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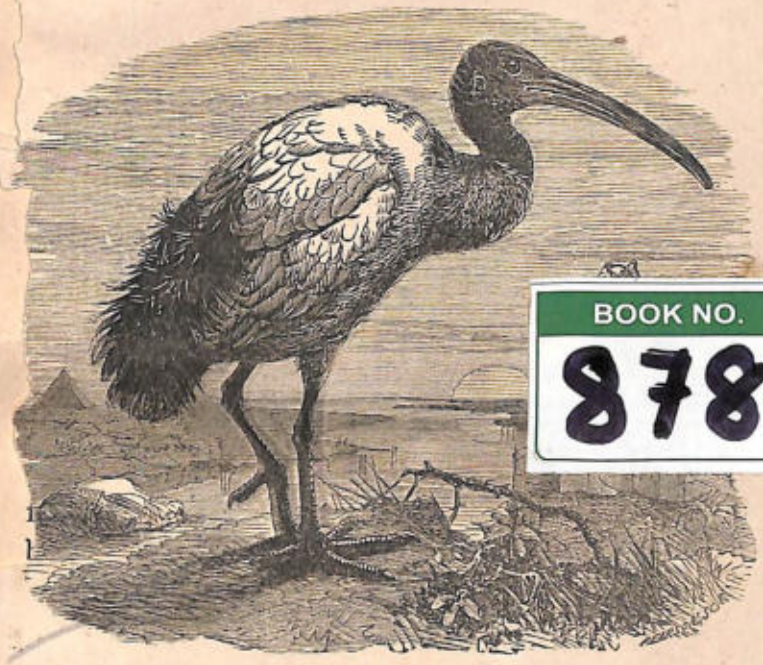
EDITED BY

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SECRETARY TO THE ZOOLOGICAL SOCIETY OF LONDON,

AND

HOWARD SAUNDERS, F.L.S., F.Z.S.



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PREFACE.

THE Editors have now the pleasure of presenting to their brother-members of the British Ornithologists' Union the concluding volume of the Fifth Series of 'THE IBIS,' being the thirtieth volume of the whole work.

As was arranged at the Meeting of the Members of the Union held in May last, the partnership between the two present Editors is now dissolved with mutual regret; and the Sixth Series will be commenced in January next under the sole Editorship of Sclater, who asks for a continuance of the aid which has, hitherto, on all occasions been so liberally accorded.

It is satisfactory to see, by the list which accompanies this Number, that out of the twenty original Founders of the 'Ornithologists' Union' in 1858, no fewer than thirteen are still living, some of these being still amongst the most active of its Members and most frequent contributors to this Journal.

P. L. S.
H. S.

London, October 1st, 1888.

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1888.

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CONTENTS OF VOL. VI.—FIFTH SERIES.

(1888.)

NUMBER XXI., *January*.

Page

I. Notes on Woodpeckers.—No. XIV. On the Genus *Gecinus*. By EDWARD HARGITT, F.Z.S. 1

II. Notes on the Birds of New Zealand. By T. W. KIRK, of the Geological Survey Department 42

III. On the Hornbills of the Ethiopian Region. By Captain G. E. SHELLEY, F.Z.S. 47

IV. On the Birds of Bhamo, Upper Burmah. By EUGENE W. OATES, F.Z.S. (Plate I.) 70

V. Notes on the Birds of Teneriffe. By Capt. SAVILE G. REID, R.E. (Concluded from vol. v. page 435.) 73

VI. On the Genus *Cyclorhis* Swains. By HANS von BERLEPSCH 83

VII. Remarks on the *Acanthizæ* of Tasmania. By Colonel W. V. LEGGE, R.A., F.Z.S. 93

VIII. Ornithological Notes of a Tour in Cyprus in 1887. By Dr. F. H. H. GUILLEMARD, M.A., F.Z.S. With a Preface by Lord LILFORD. (Plate II.) 94

IX. On the presence of Claws in the Wings of the Ratitæ. By W. K. PARKER, F.R.S. 124

X. Descriptions of two new Species of Birds from Bogotá, Colombia. By HANS von BERLEPSCH 128

Page

XI. Notices of Recent Ornithological Publications:—

1. Anderson on the Birds of the Mergui Archipelago . 131
2. Berlepsch on the Birds of Paraguay 131
3. Blasius on the Birds of Celebes. 132
4. Bryant on the Ornithology of Guadalupe Island . . 132
5. Buller's 'Birds of New Zealand' 133
6. Carazzi on the Birds of Spezia 134
7. Hartert on the Birds of Prussia 134
8. 'Indian Annals and Magazine of Natural Science' . 134
9. Lucas on the Osteology of *Nothura* 134
10. Meyer on the Capercaillie and Black Grouse . . . 135
11. Milne-Edwards and Oustalet on the Birds of Grand Comoro Island 135
12. Nazarow on the Zoology of the Kirghiz Steppes . . 136
13. Nicholson on the Birds of the Manchester District . 136
14. 'Norfolk and Norwich Naturalists' Society's Transactions' 136
15. Pelzeln and Madarász on the Pipridæ 137
16. Ridgway's Manual of North-American Birds . . . 137
17. Ridgway on a new *Cotinga* 139
18. Ridgway on a new *Spindalis* 139
19. Ridgway on the female of *Carpodectes antoniæ* . . 140
20. Ridgway on a new *Porzana* 140
21. Ridgway on *Ardea wuerdemanni* 140
22. Ridgway on an Arizonan Trogon 140
23. Ridgway on a new Dendrocolaptine Bird 140
24. Ridgway on a new *Phacellodomus* 141
25. Ridgway on two new Owls 141
26. Scully on the Mammals and Birds of Northern Afghanistan 141
27. Shufeldt on the Skulls of Turkeys 141
28. Sousa on Birds from Ilha do Principe 142
29. Sousa on Birds from Mozambique 142
30. Stejneger on Japanese Birds 142
31. Stejneger on Hawaiian Birds 143
32. Stejneger on Palæarctic Bullfinches 144
33. Stejneger on the Birds of the Commander Islands . . 144
34. Stejneger on a new Fruit Pigeon 144
35. Townsend's Field-notes on Californian Zoology . . 145

Page

XII. Letters, Extracts, Notices, &c.:—

Letters from Mr. J. H. Gurney, Mr. W. Davison, the Rev. Canon H. B. Tristram, and the Rev. H. A. Macpherson; The Turati Collection; The Breeding-habits of Flamingoes; The B.M. Catalogue of Birds; Sale of a Great Auk's Egg. . . . 145

NUMBER XXII., *April*.

XIII. Notes on Woodpeckers.—No. XIV. On the Genus *Gecinus*. By EDWARD HARGITT, F.Z.S. 153

XIV. On a Collection of Birds from the Island of Paláwan. By R. BOWDLER SHARPE, F.L.S., F.Z.S., &c. (Plates III., IV.) 193

XV. The Polar Origin of Life considered in its bearing on the Distribution and Migration of Birds.—Part II. By H. B. TRISTRAM, D.D., F.R.S. 204

XVI. Note on Long-faced Birds. By W. K. PARKER, F.R.S. 217

XVII. Notes on the Birds of Cashmere and the Dras District. By Lieut. W. WILFRID CORDEAUX (Queen's Bays) 218

XVIII. On the occasional Assumption of the Male Plumage by Female Birds. By J. H. GURNEY, Jun. 226

XIX. Further Notes on *Calyptomena whiteheadi*. By R. BOWDLER SHARPE, F.L.S., F.Z.S., &c. (Plate V.) 231

XX. Further Notes on the Birds of the Loo-choo Islands. By HENRY SEEBOHM 232

XXI. On the Arctic Form of the Nutcracker, *Nucifraga caryocatactes*. By HENRY SEEBOHM 236

XXII. A List of the Birds of the Islands of the Coast of Yucatan and of the Bay of Honduras. By OSBERT SALVIN, M.A., F.R.S., &c. 241

XXIII. Notes on a small Collection of Birds from Newala, East Africa. By H. B. TRISTRAM, D.D., F.R.S. 265

XXIV. Notices of Recent Ornithological Publications:—

36. Adamson's 'Illustrations of Birds'. 267

Page
37. 'The Auk' 267
38. Büchner on the Birds of the St. Petersburg District . 269
39. Emerson on the Birds of Southern California . . . 270
40. Ernst on the Birds of the Caracas Museum 270
41. Godman and Salvin's 'Biologia Centrali-Americana' . 270
42. Gould's 'Bird's of New Guinea' 271
43. Gurney on the House-Sparrow 272
44. Harvie-Brown and Buckley on the Birds of Sutherland and Caithness 272
45. Linnean Society of New South Wales (Proceedings of) 274
46. Menzbier on the Osteology of the Penguins 275
47. Merriam on the Misdeeds of the British House-Sparrow 276
48. Montlezun on Bernicle Geese 277
49. 'Ornis' 277
50. Palmén on Siberian Birds 277
51. Salvadori on Birds from Upper Burmah 278
52. Salvadori on Birds from Tenasserim 278
53. Sclater and Hudson's 'Argentine Ornithology' . . 279
54. Sharpe on the *Fringillidæ* 279
55. Shufeldt on Birds' Muscles useful in Classification . 281
56. Stejneger on a Muscle of the Bird's Wing 281
57. Stejneger on a new Thrush 281
58. Winge on Fossil Birds from Brazil 282

XXV. Letters, Extracts, Notices, &c.:—

Letters from A. Everett, Esq.; Sir W. L. Buller; Lieut.-Col. H. M. Drummond Hay. Note on *Zapornia spilonota*; Ornithological Travellers; Bartlett's new Monograph of Weaver-birds and Finches; Sale of another Great Auk's Egg. Obituary —Mr. E. Lear; Mr. J. C. Hele 282

NUMBER XXIII., *July*.

XXVI. List of Birds collected in Eastern Africa by Mr. Frederick J. Jackson, F.Z.S. By Capt. G. E. SHELLEY, F.Z.S. With Notes and an Introduction by the Collector. (Plates VI., VII.) 287

Page

XXVII. On the Birds of the Snares Islands, New Zealand. By Dr. O. Finsch, Ph.D., H.M.B.O.U., &c. 307

XXVIII. On *Merula torquata* and its Geographical Races. By Henry Seebohm 309

XXIX. On *Phasianus torquatus* and its Allies. By Henry Seebohm 312

XXX. On *Hirundo rustica* and *Motacilla melanope* in Ceylon. By Samuel Bligh. (Communicated by John Henry Gurney.) 316

XXXI. Description d'une nouvelle Espèce du Genre *Emberiza*. Par L. Taczanowski. (Plate VIII.) 317

XXXII. On the Dates of Publication of Bonaparte's 'Iconografia della Fauna Italica.' By T. Salvadori, C.M.Z.S. . . . 320

XXXIII. Notes on the Emperor Penguin (*Aptenodytes forsteri*). By P. L. Sclater, M.A., Ph.D., F.R.S. 325

XXXIV. On the Classification of the *Striges*. By Frank E. Beddard, M.A., F.Z.S., Prosector to the Zoological Society of London 335

XXXV. On the Birds observed by Dr. Bunge on his recent Visit to Great Liakoff Island. By Henry Seebohm 344

XXXVI. Critical Notes on the Procellariidæ. By Osbert Salvin, M.A., F.R.S., &c. 351

XXXVII. Notices of Recent Ornithological Publications:—

59. Bartlett on Weavers and Finches 360
60. Berlepsch on Colombian Trochilidæ 361
61. Bocage on additions to the Avifauna of St. Thomas . 361
62. Bocage on Birds from Equatorial Africa 362
63. Bull on the Birds of Herefordshire 362
64. Buller's 'Birds of New Zealand' 362
65. Carazzi on additions to the Birds of Spezia 363
66, 67. Chamberlain on Canadian Birds 363
68. Dubois on the Birds of Belgium 364
69. Emin Pasha's Letters and Journals 365
70. Harvie-Brown on the Isle of May 365
71. Le Messurier on Indian Game, Shore and Water Birds 366

Page

72. Mansel-Pleydell on the Birds of Dorsetshire . . . 366
73. Nehrkorn on his Collection of Eggs 367
74. Pelzeln and Lorenz on Types in the Vienna Museum . 367
75. Ridgway on the Species of *Phrygilus* 367
76. Salvadori on a new *Hemixus* 368
77. Salvadori on the Caspian Plover in Italy 368
78. Seebohm on the Distribution of the Limicolæ . . . 369
79. Shufeldt on some Birds' Sterna and Skulls 370
80. Smith on the Birds of Wiltshire 370
81. Sousa on two new Birds from Angola 371
82. Sousa on the Birds of Angola 371

XXXVIII. Letters, Extracts, Notices, &c.:—

Letters from Prof. W. Blasius; Dr. J. v. Madarász; Prof. R. Collett; Mr. H. E. Dresser; Mr. C. S. Millard; Mr. R. Lloyd Patterson; Mr. W. A. Sanford; and Mr. F. E. Blaauw. Notes on the Breeding of the Hoatzin; the new Irruption of *Syrrhaptes paradoxus*. News of Bird-collectors in Foreign Parts. Obituary—Mr. H. Pryer and M. M. N. Bogdanow. News of Emin Pasha 372

Number XXIV., *October*.

XXXIX. Further Descriptions of new Species of Birds discovered by Mr. John Whitehead on the Mountain of Kina Balu, Northern Borneo. By R. Bowdler Sharpe, F.L.S., F.Z.S., &c. (Plates IX.–XII.) 383

XL. Note on the Geographical Distribution of the Crested Cuckoos (*Coccystes*). By G. C. Norman, F.Z.S. 396

XLI. Notes on some Oriental Birds. By John Whitehead . 409

XLII. On the Habits and Range of Bulwer's Pheasant. By W. H. Treacher 413

XLIII. An Attempt to Diagnose the Suborders of the Great Gallino-Gralline Group of Birds by the aid of Osteological Characters alone. By Henry Seebohm 415

Page

XLIV. Note on the Genus *Rectes*. By R. Bowdler Sharpe, F.L.S., F.Z.S., &c. 435

XLV. On two apparently undescribed Species of *Sturnus*. By R. Bowdler Sharpe, F.L.S., F.Z.S. &c. 438

XLVI. On a Breeding-colony of *Larus eburneus* on Spitsbergen. By Professor Robert Collett, Zoological Museum, Christiania. (Plate XIII.) 440

XLVII. Winter Notes in Spain. By Abel Chapman . . 444

XLVIII. On the Birds of Lomas de Zamora, Buenos Aires, Argentine Republic. By Frank Withington. With Notes by P. L. Sclater 461

XLIX. On the Identity of *Ibis propinqua* with *Ibis melanocephala*. By Henry Seebohm 473

L. Notes on some Species of *Zosterops*. By Alfred and Edward Newton 474

LI. On two new Species of Starlings. By R. Bowdler Sharpe, F.L.S. &c. 476

LII. Diagnoses of some new Species of Birds obtained on the Mountain of Kina Balu by Mr. John Whitehead. By R. Bowdler Sharpe, F.L.S. &c. 478

LIII. Notices of Recent Ornithological Publications:—

83. 'The Auk' 479
84. 'The Audubon Magazine' 480
85. Barboza du Bocage on a new Bird from St. Thomé . 482
86. Belgian Ornithological Report for 1886 482
87. Büttikofer on Birds from Liberia 482
88. Dall on the Scientific Work of Professor Baird . . . 483
89. Fürbringer on the Anatomy of Birds 483
90. Giglioli on Birds from Assab and Shoa 484
91. Irby's Key List of British Birds 485
92. Koller on the Birds of Holland 485
93. Menzbier on the Posthumous Works of Severtzoff . . 486
94. Meyer and Helm on Ornithological Stations in Saxony 486

Page

95. 'Ornis' 487
96. Pelzeln and Lorenz on Types in the Vienna Museum . 487
97. Salvadori on the Birds of Shoa 487
98. Saunders's 'Manual of British Birds' 488
99. Sclater on the Oligomyodian Passeres 488
100. Sousa on the Birds of St. Thomé 490
101. Taczanowski on Caucasian Birds 490
102. Tegetmeier on Pallas's Sand Grouse 490

LIV. Letters, Extracts, Notices, &c.:—

Letters from Mr. E. L. Layard; Sir J. W. P.Campbell-Orde, Mr. F. E. Beddard; Dr. G. Hartlaub; and Mr. Hugh R. Rabbetts; Extract from a Letter from Dr. Burmeister to Mr. Sclater. Assumption of Male Plumage by Female Birds. Anniversary Meeting of the British Ornithologists' Union, 1888. Obituary—Mr. Henry Stevenson 491

Index 499

Titlepage, Preface, List of Members, and Contents.

General Index to the Fifth Series.

PLATES IN VOL. VI.

FIFTH SERIES.

		Page
I.	Acridotheres albocinctus	72
II.	Parus cypriotes	119
III.	Syrnium whiteheadi	196
IV.	Fig. 1. Prionochilus johannæ	201
	Fig. 2. Siphia erithacus	199
V.	Calyptomena whiteheadi	231
VI.	Philetærus cabanisi	292
VII.	Ploceus jacksoni	293
VIII.	Emberiza jankowskii	317
IX.	Fig. 1. Oreoctistes leucops	388
	Fig. 2. Androphilus accentor	390
X.	Brachypteryx erythrogyna	389
XI.	Fig. 1. Chlorocharis emiliæ	392
	Fig. 2. Megalæma pulcherrima	393
XII.	Harpactes whiteheadi	395
XIII.	Larus eburneus	440

ERRATA.

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48,	7 from bottom,	for *habyssinicus* read *habessinicus*.
50,	top line,	for *Buceros* read *Bucorvus*, and for *caffer* read *cafer*.
54,	17 from bottom,	for *fisculator* read *fistulator*.
60,	18 from bottom,	for *Tokus* read *Tockus*.
60,	9 from bottom,	for *Alopius* read *Alophius*.
70,	17 from top,	for *Buecros* read *Buceros*.
189,	9 from top,	for *C. flavinucha* read *G. flavinucha*.
195,	11 from top,	for *ptilonorhynchus* read *ptilorhynchus*.
233,	top line,	for *preyeri* read *pryeri*.
264,	16 from bottom,	for *S. cucullatus* read *I. cucullatus*.
280,	18 from top,	for *Coryphospingus* read *Rhodospingus*.
282,	9 from bottom,	for *luzoniensis* read *luzonensis*.
285,	9 from top,	*for* H. W. DRUMMOND HAY *read* H. M. DRUMMOND HAY.
292,	6 from top,	*for* TERSIPHONE *read* TERPSIPHONE.
296,	top line,	*for* CAMPOTHERA *read* CAMPETHERA.
305,	15 from top,	*for* MONOGOLICUS *read* MONGOLICUS.
307,	15 from bottom,	*for* PHALOCROCORAX *read* PHALACROCORAX.
316,	12 from top,	for *olangali* read *vlangali*.
368,	top line and line 6 from top,	for *Phygilus* read *Phrygilus*.
375,	10 from top,	for *Pelagopsis* read *Pelargopsis*.
482,	10 from top,	*for* Souza's *read* Sousa's.

GENERAL INDEX TO THE IBIS.

1883–1888.

Acanthis, on the genus (*see* Brooks, W. E.).

Acanthizæ of Tasmania (*see* Legge, W. V.).

Acredula caudata and A. rosea (*see* Tschusi zu Schmidhofen, v.).

Acridotheres albocinctus, figured 1888, pl. i.

Acrocephalus, two new species of (*see* Tristram, H. B.); mendanæ, figured 1883, pl. i.; pistor, figured 1883, pl. ii.

Adamson, C. M., 'Another book of Scraps,' noticed 1883, 374; 'Illustrations of Birds,' noticed 1883, 267.

Aden, the birds of (*see* Yerbury, J. W.); map of the vicinity of, 1886, pl. ii.

Adrianof's birds of Mongolia (*see* Potanin, G. N.).

Adriatic, northern birds in the (*see* Schiavuzzi, Dr.).

Ægialitis asiatica in Italy (*see* Salvadori, T.); forbesi, figured 1883, pl. xiv. and (*see* Harting, J. E.).

Ægintha, seventh exhibition of the (*see* Schalow, H.).

Æthiopia (*see* Ethiopia).

Afghan Boundary, birds of the, 1887, 259.

Afghanistan, mammals and birds of Northern (*see* Scully, J.).

Africa, Balæniceps rex in (*see* Hartlaub, G.); birds of (*see* Sousa, J. A. de); a new Pigeon from (*see* Hartlaub, G.); two new birds from (*see* Shelley, G. E.).

Africa (Central), Emin Bey's collection from (*see* Pelzeln, A. v.); a new Musophaga from (*see* Schalow, H.).

Africa (East), birds from (*see* Fischer, A. G., *and* Oustalet, E.); Böhm's collections from (*see* Schalow, H.); birds collected by F. J. Jackson in (*see* Shelley, G. E.); birds of Newala (*see* Tristram, H. B.).

Africa (Equatorial), birds from (*see* Barboza du Bocage, J. V.); Bohndorff's collection from (*see* Sharpe, R. B.).

Africa (Eastern Equatorial), ornithology of (*see* Hartlaub, G.); a new Wryneck from (*see* Hartlaub, G.).

Africa (South), Layard's birds of (*see* Sharpe, R. B.); birds of Natal (*see* Seebohm, H.).

Africa (West), birds of (*see* Barboza du Bocage, J. V.).

Aftershaft in feathers (*see* Beddard, F. E.).

Agelæinæ (*see* Sclater, P. L.).

Agelæus cyanopus, figured 1884, pl. i.

Alaska, birds collected in (*see* Bean, T. H.); ornithology of (*see* Hartlaub, G.); Melanetta fusca in (*see* Ridgway, R.); a new Snow-bunting from (*see* Ridgway, R.); a new Petrel from (*see* Ridgway, R.).

Albany Museum, catalogue of the (*see* Glanville, M.).

'Albatross,' birds of the voyage of the (*see* Ridgway, R.).

Albert, birds of Lake (*see* Emin Pasha).

Alca impennis (*see* Blasius, W.); in Norway (*see* Collett, R.); on the remains of (*see* Grieve, S.); and (*see* Great Auk).

'Alert,' 'Cruise of the' (*see* Coppinger, R. W.); birds of the voyage of the (*see* Sharpe, R. B.).

Allen, J. A., letter on Mr. Seebohm's paper on interbreeding of birds, 1883, 226; appointment of, to the Curatorship in the American Museum, 1885, 240.

Altai, birds of the (*see* Homeyer, E. F. v., and Tancré, C. A.).
Amboina, a collection of birds from (*see* Blasius, W., and Nehrkorn, A.).
America, on the Tree-creeper of North (*see* Ridgway, R.); 'The Water-Birds of North' (*see* Baird, S. F., Brewer, T. M., and Ridgway, R.); three new species of birds from South (*see* Berlepsch, H. v.); six new species of birds from Southern and Central (*see* Berlepsch, H. v.).
American Birds, some new (*see* Ridgway, R.); description of several new races of (*see* Ridgway, R.); on two recent additions to North (*see* Ridgway, R.); 'Check-list of' (*see* Coues, E.); 'Key to' (*see* Coues, E.); 'Manual of' (*see* Ridgway, R.); on some generic and specific appellations of (*see* Stejneger, L.).
American Ornithologists' Union, circular of, 1883, 581; inauguration of, 1884, 60; 'Code and Check-list of,' announced 1886, 104, noticed 1886, 510.
Amsterdam, Spoonbills in (*see* Dalgleish, J. J.).
Amur, birds of the (*see* Schperck, F.).
Anas caryophyllacea (*see* Simson, F. B.); hyperboreus (*see* Ridgway, R.); sponsa in Styria (*see* Tschusi zu Schmidhofen, v.).
Anatomy of Birds (*see* Fürbringer, M.).
Andalucia, rare birds in (*see* Lilford, Lord).
Anderson, J., on the birds of the Mergui Archipelago, noticed 1888, 131.
Androphilus accentor, figured 1888, pl. ix.
Angola, birds of (*see* Barboza du Bocage, J. V., *and* Sousa, J. A. de).
Anjuan, a new Zosterops from the Island of (*see* Tristram, H. B.).
Anser albatus (*see* Ridgway, R.); leucopareius (*see* Ridgway, R.).
Antarctic Regions, fauna of the (*see* Milne-Edwards, A.).
Anthus bocagei (*see* Nicholson, F.); cervinus (*see* Ridgway, R.).
Antilles, three new Honey-Creepers from the Lesser (*see* Ridgway, R.).
Ants' Nests, birds breeding in, 1885, 331.
Aplin, F. C., list of the birds of the Banbury District, noticed 1883, 375.
Aptenodytes forsteri (*see* Sclater, P. L.); anatomy of A. patagonica (*see* Jullien, J.).
Aquila (Nisaetus) morphoides (*see* Gurney, J. H.).
Arachnothera juliæ, figured 1887, pl. xiv.
Architecture of birds (*see* Oustalet, E.).
Ardea pacifica, breeding-place of (*see* Bennett, K. H.); wuerdemanni (*see* Ridgway, R.).
'Argentine Ornithology' (*see* Sclater, P. L., and Hudson, W. H.).
Argentine Republic, on new birds from the, 1883, 394; the genus Homorus in the (*see* Hudson, W. H.); the birds of Lomas de Zamora (*see* Withington, F.).
Argya aylmeri, figured 1885, pl. xi.
Arizona, a new Woodpecker from (*see* Hargitt, E.).
Asia, new species from Central (*see* Prjevalsky, N. M.); 'Birds of' (*see* Gould, J.); 'Russian Central' (*see* Lansdell, H.).
Assab, the birds of (*see* Giglioli, H. H.).
Astrolabe Mountains, Goldie's collections from (*see* Sharpe, R. B.); birds of Mount Astrolabe (*see* Ramsay, E. P.).
'Audubon Magazine,' vol. i. no. 12, vol. ii. no. 1, noticed 1888, 481.
'Auk' (the), noticed, vol. i. no. 1, 1884, 203; nos. 2, 3, 1884, 452; no. 4, and vol. ii. no. 1, 1885, 220; nos. 2, 3, 1885, 440; no. 4, 1886, 78; vol. iii. no. 1, 1886, 189; nos. 2, 3, 1886, 513; no. 4, and vol. iv. no. 1, 1887, 243; nos. 2, 3, 1887, 456; no. 4, and vol. v. no. 1, 1888, 267; nos. 2, 3, 1888, 479.
Auk, Great (*see* Great Auk).
Australia, the Moa in (*see* De Vis, C. W.).
Australian Museum, report of the trustees for 1881, noticed 1883, 109.
Australian Oology, contributions to (*see* Ramsay, E. P.).
Austro-Hungary, birds of (*see* Tschusi zu Schmidhofen, v., and Homeyer, E. F. v.); report on the migration of birds by the Austro-Hungarian Committee (*see* Report).
Ayres, T., additional notes on the Ornithology of the Transvaal, communicated by John Henry Gurney, 1884, 217; 1885, 341; 1886, 282.
Ayres, W., a list of birds collected in Transvaal and in Umziella's Country lying to the North-east of Transvaal, communicated by John Henry Gurney, 1887, 47.

