, 70.
 — *arquatus*, 340.
 — *hudsonicus*, 98, 121.
 — *lineatus*, 417.
 — *minutus*, 426.
 — *phæopus*, 121, 317, 417, 340.
 — *tenuirostris*, 340.
Numida vulturina, 482.
Nyctala tengmalmi, 441, 483.
Nyctale acadica, 476.
 — *albifrons*, 476.
 — *funerea*, 58.
 — *kirtlandi*, 446, 476.
 — *richardsoni*, 446, 476.
 — *tengmalmi*, 93, 446, 476.
Nyctibius jamaicensis, 389.
Nycticorax griseus, 341, 419.
 — *violaceus*, 121.
Nyctidromus albigollis, 134, 389.
Nyroca ferruginea, 483.
 — *leucophthalmos*, 453.
Oceanites oceanica, 348.
Ocydromus australis, 439, 447, 473.
 — *carli*, 439.
 — *troglodytes*, 447.
Odontopteryx tolpiacus, 430.
Oedemia americana, 367.
 — *fusca*, 71, 345, 367.
 — *nigra*, 71, 367.
Oedicnemus crepitans, 337, 416.
 — *senegalensis*, 259.
 — *vermiculatus*, 259.
Oidemia nigra, 479.
Oporornis agilis, 437.
Oreocincla heinei, 440.
 — *iodura*, 453.
 — *lunulata*, 440.
 — *macrorhyncha*, 440.
Oriolus aureus, 446.
 — *ceylonensis*, 411.
 — *formosus*, 441.
 — *galbula*, 60, 247.
 — *melanocephalus*, 411.
 — *minor*, 28.
 — *picus*, 110.
 — *viridis*, 112.
Ornismya columbica, 355, 356.
 — *eriphile*, 359.
 — *gouldi*, 279.
 — *longirostris*, 5.
 — *wagleri*, 360.
Ornithion incanescens, 382.
Ortalida motmot, 119.
Orthonyx albicilla, 439.
 — *ochrocephala*, 439.
Orthorhynchus cristatus, 334.
Orthotomus castaneiceps, 492.
 — *longicauda*, 412.
Ortygion coturnix, 66.
Ortygometra affinis, 439.
 — *minuta*, 336.
 — *porzana*, 67, 336.
 — *pygmæa*, 283, 336.
 — *tabuensis*, 439.
Ortygornis ponticeriana, 415.
Ortygospiza polyzona, 282.
Ortyx cristatus, 36.
Oryzoborus crassirostris, 380.
Osmotreron chloroptera, 313.
Ostinops viridis, 381.
Otis, sp., 37.
 — *tarda*, 368.
 — *tetrax*, 144, 337, 483.
Otocaris elwesi, 435, 462.
 — *longirostris*, 462.
Otocompsa jocosus, 307.
 — *leucotis*, 398, 411.
Otocorys albigula, 214.
 — *alpestris*, 62.
 — *elwesi*, 213, 214.
 — *longirostris*, 213, 214.

- Otocorys penicillata*, 213, 214.
Otygyps calvus, 402.
Otus brachyotus, 137, 405, 455.
Oxyerca (*Uroloncha*), jagori, 441.
Oxylabes madagascariensis, 483.
Oxylophus glandarius, 34.
 — *jacobinus*, 259.
 — *serratus*, 259.
Oxyrhamphus flammeiceps, 110.
Pachycephala gutturalis, 115.
 — *senex*, 473.
Pachyrhamphus atricapillus, 384.
 — *polychropterus*, 114.
Padda (*Oryzornis*) *oryzivora*, 485.
Pagophila eburnea, 52.
Palæornis affinis, 298.
 — *alexandri*, 297.
 — *caniceps*, 80.
 — *derbyanus*, 297.
 — *erythrogenys*, 79, 80, 298.
 — *eupatrius*, 297.
 — *exsul*, 472.
 — *javanicus*, 297.
 — *lathamii*, 297.
 — *longicaudatus*, 80.
 — *magnirostris*, 297.
 — *melanorhyncha*, 79.
 — *melanorhynchus*, 79.
 — *nicobaricus*, 298.
 — *nigrirostris*, 297.
 — *ponticerianus*, 79.
 — *rosa*, 225, 399, 401, 407.
 — *torquatus*, 407.
 — *viridimystax*, 80.
Palæotringa littoralis, 468.
 — *vagens*, 468.
Palumbus moluccensis, 314.
Pandion haliaetus, 57, 149, 475.
Panyptila cayennensis, 389.
 — *melanoleuca*, 429.
Paradisea papuana, 203.
Paradoxornis heudei, 443.
Pardalotus striatus, 115.
Parkinsonia superba, 111.
Parra jacana, 137, 396.
Parus ater, 89, 238, 483.
 — *biarmicus*, 96.
 — *bokharensis*, 89.
 — *borealis*, 60, 483.
 — *britannicus*, 483.
 — *cæruleus*, 89, 90, 238.
 — *cinerous*, 225, 412.
 — *cristatus*, 60.
 — *cyanus*, 483.
 — *ledouci*, 483.
 — *lugubris*, 483, 490.
 — *major*, 238, 371.
 — *minor*, 371.
 — *phænotus*, 88.
 — *sibiricus*, 60.
 — (*Cyanistes*) *persicus*, 89.
Passer ammodendri, 453.
 — *domesticus*, 64, 246, 452.
 — *flavicollis*, 414.
 — *indicus*, 413.
 — *montanus*, 64, 246, 371.
 — *salicaria*, 246.
 — *salicicola*, 246.
Pastor roseus, 247, 413, 490.
Patagienas leucocephala, 34.
Pavo bicalcaratus, 119.
 — *bipunctatus*, 330.
 — *cristatus*, 415.
 — *muticus*, 221, 330.
 — *tibetanus*, 119.
Pediæcetes phasianellus, 37.
Pelecanus australis, 53.
 — *conspicillatus*, 53.
 — *erythrorhynchus*, 54.
 — *fuscus*, 54.
 — *nævius*, 53.
 — *onocrotalus*, 345, 434.
 — *piscator*, 53.
 — *punctatus*, 53.
 — *trachyrhynchus*, 54.
Pellorneum mandellii, 435.
 — *minus*, 224.
 — *palustre*, 215, 453, 461.
Pedicula asiatica, 415.
Perdix cinerea, 336.
 — *coronata*, 36.
 — *gibraltaria*, 36.
 — *petrosa*, 335.
 — *rufa*, 37.
Pericrocotus ardens, 310.
 — *andamanensis*, 309, 310.
 — *peregrinus*, 310.
 — *speciosus*, 310.
Perisoreus canadensis, 27.
 — *infaustus*, 65, 115.
Pernis apivorus, 58, 476.
Petrochelidon albiventris, 108.
Petrocosyphus affinis, 483.
 — *cyaneus*, 410, 483.
 — *cyanus*, 453.
 — *manilla*, 482.
 — *solitarius*, 482.
Petroica bifrons, 447.
 — *erythrogastra*, 112.
 — *longipes*, 447.
 — *macrocephala*, 447.
 — *toitoi*, 447.
 — *traversi*, 489.
Phaethornis adolphi, 269, 270, 271.
 — *amaura*, 273.
 — *anophilus*, 2, 3, 8, 9, 10.
 — *apicalis*, 13.
 — *atrimentalis*, 273.
 — *augusti*, 2, 3, 10.
 — *boliviana*, 6, 7.
 — *bourcierii*, 2, 3, 13, 14.
 — *cassini*, 6.
 — *cephalus*, 6.
 — *consobrinus*, 4.
 — *emiliæ*, 2, 3, 12, 13.
 — *episcopus*, 270, 274, 275.
 — *eremita*, 273, 274.
 — *eurynome*, 2, 3, 8.
 — *fraterculus*, 4, 5.
 — *griseigularis*, 270, 272.
 — *guyi*, 2, 3, 12, 270.
 — *hispidus*, 2, 3, 7, 8.
 — *idalæ*, 270.
 — *intermedius*, 9.
 — *longirostris*, 2, 3, 5, 6, 7.