Backhouse, J., observations in the Eastern Pyrenees, 1887, 66; autumn ramble in Eastern Iceland, with some notes from the Faröes (*see* Clarke, W. E.).
Bahia, three new species of birds from (*see* Berlepsch, H. v.).
Baird, S. F., death of, 1887, 481; on the scientific work of (*see* Dall, W. H.).
Baird, S. F., Brewer, T. M., and Ridgway, R., 'Water-Birds of North America,' noticed, vol. i. 1885, 97; vol. ii. 1885, 221.
Balæniceps rex in East Africa, 1883, 233; on the Cuméné (*see* Johnston, H. H.).
Balearic Islands, birds of the (*see* Reyes, V.).
Balearica chrysopelargus, nesting of (*see* Reid, S. G.).
Banbury district, birds of the (*see* Aplin, F. C.).
Barboza du Bocage, J. V., paper on West-African birds, noticed 1883, 97; on the identity of Cinnyris erikssoni and Nectarinia ludovicensis, noticed 1885, 98; the birds of Angola, noticed 1885, 98; birds of West Africa, noticed 1885, 98; Certhilauda duponti in Portugal, noticed 1887, 244; the birds of St. Thomas, noticed 1887, 352; new birds from St. Thomas, noticed 1887, 458; additions to the avifauna of St. Thomas, noticed 1888, 361; birds from Equatorial Africa, noticed 1888, 362; a new bird of the Family Fringillidæ from St. Thomas, noticed 1888, 482.
Barbs and barbules of feathers, figured 1887, pl. xii., and (*see* Wray, R. S.).
Barnes, H. E., 'The Birds of Bombay,' noticed 1886, 190; on the birds of Central India (*see* Swinhoe, C., and Barnes, H. E.).
Barrow, Expedition to Point (*see* Murdoch, J.).
Bartlett, E., 'Monograph of the Weaver-Birds, Ploceidæ, and Finches, Fringillidæ,' announcement of, 1885, 330, and 1888, 286; pts. 1, 2, noticed 1888, 360.
Batavia, birds of (*see* Vorderman, A. G.).
Baza ceylonensis (*see* Bligh, S.).
Beaks of Birds, injuries to the (*see* Shufeldt, R. W.).
Bean, T. H., notes on birds collected in Alaska and Siberia, noticed 1883, 97.
Beckham, C. W., 'List of the Birds of Nelson County, Kentucky,' noticed 1886, 190; on the plumage of Regulus calendula, noticed 1887, 103.
Beddard, F. E., on the aftershaft in the feathers of certain birds, 1885, 19; on the classification of the Striges, 1888, 335; letter on an error in his paper on the classification of the Striges, 1888, 493.
'Bee-eaters,' 'Monograph of the' (*see* Dresser, H. E.).
Belding, L., catalogue of the birds of the Western Coast of Lower California, noticed 1883, 375; of the Peninsula of Lower California, noticed 1883, 376; on the birds of Lower California, noticed 1885, 98; list of birds of Guaymas, noticed 1885, 98.
Belgian Ornithological Report for 1885, noticed 1887, 244; for 1886, noticed 1888, 482.
'Belgium,' 'The Birds of' (*see* Dubois, A.).
Bennett, K. H., the breeding-place of Platalea flavipes and Ardea pacifica, noticed 1883, 376; the habits of the Mallee Hen (Leipoa ocellata), noticed 1884, 336; birds breeding in New South Wales, noticed 1886, 365.
Bering Island, note on the birds of, 1883, 582.
Bering Sea, birds of (*see* Nelson, E. W.).
Berlepsch, H. v., descriptions of three new species of Birds from Bahia, Brazil, 1883, 137; descriptions of six new species of birds from Southern and Central America, 1883, 487; on a collection of Bird-skins from the Orinoco, Venezuela, 1884, 431; description of a new species of the genus Picumnus from Southern Brazil, 1884, 441; on the birds of Bucaramanga, noticed 1885, 221; descriptions of three new species of birds from South America, 1885, 288; on some interesting additions to the avifauna of Bucaramanga, 1886, 53; on the literature of the Trochilidæ, noticed 1887, 103; descriptions of new species and subspecies of Trochilidæ, 1887, 289; on the genus Cyclorhis, 1888, 83; descriptions of two new species of birds from Bogota, 1888, 128; on the birds of Paraguay, noticed 1888, 131; on the Colombian Trochilidæ, noticed 1888, 361.
Berlepsch, H. v., and Jhering, H. v., the birds of Rio Grande do Sul, noticed 1886, 79.
Berlepschia rikeri (*see* Ridgway, R.).
Bermuda, birds of (*see* Reid, S. G.).

Bernicle Geese (*see* Montlezun, A. de).
Berthold, list of birds observed at Fort, Dakota (*see* Hoffman, W. J.).
Bhamo, birds of (*see* Oates, E. W.).
Bianchi, V., on a new Otomela (O. bogdanowi), noticed 1887, 245; birds of the Western Pamir, noticed 1887, 245.
Bidwell, E., on the occurrence of Sabine's Gull in the Isle of Mull, noticed 1885, 222.
'Biologia Centrali-Americana' (*see* Godman, F. D., and Salvin, O.).
Biscay, capture of Siurus noveboracensis in the Bay of (*see* Rabbetts, H. R.).
Blaauw, F. E., letter on the Spoonbill in Holland, 1887, 364; letter on the occurrence of Syrrhaptes paradoxus in Holland, 1888, 377.
Blakiston, T. W., Ornithological notes; birds of Yezo; autumn collecting at Sapporo; Messrs. Jouy and Smith's late collections, noticed 1883, 562; zoological indications of ancient connections of the Japan Islands with the continent, noticed 1883, 562; 'Amended list of the birds of Japan,' noticed 1884, 336; water-birds of Japan, noticed 1887, 352.
Blanford, W. T., letter on Mr. Seebohm's geological views, 1886, 525.
Blasius, R., ornithological contributions, noticed 1884, 337; first ornithological congress at Vienna, noticed 1884, 453; collections in the Mark and Pomerania, noticed 1886, 80; collections in Sweden and Norway, noticed 1886, 80.
Blasius, W., the birds of the Celebes, noticed pt. i. 1883, 376, pt. ii. 1887, 104, pt. iii. 1888, 132; birds of Ceram, noticed 1883, 563; of south-east Borneo, noticed 1883, 563; from Ecuador, noticed 1884, 204; from Java, noticed 1884, 204; papers on the Great Auk (Alca impennis), noticed 1884, 204, 454, and 1885, 223; Grabowsky's collections from Borneo, noticed 1885, 222; a new Trumpeter from Bolivia, noticed 1885, 222; the breast-bone of birds, noticed 1885, 223; measuring birds' skeletons, noticed 1886, 365; birds of prey of Cochabamba, noticed 1886, 365; birds from Cochabamba, noticed 1886, 365; letter on Mr. Sharpe's Nomenclature of the birds of Palawan, 1888, 372.
Blasius, W., and Nehrkorn, A., on a collection of birds from Amboina, noticed 1883, 212.
Bligh, S., note on Baza ceylonensis, 1885, 362, and 1887, 419; on Kiener's Hawk-eagle, 1886, 299; on Hirundo rustica and Motacilla melanope in Ceylon, 1888, 316.
Blomefield, L., 'Reminiscences of Yarrell,' noticed 1885, 441; 'Reminiscences of Selby,' noticed 1886, 191.
Bocage (*see* Barboza du Bocage).
Boeck, E. v., the birds of Cochabamba, noticed 1886, 366; death of, 1886, 388.
Boehm, R., ornithological collections (*see* Schalow, H.); death of, 1885, 338.
Bogdanow, M. N., 'Conspectus of the birds of Russia,' noticed 1887, 223; on Phasianus komarowi, noticed 1887, 245; death of, 1888, 381.
Bogotá, two new birds from (*see* Berlepsch, H. v.).
Böhm (*see* Boehm).
Bohndorff, F., news of, 1884, 358; collection of birds from Equatorial Africa (*see* Sharpe, R. B.).
Bolau, H., the Ornis of Eastern Siberia, noticed 1883, 97.
Bolivia, a new Trumpeter from (*see* Blasius, W.).
Bombay, birds of (*see* Barnes, H. E.).
'Bombay Natural History Society's Journal,' noticed vol. i. no. 1, 1886, 514; no. 3, 1887, 246; vol. ii. nos. 1, 2, 1887, 458.
Bonaparte's 'Iconografia della Fauna Italica,' dates of publication of (*see* Salvadori, T.).
Bonin Islands, birds of, 1884, 124.
Booth, E. T., 'Rough Notes on the Birds of the British Isles,' noticed pts. i.–iii. 1883, 377; pt. iv. 1884, 101; pts. v.–ix. 1886, 191; pts. x.–xiii. 1887, 246.
Borneo, birds of (*see* Vorderman, A. G.); Grabowsky's collections from (*see* Blasius, W.); two new birds from (*see* Sclater, P. L.); collection of birds from (*see* Nicholson, F.); birds of South-east (*see* Blasius, W.); birds of Kina Balu (*see* Sharpe, R. B.).
Boucard, A., description of a new Pseudocolaptes, noticed 1883, 564.
Bourne, G. C., expedition to Diego Garcia, 1885, 340; news of, 1886, 103; return from Diego Garcia, 1886, 216.
Bower, T. H. Bowyer, death of, 1887, 479.
Brachypteryx erythrogyna, figured 1888, pl. x.; saturatus, figured 1883, pl. x.

Brachyrhamphus perdix (*see* Stejneger, L.).
Brandenburg, M., birds of (*see* Schalow, H.).
Brazil, fossil birds from (*see* Winge, O.).
Brenne, birds of the (*see* Martin, R.).
Brewer, T. M., 'Water-birds of North America' (*see* Baird, S. F., Brewer, T. M., and Ridgway, R.).
Brewster, W., appointment of, as Curator to the Harvard College Museum, 1885, 464; the nest and eggs of Swainson's Warbler (Helonaia swainsoni), 1886, 4; bird migration, noticed 1886, 514.
British Association, 'Report on the migration of birds,' noticed for 1881, 1883, 213; for 1882, 1884, 102; for 1883, 1885, 224; for 1884, 1885, 441; for 1885, 1886, 515; for 1886, 1887, 458; the migration committee of, 1886, 213.
'British Birds,' 'Coloured figures of' (*see* Lilford, Lord); 'History of' (*see* Seebohm, H.); 'List of' (*see* Saunders, H.); 'Rough Notes on' (*see* Booth, E. T.); 'Yarrell's' (*see* Saunders, H.); 'Birds on the British List' (*see* Smart, G.); 'British Birds: Key List' (*see* Irby, L. H.); 'An Illustrated Manual of British Birds' (*see* Saunders, H.).
British Burmah (*see* Burmah).
British Guiana, and its birds (*see* Sclater, W. L.); birds from (*see* Salvin, O.; *and* Salvin, O., and Godman, F. D.); Whitely's list of birds of (*see* Salvin, O.); notes on the birds of (*see* Whitely, H.).
British Museum, additions to the collection of birds in the, 1883, 395, 1884, 470, 1885, 455, and 1886, 529; the new bird gallery in the, 1884, 120; 'Catalogue of birds in the' (*see* Gadow, H., Sclater, P. L., *and* Sharpe, R. B.); progress of the, 1883, 130; 1884, 123, and 1885, 120, notes on the eighth volume of the (*see* Tristram, H. B.), remarks on the eighth and ninth volumes of the (*see* Salvadori, T.), announcement of vol. xii. of the, 1888, 152.
'British Ornithologists' Union,' anniversary meetings of the, 1883, 126, 393; 1884, 362; 1885, 328; 1886, 386; 1887, 364; and 1888, 496.
Bronn's Thierreichs (*see* Gadow, H.).
Brooks, W. E., a few ornithological notes and corrections, 1884, 234; stray ornithological notes, 1885, 380; letter on the birds of Ontario, 1886, 210; additional notes on the genus Acanthis, 1886, 359.
Brotogerys panychlorus, figured 1883, pl. ix.
Brown, J. A. Harvie- (*see* Harvie-Brown).
Bryant, W. E., the birds of Guadalupe Island, noticed 1888, 132.
Bubo blakistoni, figured 1884, pl. vi.; milesi, figured 1886, pl. vi.
Bucaramanga, birds of (*see* Berlepsch, H. v.); additions to the Avifauna of (*see* Berlepsch, H. v.).
Bucerotidæ (*see* Dubois, A.); 'Monograph of' (*see* Elliot, D. G.).
Büchner, E., the birds of St. Petersburg, noticed 1888, 269.
Buckley, T. E., the birds of Rousay, noticed 1885, 442; 'The Vertebrate fauna of Sutherland' (*see* Harvie-Brown, J. A., and Buckley, T. E.).
Buckley, T. E., and Harvie-Brown (J. A.), the Vertebrate Fauna of Sutherlandshire, noticed 1885, 224.
Bucorax pyrrhops (*see* Sousa, J. A. de).
Buenos Aires, birds of Lomas de Zamora (*see* Withington, F.).
Bull, H. G., 'Notes on the birds of Herefordshire,' noticed 1888, 362.
Buller, W. L., paper on the Notornis, noticed 1883, 98; 'History of the birds of New Zealand,' 2nd edition, 1884, 123, announcement of, 1885, 240, and 1886, 104, noticed pt. i. 1888, 133, pts. ii.–vi., 1888, 362; on some rare New-Zealand birds, noticed 1885, 99; letter on Mr. Kirk's Lobivanellus personatus, 1888, 283.
Bullfinches, of Siberia and Japan (*see* Seebohm, H.); palæarctic (*see* Stejneger, L.).
Bulwer's Pheasant, the habits and range of (*see* Treacher, W. H.).
Bunge, A., the birds of the Lena Delta, noticed 1885, 443; birds observed on Liakoff Island by (*see* Seebohm, H.).
'Burmah,' 'Birds of British' (*see* Oates, E. W.); the birds of Bhamo (*see* Oates, E. W.); birds from Upper (*see* Salvadori, T.).
Burmeister, H., extract from a letter to Mr. Sclater on Furnarius tricolor, 1888, 495.
Bushire, collection of birds from (*see* Sharpe, R. B.)
Buteo latissimus and B. oxypterus (*see* Ridgway, R.).

Butler, A. W., the birds of Franklin County, Indiana, noticed 1886, 516.
Butler, E. A., Feilden, H. W., and Reid, S. G., on the variations in plumage of Saxicola monticola, as observed in Natal, 1883, 331; letter on Mr. Seebohm's paper on the birds of Natal, 1887, 472.
Büttikofer, J., Zoological researches in Liberia: a list of birds of Western Liberia, noticed 1886, 80; list of birds collected by F. X. Stampfli in Liberia, noticed 1887, 247, and 1888, 482; note on Glareola megapoda, noticed 1886, 81; birds from the Tenimber Islands, noticed 1887, 104; a new Pericrocotus, noticed 1887, 105; birds of Liberia, noticed 1887, 247; on a collection of birds from Padang, noticed 1887, 248.

Cage-birds, foreign (*see* Reichenow, A.).
'Caithness,' 'Vertebrate fauna of' (*see* Harvie-Brown, J. A., and Buckley, T. E.).
California, two new Sparrows from the coast of (*see* Ridgway, R.).
California (Lower), new birds from, 1883, 394; birds of (*see* Belding, L.); birds of the Western Coast of (*see* Belding, L.); birds of the Peninsula of (*see* Belding, L.); Anthus cervinus in (*see* Ridgway, R.); new birds from (*see* Ridgway, R.).
Calliste whitelyi, figured 1884, pl. xiii.
Calodromas, on the name (*see* Ridgway, R.).
Calyptomena whiteheadi, figured 1888, pl. v. and (*see* Sharpe, R. B.).
Cameroons, description of a rare Plover from the (*see* Shelley, G. E.).
Campbell-Orde, J. W. P., letter on the occurrence of Cypselus apus in North Uist, 1887, 363; letter on the occurrence of Pallas's Sand Grouse in the Outer Hebrides, 1888, 492.
Canada, Ornithology in (*see* LeMoine, J. M.).
Canadian birds (*see* Chamberlain, M.).
'Canadian Record of Science,' vol. i. nos. 2–4, noticed 1886, 192.
Cape Verd Islands, two new birds from (*see* Oustalet, E.).
Capello, Sr., birds collected by (*see* Sousa, J. A. de).
Capen, E. A., 'Oology of New England,' noticed 1887, 459.
Caracas Museum, catalogue of the birds in the (*see* Ernst, A.).
Carazzi, D., 'Appunti ornitologici,' noticed 1887, 460; the birds of Spezia, noticed 1888, 134; additions to the Avifauna of Spezia, noticed 1888, 363.
Carpodacus hæmorrhous, the earliest name for (*see* Ridgway, R.).
Carpodectes, a new (*see* Ridgway, R.); antoniæ, figured 1884, pl. ii., the female of (*see* Ridgway, R.).
Carpophaga finschi, the type of (*see* Ramsay, E. P.).
Carter, T., notes from Northern Iceland (*see* Slater, H. H., and Carter, T.).
Cashmere, birds of (*see* Cordeaux, W. W.).
Caspian district, fauna of the South-western (*see* Radde, G.).
Cassicinæ (*see* Sclater, P. L.).
Casuarius, monograph of the genus (*see* Salvadori, T.).
Cathartes burrovianus and C. urubitinga (*see* Ridgway, R.).
Caucasus, birds of the (*see* Lorenz, T., Radde, G., *and* Seebohm, H.); birds from the (*see* Radde, E., and Pelzeln, A. v.); the collections of M. E. Chantre from the (*see* Oustalet, E.); geographical distribution of Russian birds north of the (*see* Menzbier, M.); contributions to the Ornithological Fauna of the (*see* Taczanowski, L.).
Cazin, M., on Plotus melanogaster, noticed 1886, 81.
Celebes, birds of the (*see* Blasius, W.); new birds from, 1886, 216.
Cephus, the genus (*see* Stejneger, L.).
Ceram, birds of (*see* Blasius, W.).
Certhia (*see* Ridgway, R.).
Certhilauda duponti in Portugal (*see* Barboza du Bocage, J. v.).
Certhiola, synopsis of the species of (*see* Ridgway, R.).
Ceryle alcyon, osteology of (*see* Shufeldt, R. W.).
Ceylon, birds from (*see* Pelzeln, A. v., and Kohl, F. F.); notes from (*see* Parker, H.); nidification and migration in North-west (*see* Parker, H.); Gorsachius melanolophus on the east coast of (*see* Gurney, J. H.).
Ceyx cyanopectus, figured 1884, pl. ix.
Chamba, notes on the birds of (*see* Marshall, C. H. T.).
Chamberlain, M., catalogue of the birds of New Brunswick, noticed 1883, 377; ornithological notes, noticed 1883, 378; 'Catalogue of Canadian Birds,' and 'Systematic table of Canadian birds,' noticed 1888, 363.
Chantre, E., birds of the Caucasus (*see* Oustalet, E.).
Chapman, A., rough notes on Spanish

Ornithology, 1884, 66; winter notes in Spain, 1888, 444.
Chapman, A. C., a birds'-nesting ramble in Lapland, 1885, 158.
'Charadriidæ,' 'Geographical distribution of the' (*see* Seebohm, H.).
Charadrius fulvus, breeding-habits of (*see* Robson, C. H.); in New Zealand (*see* Cheeseman, T. F.); near Wellington (*see* Kirk, T. W.); virginicus in Leadenhall Market (*see* Gurney, J. H., jun.).
Chasiempis, the genus (*see* Sclater, P. L.); sandwichensis, figured 1885, 1.
'Check-list of North-American Birds,' announcement of 1886, 104; noticed 1886, 510.
Cheeseman, T. F., the Eastern Golden Plover (Charadrius fulvus) and the Australian Roller (Eurystomus pacificus) in New Zealand, noticed 1883, 99.
Chicago, migration at, 1887, 121.
Chicken Island, zoological researches made on (*see* Reischek, A.).
Chili, a supposed new Plover from (*see* Ridgway, R.).
China, a new Trochalopteron from (*see* Styan, F. W.); the Cormorants of (*see* Seebohm, H.); a collection of birds from Central (*see* Seebohm, H.).
Chlamydochæra jefferyi, figured 1887, pl. xiii.
Chlorocharis emiliæ, figured 1888, pl. xi.
Chlorura hyperythra (*see* Vorderman, A. G.).
Chrysophlegma, the genus (*see* Hargitt, E.).
Chrysotis, a new species of (*see* Lawrence, G. N.).
Cinclus mexicanus, osteology of (*see* Shufeldt, R. W.).
Cinnyris eriksoni (*see* Barboza du Bocage, J. V.).
Clarke, W. E., letter on the desideratum to literature of a book on the study of birds generally, 1883, 124; Field-notes from Slavonia and Hungary, with an annotated list of the birds observed in Slavonia, 1884, 125; on the occurrence of Estrelata hæsitata in Hungary, 1884, 202; letter on Saxicola deserti in Yorkshire, 1886, 100.
Clarke, W. E., and Backhouse, J., an autumn ramble in Eastern Iceland, with some notes from the Faroës, 1885, 364.
Claws in birds' wings (*see* Sclater, P. L.); in the wings of the Ratitæ (*see* Parker, W. K.); shedding of, in the Ptarmigan (*see* Stejneger, L., *and* Turner, L. M.).
Cnipolegus orenocensis, figured 1884, pl. xii.
Coale, H. K., letter on the reorganization of the Ridgway Ornithological Club, 1884, 466.
Coccygus americanus in Italy (*see* Taylor, E. C.).
Cochabamba, birds of (*see* Boeck, E. v.); birds from (*see* Blasius, W.); birds of prey of (*see* Blasius, W.).
Cochin China, two new birds from (*see* Salvadori, T., and Giglioli, H. H.).
Coliidæ, review of the (*see* Shelley, G. E.).
Collett, R., on the addition to the Norwegian Avifauna of Ardetta minuta, Sterna cantiaca, and Larus minutus, noticed 1884, 205; Alca impennis in Norway, noticed 1885, 225; on Lanius excubitor and L. major, 1886, 30; further notes on Phylloscopus borealis in Norway 1886, 217; on new Norwegian Birds, noticed 1887, 460; letter on Syrrhaptes paradoxus in Norway, 1888, 375; on a breeding-colony of Larus eburneus on Spitsbergen, 1888, 440.
Collyriocincla, a new (*see* Ramsay, E. P.).
Colombia, the avifauna of (*see* Coues, E., and Prentiss, D. W.); Trochilidæ of (*see* Berlepsch, H. v.).
Colonial and Indian Exhibition, ornithology in the (*see* Saunders, H.).
Columbidæ, new species of (*see* Lawrence, G. N.); of the Ethiopian Region (*see* Shelley, G. E.).
Commander Islands, birds of the (*see* Dybowski, B.; *and* Dybowski, B., and Taczanowski, L.); new birds from the (*see* Ridgway, R.); birds of the (*see* Stejneger, L.); Natural History of the (*see* Stejneger, L.); new birds from the (*see* Stejneger, L.).
Comoro, the fauna of (*see* Milne-Edwards, A., and Oustalet, E.).
'Congo,' 'The River' (*see* Johnston, H. H.); new birds from (*see* Oustalet, E.).
'Constance,' notes on the birds of the (*see* MacFarlane, J. R. H.).
Contopus, a new species of (*see* Ridgway, R.).
Conurus carolinensis, osteology of (*see* Shufeldt, R. W.).
Cooke, W. W., and Widmann, O., bird-migration in the Mississippi Valley, noticed 1884, 337.
Cope, E. D., the Zoological Position of Texas, noticed 1884, 454.

Coppinger, R.W., 'Cruise of the 'Alert',' noticed 1884, 205.
Cordeaux, J., letter on the expenses of the British Association Migration Committee, 1886, 213.
Cordeaux, W. W., notes on the birds of Cashmere and the Dras District, 1888, 218.
Corea, birds of, 1886, 100.
Cormorants of Japan and China (*see* Seebohm, H.).
Corsica, ornithological notes from (*see* Whitehead, J.).
'Corwin,' 'Cruise of the,' noticed 1884, 105.
Cory, C. B. 'The birds of Haiti and San Domingo,' noticed, part i., 1884, 337; part ii., 1885, 99; part iii., 1885, 225; part iv., 1885, 314; 'List of the birds of the West Indies,' noticed 1885, 443; new edition of the 'List of the birds of the West Indies,' noticed 1886, 192; on a collection of birds from several little-known islands of the West Indies, 1886, 471.
Costa Rica, birds of (*see* Ridgway, R., *and* Zeledon, J. C.); a new Carpodectes from (*see* Ridgway, R.).
Cotinga ridgwayi (*see* Ridgway, R.).
Coues, E., 'Check-list of North-American Birds,' noticed 1883, 99; letter in reply to the review of his 'Check-list,' 1883, 222; letter on the American Ornithologists' Union, 1883, 100; 'Key to North-American Birds,' 2nd edition, noticed 1885, 100; 'New England Bird-life' (*see* Stearns, W. A., and Coues, E.).
Coues, E., and Prentiss, D. W., the Avifauna of Colombia, noticed 1884, 454.
Cowan, W. D., notes on the natural History of Madagascar, noticed 1885, 101.
Cowbird, the correct name of the American (Molothrus ater), (*see* Sclater, P. L.).
Cozumel Island, new birds from (*see* Ridgway, R.); a new Hawk from (*see* Ridgway, R.); a collection of birds from (*see* Salvin, O.).
Crawford, R., 'Across the Pampas and the Andes,' noticed 1884, 338.
'Cromarty,' 'Vertebrate Fauna of West' (*see* Harvie-Brown, J. A., and Buckley, T. E.).
Crossbills, review of the American (*see* Ridgway, R.).
Crowfoot, W. M., notes on the Breeding-habits of certain sea-birds frequenting Norfolk Island and the adjoining islets, 1885, 263.
Crowley, P., 'Catalogue of birds' eggs,' noticed 1884, 339.
Cuckoo, on the young (*see* Hancock, J.); the rearing of the young (*see* Harcourt, E. N.); geographical distribution of the Crested Cuckoos (Coccystes) (*see* Norman, G. C.).
Culross, birds of (*see* Dalgleish, J. J.).
'Cumberland,' 'Birds of' (*see* Macpherson, H. A., and Duckworth, W.).
Cursorius, review of the genus (*see* Seebohm, H.).
Cyanestes (*see* Menzbier, M.).
Cyclorhis, on the genus (*see* Berlepsch, H. v.); remarks on the genus (*see* Sclater, P. L.); a new Yucatan (*see* Ridgway, R.); atrirostris, figured 1887, pl. x.
Cygninæ, monograph of (*see* Stejneger, L.).
Cyphorhinus, the song of, 1887, 366.
Cyprus, ornithological tour in (*see* Guillemard, F. H. H.).
Cypselidæ, new species of (*see* Lawrence, G. N.).

Dahomey, birds of (*see* Sousa, J. A. de).
Dakota, list of birds observed at Fort Berthold (*see* Hoffman, W. J.).
Dalgleish, J. J., on the occurrence of the Tree-Sparrow in Argyllshire, noticed 1883, 564; on a second collection of birds and eggs from Central Uruguay, noticed 1884, 455; birds of Culross and Tulliallan, noticed 1886, 192; letter on the Spoonbills in Amsterdam, 1887, 364.
Dall, W. H., on the Scientific Work of Professor Baird, noticed 1888, 483.
Dallas, W. S., translation of Sundevall's work on the wings of birds (*see* Sundevall, C. J.).
Dalmatia, the vertebrates of (*see* Kolombatović, J.).
D'Aubusson, L. M., on the birds of France, noticed 1884, 103.
Davison, W., letter from, containing descriptions of Trochalopterum cinnamomeum and Merula erythrotis, 1886, 203; letter on the birds of Travancore, 1888, 147; news of, in Singapore, 1888, 379.
Dendropicus gabonensis and D. lugubris, figured 1883, pl. xii.
Des Murs, O., 'Musée Ornithologique illustré,' vols. 1, 2, noticed 1886, 193.
De Verteuil, L. A. A., 'Trinidad,' noticed 1885, 102.
De Vis, C. W., the Moa (Dinornis) in Australia, noticed 1885, 103.

Diego Garcia, news from, of Mr. G. C. Bourne, 1886, 103; birds of, 1887, 368.
Dinornis in Australia (*see* De Vis, C. W.).
Dixon, C., the ornithology of St. Kilda, 1885, 69; further notes on the ornithology of St. Kilda, 1885, 358; 'Evolution without natural selection,' noticed 1886, 81.
Dixon, J. H., 'Gairloch in North-west Ross-shire,' noticed 1887, 460.
Dobrutscha, excursion to (*see* Seebohm, H.).
Doering, A., the birds of the Rio Negro of Patagonia, noticed 1884, 206.
Dollo, L., the use of the 'third trochanter' in birds, noticed 1883, 565.
Donacicola hunsteini, figured 1886, pl. i.
'Dorsetshire,' 'Birds of' (*see* Mansel-Pleydell, J. C.).
Dras district, birds of the (*see* Cordeaux, W. W.).
Dresden Museum, report for 1882–83, noticed 1886, 373; new birds in the (*see* Meyer, A. B.).
Dresser, H. E., 'Monograph of the Meropidæ or Bee-eaters,' progress of, 1883, 131; noticed Parts I., II., 1885, 103, Part III., 1885, 225, Part IV., 1885, 314, Part V., 1886, 366; letter on Otocorys brandti and O. longirostris, 1884, 116; 'Monograph of the Rollers,' announced 1884, 123; progress of, 1886, 103; letter on Sylvia nisoria in Great Britain and S. melanocephala in Malta, noticed 1885, 453; on the Wren of St. Kilda, 1886, 43; letter on Syrrhaptes paradoxus in Jersey, 1888, 376.
Drummond-Hay, H. M., letter on the occurrence of Saxicola deserti in Scotland, 1888, 283.
Dryoscopus ruficeps, figured 1885, pl. x.
Dublin Museum, guide to the (*see* More, A. G.).
Dubois, A., the variability of birds of the genus Loxia, noticed 1883, 213; the genus Pelecanus, noticed 1883, 566; a new Parrot from New Guinea, noticed 1885, 104; the genus Otocorys, noticed 1885, 315; the family Bucerotidæ, noticed 1885, 315; the birds of Belgium, noticed 1885, 443, and 1888, 364; Captain Storm's birds of Lake Tanganyka, noticed 1887, 105; two new species of African birds, noticed 1887, 352.
'Duck-Decoys,' 'The book of' (*see* Payne-Gallwey, R.).
Duckworth, W., 'The birds of Cumberland' (*see* Macpherson, H. A., and Duckworth, W.).
Durnford, W. A., list of birds of Walney Island, noticed 1883, 566.
Dybowski, B., the family Mormonidæ, noticed 1883, 566; additional notes on the family Mormonidæ, noticed 1884, 207; the birds of Kamtschatka and the Commander Islands, noticed 1884, 207.
Dybowski, B., and Taczanowski, L., the birds of Kamtschatka and the Commander Islands, noticed 1885, 444.

Eclectus, the nesting-plumage of (*see* Meyer, A. B.).
Ecuador, birds from (*see* Blasius, W.); birds of (*see* Pelzeln, A. v.).
Eggs, colouring-matter of (*see* Krukenberg, C. F. W.).
Eigg, birds of (*see* Evans, W.).
Ekaterinburg, exhibition at, 1887, 124.
Elliot, D. G., 'Monograph of the Bucerotidæ,' Parts IX. and X., noticed 1883, 102.
Elwes, H. J., appointment of, as naturalist to the Embassy to Lhassa, 1886, 216.
Emberiza, description d'une nouvelle espèce du genre (*see* Taczanowski, L.); jankowskii, figured 1888, pl. viii.
Emerson, W. O., birds of San Diego, noticed 1888, 270.
Emin Pasha, new collections from, 1883, 583; on the birds of Lake Albert, Eastern Equatorial Africa, 1887, 474; 'Emin Pasha in Central Africa,' noticed 1888, 365; news of, from Lake Albert, 1888, 382; birds collected by (*see* Pelzeln, A. v.); a new Wryneck discovered by (*see* Hartlaub, G.).
Empidochanes fuscatus (*see* Ridgway, R.).
Empidonax, the species of (*see* Ridgway, R.); brunneus (*see* Ridgway, R.).
Engadine, birds of the Upper (*see* Seebohm, H.).
Engyptila, a new species of (*see* Lawrence, G. N.).
Erithacus suecica in Norfolk (*see* Gurney, J. H., jun.).
Ernst, A., catalogue of birds in the Caracas Museum, noticed 1888, 270.
Estrelda atricapilla, figured 1886, pl. ix.
Ethiopian Region, Columbidæ of the (*see* Shelley, G. E.); Hornbills of the (*see* Shelley, G. E.); Ploceidæ of the (*see* Shelley, G. E.); Thrushes of the (*see* Seebohm, H.); Woodpeckers of the (*see* Hargitt, E.).

Eudyptes, osteology of (*see* Filhol, H.); the diaphragm of (*see* Filhol, H.).
Europe, ornithology of Western (*see* Olphe-Galliard, L.); the Tree-Creepers (Certhia) of (*see* Ridgway, R.).
European birds, on some generic and specific appellations of (*see* Stejneger, L.).
Eurynorhynchus pygmæus, acquisition of, by the Bremen Museum, 1884, 216.
Eurystomus pacificus in New Zealand (*see* Cheeseman, T. F.).
Euthyrhyncha fulvigula (*see* Meyer, A. B.).
Evans, W., breeding of the Marsh-tit (Parus palustris) in Stirlingshire, noticed 1886, 82; the birds of Eigg, noticed 1886, 82.
Everett, A. H., letter on Ptilopus melanocephalus in Borneo, 1886, 524; letter on Ianthœnus griseigularis in Borneo, 1887, 362; letter on birds found in North Borneo, 1888, 283.
'Evolution without natural selection' (*see* Dixon, C.).

Falco babylonicus (*see* Gurney, J. H.); barbarus (*see* Gurney, J. H.); punicus, figured 1887, pl. viii.
Falcon, a new Italian (*see* Salvadori, T.).
Fanning Island, Birds of (*see* Tristram, H. B.).
Fao, collection of birds from (*see* Sharpe, R. B.).
Faröes, notes from the (*see* Clarke, W. E., and Backhouse, J.).
Feathers of birds (*see* Wray, R. S.); histology of (*see* Lwoff, W.); the aftershaft in the (*see* Beddard, F. E.).
Feilden, H. W., letter on Mr. Seebohm's paper on the birds of Natal (*see* Butler, E. A., Feilden, H. W., and Reid, S. G.); on variations in the plumage of Saxicola monticola (*see* Butler, E. A., Feilden, H. W., and Reid, S. G.).
Ferrari-Perez, F., on Mexican Birds, noticed 1887, 105.
Fijian Birds, eggs of five species of (*see* Ramsay, E. P.).
Filhol, H., the Osteology of Eudyptes and Spheniscus, noticed 1885, 104; the diaphragm of Eudyptes, noticed 1885, 104; the arterial system of the Penguins, noticed 1885, 104, 105.
'Finches,' 'Monograph of the' (*see* Bartlett, E.).
Finland, the vertebrated animals of (*see* Mela, A. J.).
Finsch, O., news of, 1883, 130, 584, and 1885, 339, 463; on a new Reed-Warbler from the Island of Nawodo, or Pleasant Island, 1883, 142; letter on the specific validity of Struthio molybdophanes, 1884, 352; the birds of the South Pacific, noticed 1884, 455; on two new species of birds from New Ireland, 1886, 1; on the birds of Snares Islands, 1888, 307.
Finsch, O., and Meyer, A. B., paper on Paradise-birds, noticed 1886, 193; on some new Paradise-birds (translation), 1886, 237; on Hunstein's birds from New Guinea, noticed 1886, 367.
Fischer, F., and Pelzeln, A. v., the birds of Jan Mayen, noticed 1887, 106.
Fischer, G. A., discoveries in East African Ornithology, 1883, 583; the East African collections of, 1884, 124; the birds of Masai-land, noticed 1885, 226; death of, 1887, 128.
Fischer, G. A., and Reichenow, A., birds from Masai-land, noticed 1884, 339.
Fisheries Exhibition, birds in the International (*see* Saunders, H.).
Flamingoes, breeding-habits of, 1888, 150; on the nest, figured 1884, pl. iv.
Florida, a new Hawk from (*see* Ridgway, R.).
Foochow, birds from (*see* Styan, F. W.); letter on the birds of (*see* La Touche, J. de).
Forbes, H. O., news of, 1883, 130, 583, 1884, 359, and 1886, 101, 385; new expedition to New Guinea, 1885, 339; 'Naturalist's Wanderings in the Eastern Archipelago,' noticed 1885, 444; birds collected in Sumatra (*see* Nicholson, F.).
Forbes, W. A., zoological expedition up the Niger, 1883, 128, 234; the last journal of, 1883, 494; death of, 1883, 385; list of papers of, 1883, 387; final idea as to the classification of birds, 1884, 119; 'Scientific papers of,' noticed 1886, 83; birds collected in the Niger Region by (*see* Shelley, G. E.).
Formicivora, new species of (*see* Lawrence, G. N.).
France, the birds of (*see* D'Aubusson, L. M.).
Franklin County, the birds of (*see* Butler, A. W.).
Fringillaria saharæ, note on, 1887, 120.
'Fringillidæ,' 'Monograph of the' (*see* Bartlett, E.); a new bird from St. Thomas of the family (*see* Barboza du Bocage, J. V.).
Fürbringer, M., on the anatomy of Birds, noticed 1888, 483.

Furnarius tricolor, extract from letter on (*see* Burmeister, H.).

Gadow, H., 'Catalogue of the birds in the British Museum,' noticed, Vol. VIII., 1883, 567; Vol. IX., 1884, 340; 'Bronn's Thierreichs,' Aves, parts 7–9, noticed 1886, 84; letter containing desiderata for his work on the anatomy of birds, 1886, 205.
Gairloch (*see* Dixon, J. H.).
Gallino-Grallinæ, an attempt to diagnose the suborders of the, by osteological characters alone (*see* Seebohm, H.).
Garefowl (*see* Great Auk).
Garman, S., the use of Polynomials in Zoology, noticed 1885, 315.
Gecinus, the genus (*see* Hargitt, E.); flavirostris (*see* Hargitt, E.); gorii (*see* Hargitt, E.).
Geococcyx, the skeleton of (*see* Shufeldt, R. W.); californianus, figured 1885, pl. vii.; californicus, the colour of the head of (*see* Shufeldt, R. W.).
Georgia, the birds of South (*see* Pagenstecher, H. A.).
Germany, changes in the Avifauna of (*see* Marshall, W.); report of the Committee on German Birds, noticed 1883, 381; report of the German observing stations for 1883, noticed 1886, 273; report of the German Committee on the Migration of Birds (*see* Report).
Gerona, the ornithology of (*see* Vila, E. Vayredi y).
Gibson, E., notes on the birds of Paisandú, Republic of Uruguay, 1885, 275.
Giglioli, H. H., the Ornithologists' Congress at Vienna, noticed 1886, 84; 'Avifauna Italica,' noticed 1886, 516; note on the birds of Assab and Shoa, noticed 1888, 484; two new birds from Cochin China (*see* Salvadori, T.); a new Woodpecker (*see* Salvadori, T., and Giglioli, H. H.).
Giglioli, H. H., and Manzella, A., 'Iconografia Avifauna Italica,' noticed, Parts X.–XVIII., 1883, 378; Parts XIX.–XXVII., 1886, 194.
Giraldes, A., catalogue of the birds of Portugal, noticed 1884, 455.
Glanville, M., catalogue of the Albany Museum, noticed 1885, 226.
Glareola megapoda (*see* Büttikofer, J.).
Godman, F. D., news of, in Mexico, 1888, 285, 380; letter on Phonipara phæoptila (*see* Salvin, O., and Godman, F. D.); notes on Birds from British Guiana (*see* Salvin, O., and Godman, F. D.); gift of the Salvin-Godman Collection to the British Museum (*see* Salvin, O., and Godman, F. D.).
Godman, F. D., and Salvin, O., 'Biologia Centrali Americana,' noticed, Parts XVII.–XXII., 1883, 378; Parts XXVI., XXVII., 1884, 207; Parts XXVIII.–XXXIV., 1885, 227; Parts XXXV.–LI., 1887, 107; Parts LII.–LXVI., 1888, 271.
Goldie, A., collections from the Astrolabe Mountains (*see* Sharpe, R. B.).
Goss, N. S., catalogue of the birds of Kansas, noticed 1884, 341.
Gould, J., 'Birds of Asia,' noticed, Part XXXIV., 1883, 379; Part XXXV., 1884, 104; introduction to the 'Birds of Asia' (*see* Sharpe, R. B.); 'Birds of New Guinea,' noticed, Part XIV., 1883, 568; Part XV., 1884, 208; Part XVI., 1884, 341; Parts XVII., XVIII., 1885, 227; Part XIX., 1885, 316; Part XX., 1886, 194; Parts XXI., XXII., 1887, 108; Parts XXIII., XXIV., 1888, 271; 'Supplement to the Trochilidæ,' noticed, Part III., 1883, 214; Part IV., 1885, 316; Part V., 1887, 352; 'The dates of publication of the works of the late' (*see* Waterhouse, F. H.).
Grabowsky's collections from Borneo (*see* Blasius, W.).
Grand Comoro Island, birds of (*see* Milne-Edwards, A., and Oustalet, E.).
Grandidier, A., 'Madagascar' (*see* Milne-Edwards, A., and Grandidier, A.).
Gray, R., death of, 1887, 260.
Great Auk, or Garefowl, sale of an egg of the, 1888, 152; sale of another egg of the, 1888, 286; papers on the (*see* Blasius, W.); the remains of the (*see* Grieve, S.); 'The Great Auk or Garefowl' (*see* Grieve, S.); and (*see* Alca impennis).
Green, J. F. 'Ocean Birds,' noticed 1877, 461.
Grenada, birds of (*see* Wells, J. G.).
Grieve, S., the remains of the Great Auk or Garefowl (Alca impennis), noticed 1883, 102; 'The Great Auk or Garefowl,' announced 1885, 120.
Grisdale, T., death of, 1883, 392.
Grus paradisea, nesting of (*see* Reid, S. G.).
Guácharo-shooting in Trinidad, 1887, 477.
Guadalupe Island, birds of (*see* Bryant, W. E.).

Guatemala, three new birds from (*see* Ridgway, R.).
Guaymas, birds of (*see* Belding, L.).
Guillemard, F. H. H., 'Cruise of the 'Marchesa,'' noticed 1887, 248; ornithological notes of a tour in Cyprus in 1887, with a preface by Lord Lilford, 1888, 94; news of, in Cyprus, 1888, 286.
Günther, A., letter on the Golden Oriole feeding on cherries, 1886, 207.
Gurney, J. H., on an Owl from South-east New Guinea allied to Ninox terricolor, Ramsay, but apparently distinct and undescribed, 1883, 169; letter on Gorsachius melanolophus on the east coast of Ceylon, 1883, 224; letter on the change of colour in the Scarlet Ibis, 1883, 392; on some Eastern Owls, 1884, 169; on the species of the genus Pernis, inhabiting Japan, 1884, 275; letter on Astur atricapillus and Accipiter candidissimus, 1884, 349; 'List of the Diurnal Birds of Prey,' noticed 1884, 456; letter on the habits of Aquila (Nisaetus) morphnoides and Gypoictinia melanosternon, 1884, 465; letter on the South-African Ostrich, 1884, 465; notes on some Eastern Owls, 1885, 138; letter on Buteo maximus, 1886, 523; on an apparently undescribed Hawk of the Asturine Subgenus Urospizias, proposed to be called Urospizias jardinei, 1887, 96; on Falco babylonicus and Falco barbarus, 1887, 158; letter on specimens of Limnaëtus ceylonensis and Huhua nipalensis, 1887, 258; letter on Accipiter virgatus, 1887, 362; letter on Scops brucei, 1888, 145; a collection of birds from Kroonstad (*see* Symonds, E.); ornithology of the Transvaal (*see* Ayres, T.); list of the birds of Transvaal (*see* Ayres, W.).
Gurney, J. H., jun., On the occurrence of Charadrius virginicus in Leadenhall Market, 1883, 198; the Hairy variety of the Moorhen, noticed 1885, 105; the Arctic Blue-throated Warbler (Erithacus suecica) in Norfolk, noticed 1885, 105; 'Catalogue of the birds of Norfolk,' noticed 1885, 228; on the occasional assumption of the male plumage by female birds, 1888, 226, 495; 'The Misdeeds of the House Sparrow (Passer domesticus),' noticed 1888, 272.
Gypoictinia melanosternon (*see* Gurney, J. H.).
Haast, J. v., on the occurrence of Phalaropus fulicarius in New Zealand, noticed 1885, 106; death of, 1887, 480.
Hæmatopus galapagensis (*see* Ridgway, R.).
Hæmophila pulchra, figured 1886, p. viii.
'Haiti,' 'Birds of' (*see* Cory, C. B.).
Hancock, J., on the young Cuckoo, noticed 1886, 367.
Harcourt, E. N., letter on the rearing of the young Cuckoo by Linnets, 1884, 468.
Hargitt, E., notes on Woodpeckers—No. III. Descriptions of two new species of Woodpeckers, 1883, 172; No. IV. On the Woodpeckers of the Ethiopian Region, 1883, 401; No. V. On a new Japanese Woodpecker, 1884, 100; No. VI. On the genus Miglyptes, 1884, 189; No. VII. Additional notes on the Woodpeckers of the Ethiopian Region, 1884, 199; No. VIII. On the genus Hemicercus, 1884, 244; No. IX. On the genus Micropternus, 1885, 1; No. X. On the genus Thriponax, 1885, 140; No. XI. On a new species from Arizona, 1886, 112; No. XII. On the genus Chrysophlegma, 1886, 260; No. XIII. On Gecinus gorii and on the male of Poliopicus ellioti, 1887, 74; No. XIV. On the genus Gecinus, 1888, 1, 153.
Harpactes whiteheadi, figured 1888, pl. xii.
Harporhynchus (*see* Ridgway, R.).
Hartert, E., the birds of the Niger District, noticed 1887, 353; the birds of Prussia, noticed 1888, 134.
Harting, J. E., on the Totanus haughtoni of Armstrong, 1883, 133; letter on Ægialitis forbesi, 1884, 114; letter on the Hoatzin (Opisthocomus cristatus), 1886, 98.
Hartlaub, G., the birds of the Upper Nile, noticed 1883, 103; the ornithology of Eastern Equatorial Africa, noticed 1883, 214; Balæniceps rex in East Africa, 1883, 233; the ornithology of Alaska, noticed 1883, 569; on a new species of Wryneck, discovered in Eastern Equatorial Africa by Dr. Emin Bey, 1884, 28; on the genus Hyliota, noticed 1884, 104; diagnosis of new birds from Eastern Equatorial Africa, noticed 1884, 342; on a new African Pigeon of the genus Tympanistria, 1886, 2; on a new species of Barbet of the genus Trachyphonus, 1886, 105; letter cor-

recting the name of a locality given in his paper on Trachyphonus, 1886, 378; report on birds of Eastern Equatorial Africa, noticed 1887, 461; Capt. E. Storm's birds from Lake Tanganyka, noticed 1887, 109; letter on Mr. Ridgway's paper on the genus Psittacula, 1888, 493.
Harvard College, Report of the Museum of, for 1883-84, noticed 1885, 320.
Harvie-Brown, J. A., third report on Scottish Ornithology, noticed 1883, 215; the migration of birds upon our British Coasts, noticed 1883, 215; letter on the methods of recording natural history specimens, with record of Ruticilla tithys, 1883, 349; uniformity of method in recording rare species, noticed 1884, 456; method of recording observations, noticed 1884, 456; remarks on the International Ornithological Congress at Vienna, noticed 1884, 456; the Little Gull (Larus minutus) in North Uist, noticed 1884, 456; Larus kumlieni, noticed 1885, 445; notes on North Rona, noticed 1887, 249; 'The Isle of May,' noticed 1888, 365; the Vertebrate Fauna of Sutherlandshire (*see* Buckley, T. E., and Harvie-Brown, J. A.).
Harvie-Brown, J. A., and Buckley, T. E., 'A Vertebrate Fauna of Sutherland, Caithness, and West Cromarty,' announced 1887, 123; noticed 1888, 272.
Haswell, W. A., the anatomy of two rare genera of Pigeons, noticed 1883, 379; the anatomy of Pigeons, noticed 1883, 379.
Hawaii, birds of Kauai Island (*see* Stejneger, L.).
Hawtayne's taxidermic notes, noticed 1885, 228.
Hele, J. C., death of, 1888, 286.
Heligoland, Asiatic Warblers in (*see* Vian, J.); excursion to (*see* Selys-Longchamps, E. de).
Helm, F., ornithological stations of Saxony (*see* Meyer, A. B., and Helm, F.).
Helonæa swainsoni (*see* Brewster, W.).
Hemicercus, the genus (*see* Hargitt, E.).
Hemixus sumatranus (*see* Salvadori, T.).
Henke, K. G., on the Ostrich, noticed 1885, 229.
'Herefordshire,' 'Birds of' (*see* Bull, H. G.).
Hertfordshire, birds observed in (*see* Littleboy, J. E.).
Heude, P. M., letter on Pucrasia joretiana, 1883, 225.
Heywood, A., 'The field naturalist and scientific student,' noticed 1883, 216.
Hieracidea brunnea and H. novæ-zealandiæ (*see* Smith, W. W.).
Himalayas, birds of the N.W. (*see* Marshall, C. H. T.).
Himantopus, review of the genus (*see* Seebohm, H.).
'Hirundinidæ,' 'Monograph of the' (*see* Sharpe, R. B., and Wyatt, C. W.).
Hirundo rufula and its allies (*see* Seebohm, H.); rustica in Ceylon (*see* Bligh, S.).
Hoatzin, development of the, 1885, 118; notes on the breeding of the, 1888, 378; letter on the (*see* Harting, J. E.).
Hodgson's Ornithological drawings, addition of, to the Zoological Society's Library, 1884, 362.
Hoffman, W. J., list of Birds observed at Fort Berthold, Dakota, noticed 1883, 216.
Hoffmann, J., on the Woodcock, noticed 1887, 354.
Holland, birds of (*see* Koller, H.), Spoonbills in (*see* Blaauw, F. E.); Syrrhaptes paradoxus in (*see* Blaauw, F. E.).
Holmberg, Dr., birds of the Sierra del Tandil, noticed 1884, 342.
Homeyer, E. F. v., a new Stone-chat (Saxicola cypriaca), noticed 1885, 229; birds of Austro-Hungary (*see* Tschusi zu Schmidhofen, v., and Homeyer, E. F. v.).
Homeyer, E. F. v., and Tancré, C. A., the birds of the Altai, noticed 1883, 569, and 1885, 106.
Homorus, notes on the genus (*see* Hudson, W. H.).
Honduras, birds of the Islands in the bay of (*see* Salvin, O.).
Hornbills of the Ethiopian Region (*see* Shelley, G. E.).
Horuby, H. P., letter on the birds of the Desert of Sinai, 1883, 124.
Horsfield's Woodcock (*see* Seebohm, H.).
Houbaras as Food, 1884, 361.
Hudson, W. H., notes on the birds of the genus Homorus observed in the Argentine Republic, 1885, 283; 'Argentine Ornithology' (*see* Sclater, P. L., and Hudson, W. H.).
Huet, M., on the additions to the Jardin des Plantes, noticed 1883, 216; 1884, 343; 1885, 229; and 1887, 109.

Huhua nipalensis (*see* Gurney, J. H.).
Hume collection of Indian Birds, addition to the British Museum of the, 1885, 236; transmission of the, 1885, 456.
'Humming-birds,' 'Guide to the Gould Collection of,' noticed 1883, 103.
Hungary, field notes from (*see* Clarke, W. E.); occurrence of Œstrelata hæsitata in (*see* Clarke, W. E.); excursion to Southern (*see* Mojsisovics, A. v.).
Hunstein, K., birds from New Guinea (*see* Finsch, O., and Meyer, A. B.).
Hyflota, the genus (*see* Hartlaub, G.).

Ianthœnas griseigularis in Borneo (*see* Everett, A. H.); jouyi (*see* Stejneger, L.).
Ibis propinqua, identity of, with Ibis melanocephala (*see* Seebohm, H.).
Iceland, Autumn ramble in (*see* Clarke, W. E., and Backhouse, J.); notes from Northern (*see* Slater, H. H., and Carter, T.).
Icteridæ, review of the Family (*see* Sclater, P. L.).
Icterinæ (*see* Sclater, P. L.).
Icterus cucullatus, variations of (*see* Ridgway, R.); grace-annæ, figured 1883, pl. xi.
Idiopsar brachyurus, figured 1884, pl. vii.
Im Thurn, E. F., resignation of, at the Georgetown Museum, 1883, 234; news of, 1884, 359.
'India,' 'Game, shore, and water-birds of' (*see* Le Messurier, A.); the birds of Central (*see* Swinhoe, C., and Barnes, H.).
Indiana, science in, 1886, 210; the birds of Franklin County (*see* Butler, E. A.).
Indies (East), nests and eggs from the, (*see* Meyer, A. B.).
Indies (West), new birds from the 1887, 124; 'List of Birds of the' (*see* Cory, C. B.); a collection of birds from the (*see* Cory, C. B.); a new species of Coot from the (*see* Ridgway, R.); synopsis of the Myiadectes of the (*see* Stejneger, L.); birds of Grenada (*see* Wells, J. G.).
Irby, L. H., notes on the birds of Santander, Northern Spain, 1883, 173; 'British Birds: Key List,' noticed 1888, 485.
'Ireland,' 'The Fowler in' (*see* Payne-Gallwey, R.).
'Irish Birds,' 'A list of' (*see* More, A. G.).
Italian Birds (*see* Giglioli, H. H., and Manzella, A.; *and* Salvadori, T.).
Italian Sparrow, the northern limit of the (*see* Wallis, H. M.).
'Italica,' 'Avifauna' (*see* Giglioli, H. H.); 'Iconografia Avifauna' (*see* Giglioli, H. H., and Manzella, A.).
Italy, on a Falcon new to (*see* Salvadori, T.); occurrence of Ægialitis asiatica in (*see* Salvadori, T.).
Ivens, Sr., birds collected by (*see* Sousa, J. A. de).
Iynx pulchricollis, figured 1884, pl. iii.

Jackson, F. J., birds collected in Eastern Africa (*see* Shelley, G. E.).
Jan Mayen, Birds of (*see* Fischer, F., and Pelzeln, A. v.).
Japan, Ornithology of, 1885, 363; connection of, with the continent (*see* Blakiston, T. W.); 'Amended list of the birds of' (*see* Blakiston, T. W.); water-birds of (*see* Blakiston, T. W.); the species of the genus Pernis inhabiting (*see* Gurney, J. H.); a new Woodpecker from (*see* Hargitt, E.); birds of (*see* Jouy, P. L.); Bullfinches of (*see* Seebohm, H.); contributions to the ornithology of (*see* Seebohm, H.); Cormorants of (*see* Seebohm, H.); ornithology of (*see* Seebohm, H.); Pied Wagtails of (*see* Seebohm, H.); birds of (*see* Stejneger, L.); a new Thrush from (*see* Stejneger, L.).
Jardin des Plantes, additions to the (*see* Huet, M.).
Jardine Ornithological Collection, sale of the, 1886, 531.
Java, birds from (*see* Blasius, W.); birds of (*see* Vorderman, A. G.); birds of West (*see* Vorderman, A. G.); birds of Mount Salak in West (*see* Vorderman, A. G.).
Jhering, H. v., birds of Rio Grande do Sul (*see* Berlepsch, H. v., and Jhering, H. v.).
Johnston, H. H., letter on Balæniceps rex on the Cunéné, 1883, 578; expedition to Kilmanjaro, 1884, 216; 'The River Congo,' noticed 1884, 343; news of the Kilmanjaro Expedition, 1884, 361; news of, 1886, 385; in the Cameroons, 1887, 123.
Jouy, P. L., the birds of Japan, noticed 1885, 106.
Jullien, J., the anatomy of Aptenodytes patagonica, noticed 1884, 209.