- Phaethornis longuemareus*, 270, 271.
 — malaris, 4, 5.
 — moorei, 4.
 — nigricinctus, 270, 274.
 — obscura, 270, 271.
 — obscurus, 271.
 — oseryi, 7, 8.
 — philippii, 2, 3, 8, 13.
 — pretrei, 2, 3, 5, 8, 10, 11.
 — pygmaeus, 270, 273, 274, 275.
 — rufigaster, 273.
 — squalidus, 2, 3, 9.
 — striigularis, 270, 273.
 — superciliosus, 2, 3, 4, 5, 6, 7, 11, 20.
 — syrmatophorus, 2, 3, 6, 8.
 — villosus, 7, 8.
 — viridicaudata, 271.
 — yaruqui, 2, 3, 11.
 — zonura, 272, 273.
Phaethusa magnirostris, 376.
Phaeton aethereus, 52.
Phalacrocorax africanus, 463.
 — carbo, 345.
 — desmarestii, 345.
 — featherstoni, 90, 463.
 — graculus, 345, 453.
 — pygmaeus, 345.
 — stictocephalus, 124.
 — sulcirostris, 124.
Phalaropus cinereus, 448.
 — fulicarius, 97.
Phaps elegans, 487.
Phasianus cristatus, 36.
 — curvirostris, 120.
 — ellioti, 94, 488.
 — impeyanus, 120.
 — motmot, 119.
 — rouloul, 36.
 — scintillans, 445.
 — scemmerringi, 445.
Philomachus pugnax, 69, 283.
Phlegænas canifrons, 457.
 — samoensis, 447.
 — vitiensis, 447.
 — yapensis, 457.
Phœnicocercus carnifex, 385.
Phœnicopterus antiquorum, 220, 419.
 — erithacus, 342.
 — minor, 220, 462.
 — roseus, 341.
 — rubidus, 220.
Pholeopteryx cunicularia, 131, 137.
Pholidornis rubrifrons, 484.
Phyllosomyias semifusca, 382.
Phyllopeuste brehmi, 445.
 — coronatus, 460.
 — eversmanni, 61, 460.
 — indica, 460.
 — javanica, 475.
 — magnirostris, 460.
 — rama, 412.
 — rufa, 243.
 — sibilatrix, 61.
 — sylvicola, 243.
 — tristrami, 445.
 — trochilus, 244.
 — viridanus, 460.
Phylloscopus pallidipes, 435.
 — tytleri, 437, 438.
 — viridanus, 437.
Piaya cayana, 393.
 — minuta, 393.
 — pluvialis, 33.
 — (Hyetornis) pluvianus, 33.
Pica caudata, 65.
Picicorvus columbianus, 442.
Picoides tridactylus, 483.
Picolaptes fuscicapillus, 386.
 — layardi, 386.
Picus andamanensis, 300.
 — cactorum, 134.
 — cinnamomeus, 118.
 — leuconotus, 59, 432.
 — lilfordi, 483.
 — mahrattensis, 407.
 — major, 59, 235.
 — medius, 226, 227.
 — melanoleucus, 33.
 — minor, 59, 236, 483.
 — passerinus, 118.
Picus sancti-johannis, 226.
 — syriacus, 483.
Pionias melanocephalus, 117.
 — menstruus, 32.
Pipastes agilis, 412.
 — arboreus, 412.
Pipra auricapilla, 384.
 — leucocilla, 384.
 — manacus, 114.
 — striata, 115.
Pitangus sulphuratus, 114.
Pithys bicolor, 373.
 — rufigula, 113.
Pitta arquata, 453.
 — bengalensis, 410.
 — megarhyncha, 453.
Pityriasis gymnocephalus, 491.
Platalea ajaja, 121.
 — leucorodia, 341, 419.
Platycercus alpinus, 470.
 — aucklandicus, 31.
 — auriceps, 439, 470.
 — cookii, 31.
 — erythrotis, 31.
 — flaviventris, 116.
 — novæ-zelandiæ, 30, 31, 439.
 — pacificus, 31.
 — rayneri, 31.
 — tabuensis, 30.
 — ulietanus, 30.
Platyrhynchus velatus, 163.
Platyrhynchus collaris, 157.
 — desmaresti, 157.
 — melanoleucus, 157.
Platysteira affinis, 168.
 — capensis, 161.
 — concreta, 174.
 — cyanea, 157, 158, 159, 160, 177.
 — melanoptera, 159.
 — pristinaria, 161.
 — senegalensis, 168.
Platystera lobata, 157.
Platystira affinis, 163.
 — albicauda, 170.
 — albifrons, 159, 177.
 — castanea, 172, 173.
 — concreta, 173.
 — leucopygialis, 172, 173.

- Platystira longipes*, 175.
 — *melanoleuca*, 167.
 — *melanoptera*, 157.
 — *minima*, 169.
 — *molitor*, 167, 177, 259.
 — *orientalis*, 165.
 — *peltata*, 160, 176.
 — *plumbea*, 156.
 — *pririt*, 165, 166, 168, 259.
 — *scita*, 175.
 — *semipartita*, 156.
 — *senegalensis*, 163.
 — *streptans*, 161.
 — *succincta*, 163.
 — *thoracica*, 161.
 — *torquata*, 170.
Plectrophanes calcarata, 63.
 — *lapponicus*, 484.
 — *nivalis*, 63.
Plectropterus gambensis, 45.
Ploceus baya, 401, 413.
 — *melanogaster*, 421.
 — *novæ-hollandiæ*, 123.
Podager nacunda, 134.
Podargus megacephalus, 107.
Podiceps auritus, 98.
 — *cornutus*, 98.
 — *cristatus*, 349.
 — *longirostris*, 349.
 — *minor*, 268, 349.
 — *nigricollis*, 349.
 — *rubricollis*, 98.
Podoces hendersoni, 322.
 — *humilis*, 322.
 — *panderi*, 475.
Pœcilia brevirostris, 488.
Pœocephalus robustus, 255.
Pogonorhynchus diadematus, 458.
 — *leucocephalus*, 458.
 — *rolletii*, 458.
Pogonornis cincta, 439.
Polihierax insignis, 491.
Poliornis liventer, 225.
 — *teesa*, 404.
Polyphasias passerina, 464.
Polyplectron bicalcaratum, 220.
 — *chinquis*, 119, 220, 221.
 — *intermedium*, 221.
 — *intermedius*, 220, 462.
 — *tibetanum*, 220.
Polyplectron tibetanum, 220.
Pomatorhinus obscurus, 216, 461.
Porphyrio albus, 44.
 — *melanotus*, 44.
 — *parvus*, 44.
 — *poliocephalus*, 418.
 — *veterum*, 336.
Porzana, sp.?, 43.
 — *bicolor*, 491.
 — *concolor*, 373.
 — *melanophæa*, 396.
Pratincola caprata, 411.
 — *indica*, 411.
 — *macrorhyncha*, 485.
 — *rubetra*, 61, 240.
 — *rubicola*, 240, 259.
 — *torquata*, 259.
Prinia adamsi, 435.
 — *stewarti*, 412.
Prion australis, 85, 474.
 — *turtur*, 85.
 — *vittatus*, 85.
Prionochilus vincens, 482.
Procarduelis mandellii, 217, 225, 462.
 — *nipalensis*, 218.
 — *pubescens*, 217.
 — *rubescens*, 225.
Procellaria gavia, 463.
 — *nugax*, 47.
 — *obscura*, 47.
 — *tristis*, 463.
Progne chalybea, 133, 375, 377, 391.
Promerops caffer, 210, 211, 259.
 — *gurneyi*, 259.
Propasser pulcherrimus, 218.
 — *saturatus*, 217, 218, 435.
Prothemadera novæ-zeelandiæ, 109, 439.
Pseudoleistes virescens, 132.
Pseudoscolopax semipalmatus, 427.
Psittaca ginginiana, 297.
Psittacirostra icterocephala, 22.
Psittacula cyanopygia, 353.
 — *purpurata*, 32.
Psittacus atropurpureus, 30.
 — *angustus*, 31.
 — *australis*, 32, 117.
 — *banksii*, 33, 118.
Psittacus citreicapillus, 458.
 — *concinus*, 117.
 — *discolor*, 117.
 — *erithacus*, 487.
 — *fuscatus*, 30.
 — *hyacinthinus*, 31.
 — *madagascariensis*, 32.
 — *magnificus*, 33, 118.
 — *mascarinus*, 32.
 — *meridionalis*, 32.
 — *nestor*, 32.
 — *pacificus*, 31, 117.
 — *purpuratus*, 32.
 — *pusillus*, 117.
 — *pygmæus*, 31.
 — *tabuensis*, 30.
 — *ulietanus*, 30.
 — *virescens*, 117.
Psittirostra psittacea, 21, 22.
Pterocles exustus, 415.
 — *fasciatus*, 415.
Pteroglossus inscriptus, 393.
 — *viridis*, 116.
Ptilonorhynchus holose-ricus, 112, 479.
 — *inornatus*, 446.
Ptilotis carunculata, 109.
 — *flavigula*, 109.
Ptionoprogne cinerea, 461.
 — *pallida*, 214.
Pucrasia darwini, 94, 445, 488.
Puffinus aquinoctialis, 46.
 — *anglorum*, 215, 216, 348.
 — *assimilis*, 49.
 — *bailloni*, 48.
 — *cinereus*, 348.
 — *dichrous*, 48, 51.
 — *nugax*, 48.
 — *obscurus*, 47, 48, 50, 51, 215, 216.
 — *persicus*, 215, 216, 461.
 — *tenebrosus*, 47, 48, 49, 50, 51.
Pycnonotus hæmorrhous, 411.
 — *nigricans*, 282.
 — *pusillus*, 411.
 — *tricolor*, 255.
Pyctorhis sinensis, 410.
Pygmaornis adolphi, 270, 271.
 — *amaura*, 273.

- Pygmornis aspasiae*, 271, 272, 273.
 — *episcopus*, 270, 274, 275.
 — *eremita*, 273, 274.
 — *griseigularis*, 270, 271, 272.
 — *idaliae*, 270.
 — *longuemareus*, 270, 271.
 — *nigricinctus*, 270, 274.
 — *pygmæa*, 273.
 — *pygmæus*, 270, 273, 274, 275, 388.
 — *rufiventris*, 273.
 — *striigularis*, 270, 273.
Pyrrangia roseogularis, 125, 126.
Pyrgisoma leucotis, 373.
Pyrgita petronia, 246.
Pyriglena atra, 387.
Pyrocephalus rubineus, 461.
Pyrrhophæna graysoni, 454.
Pyrrhula cassini, 441.
 — *cineracea*, 441.
 — *coccinea*, 64.
 — *rubicilla*, 64.
Pyrrhulauda affinis, 223.
 — *grisea*, 414.
 — *melanauchen*, 223.
Querquedula andamanensis, 321.
 — *circa*, 343, 420.
 — *crecca*, 71, 343, 420.
Quiscalus fortirostris, 334.
Rallina philippensis, 42.
Rallus aquaticus, 80, 336, 350, 363.
 — *brachypus*, 42.
 — *cærulescens*, 283.
 — *dieffenbachii*, 349, 350, 352, 439.
 — *gularis*, 40.
 — *hypotaenidia*, 43.
 — *indicus*, 40, 80, 363.
 — *maculatus*, 122.
 — *modestus*, 349, 350, 351, 352, 463, 489.
 — *pectoralis*, 40, 42, 43, 474.
 — *philippensis*, 40, 41, 42, 43, 350, 351, 352, 439.
Rallus philippensis striatus, 40.
 — *pictus*, 473, 474.
 — *striatus*, 40.
Ramphastos cuvieri, 480.
 — *viridis*, 116.
Ramphocelus jacapa, 379.
Recurvirostra avocetta, 338, 417.
 — *rubricollis*, 122.
Reguloides occipitalis, 437.
 — *proregulus*, 437.
 — *subviridis*, 438.
 — *supercilliosus*, 437.
 — *viridipennis*, 438.
Regulus cristatus, 243.
 — *ignicapillus*, 243.
Rhea americana, 37.
Rhinopomastus cyanomelas, 198, 199, 206, 210, 211.
Rhipidura versicolor, 457.
Rhodostethia rossii, 453.
Rhynchæa bengalensis, 417.
 — *capensis*, 484.
Rhynchaspis clypeata, 71, 343.
Rhynchoeyclus megacephalus, 383.
Rhynchops flavirostris, 484.
Rhynchotis rufescens, 131.
Rissa tridactyla, 348.
Rollulus coronatus, 36.
Rostramus sociabilis, 135.
Rupelornis definitus, 434.
Ruticilla fuliginosa, 435.
 — *moussieri*, 97.
 — *phœnicura*, 60, 240.
 — *rufiventris*, 412.
 — *tithys*, 240.
Sagmatorhina lathami, 104.
Salicaria cantans, 180.
Saltator magnus, 380.
Sarciphorus bilobus, 416.
Sarcoramphus cuntur, 16.
 — *gryphus*, 16, 105.
 — *papa*, 17.
Sarkidiornis melanonotus, 419.
Sauloprocta motacilloides, 113.
Sauropates chloris, 302.
 — *sancta*, 20.
Saxicola alboniger, 214, 461.
 — *aurita*, 97, 239.
 — *deserti*, 398, 411.
 — *isabellina*, 411.
 — *leucokema*, 478.
 — *leucomela*, 478.
 — *leucopygia*, 214.
 — *leucura*, 239.
 — *monacha*, 214, 215, 484.
 — *œnanthe*, 61, 97, 152, 239, 411.
 — *picata*, 214, 398, 411.
 — *sordida*, 486.
 — *stapazina*, 239.
 — *thoracica*, 161.
Scelogaux albifacies, 439.
Schizhoris personata, 458.
Schenicola cisticola, 244.
Scolopax rusticula, 340.
Scops brasilianus, 137.
 — *giu*, 155, 471.
 — *icterorhynchus*, 138.
 — *japonicus*, 227, 228, 448.
 — *virgo*, 38.
Scythrops novæ-hollandiæ, 34.
Seena aurantia, 421.
Selenidera gouldi, 393.
Seleucides albus, 203.
Sericulus xanthogaster, 446.
Serinus hortulanus, 247.
Serpentarius secretarius, 281.
Setornis criniger, 491.
Siphia minuta, 461.
 — (*Menetica*) *hyperythra*, 491.
Sitta cashmirensis, 438.
 — *chrysoptera*, 110.
 — *europæa*, 60.
 — *krueperi*, 483.
 — *neumayeri*, 87, 483.
 — *pusilla*, 22.
 — *rupicola*, 87, 88.
 — *syriaca*, 87, 88.
 — *tephronota*, 88, 483.
Sittace hyacinthina, 31.
Sittella chrysoptera, 110.
Somateria stelleri, 456.
Spatula clypeata, 419.
 — *variegata*, 439.
Spermophila gutturalis, 380.
 — *minuta*, 380.

- Spheniscus demersus*, 464.
 — *humboldti*, 443, 481.
 — *magellanicus*, 443, 464.
Sphenæacus punctatus, 439.
 — *rufescens*, 439.
Spiloglaux novæ zealandiæ, 439.
Spilornis albidus, 298.
 — *bacha*, 298, 299, 300.
 — *cheela*, 298, 299.
 — *davisoni*, 298.
 — *elgini*, 299, 300.
 — *rutherfordi*, 298, 300.
 — *spilogaster*, 298, 299.
Spindalis zena, 29.
Spizaëtus kieneri, 225.
 — *sphynx*, 225.
 — *tyrannus*, 394.
Spizalauda deva, 222, 414.
 — *malabarica*, 222, 414.
Squatarola helvetica, 67, 337, 416, 453.
Steatornis caripensis, 81.
Stelgidopteryx ruficollis, 377.
Stenostira plumbea, 458.
 — *scita*, 175, 176.
Sterna anglica, 346.
 — *castiaca*, 346, 470.
 — *caspia*, 345, 467.
 — *fluviatilis*, 346.
 — *fuliginosa*, 123.
 — *hirundo*, 72, 483.
 — *leucopareia*, 433.
 — *magnirostris*, 396.
 — *minuta*, 346.
Stiphomyias concreta, 174.
Strepera graculina, 27.
Strepsilas interpres, 38, 67, 317, 338, 416.
Streptopelia capicola, 282.
 — *damarensis*, 282.
Stringops greyi, 439.
 — *habroptilus*, 439, 481.
Strix amauronota, 441.
 — *candida*, 453.
 — *castanops*, 107.
 — *cinerea*, 18.
 — *fuliginosa*, 18.
 — *indica*, 453.
Strix insularis, 473.
 — *perspicillata*, 18.
Struthidea cinerea, 481.
Struthiolithus chersonensis, 430.
Sturnella defilippi, 132.
Sturnia andamanensis, 313.
Sturnus carunculatus, 28.
 — *vulgaris*, 247.
 — *unicolor*, 247.
Sula piscatrix, 231.
 — *plumigula*, 52.
Surnia funerea, 483.
 — *nyctea*, 58.
 — *passerina*, 58.
 — *ulula*, 58, 483.
Suthora webbiana, 372.
Sycalis aureiventris, 480.
 — *chloropsis*, 480.
 — *chrysops*, 480.
 — *citrina*, 480.
 — *lutea*, 480.
 — *pelzelni*, 480.
Sylvia affinis, 80, 412.
 — *cinerea*, 61, 241.
 — *conspicillata*, 143, 241.
 — *curruca*, 80, 241.
 — *cyanea*, 111.
 — *deserti*, 429.
 — *hortensis*, 61.
 — *jerdoni*, 80.
 — *melanocephala*, 489.
 — *melanothorax*, 489.
 — *orphea*, 80.
 — *subalpina*, 242.
Sylvietta rufescens, 281.
Synallaxis guianensis, 385.
 — *maculata*, 465.
 — *pudica*, 373.
 — *stictothorax*, 465.
Sypheotides auritus, 404, 415.
Syrnium cinereum, 18.
Syrrhaptes paradoxus, 66, 489.
Taccocua affinis, 408.
Tachypetes aquilus, 54.
Tachyphonus melaleucus, 379.
Tanagra capitalis, 26.
 — *capitalis*, 29.
 — *episcopos*, 379.
 — *palmarum*, 379.
 — *violacea*, 116.
Tanagrella velia, 379.
Tantalus calvus, 40.
 — *cayennensis*, 39.
 — *ibis*, 256.
 — *leucocephalus*, 419.
 — *loculator*, 39.
Tanysiptera riedeli, 476.
Tatara longirostris, 23, 111.
 — *otaitiensis*, 23, 24.
Tchitreia affinis, 309.
 — *paradisi*, 113, 409.
Telephonus erythropterus, 483.
Telmatias gallinago, 70.
 — *major*, 70.
Temenuchus andamanensis, 313.
 — *pagodarum*, 413.
Tephrodornis pondiceriana, 408.
Terapsiza rhodogastra, 492.
Terekia cinerea, 424.
Tetrao cupido, 120.
 — *phasianellus*, 37.
 — *tetrix*, 66, 441.
 — *urogallus*, 66, 453.
Tetrastes bonasia, 66.
Textor alecto, 436.
 — *panicivorus*, 115.
Thalasseus bengalensis, 421.
Thalassidroma leachi, 97.
 — *pelagica*, 348.
Thalurenia columbica, 353, 354, 355.
 — *eriphile*, 353, 354, 355, 359, 360.
 — *fanniae*, 359.
 — *forficata*, 357.
 — *furcata*, 353, 354, 356.
 — *furcatoides*, 353, 354, 357, 388.
 — *glaucopsis*, 353, 354, 355.
 — *hypochlora*, 353, 354, 360.
 — *iolama*, 361.
 — *lerchi*, 353, 360.
 — *luciae*, 353, 354, 355.
 — *nigrofasciata*, 353, 354, 357, 358.
 — *refulgens*, 353, 354, 358.
 — *subfurcata*, 357.
 — *tschudii*, 357.