Kamtschatka, birds of (*see* Dybowski,

B.; Dybowski, B., and Taczanowski, L.; *and* Taczanowski, L.); birds of (*see* Stejneger, L.); new birds from (*see* Stejneger, L.).
Kansas, birds of (*see* Goss, N. S.).
Kashgaria, birds of Upper Tarim (*see* Menzbier, M.).
Kauai Island, birds of (*see* Stejneger, L.).
Kentucky, birds of Nelson County (*see* Beckham, C. W.).
Kiener's Hawk-eagle (*see* Bligh, S.).
Kilimanjaro, expedition to (*see* Johnston, H. H.).
Kina Balu, Mr. Whitehead's collections of birds from Mount (*see* Sharpe, R. B.).
Kingfisher, a new American (Ceryle superciliosa strictoptera), (*see* Ridgway, R.).
Kingsley, J. S., 'Standard Natural History,' Birds, noticed 1886, 368.
Kirghiz Steppes, Zoology of (*see* Narazow, P. S.).
Kirk, T. W., variations of colour in New Zealand birds, noticed 1886, 85; the Eastern Golden Plover (Charadrius fulvus) near Wellington, noticed 1886, 86; notes on the birds of New Zealand, 1888, 42.
Knox, A. E., death of, 1887, 126.
Kohl, F. F., on birds from Ceylon (*see* Pelzeln, A. v., and Kohl, F. F.).
Koller, H., list of the birds of Holland, noticed 1888, 485.
Kolombatović, J., the Vertebrates of Dalmatia, noticed 1887, 354.
Kora, a collection of birds from (*see* Tristram, H. B.).
Kroonstad, a collection of birds from (*see* Symonds, E.).
Krukenberg, C. F. W., the colouring-matters of feathers, noticed 1883, 104; the colouring-matters of birds' eggs, noticed 1883, 570.
Kutter, Dr., report on the ornithology of the Philippines, noticed 1883, 571.

Labrador, natural history of (*see* Stearns, W. A.).
Lagopus mutus (*see* Turner, L. M.); rupestris, figured 1885, pl. ix.
'Lancashire,' 'The birds of' (*see* Mitchell, F. S.).
Langille, J. H., 'Our Birds in their Haunts,' noticed 1885, 317.
Lanio lawrencii, figured 1885, pl. vi.
Lanius excubitor and Lanius major (*see* Collett, R.); robustus (*see* Stejneger, L.).
Lankoran, a collection of birds from (*see* Seebohm, H.).
Lansdell, H., 'Russian Central Asia,' noticed 1886, 86.
Lapland, birds'-nesting ramble in (*see* Chapman, A. C.).
Larus eburneus, nest, eggs, and young of, figured 1888, pl. xiii.; breeding-colony of, on Spitsbergen (*see* Collett, R.); kumlieni (*see* Harvie-Brown, J. A.); minutus in North Uist (*see* Harvie-Brown, J. A.).
Lathria streptophora, figured 1884, pl. xiv.
La Touche, J. de, letter on Mr. F. W. Styan's paper on the birds of Foochow, 1887, 469.
Lawrence, G. N., new species of Chrysotis, Formicivora, and Spermophila, noticed 1883, 571; a new species of the family Cypselidæ, noticed 1885, 107; new species of Tyrannidæ, Cypselidæ, and Columbidæ, noticed 1885, 317; a new Engyptila, with notes on two Yucatan Birds, noticed 1886, 195; two new Birds from Yucatan, noticed 1886, 370; a new Thrush from Grenada, noticed 1887, 354; new Sylviidæ, Troglodytidæ, and Tyrannidæ, noticed 1887, 462.
Layard, E. L., bird-notes from New Caledonia, 1884, 122; letter on the addition of Phalacrocorax strictocephalus to the avifauna of New Caledonia, 1888, 491; 'Birds of South Africa' (*see* Sharpe, R. B.).
Lear, E., death of, 1888, 286.
Legge, W. V., remarks on the Acanthizæ of Tasmania, 1888, 93.
Leipoa ocellata (*see* Bennett, K. H.).
Le Messurier, A., 'Game, Shore and Water Birds of India,' noticed 1888, 366.
Le Moine, J. M., ornithology in Canada and in the United States, noticed 1885, 229.
Lemprière, E., birds of Southern Palawan (*see* Sharpe, R. B.).
Lena Delta, birds of (*see* Bunge, A.).
Leuthner, F., news of, 1884, 359.
Leverkuhn, P., ornithological excursions, noticed 1887, 354.
Liakoff Island, birds observed by Dr. Bunge on (*see* Seebohm, H.).
Liberia, birds of (*see* Büttikofer, J.); zoological researches in (*see* Büttikofer, J.).
Lighthouses, birds caught at, 1885, 334.
Lilford, Lord, notes on the birds of Seville, 1883, p. 233; rare birds in Andalucia, 1884, 124; avifauna of Cyprus, 1887, 122; notes on Mediterranean Ornithology, 1887, 261; 'Coloured figures of British Birds,' noticed, Part I., 1886, 86; Parts II.–

IV., 1887, 249; tour in Cyprus (*see* Guillemard, F. H. H.).
Limicolæ, osteology of the (*see* Shufeldt, R. W.).
Limnaëtus ceylonensis (*see* Gurney, J. H.).
Linnean Society of New South Wales, Proceedings of the, Ser. 2, vol. ii. pts. 1–3, noticed 1888, 275.
Littleboy, J. E., notes on the birds observed in Hertfordshire, noticed 1883, 216, and 1887, 109.
Liu Kiu Islands, birds of (*see* Stejneger, L.).
Locust birds, breeding-habits of the (*see* Wilson, C. W.).
Lomas de Zamora, birds of (*see* Withington, F.).
Loo-choo Islands, birds of (*see* Seebohm, H.).
Lophophorus chambanus, figured 1884, pl. x.
Lophorina minor (*see* Meyer, A. B.).
Lord Howe's Island, Zoology of (*see* Ramsay, E. P.).
Lorenz, T., the birds of the Caucasus, noticed 1887, 462; types in the Vienna Museum (*see* Pelzeln, A. v., and Lorenz, T.).
Loxia, review of the Crossbills of the genus (*see* Ridgway, R.); variability of the genus (*see* Dubois, A.).
Lucas, F. A., the osteology of Nothura maculosa, noticed 1888, 134.
Lwoff, W., the histology of feathers, noticed 1886, 370.
Lydekker, R., 'Siwalik Birds,' noticed 1885, 107.

Macfarland, W., on the Ruby-throated Humming-bird (Trochilus colubris), noticed 1887, 463.
MacFarlane, J. R. H., notes on birds in the Western Pacific made in H.M.S. 'Constance' 1883–85, 1887, 201.
Macpherson, H. A., on the birds of Skye, noticed 1887, 250; letter on birds observed at St. Kilda, 1887, 470; letter on the occurrence of Saxicola isabellina in Cumberland, 1888, 149.
Macpherson, H. A., and Duckworth, W., 'The Birds of Cumberland,' noticed 1886, 370.
Madagascar (*see* Milne-Edwards, A., and Grandidier, A.); natural history of (*see* Cowan, W. D.); a new Zosterops from (*see* Tristram, H. B.).
Madarász, J. v., 'Zeitschrift für die gesammte Ornithologie,' vols. i., ii., noticed 1886, 97; description of two new birds from Tibet, 1886, 145; letter on Syrrhaptes paradoxus in Hungary, 1888, 375; 'Monographie der Pipridæ' (*see* Pelzeln, A. v., and Madarász, J. v.).
Maingonnat, M., letter on a new species of Argus, noticed 1884, 209.
Malimbus rubropersonatus, figured 1887, pl. ii.
Manchester, birds of (*see* Nicholson, F.).
Manilla, Birds from (*see* Ramsay, R. G. Wardlaw).
Mansel-Pleydell, J. C., 'The Birds of Dorsetshire,' noticed 1888, 366.
Manzella, A., 'Avifauna Italica' (*see* Giglioli, H. H., and Manzella, A.).
'Marchesa,' 'Cruise of the' (*see* Guillemard, F. H. H.).
Mark, collections in the (*see* Blasius, W.).
Marshall, C. H. T., news of, 1883, 584; notes on the birds of Chamba, in the N.W. Himalayas, 1884, 404.
Marshall, W., on the changes in the German avifauna, 1887, 354.
Marsh Tit, the British (*see* Stejneger, L.).
Martin, R., the birds of the Brenne, noticed 1887, 463.
Martorelli, G., the mammals and birds of Sardinia, noticed 1884, 457.
Masai-land, birds of (*see* Fischer, G. A.); birds from (*see* Fischer, G. A., and Reichenow, A.).
May, The Isle of (*see* Harvie-Brown, J. A.).
Mediterranean Ornithology (*see* Lilford, Lord).
Megalæma pulcherrima, figured 1888, pl. xi.
Megascops, two new species of (*see* Ridgway, R.).
Mela, A. J., handbook of the vertebrated animals of Finland, noticed 1883, 217.
Melanetta fusca in Alaska (*see* Ridgway, R.).
Menzbier, M., paper on Tetrastes gryseiventris, noticed 1883, 104; the ornithological geography of Russia, noticed 1883, 104; on the geographical distribution of birds in European Russia north of the Caucasus—Part I. Rapaces diurnæ, 1884, 278; Part II. Rapaces nocturnæ, 1885, 255; the avifauna of Moscow and Toula, noticed 1884, 457; the extinction of species through crossing, noticed 1884, 457; on the Blue Tits (Cyanestes), noticed 1885, 317; on the birds of the Upper Tarim, Kashgaria, 1885, 352; posthumous works of N. A. Severtzoff, noticed, 1886, 197, and 1888, 486; migration-routes of Russian birds, noticed 1887, 250; a new Green Woodpecker (Gecinus flavirostris),

noticed 1887, 251; on some new or rare Palæarctic birds, 1887, 299; the osteology of the Penguins, noticed 1888, 275; birds of the Trans-Caspian Regions (*see* Zaroudnoi, M. and Menzbier, M.).
Mergui Archipelago, birds of the (*see* Anderson, J.).
'Meropidæ,' 'Monograph of the' (*see* Dresser, H. E.).
Merriam, C. H., appointment of, as United States Ornithologist, 1885, 464; the misdeeds of the House-Sparrow (Passer domesticus), noticed 1888, 276.
Merula confinis (*see* Ridgway, R.); dactyloptera (*see* Salvadori, T.); erythrotis (*see* Davison, W.); torquata (*see* Seebohm, H.).
Methriopterus (*see* Ridgway, R.).
Mexico, birds of (*see* Ferrari-Perez, F.).
Meyer, A. B., the nesting-plumage of Eclectus, noticed 1883, 105; Xanthochroism in Parrots, noticed 1883, 106; on a Grouse from Saxony, noticed 1884, 344; birds' nests and eggs from the East Indies, noticed 1884, 458, and 1885, 230; new birds in the Dresden Museum, noticed 1885, 445; 'Abbildungen von Vogel-Skeletten,' Parts I.–IX., noticed 1886, 372; birds from Emperor William's Land, North-east New Guinea, noticed 1886, 517; letter on the locality of the birds mentioned in his paper on the birds of New Guinea, 1886, 524; work on the Grouse Family, announced 1886, 103, noticed 1888, 135; note on Lophorina minor and Euthyrhyncha fulvigula, noticed 1887, 110; letter on an error in locality in his paper on the birds of Emperor William's Land, 1887, 120; letter on Scolopax rochusseni, 1887, 470; Hunstein's birds from New Guinea (*see* Finsch, O., and Meyer, A. B.); on some new Paradise-birds (*see* Finsch, O., and Meyer, A. B.).
Meyer, A. B., and Helm, F., reports on the ornithological stations of Saxony, noticed 1887, 355, and 1888, 486.
Microbates, the genus (*see* Sclater, P. L.); collaris, figured 1883, pl. ii.
Microcerculus ustulatus, figured 1883, pl. ix.
Micropternus, the genus (*see* Hargitt, E.); gularis breeding in ants' nests, 1885, 331; phæoceps breeding in ants' nests, 1885, 331, 332.
Micropus melanoleucus, habits of (*see* Shufeldt, R. W.), figured 1887, pl. v.
Miglyptes, the genus (*see* Hargitt, E.).
Migration of birds (*see* Brewster, W., *and* Palmén, J. A.); on our British coasts (*see* Harvie-Brown, J. A.); at Chicago, 1887, 121; in North-west Ceylon (*see* Parker, H.); in the Mississippi Valley (*see* Cooke, W. W.); the Committee of the British Association on the, 1886, 213; reports on the (*see* British Association).
Millard, C. S., letter on Syrrhaptes paradoxus at Loughborough, 1888, 376.
Milne-Edwards, A., the fauna of the Antarctic regions, noticed 1885, 108.
Milne-Edwards, A., and Grandidier, A., 'Madagascar' birds, noticed 1887, 110.
Milne-Edwards, A., and Oustalet, E., the fauna of Comoro, noticed 1886, 87; the Birds of Grand Comoro Island, noticed 1888, 135.
Miminæ, a new genus of (*see* Ridgway, R.).
Mississippi Valley, bird migration in (*see* Cooke, W. W.).
Mitchell, F. S., 'The Birds of Lancashire,' letter on, 1883, 120; noticed 1885, 446.
Mitrephorus pallescens, on the type of (*see* Ridgway, R.).
'Mittheilungen' of the Ornithological Union of Vienna, noticed, Jahrg. 8, nos. 1–12, 1885, 318; Jahrg. 9, nos. 29, 30, and Jahrg. 10, nos. 1–5, 1886, 372; Jahrg. 10, nos. 6–10, 1886, 518.
Moa in Australia (*see* De Vis, C. W.).
Mojsisovics, A. v., excursion to Southern Hungary and Sclavonia, noticed 1886, 518.
Molothrus ater, correct name for (*see* Sclater, P. L.).
Moluccas, Platen's collections from the (*see* Nehrkorn, A.); ornithology of (*see* Salvadori, T.).
Mongolia, birds of (*see* Potanin, G. N.).
Montlezun, A. de, on Bernicle Geese, noticed 1888, 277.
Moorhen, the hairy variety of the (*see* Gurney, J. H., Jun.).
More, A. G., 'List of Irish Birds,' noticed 1885, 446; 'Guide to the Art Museum, Dublin,' noticed 1887, 464.
Morgan, E. D., translation of Prjevalsky's paper on Asian Birds (*see* Prjevalsky, N. M.).
Mormonidæ, the family (*see* Dybowski, B.).
Morocco, winter notes from (*see* Reid, S. G.).
Moscow, the avifauna of (*see* Menzbier, M.).

Motacilla melanope in Ceylon (*see* Bligh, S.); ocularis and amurensis (*see* Ridgway, R.).
Mozambique, birds of (*see* Sousa, J. A. de).
Müller, A., the birds of the Island of Salanga, noticed 1883, 217.
Murdoch, J., 'Expedition to Point Barrow,' noticed 1886, 195.
Murray, J. A., 'Vertebrate Zoology of Sind,' noticed 1885, 109; 'The Indian Annals and Magazine of Natural Science,' Vol. I. nos. 1-3, noticed 1888, 134.
Muscat, a collection of birds from (*see* Sharpe, R. B.).
Muscicapa fulvifrons, the type of (*see* Ridgway, R.).
'Musée Ornithologique illustré' (*see* DesMurs, O.).
Musophaga, a new Central African (*see* Schalow, H.).
Musophagidæ (*see* Schalow, H.).
Myiadectæ, synopsis of the West Indian (*see* Stejneger, L.).
Myiadectes obscurus, two new races of (*see* Stejneger, L.).
Myiarchus, a new Orinoco (*see* Ridgway, R.).

Natal, birds of (*see* Seebohm, H.).
Nathusius, W. v., the egg of Struthiolithus chersonensis, noticed 1887, 111; the position of the egg in the oviduct, noticed 1887, 111.
'Naturalist,' 'The,' noticed, nos. 109-115, 1885, 230; nos. 116-128, 1886, 198.
Nawodo Island, a new Reed-Warbler from (*see* Finsch, O.).
Nazarow, P. S., the zoology of the Khirghiz Steppes, noticed 1888, 136.
Nectarinia ludoviciensis (*see* Barboza du Bocage, J. V.).
Nehrkorn, A., letter on Dr. Platen's collection from the Moluccas, 1884, 467; the birds of Waigiou, noticed 1885, 447; on his collection of eggs, noticed 1888, 367; a collection of birds from Amboina (*see* Blasius, W., and Nehrkorn, A.).
Nelson, E. W., birds of Bering sea, noticed 1884, 105.
'Nelson County,' 'Birds of, Kentucky' (*see* Beckham, C. W.).
Neotropical birds (*see* Ridgway, R.).
Nestor notabilis, sheep slaughter by, 1884, 471.
Newala, birds of (*see* Tristram, H. B.).
New Brunswick, birds of (*see* Chamberlain, M.).
New Caledonia, bird notes from (*see* Layard, E. L.); occurrence of Phalacrocorax stictocephalus in (*see* Layard, E. L.).
'New England Bird Life' (*see* Stearns, W. A., and Coues, E.); 'Oology of New England' (*see* Capen, E. A.).
New Guinea, a new Parrot from (*see* Dubois, A.); Hunstein's birds from (*see* Finsch, O., and Meyer, A. B.); 'Birds of' (*see* Gould, J.); on an Owl from South-east (*see* Gurney, J. H.); birds from North-east (*see* Meyer, A. B.); birds from (*see* Oustalet, E.); a new Parrot and Pigeon from (*see* Oustalet, E.); contributions to the zoology of (*see* Ramsay, E. P.); letter on Ramsay's contributions to the zoology of (*see* Salvadori, T.); contributions to the ornithology of (*see* Sharpe, R. B.).
New Ireland, two new birds from (*see* Finsch, O.).
New Mexico, a new Field-Sparrow from (*see* Ridgway, R.).
New South Wales, birds breeding in (*see* Bennett, K. H.).
Newton, A., 'Ornithology' (from the 'Encyclopædia Britannica'), noticed 1885, 318; 'Memoir of John Scales,' noticed 1886, 199.
Newton, A., and Newton, E., notes on some species of Zosterops, 1888, 474.
New York Linnean Society, Transactions of the, Vol. I., noticed 1883, 221.
New York Museum, additions to the, 1887, 479.
New Zealand, 'Birds of' (*see* Buller, W. L.); rare birds from (*see* Buller, W. L.); the Eastern Golden Plover (Charadrius fulvus) and the Australian Roller (Eurystomus pacificus) in (*see* Cheeseman, T. F.); Phalaropus fulicarius in (*see* Haast, J. v.); notes on birds of (*see* Kirk, T. W.); variations of colour in some birds of (*see* Kirk, T. W.); ornithology (*see* Reischek, A.); organic productions of (*see* Travers, W. T. L.).
Nias Island (*see* Salvadori, T.).
Nicaragua, birds from (*see* Nutting, C.C.).
Nicholson, F., on a collection of birds from Borneo, 1883, 85; on a second collection of birds made in the island of Sumatra by H. O. Forbes, 1883, 235; letter on the change of the name Anthus pallescens to A. bocagii, 1884, 469; the birds of Manchester, noticed 1888, 136.
Nicoya, birds from the gulf of (*see* Nutting, C. C.).

Nidification in North-west Ceylon (*see* Parker, H.).
Niger, expedition up the (*see* Forbes, W. A.); birds of (*see* Hartert, E.); birds collected by W. A. Forbes in the Niger Region (*see* Shelley, G. E.).
Nightingales, the generic name of the (*see* Salvadori, T.).
Nile, the birds from the Upper (*see* Hartlaub, G.).
Nitzsch *v.* Rochebrune, 1884, 360.'
'Norfolk,' 'Catalogue of the Birds of' (*see* Gurney, J. H., Jun.); Erithacus suecica in (*see* Gurney, J. H., Jun.); Puffinus obscurus in (*see* Stevenson, H.).
'Norfolk and Norwich Naturalists' Society's Transactions,' noticed, vol. iv. pt. 2, 1887, 112; pt. 3, 1888, 136.
Norfolk Island, sea-birds of (*see* Crowfoot, W. M.); two birds from (*see* Tristram, H. B.).
Norman, G. C., note on the geographical distribution of the Crested Cuckoos (Coccystes), 1888, 396.
North America (*see* America, North).
Norway, collections in (*see* Blasius, R.); additions to the avifauna of (*see* Collett, R.); Alca impennis in (*see* Collett, R.); new birds of (*see* Collett, R.); Phylloscopus borealis in (*see* Collett, R.).
Nothura maculosa, osteology of (see Lucas, F. A.).
Notornis, on the (*see* Buller, W. L.); mantelli, the skeleton of (*see* Parker, T. J.).
Nucifraga caryocatactes, nesting of, 1887, 474; the Arctic form of (*see* Seebohm, H.).
Numenius longirostris, osteology of (*see* Shufeldt, R. W.).
Nutcracker, nesting of the, 1887, 474; the Arctic form of the (*see* Seebohm, H.).
Nuthatch, European (*see* Taczanowski, L.).
'Nuttall Ornithological Club's Bulletin,' noticed, vol. vii. nos. 3, 4, 1883, 98; vol. viii. no. 1, 1883, 213; nos. 2, 3, 1883, 564; no. 4, 1884, 103.
Nütting, C. C., news of, 1883, 129; a collection of birds from the Gulf of Nicoya, Costa Rica, noticed 1883, 217; a collection of birds from Nicaragua, noticed 1885, 109.

Oates, E. W., on a new species of Polyplectron, 1883, 136; list of birds of Pegu, noticed 1883, 218; 'Birds of British Burmah,' progress of, 1883, 231; noticed, vol. i. 1883, 231, vol. ii. 1884, 106; on the Birds of Bhamo, Upper Burmah, 1888, 70.
'Ocean Birds' (*see* Green, J. F.).
Œstrelata defilippiana (*see* Ridgway, R.); fisheri (*see* Ridgway, R.); hæsitata in Hungary (*see* Clarke, W. E.); sandwichensis (*see* Ridgway, R.).
Olphe-Galliard, L., contributions to the Ornithology of Western Europe, noticed, fasc. i. 1885, 231; fasc. v. and xxiii. 1886, 201; ornithological notes from the Pyrenees (letter), 1885, 235.
Onychotes gruberi (*see* Ridgway, R.).
'Oologist,' 'The Young,' noticed 1885, 327.
Opisthocomus, singular development of, 1885, 118; cristatus (*see* Harting, J. E.).
Orange Free State, a collection of birds from Kroonstad (*see* Symonds, E.)
Oreoctistes leucops, figured 1888, pl. ix.
Oriental birds (*see* Whitehead, J.).
Orinoco, a collection of bird-skins from the (*see* Berlepsch, H. v.).
'Ornis,' noticed, vol. i. no. 1, 1886, 90; nos. 2, 3, 1886, 519; no. 4, and vol. ii. nos. 1–3, 1887, 251; no. 4, and vol. iii. no. 1, 1887, 465; nos. 2, 3, 1888, 277; no. 4, and vol. iv. no. 1, 1888, 487.
'Ornithologist and Oologist,' noticed, vol. vii. pts. 22, 23, 1883, 218; vol. ix. no. 1, 1884, 344; vol. x. no. 5, 1885, 447.
Ornithologists' Congress at Vienna, protocol of the, noticed 1885, 320.
Oscines, remarks on two rare American (*see* Sclater, P. L.).
Ostinops oleagineus, figured 1883, pl. vii.; salmoni, figured 1883, pl. vi.
Ostrich, on the South-African (*see* Gurney, J. H.); paper on the (*see* Henke, K. G.).
Otocorys, the genus (*see* Dubois, A.); brandti and longirostris (*see* Dresser, H. E.); longirostris (*see* Seebohm, H.).
Otomela bogdanowi (*see* Bianchi, V.).
Oustalet, E., birds from Eastern Africa, noticed 1883, 106; birds from Somaliland, noticed 1883, 106; a new form of Gallinæ, noticed 1883, 106; birds collected by G. Revoil in Somali-land, noticed 1884, 107, and 1887, 113; ornithological notes, noticed 1884, 209; collection of birds made by M. E. Chantre in the Caucasus, noticed 1884, 459; birds from New Guinea, noticed 1884, 460; the architecture of birds, noticed 1884, 460; the

Ornithologists' Congress at Vienna, noticed 1886, 88; a new Parrot and Pigeon from New Guinea, noticed 1886, 373; a new Tetraophasis, noticed 1887, 112; two new birds from Cape Verd Islands, noticed 1887, 252; new or rare birds in the Paris Museum, noticed 1887, 253; new birds from the Congo, noticed 1887, 253; the fauna of Comoro (*see* Milne-Edwards, A., and Oustalet, E.); the birds of Grand Comoro Islands (*see* Milne-Edwards, A., and Oustalet, E.).
Owls, note on Eastern (*see* Gurney, J. H.).
Oxpecker, habits of the, 1887, 367.

Pachyrhamphus griseigularis, figured 1885, pl. viii.
Pacific, birds of the South (*see* Finsch, O.); birds of the Western (*see* MacFarlane, J. R. H.).
Padang, birds of (*see* Büttikofer, J.).
Pagenstecher, H. A., the birds of South Georgia, noticed 1885, 319.
Paisandú, birds of (*see* Gibson, E.).
Palacký, J., the distribution of birds, noticed 1886, 200.
Palæarctic birds (*see* Menzbier, M.).
Paláwan, birds of (*see* Sharpe, R. B.).
'Palestine,' 'The Fauna and Flora of' (*see* Tristram, H. B.).
Pallas's Sand Grouse (*see* Syrrhaptes paradoxus).
Palmén, J. A., on the migration of birds, noticed 1883, 107; on Siberian birds, noticed 1888, 277.
Pamir, birds of the Pamir Range (*see* Severtzoff, N. A.); birds of the Western (*see* Bianchi, V.).
'Pampas and the Andes' (*see* Crawford, R.).
Papua, on birds from (*see* Salvadori, T.).
Papuasia, ornithology of (*see* Salvadori, T.).
Paradise bird, habits of Raggi's, 1885, 463; new (*see* Finsch, O., and Meyer, A. B.); description of a new (*see* Salvin, O., and Godman, F. D.).
Paradisea decora, figured 1883, pl. viii.
Paradisornis rudolphi, figured 1886, pl. vii.
Paraguay, birds of (*see* Berlepsch, H. v.).
Pardalotus, the genus (*see* Stejneger, L.).
Paris Museum, new birds in (*see* Oustalet, E.).
Parker, H., observations on early nidification and migration in North-west Ceylon, 1883, 191; notes from Ceylon, 1886, 182.
Parker, T. J., paper on the skeleton of Notornis mantelli, noticed 1883, 107.
Parker, W. K., on the presence of claws in the wings of the Ratitæ, 1888, 124; note on long-faced birds, 1888, 217.
Parkinson, R., news of, 1883, 129.
Parrots, talking (*see* Russ, C.); xanthochroism in (*see* Meyer, A. B.); a new New Guinea (*see* Dubois, A.).
Parus, the genus (*see* Selys-Longchamps, E. de); cinerascens, figured 1885, pl. iv. and (*see* Slater, H. H.); cypriotes, figured 1888, pl. ii.; palustris breeding in Stirlingshire (*see* Evans, W.); sarawacensis (*see* Slater, H. H.); thruppi, figured 1885, pl. xi.
Passer domesticus, misdeeds of (*see* Gurney, J. H., jun., *and* Merriam, C. H.); italiæ, northern limit of (*see* Wallis, H. M.); saturatus (*see* Stejneger, L.).
Pastor roseus, breeding-habits of (*see* Wilson, C. W.).
Patella in birds (*see* Shufeldt, R. W.).
Patterson, B. L., letter on Syrrhaptes paradoxus in Ireland, 1888, 376.
Payne-Gallwey, R., 'The Fowler in Ireland,' noticed 1883, 218; 'The Book of Duck-Decoys,' noticed 1886, 519.
Pegu, list of birds of (*see* Oates, E. W.).
Pelecanus, the genus (*see* Dubois, A.).
Pelzeln, A. v., report on the progress of ornithology in 1881, noticed 1883, 219; birds from Ecuador, noticed 1884, 107; the birds of Central Africa collected by Emin Bey, noticed 1884, 108; letter announcing the 'Monographie der Pipridæ,' 1886, 377; birds from the Caucasus (*see* Radde, E., and Pelzeln, A. v.); the birds of Jan Mayan (*see* Fischer, F., and Pelzeln, A. v.).
Pelzeln, A. v., and Kohl, F. F., paper on birds from Ceylon, noticed 1887, 113.
Pelzeln, A. v., and Lorenz, L. v., the types in the Vienna Museum, noticed, part 1, 1887, 254; parts 2, 3, 1888, 367; part 4, 1888, 487.
Pelzeln, A. v., and Madarász, J. v., 'Monographie der Pipridæ,' Lief. 1, noticed 1888, 137.
Penguins, structure of the, 1887, 367; the osteology and arterial system of the (*see* Filhol, H.); osteology of the (*see* Menzbier, M.); note on the Emperor (*see* Sclater, P. L.).
Pernis, the species of the genus, inhabiting Japan (*see* Gurney, J. H.).
Persian Gulf, birds from the (*see* Sharpe, R. B.).
Peru, a new Ground-Finch from Western (*see* Sclater, P. L.); ornithology of (*see* Taczanowski, L.).