- Thalurania venusta*, 355, 356.
 — verticeps, 359.
 — viridipectus, 357, 358.
 — wagleri, 353, 354, 360.
 — watertoni, 353, 354, 358.
Thamnobia cambaiensis, 411.
 — fulicata, 411.
Thamnophilus amazonicus, 386.
 — doliatus, 387.
 — major, 386, 440.
 — palliatus, 386.
 — simplex, 387.
 — xanthopygus, 113.
Thaumalea amherstiae, 445.
 — picta, 445.
Thinornis novae zealandiae, 439.
Threnetes antoniae, 277, 278.
 — cervinicauda, 277, 278.
 — leucurus, 277, 278.
 — ruckeri, 277, 278, 428.
Threskiornis melanocephala, 419.
Thriponax hodgii, 301.
Tichodroma muraria, 238.
Tigrisoma brasiliense, 121, 306.
 — cabanisi, 373.
Timalia jerdoni, 491.
 — pileata, 491.
Tinamus brasiliensis, 37.
 — variegatus, 120.
Tinnunculus alaudarius, 402.
 — sparverius, 18, 131, 135.
Tityra cayana, 114.
Toccus melanoleucus, 454.
Tockus erythrorhynchus, 206.
Todiramphus veneratus, 20.
Todirostrum maculatum, 381.
Todus ferrugineus, 27.
 — macrorhynchus, 19.
 — nasutus, 19.
 — rubecula, 113.
Totanus brevipes, 370.
 — calidris, 338, 370, 417.
 — flavipes, 477.
 — fuscus, 67, 338, 370.
 — glareola, 67, 283, 338, 370.
 — glottis, 67, 338.
 — ochropus, 67, 339, 370.
 — solitarius, 396.
 — stagnatilis, 338.
Tribonyx mortieri, 122, 427, 482.
Trichastoma rufipennis, 483.
Trichoglossus concinnus, 117.
 — discolor, 117.
 — meyeri, 492.
 — palmarum, 32.
 — placens, 32.
 — pusillus, 117.
 — pygmæus, 31, 32.
Tricholais elegans, 458.
Tringa acuminata, 424.
 — albescens, 317, 318.
 — canutus, 339, 368, 424.
 — cinclus, 68, 339, 370, 417.
 — crassirostris, 368, 370, 424.
 — maritima, 339.
 — minuta, 69, 318, 339.
 — minutilla, 396, 483.
 — platyrhyncha, 424.
 — ruficollis, 317, 318.
 — salina, 231, 317, 318, 426.
 — subarcuata, 425.
 — subarquata, 69, 339, 417.
 — subminuta, 317.
 — temmincki, 69, 426.
 — temminckii, 340.
Tringoides hypoleucus, 370.
Trochaloipteron formosum, 453.
 — phœniceum, 453.
Trochilus anthophilus, 9.
 — antoniae, 278.
 — aspasie, 272.
 — augusti, 10.
Trochilus auratus, 20.
 — bourcierii, 13.
 — cephalus, 6.
 — emiliae, 12.
 — eurynome, 8.
 — fannyi, 359.
 — furcatus, 356.
 — glaucopsis, 355.
 — guyi, 12.
 — hirsutus, 276.
 — hispidus, 7.
 — idaliæ, 270.
 — leucophrys, 9.
 — leucurus, 277.
 — longuemareus, 271.
 — malaris, 4.
 — mazeppa, 276.
 — nigrofasciatus, 357.
 — ornatus, 20.
 — oseryi, 7.
 — philippii, 13.
 — pretrii, 11.
 — pygmæus, 273.
 — reginæ, 279.
 — ruckeri, 278, 279.
 — squalidus, 9.
 — superciliosus, 4, 5, 11.
 — verticeps, 359.
 — watertoni, 358.
 — yaruqui, 11.
Troglodytes furvus, 373, 377.
 — neglectus, 438.
 — vulgaris, 238.
Trogon albigenter, 19.
 — leverianus, 19.
 — viridis, 19.
Tropidorhynchus carunculatus, 110.
Turdinus brevicaudatus, 453.
Turdus aliciae, 488.
 — auroreus, 440.
 — crassirostris, 26.
 — dissimilis, 464.
 — flavipes, 25.
 — fumigatus, 376.
 — guttatus, 255.
 — hyemalis, 488.
 — iliacus, 60, 239, 483.
 — isabellinus, 91.
 — longirostris, 23.
 — macrourus, 25.
 — melanophrys, 110.
 — melanopsis, 26.
 — merula, 60, 239, 483.
 — musicus, 239.

- Turdus naevius*, 440.
 — *orpheus*, 25.
 — *pallens*, 371.
 — *phæopygus*, 376.
 — *pilaris*, 60, 239, 466, 476, 483.
 — *pœcilopterus*, 480.
 — *punctatus*, 112.
 — *rufus*, 487.
 — *shanhu*, 26.
 — *sharpii*, 91.
 — *sibiricus*, 440.
 — *torquatus*, 483.
 — *viscivorus*, 239.
 — *volitans*, 113.
Turnagra crassirostris, 26, 439.
 — *hectori*, 439.
 — *turdus*, 26.
Turnix gibraltarius, 36.
Turtur auritus, 335, 484.
 — *cambayensis*, 414.
 — *capicola*, 259.
 — *decipiens*, 436.
 — *humilis*, 414.
 — *risoria*, 414.
 — *semitorquatus*, 259.
 — *sharpii*, 484.
 — *suratensis*, 414.
Tyranniscus gracilipes, 382.
Tyrannula martinica, 113.
Tyrannus irritabilis, 442.
 — *melancholicus*, 133, 373, 382, 383.
Uintornis lucaris, 468.
Ulula barbata, 58.
 — *lapponica*, 475.
Ulula uralensis, 58.
Upupa africana, 182, 191, 194.
 — *epops*, 182, 183, 191, 192, 193, 194, 199, 206, 208, 211, 236.
 — *erythrorhyncha*, 182.
 — *indica*, 194.
 — *longirostris*, 194.
 — *marginata*, 194.
 — *minor*, 191, 192, 193, 208, 209, 211.
 — *nigripennis*, 408.
Uria marmorata, 46.
Urocissa sinensis, 27.
Urogalba amazonum, 392.
Urolestes melanoleucus, 255.
Urubitinga meridionalis, 136.
 — *schistacea*, 395.
Vaginalis alba, 37.
 — *australis*, 38.
 — *chionis*, 37.
Vanellus cristatus, 337.
 — *selysii*, 434.
Veratrum album, 62, 63.
Vidua principalis, 259.
Vireosylva olivacea, 377.
Volatinia jacarina, 380.
Volvocivora morii, 492.
Vulpanser tadorna, 343.
Vultur angolensis, 106.
 — *auricularis*, 324.
 — *condor*, 16.
 — *fulvus*, 460.
 — *gryphus*, 16, 17.
Vultur magellanicus, 16, 17.
 — *monachus*, 146, 483.
 — *pileatus*, 487.
 — *plancus*, 17.
Xantholæma hæmacephala, 407.
 — *rubricapilla*, 229.
Xanthosomus icterocephalus, 115.
Xema brunneicephala, 420.
Xenicus gilviventris, 439.
 — *longipes*, 439.
Xenops genibarbis, 385.
Xenus cinereus, 68, 72.
Yuhina diademata, 453.
Yunx indica, 436.
 — *pectoralis*, 436.
 — *torquilla*, 235.
Zenaida amabilis, 34.
 — *galapagensis*, 487.
 — *maculata*, 395.
Zonotrichia albicollis, 29, 477.
Zosterops atrifrons, 492.
 — *capensis*, 280.
 — *ceylonensis*, 228, 459.
 — *hypolais*, 457.
 — *intermedia*, 492.
 — *oleaginea*, 457.
 — *palpebrosus*, 228, 229, 309, 412, 459.
 — *simplex*, 229.
 — *sundevalli*, 280.

THE END.



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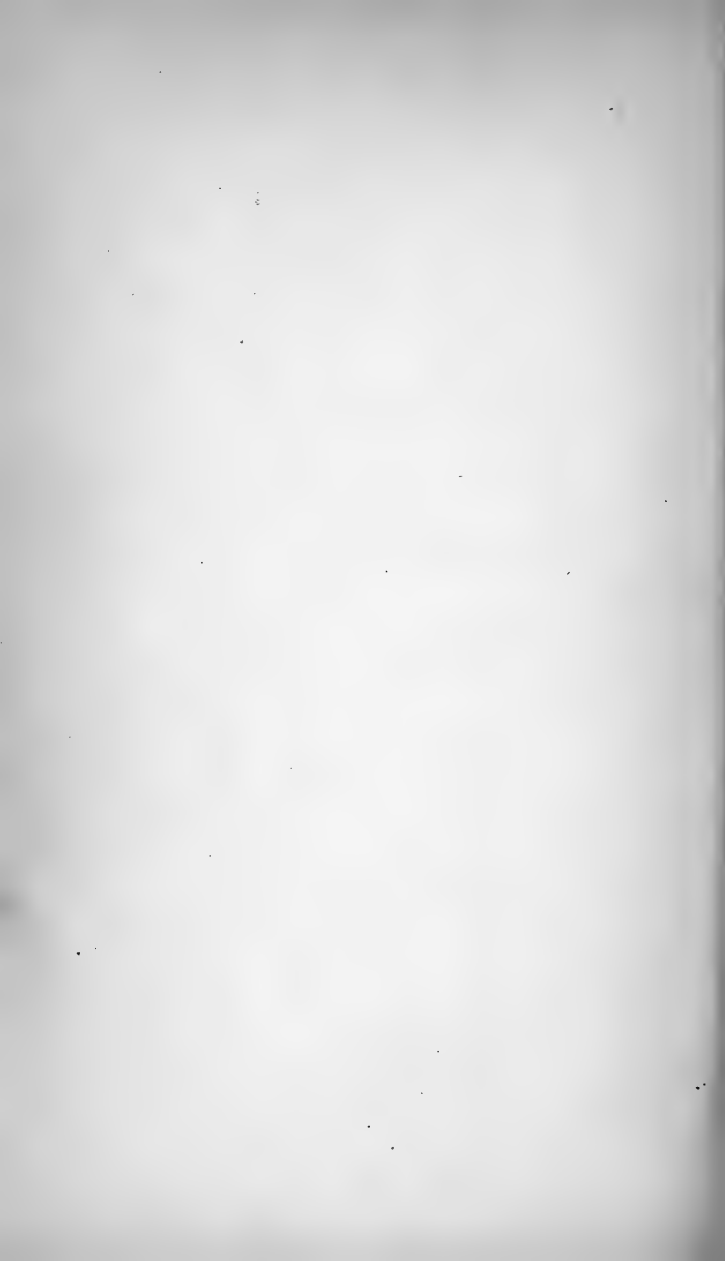
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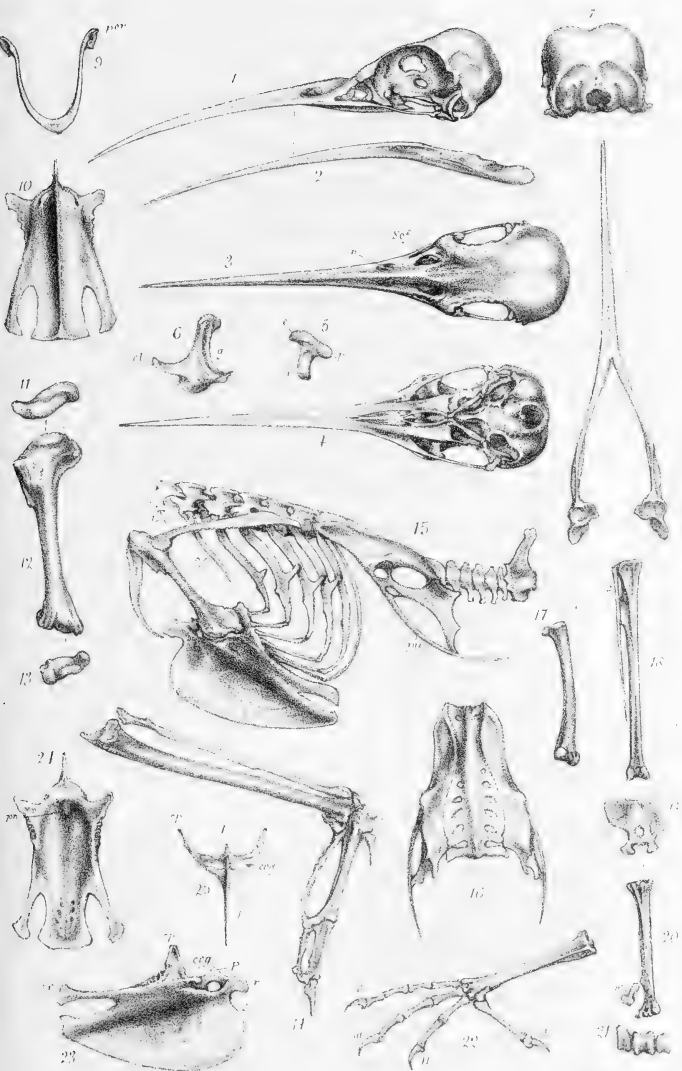
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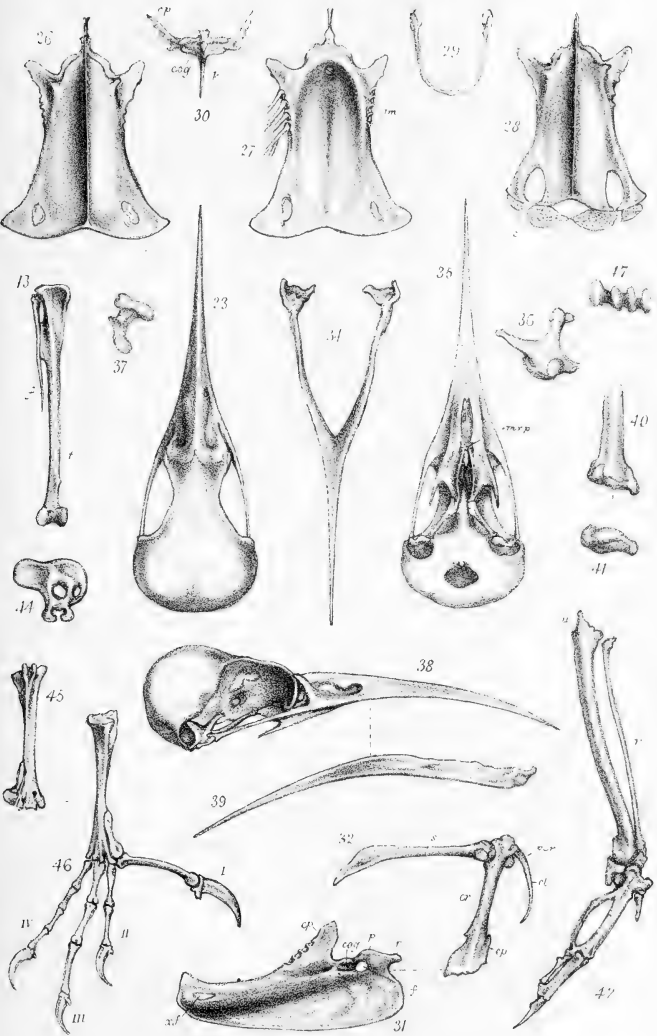