Peters, W. C. H., death of, 1883, 385.
Petropaulovsky, new birds from (*see* Ridgway, R.).
Peucæa mexicana (*see* Ridgway, R.).
Phacellodomus inornatus (*see* Ridgway, R.).
Phalaropus fulicarius in New Zealand (*see* Haast, J. v.).
Phasianus colchicus (*see* Seebohm, H.); komarowi (*see* Bogdanow, M.); torquatus and its allies (*see* Seebohm, H.).
Philetærus cabanisi, figured 1888, pl. vi.
Philippine Islands, report on the ornithology of the (*see* Kutter, Dr.); contributions to the ornithology of the (*see* Ramsay, R. G. Wardlaw-).
Phillips, E. Lort, collection of birds from Somali-land (*see* Shelley, G. E.).
Phœnicopterus antiquorum, note on the breeding of, 1883, 397.
Phonipara phæoptila (*see* Salvin, O., and Godman, F. D.).
Phrygilus gayi (*see* Ridgway, R.).
Phylloscopus borealis in Norway (*see* Collett, R.).
Picolaptes, a new Amazonian (*see* Ridgway, R.).
Picumnus, a new species of (P. jheringi) (*see* Berlepsch, H. v.).
Picus noguchii, figured 1887, pl. vii.
Pigeons, anatomy of (see Haswell, W. A.).
Pinto, S., list of birds collected by (*see* Sousa, J. A. de).
Pipreola whitelyi, figured 1886, pl. xii.
'Pipridæ,' 'Monographie der' (*see* Pelzeln, A. v., and Madarász, J. v.).
Platalea flavipes, breeding-place of (*see* Bennett, K. H.).
Platen, Dr., collections from the Moluccas (*see* Nehrkorn, A.).
Platycercus unicolor, rediscovery of, 1886, 385.
Pleasant Island, a new Reed-Warbler from (*see* Finsch, O.).
Ploceidæ, review of the (*see* Shelley, G. E.); 'Monograph of the' (*see* Bartlett, E.).
Ploceinæ, review of the (*see* Shelley, G. E.).
Ploceus angolensis, figured 1887, pl. i.; capitalis, figured 1887, pl. ii.; gurneyi, figured 1887, pl. i.; jacksoni, figured 1888, pl. vii.
Plotus, the species of the genus (*see* Tristram, H. B.); levaillanti, figured 1886, pl. iii.; melanogaster (*see* Cazin, M.).
Plover, description of a rare species of, from the Cameroons (*see* Shelley, G. E.); the Eastern Golden (*see* Charadrius fulvus).
Plumage, assumption by female birds of the male (*see* Gurney, J. H., jun.).
Podasocys montanus, osteology of (*see* Shufeldt, R. W.).
Podiceps occidentalis, breeding-plumage of (*see* Ridgway, R., *and* Tristram, H. B.).
Polar origin of life (*see* Tristram, H. B.).
Poliopicus ellioti (*see* Hargitt, E.).
Pollen, F. P. L., death of, 1836, 388.
Polyplectron, a new species of (*see* Oates, E. W.); helenæ, figured 1883, pl. v.
Pomerania, collections in (*see* Blasius, W.).
Portorico, a new Owl from (*see* Ridgway, R.).
Portugal, catalogue of the birds of (*see* Giraldes, A., *and* Reyes, V.); list of the birds of (*see* Tait, W. C.).
Porzana alfari (*see* Ridgway, R.).
Potanin, G. N., Adrianof's birds of Mongolia, noticed 1886, 188.
Prentiss, D. W., the Avifauna of Colombia (*see* Coues, E., and Prentiss, W. D.).
Principe, birds of the Ilha do (*see* Sousa, J. A. de).
Prionochilus johannæ, figured 1888, pl. iv.
Prjevalsky, N. M., on the birds of Northern Tibet, 1884, 242; Journey in Tibet, noticed 1885, 110; new expedition of, 1885, 330; on new species of Central-Asian Birds (translated from the Russian by E. Delmar Morgan), 1887, 401; departure of, to Lhassa, 1888, 380.
Procellariidæ, critical notes on (*see* Salvin, O.).
Prussia, birds of (*see* Hartert, E.).
Pryer, H., death of, 1888, 381.
Psaltriparus grindæ (*see* Ridgway, R.).
Psittacula, letter on Mr. Ridgway's paper on (*see* Hartlaub, G.).
Pseudocolaptes, a new (*see* Boucard, A.).
Ptarmigan, shedding of claws in the (*see* Stejneger, L., *and* Turner, L. M.).
Ptilopædes, the young of the (*see* Vian, J.).
Ptilopus melanocephalus in Borneo (*see* Everett, A. H.).
Pucrasia joretiana (*see* Heude, P. M.).
Puffinus kuhli (*see* Ridgway, R.); major and griseus (*see* Southwell, T.); obscurus in Norfolk (*see* Stevenson, H.).
Pyrenees, birds of the (*see* Saunders, H.); observations in the Eastern (*see* Backhouse, J.).
Pyromelana aurea, figured 1886, pl. ix.

Quails, abundance of, in 1885, 1886, 210; near Chipping Norton, 1886, 101.
Quiscalinæ (*see* Sclater, P. L.).
Quiscalus tenuirostris, figured 1884, pl. v.

Rabbetts, H. R., letter on the capture of Siurus noveboracensis in the Bay of Biscay, 1888, 494.
Radde, E., and Pelzeln, A. v., birds from the Caucasus, noticed 1884, p. 344.
Radde, G., news of, 1885, 237; 'Ornis Caucasica,' noticed 1885, 111; expedition in Transcaspia, 1886, 384; Transcaspian Expedition, 1887, 260; the Fauna of the South-western Caspian district, noticed 1886, 521.
Ragazzi, V., collection of birds from Shoa (*see* Salvadori, T.).
Raggi's Paradise Bird, habits of, 1885, 463.
Rallus jouyi (*see* Stejneger, L.).
Ramage, G. A., in Dominica, 1888, 380.
Ramsay, E. P., Notes on the Zoology of the Solomon Islands, Part IV., noticed 1883, 108; the Zoology of Lord Howe's Island, noticed 1883, 108; the eggs of five species of Fijian Birds, noticed 1883, 108; Australian Oology, Part I., noticed 1883, 108; two new Birds from the Solomon Islands, noticed 1883, 219; the type specimen of Carpophaga finschi, noticed 1883, 380; contributions to the Zoology of New Guinea, noticed 1884, 210; a new Collyriocincla, noticed 1885, 90; the birds of Mount Astrolabe, noticed 1886, 90.
Ramsay, R. G. Wardlaw-, Catalogue of the Tweeddale collections, 1884, 123; contributions to the ornithology of the Philippine Islands—No. 1, on two collections of birds from the vicinity of Manilla, 1884, 330; No. 2, on additional collections of birds, 1886, 155.
'Random notes on Natural History,' vol. iii. no. 2, noticed 1886, 373.
Rapaces diurnæ and Rapaces nocturnæ, geographical distribution of the, in Russia (*see* Menzbier, M.).
Ratitæ, claws in the wings of (*see* Parker, W. K.).
Rectes, note on the genus (*see* Sharpe, R. B.).
Reeve's Pheasant at home, 1886, 382.
Regulus calendula, plumage of (*see* Beckham, C. W.).
Reichenow, A., foreign cage-birds, noticed, parts 5–10, 1883, 381; part 11, 1885, 112; birds of Zoological Gardens, noticed 1884, 108; birds of Masai-Land (*see* Fischer, G. A., and Reichenow, A.).
Reid, S. G., letter on the nesting of Balearica chrysopelargus and Grus paradisea, 1883, 225; letter on an error in his paper on Saxicola monticola, 1884, 466; winter notes from Morocco, 1885, 241; the birds of Bermuda, noticed 1885, 447; notes on the birds of Teneriffe, 1887, 424, and 1888, 73; letter on Mr. Seebohm's paper on the birds of Natal (*see* Butler, E. A., Feilden, H. W., and Reid, S. G.); on variations in plumage of Saxicola monticola (*see* Butler, E. A., Feilden, H. W., and Reid, S. G.).
Reinhardt, J. T., obituary notices of, 1883, 131, 384.
Reischek, A., Zoological Researches made on the Chicken Islands, noticed 1883, 109; New-Zealand Ornithology, noticed 1886, 90.
Report of the Committee for Stations of Observation of the Birds of Germany, noticed 1883, 109; of the German Committee on the Migration of Birds, No. VII., noticed 1884, 344; of the Austro-Hungarian Committee on the Migration of Birds, noticed 1884, 345.
Revoil, G., Birds from Somali-land (*see* Oustalet, E.).
Reyes, V., the birds of Spain, Portugal, and the Balearic Islands, noticed 1886, 521.
Rhamphocœnus, the genus (*see* Sclater, P. L.).
Ridgway, R., Notes on some Costarican Birds, noticed 1883, 110; a new Fly-catcher and a supposed new Petrel from the Sandwich Islands, noticed 1883, 110; a new Owl from Portorico, noticed 1883, 110; two new Thrushes from the United States, noticed 1883, 111; two recent additions to the North-American Bird fauna, noticed 1883, 111; description of several new races of American Birds, noticed 1883, 111; the genera Harporhynchus and Methriopterus with a description of a new Genus of Miminæ, noticed 1883, 111; the Tree-creepers (Certhia) of Europe and North America, noticed 1883, 112; some new North-American Birds, noticed 1883, 219; Catalogue of the Birds of Costa Rica, noticed 1883, 381; a new Warbler from Santa Lucia, noticed 1883, 382; a supposed new Plover from Chili, noticed 1883, 382; the genus Tantalus, noticed

1883, 382; notes upon some rare species of Neotropical birds, 1883, 399; a new Petrel from Alaska, noticed 1883, 571; letter on Puffinus kuhli and the American birds in the International Fisheries Exhibition 1883, 578; on a new Carpodectes from Southwestern Costa Rica, 1884, 27; notes on three Guatemalan Birds, 1884, 43; on Motacilla ocularis and M. amurensis, noticed 1884, 109; new birds from Lower California, noticed 1884, 109; Anthus cervinus in Lower California, noticed 1884, 109; note on Merula confinis, noticed 1884, 110; birds from the Commander Islands and Petropaulovsky, collected by Dr. Leonhard Stejneger, noticed 1884, 108; descriptions of some new North-American birds, noticed 1884, 460; a new American Kingfisher, noticed 1884, 460; Psaltriparus grindæ, noticed 1884, 460; on the generic name Calodromas, noticed 1884, 460; review of the American Crossbills (Loxia), noticed 1884, 460; on Anas hyperboreus and Anser albatus, noticed 1884, 460; on the types of Muscicapa fulvifrons and Mitrephorus pallescens, noticed 1884, 460; the earliest name for Carpodacus hæmorrhous, noticed 1884, 460; new birds from the Commander Islands and Petropaulovsky, noticed 1885, 112; new Costa-Rican birds, noticed 1885, 113; the birds of the voyage of the 'Albatross,' noticed 1885, 113; a new Field Sparrow from New Mexico, noticed 1885, 114; note on Selasphorus torridus, noticed 1885, 231; Melanetta fusca in Alaska, noticed 1885, 231; a new Snow-Bunting from Alaska, noticed 1885, 231; a new species of Coot from the West Indies, noticed 1885, 231; new species of Birds from Cozumel Island, noticed 1885, 321; a new Red-shouldered Hawk from Florida, noticed 1885, 448; two Sparrows from the coast of California, noticed 1885, 448; on Œstrelata fisheri and Œ. defilippiana, noticed 1885, 448; variations of Icterus cucullatus, noticed 1885, 448; new species of Contopus from Tropical America, noticed 1885, 448; on Anser leucopareius, noticed 1885, 448; a new Warbler from Yucatan, noticed 1885, 448; two new birds from Costa Rica, noticed 1885, 448; three new Honey Creepers from the Lesser Antilles, with a synopsis of Certhiola, noticed 1885, 448; on Cathartes burrovianus and C. urubitinga, noticed 1885, 448; on Onychotes gruberi, noticed 1885, 448; the type of Buteo oxypterus, noticed 1885, 448; a new Heron from Central America, noticed 1885, 448; a new Hawk from Cozumel, noticed 1885, 448; on Peucæa mexicana, noticed 1885, 448; on the names of North-American birds, noticed 1886, 91; review of the American Golden Warblers, noticed 1886, 91; on Empidochanes fuscatus and Empidonax brunneus, 1886, 460; on the species of the genus Empidonax, 1886, 461; 'Manual of North-American Birds,' announced 1886, 532, noticed 1888, 137; Venezuelan Birds, noticed 1887, 113; on Œstrelata sandwichensis, noticed 1887, 114; on Buteo latissimus, noticed 1887, 114; a new Hæmatopus (H. galapagensis), noticed 1887, 355; a new Cyclorhis from Yucatan, noticed 1887, 356; a new Myiarchus from the Orinoco, noticed 1887, 356; a supposed hybrid Woodpecker, noticed 1887, 356; a new Picolaptes from the Lower Amazons, noticed 1887, 356; 'Nomenclature of Colours,' noticed 1887, 356; letter on the breeding-plumage of Podiceps occidentalis, 1887, 361; a new Plumed Partridge, noticed 1887, 466; a new Cotinga (C. ridgwayi), noticed 1888, 139; a new Spindalis (S. zena townsendi), noticed 1888, 139; the female of Carpodectes antoniæ, noticed 1888, 140; a new Porzana (P. alfari), noticed 1888, 140; on Ardea wuerdemanni, noticed 1888, 140; Trogon ambiguus breeding in Arizona, noticed 1888, 140; a new Dendrocolaptine bird (Berlepschia rikeri), noticed 1888, 140; a new Phacellodomus (P. inornatus), noticed 1888, 141; two new Megascops, noticed 1888, 141; Phrygilus gayi and allied species, noticed 1888, 367; 'Water-Birds of North America' (*see* Baird, S. F., Brewer, T. M., and Ridgway, R.).

'Ridgway Ornithological Club,' proceedings of the, 1884, 216, 361; 1885, 120, 237, 330; and 1887, 122; 'Bulletin' of the, Nos. 1, 2, noticed 1878, 466; reorganization of the (*see* Coale, H. K.).

Rio Grande do Sul, birds of (*see* Berlepsch, H. v., and Jhering, H. v.).

Rio Negro of Patagonia, birds of the (*see* Doering, A.).

Robson, C. H., the breeding-habits of

the Eastern Golden Plover (Charadrius fulvus), noticed 1885, 114.
Rochebrune, A. T. de, 'Faune de la Sénégambie,' Birds, noticed 1885, 322; v. Nitzsch, 1884, 360.
Rona, notes on North (*see* Harvie-Brown, J. A.).
Rosset, C. W., news of, 1884, 359.
Ross's Gull, on specimens of, 1883, 233.
Rousay, the birds of (*see* Buckley, T. E.).
Rüppell, E., death of, 1885, 238; obituary notice of, 1885, 336.
Russ, C., talking Parrots, noticed 1883, 382.
Russia, conspectus of the birds of (*see* Bogdanow, M.); geographical distribution of birds in European (*see* Menzbier, M.); migration routes of Russian birds (*see* Menzbier, M.); ornithological geography of (*see* Menzbier, M.).
Ruticilla tithys (*see* Harvie-Brown, J. A.); in Somersetshire (*see* Sclater, P. L.).
Rye, E. C., death of, 1885, 239.

Sabine's Gull in the Isle of Mull (*see* Bidwell, E.).
St. Kilda, ornithology of (*see* Dixon, C.); the Wren of (*see* Dresser, H. E.).
St. Petersburg, birds of (*see* Büchner, E.).
St. Thomas, birds of (*see* Barboza du Bocage, J. V.); additions to the Avifauna of (*see* Barboza du Bocage, J. V.); a new bird of the Family Fringillidæ from St. Thomas (*see* Barboza du Bocage, J. V.); catalogue of birds of the Island of (*see* Sousa, J. A. de).
Salak, birds of Mount (*see* Vorderman, A. G.).
Salanga, birds of the Island of (*see* Müller, A.).
Salvadori, T., monograph of the genus Casuarius, noticed 1883, 112; prodromus of the ornithology of Papuasia and the Moluccas, noticed 1883, 113; ornithology of Papuasia and the Moluccas, noticed 1883, 219; new genera and species, 1883, 395; letter on Struthio molybdophanes, 1884, 116; letter on the correct synonymy of Merula dactylopha, 1884, 214; remarks on the 8th and 9th volumes of the 'Catalogue of the Birds in the British Museum,' 1884, 322; letter on Ramsay's contributions to the Zoology of New Guinea, 1884, 353; a new Italian Falcon, noticed 1884, 461; list of works of, noticed 1884, 461; the birds of Shoa, noticed 1885, 232; on some Papuan, Moluccan, and Sulu Birds, 1886, 151; letter on the specific name flammea as applied to Strix, 1886, 377; letter on the proper generic name for the Nightingales, 1887, 119; list of Italian birds, noticed 1887, 357; birds from Sumatra and Nias Island, noticed 1887, 467; birds from Upper Burmah, noticed 1888, 278; birds from Tenasserim, noticed 1888, 278; on the occurrence of Ægialitis asiatica in Italy, noticed 1888, 368; a new Hemixus (H. sumatranus), noticed 1888, 368; on the dates of publication of Bonaparte's 'Iconografia della Fauna Italica,' 1888, 320; catalogue of a collection of birds from Shoa, made by Dr. V. Ragazzi, noticed 1888, 487.
Salvadori, T., and Giglioli, H. H., two new birds from Cochin China, noticed 1885, 450; a new Woodpecker, noticed 1886, 92.
Salvin, O., 'Monograph of the Petrels,' progress of, 1884, 123; on a collection of birds from the Island of Cozumel, 1885, 185; a list of birds obtained by Mr. Henry Whitely in British Guiana, 1885, 195, 291, 418, and 1886, 168, 499; letter on the publication and distribution of separate copies of papers, 1885, 328; description of a new species of the genus Setophaga, 1887, 129; a list of the birds of the Islands of the coast of Yucatan and of the Bay of Honduras, 1888, 241; critical notes on the Procellariidæ, 1888, 351; 'Biologia Centrali-Americana' (*see* Godman, F. D., and Salvin, O.).
Salvin, O., and Godman, F. D., discovery of a new Bird of Paradise, 1883, 131; description of a recently discovered species of Paradisea, 1883, 199; notes on the birds from British Guiana, noticed Part II. 1883, 203, Part III. 1884, 443; letter on Phonipara phæoptila and P. fumosa, 1885, 718; the gift of the collection of Messrs., to the British Museum, 1885, p. 236.
San Diego, birds of (*see* Emerson, W. O.).
San Domingo, birds of (*see* Cory, C. B.); a collection of birds from (*see* Tristram, H. B.).
Sandwich Islands, a new Flycatcher and a supposed new Petrel from the (*see* Ridgway, R.).
Sanford, W. A., letter on Syrrhaptes paradoxus in Somerset, 1888, 377.
Santa Lucia, a new warbler from (*see* Ridgway, R.).

Santander, the birds of (*see* Irby, L. H.).
Sapporo, autumn collecting at (*see* Blakiston, T. W.).
Sardinia, birds of (*see* Martorelli, G.).
Saunders, H., notes on the earliest available scientific name for the Woodchat Shrike, 1883, 83; letter on the birds of the Pyrenees, 1883, 229; on the birds exhibited in the International Fisheries Exhibition, 1883, 346; Yarrell's 'British Birds,' noticed Parts XV.–XX., 1884, 110; Parts XXI.–XXV., 1884, 462; Parts XXVI.–XXVIII., 1885, 232; Parts XXIX., XXX., 1885, 323; Vieillot's 'Analyse,' reprint of, noticed 1884, 347; notes on the birds of the Pyrenees, 1884, 365; reply to Dr. Günther's letter on the food of the Golden Oriole, 1886, 208; ornithology in the Colonial and Indian Exhibition, 1886, 468; 'List of British Birds,' noticed 1887, 467; 'Illustrated Manual of British Birds,' Parts I.–VII., noticed 1888, 488.
Saxicola cypriaca (*see* Homeyer, E. F. v.); deserti in Scotland (*see* Drummond Hay, H. M.), in Yorkshire (*see* Clarke, W. E.); isabellina in Cumberland (*see* Macpherson, H. A.); monticola, variations in the plumage of (*see* Butler, E. A., Feilden, H. W., and Reid, S. G.), note on (*see* Sharpe, R. B.); phillipsi, figured 1885, pl. xii.
Saxony, a grouse from (*see* Meyer, A. B.); reports on the ornithological stations of (*see* Meyer, A. B., and Helm, F.).
Scales, J., memoir of (*see* Newton, A.).
Schalow, H., Böhm's ornithological collections from East Africa, noticed 1884, 110; catalogue of the seventh exhibition of the Ægintha, noticed 1884, 345; a new Musophaga from Central Africa, noticed 1885, 114; the birds of Mark Brandenburg, noticed 1885, 451; paper on the Musophagidæ, noticed 1886, 374.
Schiavuzzi, Dr., northern birds in the Adriatic, noticed 1885, 451.
Schmidhofen (*see* Tschusi zu Schmidhofen).
Schperck, F., the birds of the Amur, noticed 1887, 254.
Sclater, P. L., on the genera Microbates and Rhamphocœnus of the Family Formicariidæ, 1883, 92; review of the species of the Family Icteridæ, noticed Part I. Cassicinæ, 1883, 145; Part II. Icterinæ, 1883, 352; Part III. Agelæinæ, 1884, 1; Part IV. Quiscalinæ, 1884, 149; note on the birds of Timor Laut, 1883, 232; note on the correct name of the American Cow-bird (Molothrus ater), 1883, 583; remarks on two rare American Oscines, 1884, 240; Wagler's six ornithological memoirs, reprint of, noticed 1884, 348; on the Muscicapine genus Chasiempis, 1885, 17; the Black Redstart (Ruticilla tithys) in Somersetshire, 1885, 237; on some little-known species of Tanagers, 1885, 271; on the generic term Simorhynchus, 1886, 211; on the claws and spurs of Bird's wings, 1886, 147, 300; description of a new Ground-finch from Western Peru, 1886, 258; 'Catalogue of the Birds in the British Museum,' noticed vol. xi. 1886, 375; vol. xiv. 1888, 488; remarks on the species of the genus Cyclorhis, 1887, 320; notes on the Emperor Penguin (Aptenodytes forsteri), 1888, 325; notes on the birds of Lomas de Zamora, Buenos Aires (*see* Withington, F.).
Sclater, P. L., and Hudson, W. H., 'Argentine Ornithology,' announced 1887, 124; vol. i. noticed 1888, 279.
Sclater, W. L., expedition to British Guiana, 1885, 340; a few notes on British Guiana and its birds, 1887, 315.
Sclavonia, excursion to (*see* Mojsisovics, A. v.), field notes from, with an annotated list of the birds of (*see* Clarke, W. E.).
Scolopax, review of the genus (*see* Seebohm, H.); rochusseni (*see* Meyer, A. B.); saturata (*see* Seebohm, H.).
Scops brucei (*see* Gurney, J. H.).
Scottish Ornithology, report on (*see* Harvie-Brown, J. A.).
Scully, J., the mammals and birds of Northern Afghanistan, noticed 1888, 141.
Secondaries, Sundevall's account of the number of, in birds (*see* Seebohm, H.).
Seebohm, H., notes on the birds of the Caucasus, 1883, 1; observations on the Pied Wagtails of Japan, 1883, 90; 'Siberia in Asia,' noticed 1883, 113; 'History of British Birds with coloured illustrations of their Eggs,' noticed, Part. I. 1883, 114; Parts II.–IV. 1884, 462; Parts V., VI., 1886, 92; letter on H. H. Slater's birds of the Yang-tze-kiang, 1883, 120; letter on the Stricklandian code of nomenclature, 1883, 121; remarks on the Thrushes of the Æthiopian Region, 1883, 164; notes on Hirundo rufula and its allies, with description of a supposed new sub-

species, 1883, 167; excursion to the Dobrutscha, 1883, 398; further contributions to the Ornithology of Japan, 1884, 30, 174, and 1885, 363; on the East-Asiatic Shore-lark (Otocorys longirostris), 1884, 184; on a collection of birds from Central China, 1884, 259; notes on a collection of birds from Lankoran, 1884, 425; on Tetrao griseiventris, a recently described species of Hazel Grouse from North-east Russia, 1884, 430; on the Cormorants of Japan and China 1885, 270; notes on the birds of the Upper Engadine, 1886, 24; a review of the species of the genus Cursorius, 1886, 115; a review of the species of the genus Scolopax, 1886, 122; a review of the species of the genus Himantopus, 1886, 224; on the Bullfinches of Siberia and Japan, 1887, 100; 'The Geographical distribution of the Charadriidæ,' announced 1887, 123, noticed 1888, 369; on Phasianus colchicus and its allies, 1887, 168; notes on the birds of the Loo-choo Islands, 1887, 173; on Horsfield's Woodcock (Scolopax saturata), 1887, 283; some remarks on Sundevall's account of the number of Secondaries of Birds, 1887, 286; notes on the birds of Natal and adjoining parts of South Africa, 1887, 336; on a new fossil bird from the Wealden, 1887, 476; further notes on the birds of the Loo-choo Islands, 1888, 232; on the Arctic Form of the Nutcracker (Nucifraga caryocatactes), 1888, 236; on Merula torquata and its geographical races, 1888, 309; on Phasianus torquatus and its allies, 1888, 312; on the birds observed by Dr. Bunge on his recent visit to Great Liakoff Island, 1888, 344; an attempt to diagnose the suborders of the great Gallino-Gralline group of birds by the aid of Osteological Characters alone, 1888, 415; on the identity of Ibis propinqua with Ibis melanocephala, 1888, 473.

Selasphorus rufus, habits of, 1886, 215; torridus (*see* Ridgway, R.).

Selby, P. J., 'Reminiscences of' (*see* Blomefield, L.).

Selys-Longchamps, E. de, letter on the 'Ibis List of British Birds,' 1884, 118; excursion to Heligoland, noticed 1884, 345; on the genus Parus, noticed 1884, 463.

'Sénégambie,' 'Faune de la' (*see* Rochebrune, A. T. de).

Setophaga, a new (*see* Salvin, O.); flavivertex, figured 1887, pl. iv.

Severtzoff, N. A., on the birds of the Pamir Range, 1883, 48; death of, 1885, 238; posthumous works of (*see* Menzbier, M.).

Sharpe, R. B., contributions to the Ornithology of New Guinea, Parts VIII., IX. On collections made by Mr. A. Goldie in the Astrolabe Mountains, noticed 1883, 115, and 1885, 115; note on Saxicola monticola, with especial reference to the observations of Majors Butler and Feilden and Capt. Reid, 1883, 337; 'Catalogue of the Birds in the British Museum,' noticed Vol. VII. 1883, 572, Vol. X. 1885, 323, and Vol. XII. 1888, 279; introduction to Gould's 'Birds of Asia,' 1884, 49; 'Zoological Record' for 1882, Aves, noticed 1884, 211; on a collection of birds made in Southern Palawan by Mr. E. Lemprière, 1884, 316; the correct name of the Indian Shámá, noticed 1884, 346; note on Strix oustaleti, noticed 1884, 346; Layard's 'Birds of South Africa,' Part VI., noticed 1884, 463; the birds of the Voyage of the 'Alert,' noticed 1885, 114; notes on Timeliidæ, noticed 1885, 115; a new Wren from Timor, noticed 1885, 115; a collection of birds made by F. Bohndorff in Equatorial Africa, noticed 1885, 115; departure of, for Simla, 1885, 334; account of the packing of the Hume collection, 1885, 456; on a collection of birds from the vicinity of Muscat, 1886, 162; on a collection of birds from Fao, in the Persian Gulf, 1886, 475; on a collection of birds from Bushire in the Persian Gulf, 1886, 493; notes on a collection of birds made by Mr. John Whitehead on the mountain of Kina Balu, in Northern Borneo, with descriptions of new species, 1887, 435; letter on Horsfield's types in the British Museum, 1887, 471; on a collection of birds from the Island of Paláwan, 1888, 193; further notes on Calyptomena whiteheadi, 1888, 231; further descriptions of new species of birds discovered by Mr. John Whitehead on the mountain of Kina Balu, Northern Borneo, 1888, 383; note on the genus Rectes, 1888, 435; on two apparently undescribed species of Sturnus, 1888, 438; on two new species of Starlings, 1888, 476; diagnoses of some new species of birds obtained on the mountain of Kina Balu by Mr. John Whitehead, 1888, 478; notes on the birds of Aden (*see* Yerbury, J. W.).