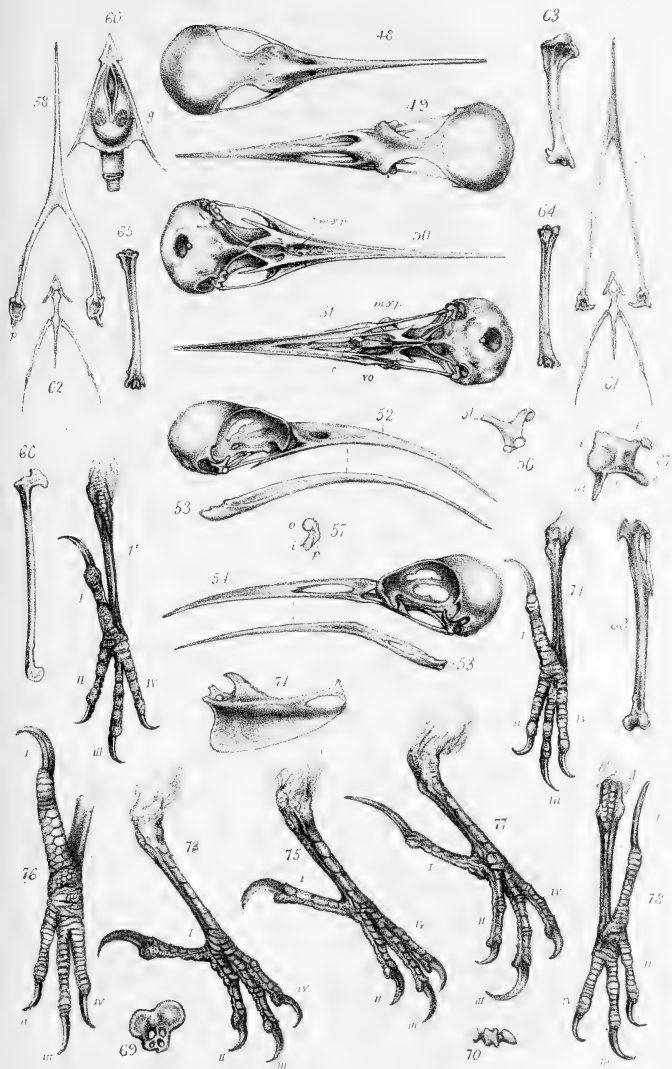
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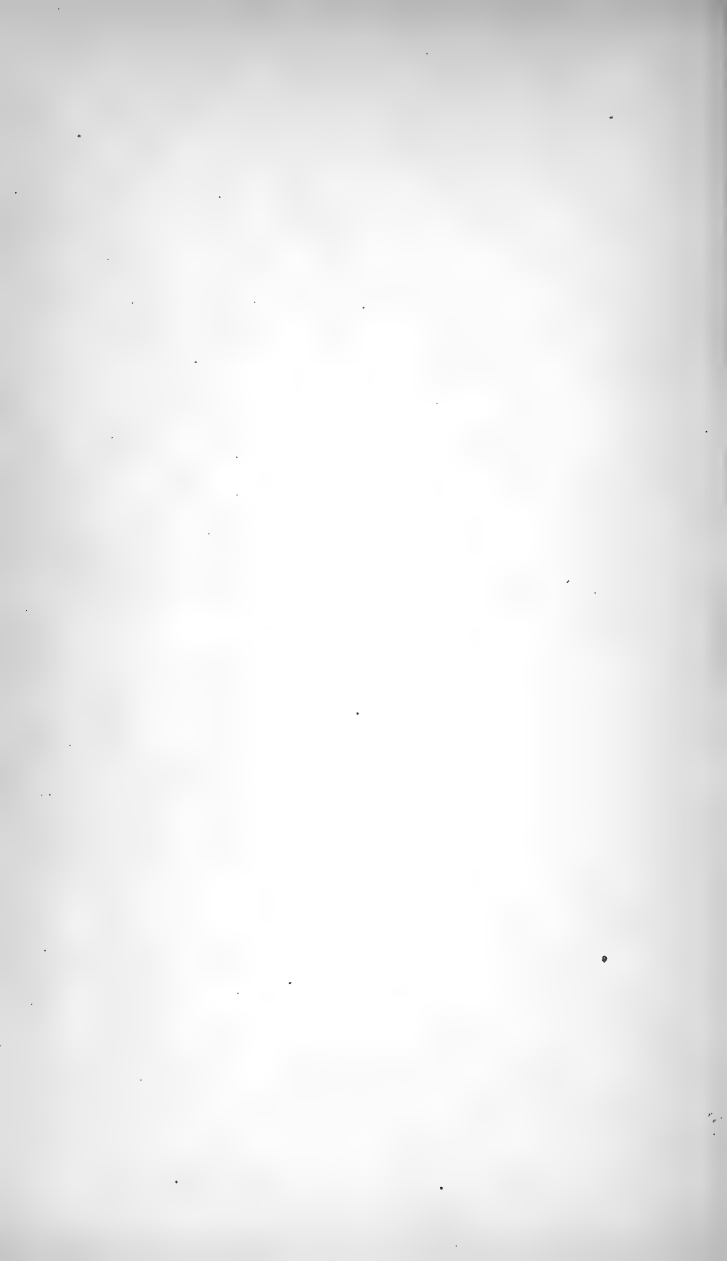
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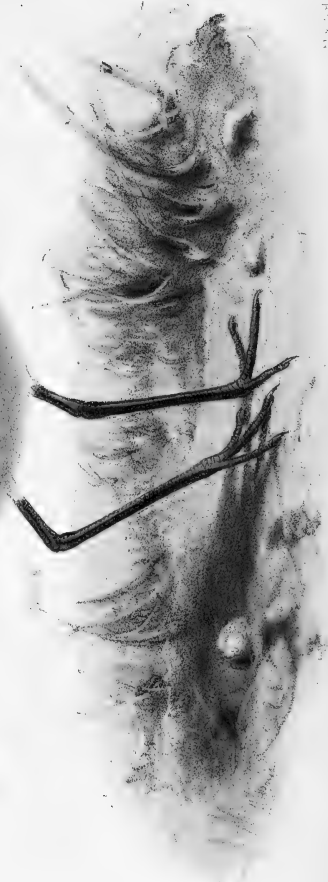


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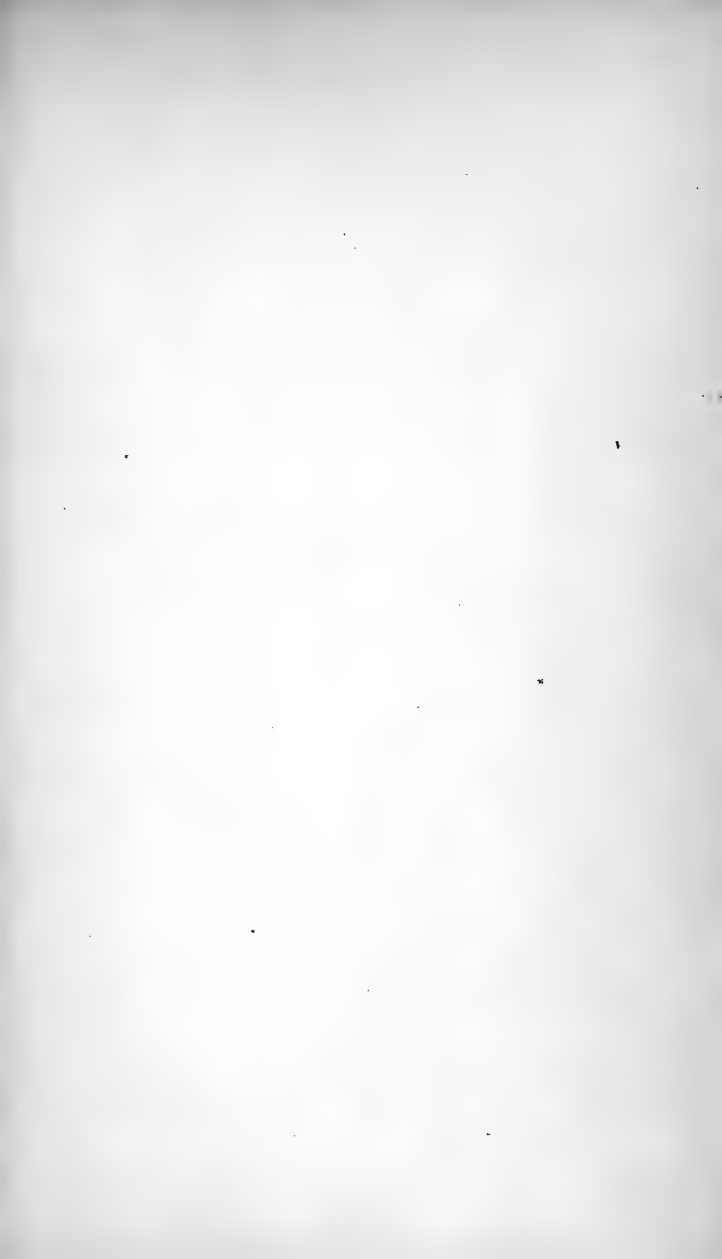