Sharpe, R. B., and Wyatt, C. W., 'Monograph of the Hirundinidæ,' announced 1885, 340; noticed Part I. 1886, 96; Part II. 1886, 201.
Shelley, G. E., on the Columbidæ of the Ethiopian Region, 1883, 258; a list of the birds collected by the late Mr. W. A. Forbes in the Niger Region, 1883, 538; on two new species of birds from Africa, 1884, 45; list of African birds, 1884, 123; review of the species of the Family Coliidæ, 1885, 307; on Mr. E. Lort Phillips's collection of birds from Somali-land, 1885, 389; a review of the species of the Family Ploceidæ of the Ethiopian Region, Part I. Viduinæ, 1886, 301; Part II. Ploceinæ, 1887, 1; description of a rare species of Plover from the Camaroons coasts, 1887, 417; on the Hornbills of the Ethiopian Region, 1888, 47; list of birds collected in Eastern Africa by Mr. F. J. Jackson, 1888, 287.
Shoa, birds of (*see* Giglioli, H. H., *and* Salvadori, T.).
Shore-lark, the East-Asiatic (*see* Seebohm, H.).
Shufeldt, R. W., contributions to the Anatomy of Birds, noticed 1883, 220; osteology of Cinclus americanus, noticed 1883, 220; osteology of Podasocys montanus, noticed 1884, 213; forms of the Patella in Birds, noticed 1885, 116; on the coloration in life of the naked skin-tracts on the Head of Geococcyx californicus, 1885, 325; osteology of Numenius longirostris and other Limicolæ, noticed 1885, 325; the skeleton of Geococcyx, noticed 1886, 376; osteology of Conurus carolinensis, noticed 1887, 114; observations upon the habits of Micropus melanoleucus, with critical notes on its plumage and external characters, 1887, 151; injuries to the beak of birds, noticed 1887, 254; list of papers of, noticed 1887, 468; on the skulls of Turkeys, noticed 1888, 141; birds' muscles useful in Classification, noticed 1888, 281, birds' sterna and skulls, noticed 1888, 370.
Siberia, Blue Magpies of, 1883, 233; birds from (*see* Bean, T. H.); birds from Eastern (*see* Bolau, H.); birds of (*see* Palmén, J. A.); Bullfinches of (*see* Seebohm, H.); 'Siberia in Asia' (*see* Seebohm, H.).
Siemiradzski, M., news of, 1884, 359.
Sierra del Tandil, birds of (*see* Holmberg, Dr.).
Simorhynchus, the generic term (*see* Selater, P. L.).
Simson, F. B., notes on the Pink-headed Duck (Anas caryophyllacea), 1884, 271.
Sinai, letter on the birds of the Desert of (*see* Hornby, H. P.).
'Sind,' 'Vertebrate Zoology of' (*see* Murray, J. A.).
Siphia erithacus, figured 1888, pl. iv.
Sitta whiteheadi, figured 1885, pl. ii.
Siurus noveboracensis, capture of, in the Bay of Biscay (*see* Rabbetts, H. R.).
Siwalik Birds (*see* Lydekker, R.).
Skulls of Birds (*see* Shufeldt, R. W.).
Skye, birds of (*see* Macpherson, H. A.).
Slater, H. H., letter on an error in his paper on Chinese Birds, 1883, 224; on two new birds from Borneo, 1885, 121; letter proposing the specific name sarawacensis for Parus cinereascens, 1885, 327.
Slater, H. H., and Carter, T., notes from Northern Iceland in the Summer of 1885, 1886, 45.
Slavonia (*see* Sclavonia).
Smart, G., 'Birds on the British List,' noticed 1887, 115.
Smith, A. C., 'The Birds of Wiltshire,' noticed 1888, 370.
Smith, W. W., on Hieracidea novæ-zealandiæ and H. brunnea, noticed 1885, 116.
Smithsonian Report, noticed, for 1882, 1885, 233, for 1883, 1886, 201.
Snares Islands, birds of (*see* Finsch, O.).
Snelleman, J. F., birds of Veth's 'Midden-Sumatra,' noticed 1886, 522.
Solomon Islands, contributions to the Zoology of (*see* Ramsay, E. P.); two new birds from (*see* Ramsay, E. P.).
Somali-land, birds from (*see* Oustalet, E.); birds collected by G. Revoil in (*see* Oustalet, E.); Mr. E. Lort Phillips's collection of birds from (*see* Shelley, G. E.).
Sousa, J. A. de, on Bucorax pyrrhops, noticed 1885, 116; birds collected by Srs. Capello and Ivens in Africa, noticed 1886, 522, and 1887, 255; list of birds collected by Serpa Pinto, noticed 1886, 523; the birds of Angola, noticed 1887, 255, and 1888, 371; the birds of Dahomey, noticed 1887, 468; the birds of Mozambique, noticed 1888, 142; the birds of the Ilha do Principe, noticed 1888, 142; two new birds from Angola, noticed 1888, 371; catalogue of the birds of the Island of St. Thomas, noticed 1888, 490.
Southwell, T., letter on Puffinus major and P. griseus, 1883, 228.

Spain, birds of (*see* Reyes, V.); Blue Magpies of, 1883, 233; winter notes in (*see* Chapman, A.).
Spanish Ornithology (*see* Chapman, A.).
Spermophila, new species of (*see* Lawrence, G. N.).
Spezia, the birds of (*see* Carazzi, D.).
Spheniscidæ, anatomy of the (*see* Watson, M.).
Spheniscus, osteology of (*see* Filhol, H.).
Spindalis exsul, figured 1885, pl. v.; zena townsendi (*see* Ridgway, R.).
Spitsbergen, breeding colony of Larus eburneus on (*see* Collett, R.).
Spoonbills, in Amsterdam (*see* Dalgleish, J. J.); in Holland (*see* Blaauw, F. E.).
Spurs of birds' wings (*see* Sclater, P. L.).
Stampfli, F. X., birds collected in Siberia by (*see* Büttikofer, J.).
'Standard Natural History' (*see* Kingsley, J. S.).
Starlings, two new species of (*see* Sharpe, R. B.).
Stearns, W. A., notes on the natural history of Labrador, noticed 1884, 111.
Stearns, W. A., and Coues, E., 'New England Bird-life," Part II., noticed 1883, 573.
Steere, J. B., in the Philippine Islands, 1888, 285.
Stejneger, L., on two new races of Myiadectes obscurus, noticed 1883, 115; synopsis of the West-Indian Myiadectæ, noticed 1883, 115; on some generic and specific appellations of North-American and European Birds, noticed 1883, 116; monograph of the Cygninæ, noticed 1883, 117; news of, 1883, 120; systematic arrangement of the American Turdidæ, noticed 1883, 383; new birds from Kamtschatka and the Commander Islands, noticed 1884, 346; on the shedding of the claws in the Ptarmigan and allied birds, 1885, 50; contributions to the Natural History of the Commander Islands, noticed 1885, 116, and 1888, 281; on the genus Cepphus, noticed 1885, 117; the use of trinomials in American Ornithology, noticed 1885, 233; on Lanius robustus, noticed 1885, 451; on Passer saturatus, noticed 1885, 452; the birds of the Commander Islands and Kamtschatka, noticed 1886, 201; letter on the review of his paper on Ornithological Explorations in Kamtschatka, 1886, 381; review of Japanese Birds, Part I. Woodpeckers, noticed 1887, 117, Part II. Tits and Nuthatches, and Part III. Rails, Gallinules, and Coots, noticed 1887, 359, Part IV. Synopsis of the genus Turdus, and Part V. Ibises, Storks, and Herons, noticed 1888, 142; the British Marsh Tit, noticed 1887, 118; description of Rallus jouyi, noticed 1887, 358; the genus Pardalotus, noticed 1887, 358; on Synthliborhamphus wumizusume, noticed 1887, 359; on Turdus alpestris and T. torquatus, noticed 1887, 359; the birds of the Liu Kiu Islands, noticed 1887, 360; on Brachyrhamphus perdix, noticed 1887, 468; birds of Kauai Island, Hawaii, noticed 1888, 143; Palæarctic Bullfinches, noticed 1888, 144; on Ianthœnas jouyi, noticed 1888, 144; 'Pars propatagialis musculi cucullaris,' noticed 1888, 281; a new Thrush (Turdus calænops) from Japan, noticed 1888, 281; birds collected in the Commander Islands by (*see* Ridgway, R.).
Sterna of birds (*see* Shufeldt, R. W.).
Sternum in birds, development of, 1885, 462.
Stevenson, H., occurrence of Puffinus obscurus in Norfolk, noticed 1883, 574; death of, 1888, 498.
Stirlingshire, Parus palustris breeding in (*see* Evans, W.).
Stolzmann, J., news of 1883, 120, and 1884, 359.
Storms, E., birds collected at Lake Tanganyka by (*see* Dubois, A., *and* Hartlaub, G.).
'Stray Feathers,' 1887, 125.
Striges, classification of the (*see* Beddard, F. E.).
Strix flammea (*see* Salvadori, T.); oustaleti (*see* Sharpe, R. B.).
Struthio molybdophanes (*see* Finsch, O., *and* Salvadori, T.).
Struthiolithus chersonensis, eggs of (*see* Nathusius, W. v.).
Sturnus, two undescribed species of (*see* Sharpe, R. B.).
Styan, F. W., on a new species of Trochalopteron from China, 1887, 166; on a collection of birds from Foochow, 1887, 215.
Styria, Anas sponsa in (*see* Tschusi zu Schmidhofen, v.).
Sula Sgeir, birds of the Islands of (*see* Swinburne, J.).
Sulu, birds from (*see* Salvadori, T.).
Sumatra, birds from (*see* Salvadori, T.);

birds of (*see* Snelleman, J. F.); birds of the island of (*see* Nicholson, F.); birds of Padang (*see* Büttikofer, J.).
Sumichrast, A. L. J. F., death of, 1883, 584.
Sundevall, C. J., on the wings of Birds, translated from the Swedish by W. S. Dallas, 1886, 389.
'Sutherland, Caithness and West Cromarty,' 'The vertebrate Fauna of' (*see* Harvie-Brown, J. A., and Buckley, T. E.).
Sutherlandshire, vertebrate fauna of (*see* Buckley, T. E., and Harvie-Brown, J. A.).
Suya albigularis, figured 1883, pl. x.
Swainson's Warbler (*see* Brewster, W.).
Sweden, collections in (*see* Blasius, R.).
Swinburne, J., notes on the birds of the Islands of Sula Sgeir, noticed 1884, 347.
Swinburne, S., on Oceanic birds, noticed 1887, 255.
Swinhoe, C., and Barnes, H., on the birds of Central India, Parts 1, 2, noticed 1885, 52, 124.
Swiss Birds, notes on (*see* Wilson, S. B.).
Sylvia melanocephala in Great Britain and S. nisoria in Malta (*see* Dresser, H. E.).
Symonds, E., notes on a collection of birds from Kroonstad in the Orange Free State, communicated by J. H. Gurney, 1887, 324.
Synthliborhamphus wumizusume (*see* Stejneger, L.).
Syrnium whiteheadi, figured 1888, pl. iii.
Syrrhaptes paradoxus, the new irruption of, 1888, 379; in Hungary (*see* Madarász, J. v.); in Norway (*see* Collett, R.); in Jersey (*see* Dresser, H. E.); at Loughborough (*see* Millard, C. S.); in Ireland (*see* Patterson, R. L.); in Somersetshire, (*see* Sanford, W. A.); in Holland (*see* Blaauw, F. E.); in the Outer Hebrides (*see* Campbell-Orde, J. W. P.); 'The New Game bird; Pallas's Sand Grouse' (*see* Tegetmeier, W. B.).

Tachyphonus nattereri, figured 1885, pl. vi.
Taczanowski, L., 'Ornithologie du Pérou,' progress of, 1883, 232, noticed Vol. I. 1884, 463; Vol. II. 1885, 234; Vol. III. 1886, 202; Tables, 1887, 118; note on the European Nuthatch, noticed 1883, 574; the birds of Kamtschatka collected by Dr. Dybowski, noticed 1883, 575; birds collected by Dr. Dybowski in Kamtschatka and the Commander Islands, noticed 1884, 213; abnormal moults, noticed 1885, 452; the birds of Ussuria, noticed 1886, 523; description d'une nouvelle espèce du genre Emberiza, 1888, 317; contributions to the Ornithological Fauna of the Caucasus, noticed 1888, 490; the birds of the Kamtschatka and the Commander Islands (*see* Dybowski, B., and Taczanowski, L.).
Tait, W., the birds of Portugal, noticed 1885, 452; a list of the birds of Portugal, 1887, 77, 182, 302, 372.
Tanagers, little-known species of (*see* Sclater, P. L.).
Taneré, C. A., birds of the Altai (*see* Homeyer, E. F. v., and Taneré, C. A.).
Tanganyka, birds of Lake (*see* Dubois, A., *and* Hartlaub, G.).
Tantalus (*see* Ridgway, R.).
Tarim, bird of Upper (*see* Menzbier, M.).
Tasmania, bird notes from, 1884, 472; Acanthize of (*see* Legge, W. V.).
Tatare, the position of the genus (*see* Tristram, H. B.).
Taylor, E. C., letter on the occurrence of Coccyzus americanus in Italy, 1884, 114; letter on Coccyzus americanus and Porphyrio alleni in Italy, 1884, 214; ornithological notes from Egypt and Athens, 1886, 378.
Tegetmeier, W. B., 'The new game bird, Pallas's Sand Grouse,' noticed 1888, 490.
Telephonus jamesi, figured 1885, pl. x.
Tenasserim, birds from (*see* Salvadori, T.).
Teneriffe, birds of (*see* Reid, S. G.).
Tenimber Islands, birds from (*see* Büttikofer, J.).
Tetrao griseiventris, figured 1884, pl. xi. (*see* Seebohm, H.).
Tetraophasis, a new (*see* Oustalet, E.).
Tetrastes gryseiventris (*see* Menzbier, M.).
Texas, the zoological position of (*see* Cope, E. D.).
Tharrhaleus pallidus, figured 1887, pl. ix.
Thriponax, the genus (*see* Hargitt, E.); hargitti, figured 1884, pl. viii.
Thripophaga sclateri, figured 1883, pl. xiii.
Tibet, two new birds from (*see* Madarász, J. v.); journey in (*see* Prjevalsky, M. N.); birds of Northern (*see* Prjevalsky, M. N.).
Timeliidæ, notes on (*see* Sharpe, R. B.).

Timor Laut, birds of (*see* Sclater, P. L.); a new wren from (*see* Sharpe, R. B.).
Totanus haughtoni, figured 1883, pl. iv. and (*see* Harting, J. E.).
Toula, the avifauna of (*see* Menzbier, M.).
Trachyphonus, a new species of (*see* Hartlaub, G.); shelleyi, figured 1886, pl. v.
Trans-Caspian Regions, birds of (*see* Zaroudnoi, M., and Menzbier, M.).
Transvaal, birds of the (*see* Ayres, T., *and* Ayres, W.).
Traquair, R. H., biological nomenclature, noticed 1885, 325.
Travancore, letter on the birds of (*see* Davison, W.).
Travers, W. T. L., the organic productions of New Zealand, noticed 1885, 117.
Treacher, W. H., on the habits and range of Bulwer's Pheasant, 1888, 413.
'Trinidad' (*see* De Verteuil, L. A. A.).
Trinomials in American Ornithology (*see* Stejneger, L.).
Tristram, H. B., on the position of the Acrocephaline genus Tatare, with descriptions of two new species of the genus Acrocephalus, 1883, 38; notes on the birds of Fanning Island, Pacific, 1883, 46; 'Fauna and Flora of Palestine,' announced 1883, 130; noticed 1884, 464; on a collection of San Domingo Birds, 1884, 167; notes on the eighth volume of the 'Catalogue of Birds in the British Museum,' 1884, 392; on two birds from Norfolk Island, 1885, 48; on a small collection of Birds from Korea, 1885, 194; on the species of the genus Plotus and their distribution, 1886, 41; on the breeding-plumage of Podiceps occidentalis, 1887, 98; on an apparently new species of Zosterops from Madagascar, 1887, 234; the Polar origin of life considered in its bearing on the distribution and migration of birds, Part I., 1887, 236, Part II., 1888, 204; letters on the breeding-plumage of Podiceps occidentalis, 1887, 258, and 1888, 148; on an apparently new species of Zosterops from the Island of Anjuan, 1887, 369; notes on a small collection of birds from Newala, East Africa, 1888, 265; news of, in the Canary Islands, 1888, 380.
Trochalopteron, a new, from China (*see* Styan, F. W.); cinereiceps, figured 1887, pl. vi.
Trochalopterum cinnamomeum (*see* Davison, W.).
Trochilidæ, new species of (*see* Berlepsch, H. v.); of Colombia (*see* Berlepsch, H. v.), 'Supplement to the' (*see* Gould, J.).
Trochilus colubris (*see* Macfarland, W.).
Troglodytes hirtensis, figured 1885, pl. iii.
Trogon ambiguus breeding in Arizona (*see* Ridgway, R.).
Tschusi zu Schmidhofen, v., on Acredula caudata and A. rosea, noticed 1885, 326; Anas sponsa in Styria, noticed 1885, 326.
Tschusi zu Schmidhofen, v., and Homeyer, E. F. v., birds of Austro-Hungary, noticed 1883, 575.
Tulliallan, birds of (*see* Dalgleish, J. J.).
Turati, E., the collection of, 1884, 362, and 1888, 150.
Turdidæ, American (*see* Stejneger, L.).
Turdus alpestris (*see* Stejneger, L.); celænops (*see* Stejneger, L.); torquatus (*see* Stejneger, L.).
Turkeys, skulls of (*see* Shufeldt, R. W.).
Turner, L. M., Lagopus mutus and its allies, noticed 1883, 221; letter corroborating Stejneger's remarks on the shedding of the Claws in the Ptarmigan, 1885, 117.
Tympanistria, a new (*see* Hartlaub, G.).
Tyrannidæ, new species of (*see* Lawrence, G. N.).

Uist, Cypselus apus in North (*see* Campbell-Orde, J. W. P.); Larus minutus in North (*see* Harvie-Brown, J. A.).
Umziella's Country, birds of (*see* Ayres, W.).
United States, extract from report of the National Museum, 1884, 121; national bird collection at Washington, 1885, 119; ornithology in the (*see* Le Moine, J. M.); two new Thrushes from the (*see* Ridgway, R.).
Urospizias jardinei, figured 1887, pl. iii. (*see* Gurney, J. H.).
Uruguay, a collection of birds and eggs from (*see* Dalgleish, J. J.); birds of Paisandú (*see* Gibson, E.).
Ussuria, birds of (*see* Taczanowski, L.).

Venezuela, birds of (*see* Ridgway, R.).
Veth's 'Midden-Sumatra' (*see* Snelleman, J. F.).
Vian, J., the young in down of the

Ptilopædes, noticed 1887, 256; Asiatic Warblers in Heligoland, noticed 1887, 257.
Viduinæ (*see* Shelley, G. E.).
Vieillot's 'Analyse,' reprint by Howard Saunders, noticed 1884, 347.
Vienna, protocol of the ornithologists' congress at, noticed 1885, 320; remarks on the ornithologists' congress at (*see* Blasius, R.; Giglioli, H. H.; Harvie-Brown, J. A.; *and* Oustalet, E.).
Vienna Museum, 'Annalen' of the, Band i. No. i., noticed 1886, 364; types in the (*see* Pelzeln, A. v., and Lorenz, T. v.).
Vila, E. Vayreda y, the ornithology of Gerona, noticed 1885, 234.
Vorderman, A. G., Batavian Birds, noticed Parts I., II., 1883, 118; Part III., 1883, 221; Part IV., 1884, 111; Part V., 1884, 348; Part VI., 1885, 326; Chlorura hyperythra, noticed 1883, 384; list of the birds of Java, noticed 1885, 326; birds of Mount Salak, West Java, noticed 1886, 376; the birds of West Java, noticed 1887, 118; the birds of Borneo, noticed 1887, 257.

Wagler's Six ornithological memoirs, reprint by P. L. Sclater, noticed 1884, 348.
Wagtails, Pied Wagtails of Japan (*see* Seebohm, H.).
Waigiou, the birds of (*see* Nehrkorn, A.).
Wallis, H. M., notes on the Northern limit of the Italian Sparrow (Passer italiæ), 1887, 454.
Walney Island, birds of (*see* Durnford, W. A.).
Waterhouse, F. H., 'The dates of publication of Gould's Works,' noticed 1886, 97.
Watson, M., report on the anatomy of the Spheniscidæ, noticed 1884, 113.
'Weaver-Birds,' 'Monograph of the' (*see* Bartlett, E.).
Wells, J. G., list of the birds of Grenada, West Indies, noticed 1887, 118; catalogue of the birds of Grenada, West Indies, noticed 1887, 360.
Westland, birds of (*see* Stejneger, L.).
White, E. W., 'Cameos from the Silver Land,' vol. ii., noticed 1883, 118; death of 1885, 239; obituary notice of 1885, 335.
Whitehead, J., ornithological notes from Corsica, 1885, 24; news of, in Palawan, 1888, 380; notes on some oriental birds, 1888, 409; birds of Mount Kina Balu (*see* Sharpe, R. B.).
Whitely, H., news of, 1883, 129; letter on the birds of British Guiana, 1884, 357; collection of birds from British Guiana (*see* Salvin, O.).
Widman, O., bird migration in the Mississippi Valley (*see* Cooke, W. W.).
Wilson, C. W., letter on the breeding-habits of the Locust Bird (Pastor roseus), 1883, 575.
Wilson, S. B., notes on some Swiss birds, 1887, 130.
'Wiltshire,' 'Birds of' (*see* Smith, A. C.).
Winge, O., fossil birds from Brazil, noticed 1888, 282.
Wings of birds, 1886, 212, figured 1886, pls. x., xi., and (*see* Sundevall, C. J.); claws and spurs on the (*see* Sclater, P. L.).
Withington, F., on the birds of Lomas de Zamora, Buenos Aires, Argentine Republic, with notes by P. L. Sclater, 1888, 461.
Woodchat Shrike (*see* Saunders, H.).
Woodcock, work on the (*see* Hoffmann, J.).
Woodford, C. M., departure of, for the South Pacific, 1888, 380.
Woodpeckers, notes on (*see* Hargitt, E.); of Japan (*see* Stejneger, L.); a new (*see* Menzbier, M.); a supposed Hybrid (*see* Ridgway, R.).
Wray, L., jun., return of, from the Malay Peninsula, 1888, 285.
Wray, R. S., on the structure of the Barbs, Barbules, and Barbicels of a typical Pennaceous Feather, 1887, 420.
Wren, a new, from Timor (*see* Sharpe, R. B.); of St. Kilda (*see* Dresser, H. E.).
Wright, C. A., letter on a Greenland Falcon shot at Lewes, 1883, 119.
Wryneck, a new (*see* Hartlaub, G.).
Wyatt, C. W., 'Monograph of the Hirundinidæ' (*see* Sharpe, R. B., and Wyatt, C. W.).

Xanthochroism in Parrots (*see* Meyer, A. B.).
Xenerpestes minlosi, figured 1886, pl. iv.

Yarrell, W., 'Reminiscences of' (*see* Blomefield, L.); 'British Birds' (*see* Saunders, H.).
Yerbury, J. W., on the birds of Aden

and the neighbourhood, 'with notes by R. B. Sharpe, 1886, 11.
Yezo, birds of (*see* Blakiston, T. W.).
Yucatan, two new birds from (*see* Lawrence, G. N.); a new Warbler from (*see* Ridgway, R.); birds of the Islands of the Coast of (*see* Salvin, O.).

Zamora, birds of Lomas de (*see* Withington, F.).
Zapornia spilonota, note on, 1888, 285.
Zaroudnoi, M., and Menzbier, M., birds of the Trans-Caspian Regions, noticed 1887, 257.
'Zeitschrift für die gesammte Ornithologie' (*see* Madarász, J. v.).
Zeledon, J. C., catalogue of the birds of Costa Rica, noticed 1883, 221, and 1885, 452.
Zoological Society's Gardens, new birds in the, 1884, 360.
Zosterops, an apparently new species of, from the Island of Anjuan (*see* Tristram, H. B.); an apparently new species of, from Madagascar (*see* Tristram, H. B.), hovarum and prætermissa, figured 1887, pl. xi.; notes on some species of (*see* Newton, A., and Newton, E.).

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I.—*Notes on Woodpeckers.*—No. XIV. *On the Genus* Gecinus.

By Edward Hargitt, F.Z.S.

Since Malherbe's monograph appeared new species have been added to the present genus, and through the earnest labours of many ornithologists a more thorough knowledge of the species comprised in it has been arrived at, while certain *Gecini* supposed to be distinct have been allotted to their true position. It is with the view of placing before the readers of 'The Ibis' the present state of our acquaintance with the genus that I have undertaken its revision, adding a few notes which may possibly prove interesting. I have included in the genus *Gecinus* three species which are generally placed in the genus *Chrysophlegma* of Gould, viz. *G. chlorolophus*, *G. chlorigaster*, and *G. puniceus*, as I am of opinion that their true affinity is with the *Gecini*, and not with the other yellow-naped species composing the genus *Chrysophlegma*. Count Salvadori places *G. puniceus* in his genus *Callolophus*, but I think its characters are those of a *Gecinus*.

Reichenbach, in his 'Handbuch,' includes nine species in the present genus. Of these *G. karelini* is generally admitted to be nothing more than *G. viridis*; while *G. xanthopygius* is,

in my opinion, only *G. striolatus* of Blyth, and this is the view taken by Malherbe. The latter author, in his monograph, enumerates twenty-four species under the genus *Chloropicus*, sixteen of which belong to the Old World and eight to the continent of America. Of the Old-World species I would eliminate from the present genus *C. mentalis* and *C. miniatus*, and place them in the genus *Chrysophlegma*, and refer *C. karelini* to our common Green Woodpecker, *G. viridis*; the New-World species I would include in the genus *Chloronerpes*. Sundevall, in his 'Conspectus,' under Tribus 19, PICI VIRIDES, includes ten species; of these I have united *G. tancola* and *G. guerini*. Gray, in his 'Hand-list,' enumerates seventeen *Gecini*, and among these he includes the yellow-naped species placed by modern authors in the genera *Chrysophlegma* and *Callolophus*. I unite his *G. tancola* and *G. guerini*, and consider that *G. karelini* must sink into a synonym of *G. viridis*.

In the present genus I include sixteen species. Of these, three have been described since the time of Malherbe, viz. *G. sharpii* of Saunders, *G. erythropygius* of Elliot, and *G. gorii*, recently described by myself and subspecifically distinct from *G. squamatus*. Dr. Menzbier (Bull. Nat. Mosc. 1886, pt. 1, p. 440) has described a *Gecinus* from the Murgab river, which he names *G. flavirostris*; but from the description I cannot see in what respect it differs from *G. squamatus*, as he has omitted to give the characters (if any) which distinguish it from the latter species. Under the heading of *G. squamatus* I have entered more fully into this question, and have endeavoured to show that Dr. Menzbier's *G. flavirostris* is not the same as my *G. gorii*, whatever else it may prove to be.

I have done my best to make the synonymy in this paper as complete as possible, and to describe the various plumages of each species, as far as the series of specimens at my command would permit. For want of a perfect series of the young, I have been compelled to omit them in the key. In the geographical distribution appended to each species I have been enabled, in some instances, to show an extended range and where this has been done I have specified the

birds which seem to me to warrant the extension. In addition to the British Museum specimens (including the Hume collection) I have had my own large series to aid me in the conclusions I have come to, which have been arrived at after several years' work. I am indebted to Captain Bingham and to Mr. Eugene Oates for many of the specimens which have served to make this paper fairly complete as regards the various stages of plumage described, and I have also to thank these gentlemen for many valuable notes.

Key to the Species.

a. Rump green or yellow.
  a^1. No yellow nuchal crest; never any red on the wings.
    a^2. Under surface of the body perfectly uniform; face grey or slightly tinged with green.
      a^3. Nape black; occiput black, or grey striped with black.
        a^4. Tail black, the central pair of feathers with greyish spots upon both webs; malar stripe and bill black.
          a^5. Crown red ..... *occipitalis*, ♂ ad.
          b^5. Crown black, like the occiput and nape ..... *occipitalis*, ♀ ad.
        b^4. Tail entirely crossed by greyish bars; malar stripe black; lower mandible yellow at the base.
          c^5. Crown red ..... *guerini*, ♂ ad.
          d^5. Crown and occiput grey, striped with black, sometimes almost entirely black ..... *guerini*, ♀ ad.
      b^3. Nape grey.
        c^4. Crown red ..... *canus*, ♂ ad.
        d^4. Crown and occiput grey ..... *canus*, ♀ ad.
    b^2. Under surface of the body more or less distinctly varied on the abdomen, flanks, and thighs with somewhat V-shaped or crescent-shaped dusky markings.
      c^3. Face grey, crossed by a whitish stripe from the base of the upper mandible to the upper extremity of the black malar stripe.

e^1. Crown, occiput, and nape red ..... *vaillanti*, ♂ ad.
f^1. Crown and occiput grey striped with black, nape red ..... *vaillanti*, ♀ ad.
d^3. Face grey, without white stripe from the base of the upper mandible; crown, occiput, and nape red.
g^1. Malar stripe red ..... *sharpii*, ♂ ad.
h^1. Malar stripe black ..... *sharpii*, ♀ ad.
e^3. Anterior half of face black; crown, occiput, and nape red.
i^1. Malar stripe red ..... *viridis*, ♂ ad.
j^1. Malar stripe black ..... *viridis*, ♀ ad.
c^2. Throat, chest, and sometimes upper breast uniform, remainder of the underparts varied with V-shaped, crescentic, or squamate markings of black, brown, or brownish olive.
f^3. Underparts below the breast with somewhat V-shaped or crescent-shaped markings of black; malar stripe red.
k^1. Crown and occiput red, this colour spreading on to the black nape .... *awokera*, ♂ ad.
l^1. Crown grey varied with black, occiput red, nape black ..... *awokera*, ♀ ad.
g^3. Throat and chest olivaceous ashy; underparts below the chest covered with squamate markings of black; tail entirely barred; malar patch striped black and white.
m^1. Wing-coverts and scapulars, as well as the back, uniform; the squamate markings on the underparts broad; tail black, narrowly barred with creamy white, the black interspaces showing clearly on the underside; the white bars on the wings much narrower than the black.
e^5. Crown, occiput, and nape red .... *squamatus*, ♂ ad.
f^5. Crown, occiput, and nape black .. *squamatus*, ♀ ad.
n^4 (*pale form*). Wing-coverts and scapulars barred with darker green; the squamate markings on the underparts extremely narrow; tail creamy white, narrowly barred with brownish black, these bars showing faintly

on the under side, which is washed with golden yellow; the light bars on the quills as broad, or even broader, than the black.

g^3. Crown, occiput, and nape red .... *gorii*, ♂ ad.

h^3. Crown, occiput, and nape black .. *gorii*, ♀ ad.

h^2. Throat and chest ochreous yellow, sometimes tinged with green; underparts below the chest covered with elongated squamate markings of blackish brown, and having a somewhat striped appearance; tail black, the central feathers with oblique bar-like spots on the base of the inner web; malar patch black, striped with white.

o^4. Crown, occiput, and nape red ..... *vittatus*, ♂ ad.

p^4. Crown, occiput, and nape black .... *vittatus*, ♀ ad.

d^2. The throat (generally), the chest, and remainder of the underparts always covered with elongated squamate markings of blackish or brownish olive.

i^3. Tail nearly uniform, the feathers having at most a few bar-like spots of buff or brownish white at the base of both webs, these being almost concealed by the coverts, the outer large feather minutely spotted on the external web; malar patch black, striped with white; throat sometimes uniform.

q^4. Crown, occiput, and nape red ..... *viridanus*, ♂ ad.

r^4. Crown, occiput, and nape black .... *viridanus*, ♀ ad.

j^3. Tail more barred, the bars on the base of the central pair of feathers only partly hidden by the coverts, the outer large feather distinctly barred upon both webs along their whole length, and showing clearly on the underside; malar patch greyish white, very narrowly striped with dusky olive or black; throat never uniform.

s^4. Crown, occiput, and nape red ..... *striolatus*, ♂ ad.

t^4. Crown, occiput, and nape black .... *striolatus*, ♀ ad.

b^1. With yellow nuchal crest, and with more or less red on the wings.

e^2. Wing-coverts and outer webs of quills

(except the apical portion of the primaries) crimson.

k^3. Malar stripe crimson ..... *puniceus*, ♂ ad.

l^3. Without malar stripe ..... *puniceus*, ♀ ad.

f^2. Wing-coverts and quills green externally, the outer webs with a broad stripe of dull red running parallel with the shaft.

m^3. Crown, occiput, and malar stripe crimson ..... *chlorigaster*, ♂ ad.

n^3. Occiput (only) crimson; no red malar stripe ..... *chlorigaster*, ♀ ad.

g^2. Wing-coverts entirely green.

o^3. Base of the forehead, and a stripe bordering the forehead and occiput, and slightly indicated on the edge of the crown, crimson, this colour sometimes spreading on to the lower central feathers of the occiput; malar stripe red. *chlorolophus*, ♂ ad.

p^3. Occiput (only) bordered with crimson; no red malar stripe ..... *chlorolophus*, ♀ ad.

b. Rump red; chin, throat, sides of the neck, and the upper chest yellow; underparts with dusky squamate markings; head black, with or without a yellow or yellowish-white stripe behind the eye.

c^1. Crown red ..... *erythropygius*, ♂ ad.

d^1. Without red crown ..... *erythropygius*, ♀ ad.

1. Gecinus occipitalis.

Picus occipitalis, Vig. P. Z. S. 1830, p. 8; Gould, Cent. B. Himal. M. pl. xlvii. (1832); McClell. P. Z. S. 1839, p. 165; Blyth, J. A. S. B. x. p. 922 (1841); id. op. cit. xii. p. 1002 (1843); id. op. cit. xiv. p. 191 (1845); Sundev. Consp. Av. Picin. p. 61 (1866); Giebel, Thes. Orn. iii. p. 171 (1876).

Picus barbatus, Gray, Hardw. Ill. Ind. Zool. i. pl. xxxi. fig. 2, ♀ (1830–32).

Malacolophus occipitalis, Swains. Classif. B. ii. p. 308 (1837).

Brachylophus occipitalis, Hodgs. Icon. ined. in Brit. Mus. nos. 149, 150 (♂ ♀); id. in Gray's Misc. p. 85 (1844).

Gecinus occipitalis, Gray, Cat. Mamm. &c. Nepal pres. Hodgs. p. 116 (1846); id. Gen. B. ii. p. 438 (1846);

Blyth, Cat. B. Mus. As. Soc. p. 58, no. 263 (1849); Bp. Consp. Gen. Av. i. p. 127 (1850); id. Consp. Volucr. Zygod. p. 10 (1854); Reichenb. Handb. Scans. Picinæ, p. 349, no. 798, pl. dcxxi. figs. 4139, 4140 (1854); Horsf. & Moore, Cat. B. Mus. E.I. Co. ii. p. 661, no. 963 (1856–58); Jerd. B. Ind. i. p. 287 (1862); Tytler, Ibis, 1868, p. 202; Gray, List Picid. Brit. Mus. p. 73 (1868); Bulger, Ibis, 1869, p. 156; Godwin-Austen, J. A. S. B. 1870, p. 267; Gray, Hand-l. B. ii. p. 191, no. 8674 (1870); Cock & Marshall, Str. F. 1873, p. 350; Hume, op. cit. 1874, p. 472; id. & Oates, op. cit. 1875, p. 70; Blyth & Wald. B. Burm. p. 76 (1875); Godwin-Austen, J. A. S. B. 1876, p. 70; Hume, Str. F. 1877, p. 26; id. & Davison, op. cit. 1878, pp. 137 & 501; Oates, op. cit. 1879, p. 165; Scully, tom. cit. p. 248; Bingh. op. cit. 1880, p. 164; Oates, op. cit. x. p. 191 (1882); Salv. Cat. Strickl. Coll. p. 390, no. 1908 (1882); Oates, B. Brit. Burm. ii. p. 51 (1883); Marshall, Ibis, 1884, p. 410.

Chloropicos occipitalis, Malh. N. Classif. Mém. Acad. Metz, 1848–49, p. 351.

Chloropicus occipitalis, Malh. Monogr. Picid. ii. p. 129, pl. lxxvii. figs. 4, 5 (1862).

Gecinus striolatus (pt.), Anderson, Yunnan Exped. i. p. 585 (1878).

Adult male. Above, including scapulars, uniform yellowish olive; wing-coverts uniform glossy golden olive; bastard-wing and primary-coverts dusky black, edged externally with dull green and spotted with greyish; quills dusky black, the outer webs of the primaries margined at the base with dull green, and notched along the whole length with white, those of the secondaries partially or entirely glossy golden olive; inner webs spotted or deeply notched (except at the tip) with white; some of the inner secondaries entirely golden olive; shafts of the primaries dark brown, those of the secondaries black; rump yellowish olive, the feathers broadly margined and tipped with light chrome-yellow; upper tail-coverts yellowish olive; tail black, the two central feathers margined at the base with golden olive,

and having the basal portion faintly barred with brownish dusky; dwarf feather tipped with yellowish green; shafts black, browner at the base; nasal plumes black; base of the forehead, outer edge and posterior portion of the crown, and occiput intense black, with grey margins to the feathers, the latter parts having a striped appearance; upper part of the forehead and the greater portion of the crown crimson; nape intense black; lores and sides of the face ashy grey; a black spot in front of the eye; hind neck and sides of the neck yellowish olive, the upper part of the latter greyer; a black malar stripe on a grey ground; chin and throat buffy white, yellower on the fore neck; from the chest to the under tail-coverts, inclusive, like the back, but a little duller in colour, except on the chest, which is yellower; under wing-coverts and axillaries white, tipped with pale yellow and broadly barred with black: "bill dull horny black; orbital skin plumbeous; irides dark crimson; feet plumbeous; claws slaty" (*J. Scully*). Total length 12·5 inches, culmen 1·65, wing 5·55, tail 4·15, tarsus 1·2; toes (without claws)—outer anterior 0·8, outer posterior 0·75, inner anterior 0·67, inner posterior 0·4.

In the Hume Collection there is a specimen of an adult male from Sikkim, of a beautiful golden green above and below, the feathers of the back as well as the scapulars being edged with bright yellow; the wing-coverts rich olive-golden, inclining to golden brown; the quills and tail-feathers brown; the chin and throat pale yellowish buff; and the fore neck, likewise the sides of the neck, very yellow.

Young male (July). Differs from the adult male in having the partly exposed bases of the feathers of the back more dusky; the wing-coverts and secondary quills less golden, the latter with the faintest trace of dusky-green bars; the central pair of tail-feathers rather more distinctly barred; the forehead with a central spot of orange-red; sides of the face mouse-grey; the chin and throat transversely varied with dusky and having a spotted appearance; under surface of the body duller green, the sides of the body, flanks, and thighs having dusky olive spots and narrow transverse mark-

ings of dull yellowish white ; the dusky abdomen with dull yellowish transverse markings.

Adult female. Differs from the adult male in the absence of the crimson on the forehead and crown, these, as well as the occiput, being black, the feathers having grey margins and being rather lighter on the forehead, the whole having a striped appearance; the bars upon the central tail-feathers more distinct, and most of the others showing an indistinct trace of barring; the dark markings upon the under wing-coverts and axillaries browner : " bill horny black ; orbital skin plumbeous grey; irides crimson ; feet plumbeous ; claws slaty " (*J. Scully*). Total length 12·6 inches, culmen 1·45, wing 5·6, tail 3·8, tarsus 1·2.

Young female (August). Differs from the young male in wanting the orange-red spot upon the forehead, this being, like the crown and occiput, grey striped with black. In this specimen the chest and breast are greener, and the feathers of the sides of the body, flanks, and thighs are losing their yellowish-white transverse markings, and the trace of dusky-green barring on the secondary quills has disappeared.

Nestling, apparently female (June 17th). More dingy in colour than the adult, and having the sides of the face less slaty and more of a mouse-grey ; a faint and narrow blackish moustachial stripe ; forehead, crown, and occiput dull black ; tail-feathers all barred, but not so distinctly as are the central pair in the adult ; flanks and thighs broadly barred with blackish. This specimen is in the British Museum, and forms part of Dr. Anderson's Yunnan Collection.

Dr. Scully (Str. F. 1879, p. 248) is perfectly right in calling in question Dr. Jerdon's description of *G. occipitalis*. The mistake is no doubt to be attributed to an oversight on the part of the latter author, who must have been well acquainted with the species. Jerdon's description of the male (B. Ind. i. p. 288) is as follows :—" Forehead and occiput dull scarlet ; top of the head, a broad occipital stripe extending to the nape, and another on each side under the eyes, black." Dr. Scully describes this sex correctly when he writes :—" Forehead and top of the head red ; occiput and nape black ; a

black mandibular stripe on each side of the throat, extending to below the ear-coverts." The present species is nearly allied to *G. guerini*, but may be distinguished from it by its grey loral region, having only a small spot of black in front of the eye; by its powerful and entirely black bill; and, above all, by its tail, which is almost uniform black, with, at most, a few almost obsolete marginal spots, excepting the central pair of feathers, which are more distinctly spotted, whereas in *G. guerini* the central pair of tail-feathers are barred across, and the remaining ones are generally barred, although in some specimens these bars are wanting, but the outer large feather has always light spots or bars upon both webs, which are never found in *G. occipitalis*.

Burmese examples of the present species exceed in measurement those from Sikkim and Cachar. *G. occipitalis* has a wide range, being found throughout the whole extent of the Himalayas and in Cashmere, also in Yunnan, Cachar, Assam, British Burmah, and Siam. In the collection of the British Museum are examples from Cashmere obtained by Dr. Bellew. Almost every collection from the Himalayan range contains this species. Col. Tytler records it from between Simla and Mussoorie, and the Hume Collection contains examples from the middle ranges of hills north of the latter place. Dr. Scully writes, "it is not uncommon in the forests surrounding the valley of Nepal, where it also breeds," and he says it is fairly common about Hetoura in December. Capt. Strachey obtained it in Kumaon, and it has been procured in Sikkim by Capt. Bulger and others. In the British Museum there is a specimen of *Gecinus* from Momien, Yunnan, collected by Dr. Anderson at 5500 feet elevation; this bird is a nestling, and was obtained upon June 17th, and although it has been named *G. striolatus* by Dr. Anderson, I am, after a careful examination of specimens, inclined to refer it to the present species. Dr. Anderson procured in Yunnan a second specimen (now in the Calcutta Museum); and as he tells us that it is the common Woodpecker of the elevated region to the east of the Kakhyen Hills, and the bird in its adult plumage must have been well known to him, the pro-

bability is that one of his specimens is true *G. striolatus*, and the young bird in the British Museum may have been wrongly identified. McClelland obtained the present species in Assam, and in N.E. Cachar Mr. Inglis says it is common. In Native Burmah it is probably to be found, but I have not seen any specimens from thence. The Hume Collection includes specimens from the Tipperah Hills. In Pegu, Mr. Eugene Oates writes that it is one of the commonest Woodpeckers, and found all over the province. Messrs. Hume and Davison, in their "Birds of Tenasserim" (Str. F. 1878, vi. p. 137), inform us that *G. occipitalis* is confined to the northern and central portions of that province; and Mr. Davison, in his note, states, "This species is nowhere common, I have not observed it anywhere south of Tavoy. It is most frequently seen in the immediate vicinity of Pahpoon, but does not ascend the hills, to the north of that place, for any distance. It is a bird of the thin forests, bamboo jungles, and clearings." In the appendix to the same paper a specimen is recorded from Tavoy. Capt Bingham found this species throughout the Thoungyeen valley; he states that it breeds alike in the north and in the south-west in April. The British Museum collection contains a male specimen of a *Gecinus* obtained at Pitchaburree, Siam, August 1868, by M. Pierre, which I have no doubt is *G. occipitalis*.

2. Gecinus guerini.

Chloropicos guerini, Malh. Rev. et Mag. de Zool. 1849, p. 539.

Gecinus guerini, Bp. Consp. Gen. Av. i. p. 127 (1850); id. Consp. Volucr. Zygod. p. 10 (1854); Reichenb. Handb. Scans. Picinæ, p. 349, no. 796, pl. dcxxii. figs. 4144, 4145 (1854); Horsf. & Moore. Cat. B. Mus. E.I. Co. ii. p. 659, no. 958 (1856–58); Swinh. Ibis, 1863, p. 96; id. P.Z.S. 1863, pp. 268 & 333; Gray, List Picid. Brit. Mus. p. 73 (1868); id. Hand-l. B. ii. p. 191, no. 8676 (1870); Swinh. P. Z. S. 1871, p. 392; David & Oust. Ois. Chine, p. 52 (1877); H. H. Slater, Ibis, 1882, p. 435; Seebohm, op. cit. 1884, p. 266.

Gecinus tancolo, Gould, P. Z. S. 1862, p. 283; id. B. Asia, vi. pl. 35 (1864); David & Oust. Ois. Chine, p. 53 (1877).

Gecinus tancola, Swinh. Ibis, 1863, p. 389; Gray, List Picid. Brit. Mus. p. 73 (1868); id. Hand-l. B. ii. p. 191, no. 8675 (1870); Swinh. P. Z. S. 1871, p. 392.

Chloropicus guerini, Malh. Monogr. Picid. ii. p. 127, pl. lxxx. figs. 4, 5 (1862).

Picus guerini, Sundev. Consp. Av. Picin. p. 61 (1866); David, Nouv. Arch. du Mus. 1871, Bull. vii. p. 4; Giebel, Thes. Orn. iii. p. 157 (1876).

Picus tancola, Sundev. Consp. Av. Picin. p. 61 (1866); David, Nouv. Arch. du Mus. 1871, Bull. vii. p. 4; Giebel, Thes. Orn. iii. p. 182 (1876).

Adult male. Above, including scapulars, uniform green; wing-coverts uniform, and more of a golden green; bastard-wing and primary-coverts dusky, spotted with grey, and having a barred appearance; quills brownish dusky, the outer webs of the primaries more or less edged at the base with green and obliquely barred with white; those of the secondaries being partially or entirely green, duller than the wing-coverts, faintly spotted with greyish, and having an indistinct barred appearance; the inner webs of all deeply notched and spotted with white; some of the inner quills almost entirely green; shafts brownish black; rump yellowish olive, the feathers broadly margined and tipped with chrome-yellow; upper tail-coverts more of a golden green, tipped with chrome-yellow; central tail-feathers dusky, margined at the base with yellowish olive and barred with ashy brown; the remainder browner, and more faintly barred with a lighter shade of brown; dwarf feather tipped with yellowish olive; shafts black, browner at the base; nasal plumes and base of the forehead ashy grey; rest of the forehead and fore part of the crown crimson, bases of the feathers grey; posterior portion of the crown greenish grey, streaked with black; nape black; loral region, above the eye, and entire side of the face ashy grey, rather lighter on the cheeks; a small black spot in front of the eye; moustachial stripe black; chin and throat buffy white; from the

chest to the vent, inclusive, yellowish ashy, greener on the chest and thighs; tibial plumes brownish ashy; under tail-coverts similar to the under surface of the body, but having dusky V-shaped markings; under wing-coverts white, slightly washed with yellow, and having irregular dusky brown markings; axillaries white, with a pale yellow tinge, and having faint dusky bars: "irides pale rose-colour; bill plumbeous, the tip brown and the base of the lower mandible greenish; feet dirty green; claws grey" (*David & Oustalet*). Total length 10·5 inches, culmen 1·65, wing 5·6, tail 3·85, tarsus 1·15; toes (without claws)—outer anterior 0·78, outer posterior 0·72, inner anterior 0·58, inner posterior 0·35.

Male nestling. Resembles in general coloration the adult male, but is less brilliant; the two central rectrices not yet showing the barring of the full-grown bird; the crimson patch on the fore part of the crown smaller; chin and throat more of an ashy grey, and not tinged with buff; underparts dusky, with a tinge of yellowish olive, rather brighter on the chest.

Adult female. Resembles the adult male, but is slightly duller in colour, and may be distinguished by the absence of red on the forehead and crown, these parts being grey, the crown narrowly striped with blackish; the striations on the occiput and the nape less black; the stripe in front of the eye browner and extending to the nostrils; moustache less intense black; the markings on the under tail-coverts fainter; the rump less yellow, and the barring of the tail not so distinct; the soft parts as in the male. Total length 10·2 inches, culmen 1·5, wing 5·3, tail 3·7, tarsus 1.

Female nestling. Differs from the male nestling in the absence of the crimson on the fore part of the crown; some of the abdominal feathers tipped with pale yellowish, the half-concealed portion with an intermarginal V-shaped black marking, and giving to the abdomen a mottled appearance.

After an examination of the Swinhoe collection and other specimens in Mr. Seebohm's cabinets, and also of the British Museum collection, I find every intermediate form between

the present species and Gould's *G. tancolo* from Formosa, and I cannot detect any specific character by which the latter can be separated from *G. guerini*. Specimens identical with Formosan examples are found on the mainland, and although they are darker and have more black on the head and on the lores than the more northerly specimens, still, in a series, every possible gradation is found; and this being the case, I cannot see where the line is to be drawn.

Swinhoe (Ibis, 1863, p. 389) mentions having obtained a male and two young birds in the mountainous country near Foochow, and states that they differed from the Formosan examples in having the two lateral tail-feathers banded with brownish white, and the pale bars on the two central feathers carried up to the shafts, instead of separated from them by a line of brown. All specimens of *G. guerini* have the lateral tail-feathers banded as in the Foochow birds, but in Formosan examples the barring is more obsolete. A specimen from Formosa in the Swinhoe collection, which I take to be the bird specially compared by Swinhoe with the Foochowan examples, has certainly the spots on the central pair of tail-feathers separated from the shaft by a dark line; but these feathers are new, being scarcely full-grown, and I believe this line to occur in the new and perfect feather. In an example, also from Formosa, having the plumage much worn, the spotting on the central tail-feathers appears nearer the shaft.

G. guerini does not appear to be found north of Nankin (where it is replaced by *G. canus*), but extends over Central and Southern China into the island of Formosa. I have only seen one example from Nankin, and that is in the British Museum. Swinhoe writes that this species is found at Shanghai, &c., circa 30° latitude, and along the Yangtsze to Szechuan. Capt. Blakiston procured it on the same river, and specimens were also obtained between Hankow and Quaichow by Mrs. Greig and Dr. Reid. The Rev. H. H. Slater states that it is found in Woochung, Central Hoopih, and likewise records it from Szechuan. Mr. Seebohm's collection contains specimens from Shanghai,

Chusan, Foochow, and Formosa, and I have in my own cabinet an example from the island of Pootoo (*Pryer*).

David and Oustalet consider *G. tancolo* distinct from *G. guerini*, and Père David gives us the following notes as to their range :—*G. guerini*. "Peculiar to the central part of China. I have found it very plentiful in Southern Shen-see and along the Blue River (Yangtsze)." *G. tancolo*. "I have found it from Fokien as far as Szechuan, and it is probable that it inhabits the whole south of China."

3. Gecinus canus.

The Grey-headed Green Woodpecker, Edwards, Nat. Hist. Birds, ii. pl. lxv. ♀ (1747); Lath. Gen. Syn. ii. p. 583 (1782).

Le Pie vert de Norwège, Briss. Orn. iv. p. 18 (1760).

The Grey-headed Woodpecker, Penn. Arct. Zool. ii. p. 277 (1785).

Picus canus, Gm. Syst. Nat. i. p. 434 (1788), ex Edwards; Licht. Cat. Rer. Hamb. p. 18 (1793); Temm. Man. d'Orn. i. p. 393 (1820); Brehm, Naturg. Eur. Vög. i. p. 135 (1823); Roux, Orn. Prov. i. p. 95, pl. lix. (1825); Valenc. Dict. Sc. Nat. xl. p. 169 (1826); Naum. Vög. Deutschl. v. p. 286, pl. 133 (1826); Risso, Eur. Mérid. iii. p. 60 (1826); Wagl. Syst. Av. *Picus*, sp. 33 (1827); Werner, Atlas, pl. 202 (1827); Griffith's ed. Cuv. Anim. Kingd. Birds, ii. p. 439 (1829); Less. Traité, i. p. 218 (1831); Ménétr. Cat. Rais. Cauc. p. 46, no. 132 (1832); Temm. Man. d'Orn. 2nd edit. pt. 3, Suppl. i. p. 281 (1835); Gould, B. Eur. iii. pl. 227, ♂ ♀ ad. (1837); Schinz, Wirb. Schweiz, p. 92 (1837); Keys. & Blas. Wirb. Eur. p. 147 (1840); Schleg. Rev. Crit. Ois. d'Eur. p. xlix (1844); V. d. Mühle, Orn. Griechenl. p. 30 (1844); Schlegel, Vog. Nederl. p. 80, pl. 49, ♂ ♀ (1854–58); Linderm. Vög. Griechenl. p. 41 (1860); Bree, B. Eur. iii. p. 136, pl. ♂ figd. (1862); Sundev. Consp. Av. Picin. p. 61 (1866); Sabanaeff, Bull. Mosc. xlii. pt. 2, pp. 185–197 (1869); Elw. & Buck. Ibis, 1870, p. 188; David, Nouv. Arch. du Mus. 1871, Bull. vii. p. 4; Mommsen, Griech. Jahresz. pt. iii. p. 186 (1875); Giebel, Thes. Orn. iii. p. 147 (1876);

Harv.-Brown, Proc. Nat. Hist. Soc. Glasg. 1877, p. 288 (ex Sabanaeff) ; Seeb. Ibis, 1882, p. 209.

Picus norvegicus, Lath. Ind. Orn. i. p. 236 (1790) ; Vieill. N. Dict. xxvi. p. 99 (1818).

Picus viridi-canus, Meyer & Wolf, Taschenb. Vogelk. i. p. 120 (1810).

Picus chlorio, Pall. Zoogr. Rosso-Asiat. i. p. 408 (1811).

Picus caniceps, Nils. Orn. Suec. i. p. 105 (1817).

Pic cendré, Temm. Man. d'Orn. i. p. 393 (1820).