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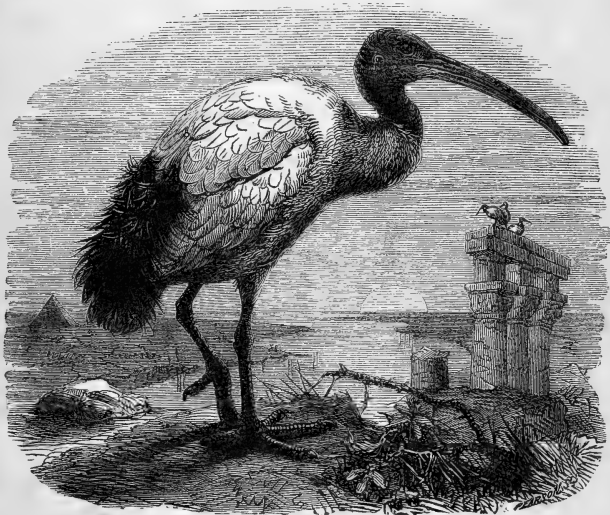
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	Page
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V. On the Nidification of certain Indian Birds. Part II. By ANDREW ANDERSON, F.Z.S.	74
VI. Addenda to the Avifauna of India. By EDWARD BLYTH, F.Z.S., Hon. Memb. As. Soc. Beng.	79
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IX. Descriptions of new Species of <i>Nectarinia</i> , <i>Sitta</i> , and <i>Parus</i> from Persia and Baluchistan. By WILLIAM T. BLANFORD, C.M.Z.S.	86
X. Description of a new Species of Cormorant from the Chatham Islands. By WALTER L. BULLER, Sc.D., F.L.S., &c.	90
XI. Notices of some recently published Ornithological Books	91
XII. Letters, Announcements, &c.:—	
Letters from Mr. Swinhoe, Major Irby, Lord Lilford, Mr. Gurney, and Captain Hutton; References to <i>Cyanocephalus wiedi</i> , Bp., and Bonaparte's 'Conspectus Ptilopterorum Systematicus;' Notice of Prof. Brandt's Memoir on the Alcidae	95

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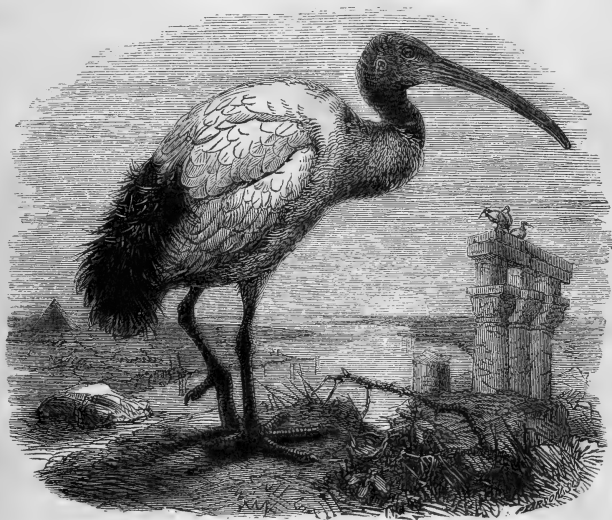
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CONTENTS OF NUMBER X.—THIRD SERIES.

	Page
XIII. On the Birds in the Imperial Collection at Vienna obtained from the Leverian Museum. By A. VON PELZELN. Part II.	105
XIV. On a new Species of Barbet from Western India. By Capt. J. HAYES LLOYD	124
XV. Note on the <i>Pyrranga roseogularis</i> of Cabot. By P. L. SCLATER, M.A., Ph.D., F.R.S. (Plate III.)	125
XVI. On a new Chinese Owl of the Genus <i>Ketupa</i> . By R. SWINHOE, H.M. Consul at Ningpo	127
XVII. Ornithological Notes from the Argentine Republic. By WILLIAM BLACKSTONE LEE, B.A.	129
XVIII. Descriptions of six new Species of West-African Birds. By Captain G. E. SHELLEY	138
XIX. Notes on the Ornithology of Sardinia. By A. B. BROOKE, F.Z.S.	143
XX. On the Genus <i>Platystira</i> and its Allies. By R. BOWDLER SHARPE, F.L.S., F.Z.S., Senior Assistant, Zoological Department, British Museum. (Plate IV.)	156
XXI. On an apparently new Species of Hornbill from Angola. By D. G. ELLIOT, F.L.S., F.Z.S., &c.	177
XXII. Note on <i>Homochlamys lusciniæ</i> , Salvad. By T. SALVADORI, C.M.Z.S.	179
XXIII. On the <i>Upupidæ</i> and their Relationships. By Dr. JAMES MURIE, F.L.S. &c. (Plates V., VI., VII.)	181
XXIV. Notes on 'Stray Feathers.' By W. T. BLANFORD, F.G.S., C.M.Z.S.	211
XXV. Descriptions of a new Jay and a new Woodpecker from Persia, By W. T. BLANFORD, F.G.S., C.M.Z.S.	225
XXVI. Letters, Announcements, &c. :—	
Letters from Mr. Swinhoe, Mr. J. H. Gurney, and Mr. Howard Saunders. Announcement of the Editor's Departure for Guatemala	227

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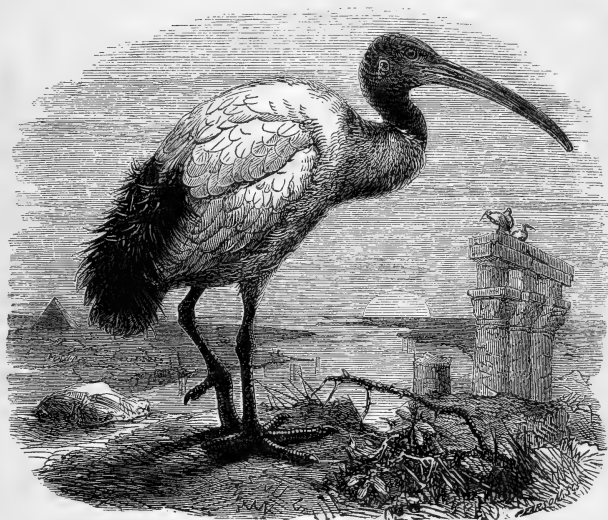
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CONTENTS OF NUMBER XI.—THIRD SERIES.

	Page
XXVII. Notes on the Ornithology of Sardinia. By A. B. BROOKE, F.Z.S.	235
XXVIII. On the Rosy Ibis of China and Japan (<i>Ibis nippon</i>). By ROBERT SWINHOE, H.M. Consul at Ningpo	249
XXIX. A Tenth additional List of Birds from Natal. By J. H. GURNEY, F.Z.S.	254
XXX. On rare or little-known <i>Limicolæ</i> . By JAMES EDMUND HARTING, F.L.S., F.Z.S. (Plates VIII. and IX.) . .	260
XXXI. Notes on the <i>Trochilidæ</i> . The Genera <i>Pygmornis</i> , <i>Glaucis</i> , and <i>Threnetes</i> . By OSBERT SALVIN, M.A. &c., and D. G. ELLIOT, F.L.S., F.Z.S., &c.	269
XXXII. On two Species of <i>Trochilidæ</i> of the Genus <i>Lophornis</i> . By OSBERT SALVIN, M.A. &c., and D. G. ELLIOT, F.L.S., F.Z.S., &c.	279
XXXIII. Additional List of and Notes on Birds obtained in the Republic of Trans-Vaal. By THOMAS AYRES. (Communicated by JOHN HENRY GURNEY.)	280
XXXIV. Remarks on <i>Neomorphus pucherani</i> and its Allies. By GEORGE N. LAWRENCE	287
XXXV. Note on the <i>Fulica alba</i> of White. By OSBERT SALVIN, M.A. &c. (Plate X.)	295
XXXVI. On a Collection of Birds recently made by Lieut. ROBERT WARDLAW RAMSAY, F.Z.S., in the Andaman Islands. By ARTHUR, Viscount WALDEN, P.Z.S., F.R.S. (Plates XI., XII., XIII.)	296
XXXVII. Notices of recently published and forthcoming Ornithological Works	321
XXXVIII. Letters, Announcements, &c. :—	
Letters from Mr. J. H. Gurney, Mr. J. E. Harting, Mr. R. Bowdler Sharpe, Mr. D. G. Elliot, Mr. E. L. Layard, Mr. Robert Gray; Extracts from a letter received from Mr. Salvin	324

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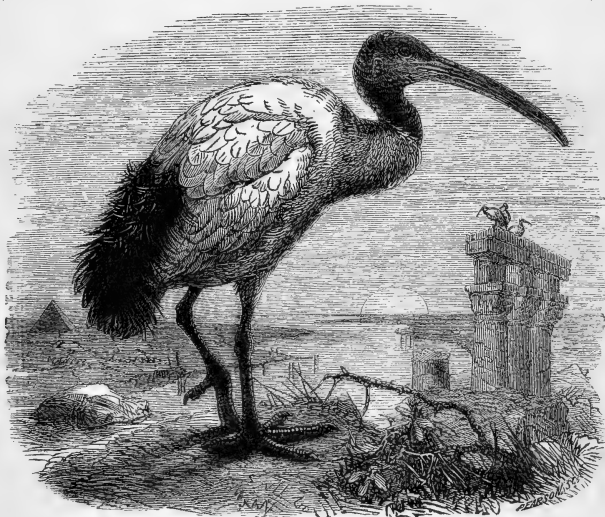
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CONTENTS OF NUMBER XII.—THIRD SERIES.

	Page
XXXIX. Notes on the Ornithology of Sardinia. By A. B. BROOKE, F.Z.S.	335
XL. On <i>Rallus modestus</i> of New Zealand. By Captain F. W. HUTTON	349
XLI. Notes on the <i>Trochilidæ</i> . The Genus <i>Thalurania</i> . By OSBERT SALVIN, M.A., F.R.S., &c., and D. G. ELLIOT, F.L.S., F.Z.S., &c.	353
XLII. Notes on Chinese Ornithology. By ROBERT SWINHOE, F.Z.S. &c.	361
XLIII. Additions to the List of Birds of Nicaragua. By P. L. SCLATER, M.A., Ph.D., F.R.S.	372
XLIV. Notes on Birds observed at Para. By E. L. LAYARD, Esq., H.B.M. Consul.—With Descriptions of two new Species. By P. L. SCLATER. (Plates XIV. & XV.) . . .	374
XLV. On the Birds of the Province of Kattiawar in Western India. By J. HAYES LLOYD, Capt. Bombay Staff Corps .	397
XLVI. Letters, Announcements, &c. :— Letters from Mr. J. H. Gurney, Mr. R. Swinhoe, and Capt. F. W. Hutton; Extracts from letters received from Mr. Salvin; New Publications received; Recent discoveries in Fossil Ornithology .	421

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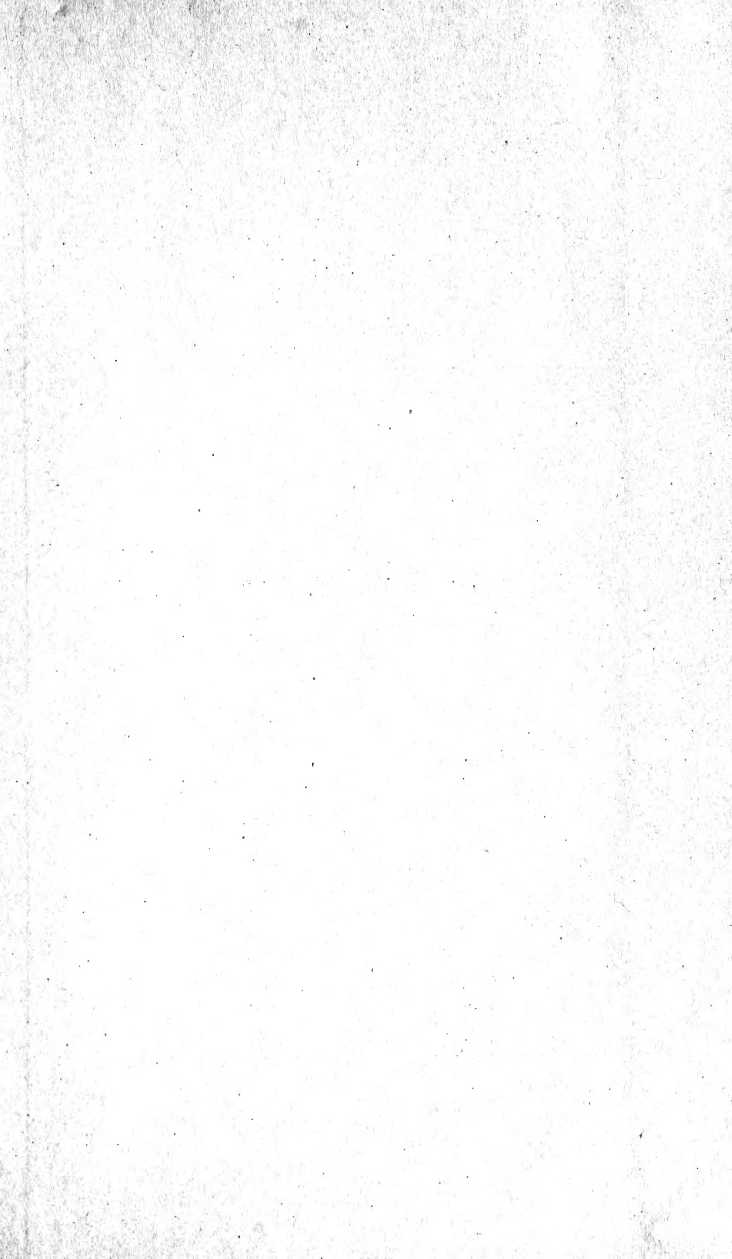
	Page
XLVII. Index to the Ornithological Literature of 1872. By P. L. SCLATER, M.A., Ph.D., F.R.S., and O. FINSCH, Ph.D.	431
XLVIII. List of Periodicals in which Ornithological Papers have appeared in 1872. By F. H. WATERHOUSE, Librarian to the Zoological Society of London	493
Index	497
Title-page, Preface, Contents, &c. to Volume III. of Third Series, 1873.	

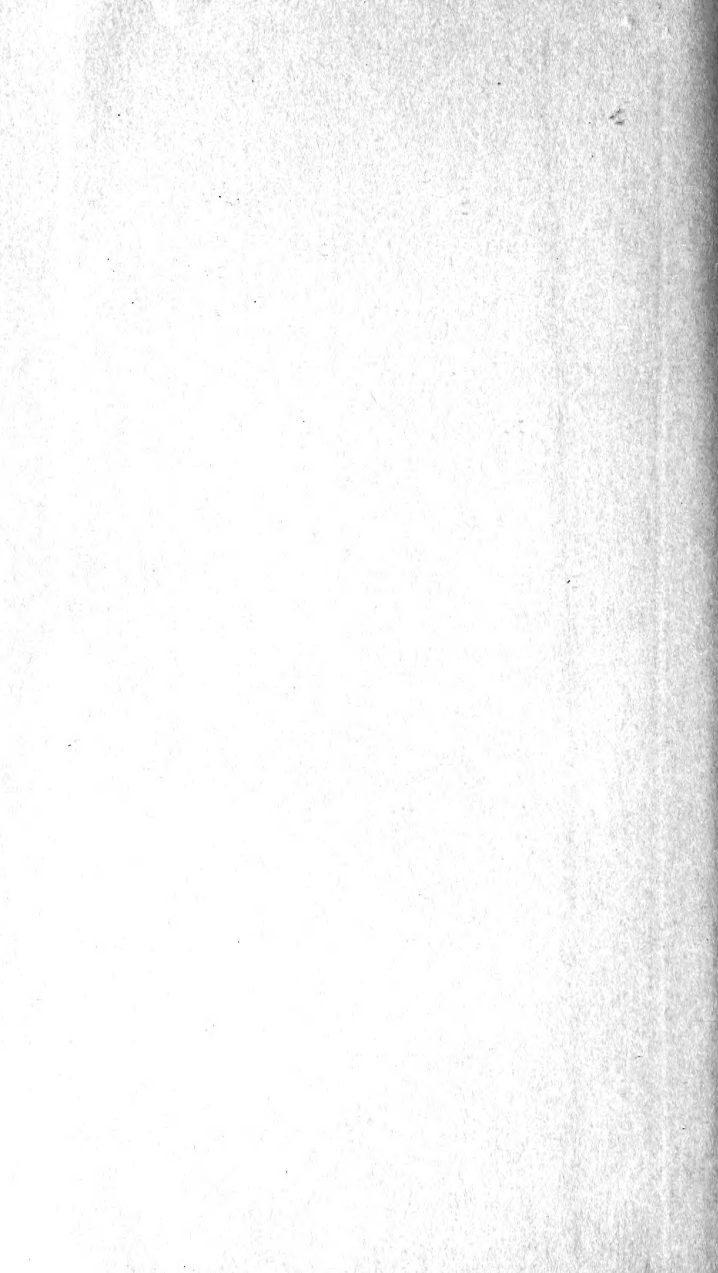
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