Gecinus canus, Boie, Isis, 1831, p. 542 ; Brehm, Vög. Deutschl. p. 200 (1831) ; Bp. Cat. Met. Ucc. Eur. p. 51 (1842) ; Gray, Gen. B. ii. p. 438 (1846) ; De Filippi, Cat. Mus. Mediol. p. 21, no. 616 (1847) ; Blyth, Cat. B. Mus. As. Soc. p. 58, no. 264 (1849) ; Bp. Consp. Gen. Av. i. p. 126 (1850) ; id. Consp. Volucr. Zygod. p. 10 (1854) ; Reichenb. Handb. Scans. Picinæ, p. 348, no. 794, pl. dcxx. figs. 4135, 4136 (1854) ; Powys, Ibis, 1860, p. 235 ; Swinh. op. cit. 1861, p. 338 ; Blakist. op. cit. 1862, p. 325 ; Swinh. P. Z. S. 1862, p. 319 ; id. op. cit. 1863, pp. 267, 333 ; Lilford, Ibis, 1866, p. 176 ; Whitely, op. cit. 1867, p. 195 ; Degl. & Gerbe, Orn. Eur. i. p. 157 (1867) ; Gray, List Picid. Brit. Mus. p. 74 (1868) ; id. Hand-l. B. ii. p. 191, no. 8677 (1870) ; Salvad. Faun. d'Ital. Ucc. p. 35 (1871) ; Saund. Ibis, 1871, p. 65 ; Swinh. P. Z. S. 1871, p. 392 ; Dubois, Consp. Av. Eur. p. 19 (1871) ; Bogd. B. Volga, p. 60, no. 42 (1871) ; Dress. B. Eur. v. p. 95, pl. cclxxxviii. (1872) ; Alst. & Harv.-Brown, Ibis, 1873, p. 59 ; Irby, Orn. Str. Gibr. p. 72 (1875) ; Swinh. Ibis, 1875, p. 124 ; Danf. & Brown, tom. cit. p. 298 ; Swinh. tom. cit. p. 451 ; Blanf. Zool. E. Pers. ii. p. 136 (1876) ; Tacz. Bull. Soc. Zool. France, 1876, p. 239 ; Prjevalsky, B. Mongolia, in Rowley's Orn. Misc. ii. p. 279 (1877) ; David & Oust. Ois. Chine, p. 51 (1877) ; Saund. Bull. Soc. Zool. France, 1877, p. 325 ; Tacz. op. cit. 1878, p. 139 ; Blakist. & Pryer, Ibis, 1878, p. 229 ; Bogd. B. Cauc. p. 120 (1879) ; Goebel, Vög. Uman. Kr. p. 154, no. 140 (1879) ; Russow, Orn. Esth-, Liv- u. Kurl. p. 118 (1880) ; Brandt, J. f. O. 1880, p. 229 ; Seeb. Ibis, 1880, p. 181 ; Gigl. op. cit. 1881, p. 191 ; Wharton, tom. cit. p. 257 ; Collett, Norg.

Fuglef. p. 314 (1881); Blakist. & Pryer, Trans. As. Soc. Jap. 1882, p. 136; Seeb. Ibis, 1882, p. 373; Salv. Cat. Strickl. Coll. p. 390, no. 1907 (1882); Seeb. Ibis, 1883, p. 23; Radde, Orn. Cauc. p. 307 (1884); Gigl. Avif. Ital. p. 206 (1886); Salvad. Ucc. Ital. p. 67 (1887).

Le Pie vert à tête grise, Risso, Eur. Mérid. iii. p. 60 (1826); Valenc. Dict. Sc. Nat. xl. p. 169 (1826).

Colaptes canus, Brehm, Isis, 1828, p. 1274.

Colaptes viridicanus, Brehm, Isis, 1828, p. 1274.

Colaptes caniceps, Brehm, Isis, 1828, p. 1274.

Gecinus viridicanus, Brehm, Vög. Deutschl. p. 199 (1831).

Gecinus caniceps, Brehm, Vög. Deutschl. p. 201 (1831).

Malacolophus canus, Swains. Classif. B. ii. p. 308 (1837).

Chloropicus canus, Malh. Monogr. Picid. ii. pp. 124, 294, pl. lxxxi. figs. 1, 2 (1862).

Picus canus jessoensis, Stejneger, Proc. U.S. Nat. Mus. 1886, p. 106.

Picus canus perpallidus, Stejneger, Proc. U.S. Nat. Mus. 1886, p. 107 (footnote).

Adult male. Above, including scapulars, uniform bright green; wing-coverts uniform and of a browner shade of green; bastard-wing and primary-coverts dusky, spotted with greyish and having a barred appearance; quills dusky black, the outer webs of the primaries margined at their base with green, and diagonally barred with whitish; those of the secondaries partially or entirely green, very faintly barred with a darker shade and having indistinct greyish spots; the inner webs of all deeply notched with pure white; shafts black; rump and upper tail-coverts green, the feathers tipped with chrome-yellow, this colour being very conspicuous on the rump; tail brownish dusky, the feathers more or less margined at the base with green; the central pair rather lighter, and having faint greyish spots along both webs near the shafts; dwarf feather greenish at the tip; shafts dusky brown, with black tips; nasal plumes black, grey at the base; lores intense black; at the base of the upper mandible a narrow band of grey; forehead and fore part of the crown bright crimson, narrowing towards the centre of the latter,

bases of the feathers dark grey; outer edge of the forehead and of the fore part of the crown grey; a whitish spot above the eye; posterior half of the crown greenish grey, streaked with dusky green; hind neck green; side of the face grey, becoming greener on the ear-coverts and side of the neck; a narrow intense black moustache; chin and throat uniform buffy white, more tinged with green on the fore neck; underparts greenish grey, with a few very faint crescent-shaped markings of a darker shade on the abdomen; thighs having V-shaped markings of olive, with a white centre; under tail-coverts greenish grey, with broad V-shaped whitish markings between two dusky ones; under wing-coverts white, faintly tinged with yellow and barred with blackish; axillaries yellowish white, with pale dusky bars: "bill horny brown, more coloured above than below; iris pale red; feet black" (*Degland & Gerbe*). Total length 12 inches, culmen 1·65, wing 5·8, tail 3·95, tarsus 1·1; toes (without claws)—outer anterior 0·77, outer posterior 0·77, inner anterior 0·6, inner posterior 0·37.

Younger male. With the upper parts greyer than in the fully adult; wing-coverts and secondaries of a dingy green; the tail paler and of a browner tint; the red of the forehead and crown less brilliant, and the bases of the feathers greyer; the posterior part of the crown and the nape of a bluish grey; sides of the face and neck buffy grey, not washed with green; chin more of a pale buff; entire underparts uniform buffy grey; the thighs tinged with green; under tail-coverts buffy grey, tipped with yellow. Total length 10·5 inches, culmen 1·6, wing 5·5, tail 3·6, tarsus 1·1.

Adult female. Different from the adult male in the absence of red on the forehead and fore crown, these parts being greenish grey streaked with blackish; the rest of the crown and the nape greyer than in the male; fore part of the cheeks lighter grey; chin and throat whiter; chest and upper breast paler green; the abdominal markings a little darker, those on the thighs being fainter and just visible; under wing-coverts whiter. Total length 11·1 inches, culmen 1·4, wing 5·55, tail 3·9, tarsus 0·95.

It is a matter of surprise that Linnæus did not know *G. canus*, although found in his own country, and that he did not recognize either Edwards's figure of the present bird or Brisson's description as belonging to a species distinct from *G. viridis*. It is just probable that he regarded the two species as one. The present bird is so well known to all subsequent authors as to call for very few remarks. Dr. Stejneger has recently issued a review of the Japanese Woodpeckers (Proc. U.S. Nat. Mus. 1886, pp. 99–124), in which he describes a new subspecies under the name of *Picus canus jessoensis*, the diagnosis of which he gives as follows:—"Similar to *Picus canus viridi-canus* (Meyer & Wolf), but the whole head strongly tinged with green and the under surface lighter and clearer; black streaks (in the male) on pileum and occiput longer." The habitat is said to be "apparently confined to the island of Yesso, Japan." In the notes which follow, Dr. Stejneger writes, "European specimens exhibit two different styles, which agree in having the head grey;" and further on, in writing about the Japanese bird, he says "the chief character of this form, however, is the strong suffusion of green on the head," and he adds:—"In European examples there is a just perceptible shade of greenish on the top of the head and middle of hind neck, but the sides are decidedly grey." Now I have before me two specimens (both females) from Hakodati, dated October 10th and 12th, collected by Mr. Henson; and alongside of these I have placed two specimens from the Vosges (*Mougel*), one being a female obtained in December, the other a male, but without date. With the exception of the sexual distinctions, these four birds could not be separated. One of the females from Hakodati has an almost imperceptible greener shade on the face than the Vosges female, but really so slight as scarcely to be observed; but the Vosges bird has the crown, occiput, and nape quite as green as this Japanese specimen, if not more so. The other Hakodati example is not at all greener on the face than the Vosges birds, and has the crown, occiput, and nape greyer than the Vosges female, and the occiput and nape greyer than

the Vosges male. I single out these European specimens as being identical with those from Yesso; but our European birds also vary in colour, and this occurs in examples from the same locality: for instance, another Vosges female in my collection differs from the first-mentioned female from the same locality in having the crown and occiput very much greyer and the crown more broadly striped with black. As our European specimens from the same locality vary in colour, one would naturally expect those from Japan would likewise exhibit more than one phase of coloration, and this is very clearly shown to be the case by an example of a female in my collection obtained at Saporo, in May (*T. W. Blakiston*). This bird has the whole of the head and neck perfectly grey, without a trace of green; the whole of the back is also very grey, and the under surface of the body is of a greyish white, with only a perceptible tinge of greenish. It seems to me that if every slight variation of colour necessitates the creation of subspecies, then there would be no limit to such in both *Gecinus viridis* and *G. canus*. Specimens of *G. canus* from Eastern Siberia are, as a rule, greyer on the head and neck than Western birds, and resemble more my Saporo example; but I have a female of this species, obtained at Elbeuf, Seine-Inférieure, in June (*Noury*), which has the head and neck almost as grey as in specimens from Eastern Siberia, but the colour is of a less blue-grey. I have not the slightest doubt that in a series of the present species, from any locality, examples will be found possessing the grey or the greenish head, depending upon conditions I am not altogether able to account for.

In the same paper (p. 107, footnote) Dr. Stejneger describes another Woodpecker similar to his *P. jessoensis*, but which, he says, differs from the latter in the following points:—"It is pale grey-headed, with grey forehead, and altogether without any brown admixture, resembling most closely the Norwegian true *P. canus*, but very much paler and with a decided white superciliary spot; the yellow on the rump is very restricted, being chiefly confined to the upper tail-coverts and of a clear lemon-colour." This bird, which

Mr. Stejneger designates *Picus canus perpallidus*, is a male, and was collected at Sidinij, Ussuri, November 25th, 1884, by Mr. I. Kalinowski, and the dimensions are given as follows:—"Wing 144 millim., tail-feathers 96, expos. culmen 35." This bird appears to agree with specimens from Eastern Siberia, of which I have examples, but not sufficiently to prove what I have already stated and fully expect a series from the same locality would show, namely, specimens differing from those typical of Dr. Stejneger's *P. canus perpallidus*, and not to be distinguished from the true *Gecinus canus* of Europe; and in support of this view I will quote M. Taczanowski's remarks upon *G. canus* in his "Revue Critique de la Faune Ornithologique de la Sibérie Orientale" (Bull. Soc. Zool. France, 1876, p. 239):—"Trouvé partout en Sibérie méridionale, sur l'Amour et dans le pays de l'Ussuri. Souvent on y trouve des individus fort cendrés, mais il y a aussi des exemplaires tout à fait comme ceux de l'Europe." I cannot, I am sorry to say, recognize either of Dr. Stejneger's new subspecies, both of which I am obliged to place under *G. canus*. I may add that Vosges examples of this species have the white superciliary spot fully as well marked as in birds from Eastern Siberia.

The present species has the most extended range of all the *Gecini*, being found throughout the greater part of Europe, in Southern and Eastern Siberia, Manchuria, Mongolia, the northern part of China, and in the island of Yezo. It has been recorded by Dr. Collett from Odalen in Norway, and Herr Meves and also Wheelwright have obtained it in Sweden. The latter naturalist did not, however, procure the species in Lapland during his tour. It is unknown in the British Isles. In France it does not appear to be abundant; I have received it from the north, and also from the Vosges mountains. In Spain it also appears to be far from common; Lord Lilford observed it at Casa de Campo, near Madrid, but he considers it by no means common. Mr. Howard Saunders includes *G. canus* in his "List of the Birds of Southern Spain" (Ibis, 1871, p. 65), and writes:—"I did not identify this species in the flesh; but I have seen specimens, and believe

it to be common, taking the place of *G. viridis* (*G. sharpei*) in the higher woods." According to the same author, it is said to occur in the forests of the Sierra Nevada and of the Province of Murcia. Lieut.-Col. Irby states that in the Museum at Seville there is a specimen, said to have been obtained in the neighbourhood. This species is said to be tolerably common in Switzerland. In Italy, according to Prof. Giglioli, this species is very rare and exclusively alpine, but it is less uncommon in the Eastern Alps. Mr. Danford procured it in Transylvania. The Hon. T. L. Powys (Lord Lilford) observed it near Cettinye, in Montenegro. Messrs. Elwes and Buckley found it near Babadagh, in Bulgaria, and it has been obtained near Constantinople by Robson. Both Lindermeyer and Von der Mühle include the species in their 'Birds of Greece.' In Russia, according to Herr Henke (Seebohm, Ibis, 1882, p. 373), it is a somewhat rare resident near Archangel: Messrs. Alston and Harvie-Brown found specimens in the Museum of that town. Brandt says it is not very frequent in the Province of Petropolitana. It is also found in Esthonia, Livonia, and Kurland (Russow, Orn. Esth-, Liv- u. Kurl. p. 118, 1880); but it is not so common as *G. viridis*, and prefers small copses to large forests. Goebel states that in Uman it is "not rare, though scarcely to be called a common bird." Sabanaeff, in his "Avifauna of the Ural" (Bull. Mosc. xlii. pt. 2, pp. 185–197, 1869), writes:—"Has not been found on the eastern declivity north of Ekaterinburg. On the western slope it is rather common, but does not breed in the birch-woods of the eastern slope." Bogdanow, in his 'Birds of the Volga' (p. 60. no. 42, 1871), observes:—"It is strange that, up to the present time, I hardly ever met with this species in the Provinces of Kasan and Simbersk, although there is no doubt that it occurs here, having several times been brought to the Kasan Museum from the vicinity of that town. According to Riekheil's observations it is resident in the woods of the Volga valley and about Sarepta, and has been procured by Henke near Astrachan." The last statement does not agree with that of Mr. Seebohm (Ibis, 1882, p. 209); the

Witter author says that Henke did not meet with it near Astrachan. I have in my collection a specimen from Sarepta. Ménétries, in his 'List of the Birds of the Caucasus,' observes:—"Found in the gardens of Kizil-Agaz and near Lenkoran." The present species is also included in Radde's 'Birds of the Caucasus,' but Bogdanow did not meet with it. In Asia Minor *G. canus* does not exist. Severtzoff did not meet with this species in Turkestan; and although Mr. Blanford does not include it in his 'Birds of Eastern Persia,' he says "its occurrence at Ghílán and Mazandarán is highly probable." It does not appear to be found in Western Siberia, according to Dr. Finsch. Dr. Taczanowski (Bull. Soc. Zool. France, 1876, p. 239) observes:—"This species is found everywhere in Southern Siberia, on the Amoor, and in the country of the Ussuri." I have in my collection several examples from Eastern Siberia (*Dörries*), and M. Jankowski states that it is tolerably common in the Island of Askold. It also occurs in South Manchuria, specimens (obtained by Dr. H. M. James) having been recently added to the collection in the British Museum. This species is also found in Mongolia; and although inadvertently omitted in the list of the birds of that country contained in Prjevalsky's "Birds of Mongolia" &c. (Rowley's Orn. Misc.), there can be no doubt that it does exist there, since, in that work, vol. ii. pp. 278, 279 (1877), under the heading of *Cyanopolius cyanus* (which species Prjevalsky says he met with in the Guchin-gurb mountains of S.E. Mongolia, but did not find either in the Ala-shan or in the Hoang-ho valley, although it is very abundant in Kan-su), the following observation occurs:—"It is very remarkable that, whenever we met with these birds, I found some specimens of *Gecinus canus* in their company, which followed the Magpies everywhere." In China the present species is confined to the north. According to Swinhoe it is common about Chefoo and Pekin, and it does not range so far south as Shanghai and the Yangtze Plain, where it is replaced by *G. guerini*. David and Oustalet state that it is found all the year in Northern China, where it is very common. In Japan it is confined, so far as is at

present known, to the island of Yezo. Capt. Blakiston obtained it at Hakodadi, and Mr. Whitely tells us that it is common in the vicinity of that town. Roux, in his 'Ornithologie de Provence,' p. 96, gives the north of America as a habitat of the present species; but no *Gecini* have ever been found in the New World.

4. Gecinus vaillanti.

Picus (*Chloropicus*) *viridis* (non Linn.), Malh. Cat. Rais. Ois. d'Algér., Mém. Soc. d'Hist. Nat. Metz, 1846, p. 17.

Picus (*Chloropicus*) *canus* (non Gm.), Malh. Cat. Rais. Ois. d'Algér., Mém. Soc. d'Hist. Nat. Metz, 1846, p. 17.

Chloropicus vaillantii, Malh. Mém. Acad. Metz, 1846–47, p. 130; id. N. Classif. op. cit. 1848–49, p. 351; id. Monogr. Picid. ii. p. 122, pl. lxxxii. figs. 1–3 (1862).

Picus algirus, Levaill. Jr. Expl. Sc. d'Algér., Ois. pl. v. (1848–49); Sundev. Consp. Av. Picin. p. 60 (1866); Giebel, Thes. Orn. iii. p. 140 (1876).

Gecinus algirus, Gray, Gen. B. iii. App. p. 21 (1849); Reichenb. Handb. Scans. Picinæ, p. 348, no. 793, pl. dcxx. fig. 4134 (1854).

Gecinus vaillantii, Bp. Consp. Gen. Av. i. p. 126 (1850); id. Consp. Volucr. Zygod. p. 10 (1854); Loche, Cat. Mamm. et Ois. d'Alg. sp. 191, p. 92 (1858); Tristr. Ibis, 1859, p. 159; Salv. tom. cit. p. 315; Tristr. op. cit. 1860, p. 373; Drake, op. cit. 1867, p. 425; Loche, Expl. Sc. d'Algér. ii. p. 83 (1867); Gray, List Picid. Brit. Mus. p. 73 (1868); id. Hand-l. B. ii. p. 191, no. 8673 (1870); Tacz. J. f. O. 1870, p. 40; Gurney, Jun., Zool. 1871, p. 2579; Dresser, B. Eur. v. p. 93, pl. cclxxxvii. (1873); Irby, Orn. Str. Gibr. p. 72 (1875).

Picus viridis (non Linn.), Carstensen, Naumannia, ii. pt. 1, p. 77 (1852).

Adult male. Entire back and scapulars yellowish olive; the feathers of the rump, also the upper tail-coverts, similar, and margined with chrome-yellow, a few of the former tinged with orange; wing-coverts slightly darker than the back; exposed portion of bastard-wing dusky, spotted with dull

white; primary-coverts browner, and similarly spotted; quills dusky black, the base of the outer webs of primaries and the whole of the outer webs of secondaries margined with green, outer webs of primaries obliquely barred with buffy white, the inner webs notched or spotted with pure white on the basal half; the outer webs of the secondaries having indistinct spots showing through the green colour, and an indication of pale green bars; inner webs of secondaries spotted transversely with white, the innermost feathers entirely green; shafts of quills brown; central pair of rectrices black, margined with green at the base and obliquely barred with greyish; the remaining feathers blackish brown, barred more or less obliquely with a lighter shade of colour, the barring on the outer large feather being clear pale brown; shafts dusky brown, with black tips; upper nasal plumes and base of forehead dusky blackish; remainder of the forehead, crown, occiput, and nape scarlet on a grey ground, the red tapering to a point on the nape; a black stripe in front of the eye; side of the face and a broad stripe over the eye ashy grey, tinged with green; lower nasal plumes and a stripe from thence, passing across the face and under the ear-coverts, greyish white; malar stripe black; hind neck yellowish olive, some of the feathers tipped with yellow; the side of the neck paler and yellower than the hind neck, with a few orange-red feathers on the side of the nape; chin and throat buffy white; fore neck, chest, and breast ashy yellow, clearer yellow on the abdomen, the latter as well as the thighs with olive crescent-shaped markings, the breast having almost obsolete similar markings; under tail-coverts yellowish, with broad crescent-shaped olive markings; under wing-coverts and axillaries yellowish white, with transverse olive markings: "irides white" (*Irby*). Total length 11·3 inches, culmen 1·5, wing 6·05, tail 3·8, tarsus 1·12; toes (without claws)—outer anterior 0·78, outer posterior 0·83, inner anterior 0·68, inner posterior 0·38.

Adult female. Differs from the adult male in having the forehead and crown slaty grey, washed with green, the feathers having a black central stripe, the occiput and nape only being

scarlet; the olive markings on the abdomen, thighs, and under tail-coverts almost obsolete. Total length 11·3 inches, culmen 1·45, wing 6, tail 4·05, tarsus 1.

The younger female has the forehead and crown black, without any tinge of green, the bases of the feathers showing grey; the face less tinged with green; the dark markings on the under tail-coverts broader and darker, and the tail-feathers less distinctly barred.

The range of this African species appears to be very limited, and is confined, so far as we know, to the northern parts of Morocco and Algiers as far as the Tunisian frontier. Mr. Tyrwhitt Drake observed it at Tangiers and on the Tetuan mountains; and I have in my collection several specimens procured for me near Tangiers by Signor Olcese. Mr. Salvin, in his "Five Months' Birds'-nesting in the Eastern Atlas" (Ibis, 1859, p. 315), supplies us with the following notes:—"It is not uncommon in districts where there are large trees. I met with it on several occasions; and a nest of seven eggs, with the old bird, was brought to us by an Arab. These eggs appear, on comparison, decidedly smaller than those of our own familiar species." According to Canon Tristram, *G. vaillanti* appears to be abundant in the neighbourhood of La Calle, Eastern Algeria, and Dr. Taczanowski, in his "List of the Birds of Constantine" (J. f. O. 1870, p. 40), a translation of which was contributed by Mr. J. H. Gurney, Jun., to the 'Zoologist' for 1871 (p. 2579), writes:—"Like our Green Woodpeckers, not plentiful; yet they might be met with in the woods everywhere. A male shot by Count Constantin Branicki, near Lambessa, had a few red feathers on the cheeks." On the Tunisian frontier this species and its eggs have been obtained by my friend M. Arcade Noury, and kindly lent to me for comparison. It is very probable that the present species does not penetrate far into Tunis, as examples from that country are wanting. Drummond does not include it in his "List of Birds found in the vicinity of Tunis and Biserta" (Ann. Nat. Hist. 1845, p. 102).

5. Gecinus sharpii.

Gecinus viridis (non Linn.), Lilford, Ibis, 1866, p. 176; Saund. op. cit. 1869, p. 182; id. op. cit. 1871, p. 65.

Picus viridis (non Linn.), A. C. Smith, Ibis, 1868, p. 448; Giebel, Thes. Orn. iii. p. 186 (1876).

Gecinus sharpii, Saund. P. Z. S. 1872, p. 153; Dresser, B. Eur. v. p. 89, pl. 286 (1872); Irby, B. Gibr. p. 71 (1875); Saund. Bull. Soc. Zool. France, 1877, p. 325; Lacroix, Bull. Soc. Hist. Nat. Toulouse, 1877, p. 133; id. Bull. Soc. Zool. France, 1877, p. 486; Chapm. Ibis, 1884, p. 79; Tait, op. cit. 1887, p. 304.

Adult male. Above, including scapulars and wing-coverts, uniform vivid green; bastard-wing and primary-coverts brownish black, barred with greenish grey; quills brownish black, the outer webs of the primaries having numerous small white patches or spots, those of the secondaries being green, with indications of light spots; the inner webs of the whole spotted with white; shafts dark brown; rump chrome-yellow, with a slight trace of red; upper tail-coverts green, margined and tipped with chrome-yellow; tail brownish dusky, the two central feathers margined with green at the base and barred with light greyish; the remainder with a slight indication of barring; tips of the feathers and shafts black, the bases of the latter being brown; forehead, crown, and occiput scarlet, the bases of the feathers leaden grey; lores black; orbital region grey; side of the face yellowish grey, becoming bright green on the side of the neck and hind neck; a broad scarlet malar stripe, bases of the feathers black, but the stripe not margined with it; chin and throat buffy white; fore neck and chest pale greyish yellow; entire underparts light yellowish, the thighs barred with olive; under tail-coverts dusky greenish yellow; under wing-coverts yellowish white, barred with brownish dusky; axillaries yellowish white. Total length 12·5 inches, culmen 1·7, wing 6·05, tail 3·7, tarsus 1·2; toes (without claws)—outer anterior 0·77, outer posterior 0·65, inner anterior 0·6, inner posterior 0·3.

Male nestling (May 13th). Back, scapulars, and upper

part of the rump dusky olive, the feathers margined with yellowish olive and crossed by a bar of this colour, with a central spot of white; lower part of rump bright chrome-yellow; upper tail-coverts uniform smoky grey, with yellowish tips; wing-coverts dusky olive, with transverse spots of olivaceous white; bastard-wing black, with marginal transverse spots of white; primary-coverts black, with white or olivaceous white marginal spots upon both webs; primaries dusky black, the outer webs spotted with white along their whole length and tipped with the same, those of the innermost margined with olive at the base, the inner webs of the outer feathers spotted with white at the base, the spots increasing in number upon the inner feathers; outer webs of the secondaries almost entirely yellowish olive, the outer feathers having indistinct olivaceous white spots, the inner webs dusky black with transverse marginal spots of pure white along their whole length; shafts of quills blackish brown; tail dusky black, the base of the central feathers barred with smoky grey, the lateral feathers barred with smoky grey and brownish white; shafts varying from brown on the lateral feathers to black on the central ones; nasal plumes dusky, tipped with black; lores dusky, with dull white specks, and in front of the eye a spot of black; forehead, crown, and occiput scarlet, the feathers being tipped with this colour and having dusky leaden-grey bases; nape and hind neck dull yellowish olive, the feathers having a subapical dusky black spot; the greater part of the face slaty grey, slightly tinged with greenish anteriorly, sparingly spotted and striped with dull white, the stripes under the eye being more distinct and varied with stripes of black; from the gape a narrow stripe of white running under the ear-coverts; malar stripe scarlet, the bases of the feathers dusky black; the hinder part of face white, striped with black; side of the neck white, barred and varied with black; chin and throat white, striped with dusky black; middle of fore neck white, the sides grey, spotted with black; sides of the chest grey; the middle as well as the whole under surface of the body yellowish white, covered with varied spots of

black, those on the abdomen and vent smaller and somewhat V-shaped, and very faint on the latter part; the flanks and thighs barred with black; under tail-coverts white, barred with black; under wing-coverts white, with varied spots and transverse markings of dusky black; axillaries white, with a blackish shaft-stripe. Wing 4·96 inches.

The male nestling of *G. sharpii* may be distinguished from that of *G. viridis* by its having the face slaty grey, slightly tinged anteriorly with greenish, striped and spotted with dull white (this in *G. viridis* being yellowish white, striped with black); the supercilium unspotted; the sides of the fore neck and chest greyer; the spots upon the underparts less transverse, being diamond-shaped, heart-shaped, and V-shaped, except on the flanks and thighs, which are barred as in *G. viridis*; the upper tail-coverts not barred.

Adult female. Differs from the adult male in having the malar stripe entirely black; the lores less black; the tail nearly uniform, the barring showing most on the penultimate feather, the others with only a few faint greyish spots; the rump strongly tinged with red. Total length 11·5 inches, culmen 1·75, wing 6·15, tail 3·6, tarsus (impossible to measure).

The tarsi and feet of this specimen (apparently an extremely old bird) very much diseased, and could not be accurately measured.

This species, first described by Mr. Howard Saunders in 1872, is a close ally of our own Green Woodpecker, but may be readily distinguished from the latter by its grey face, and in having the red malar patch not bordered with black. According to Mr. Saunders the present bird seems to be found throughout that portion of Spain south of the Guadarrama, and possibly extending to the valley of the Ebro. He procured specimens from Valencia, Granada, Andalucia, and Castille. Lord Lilford found it plentiful about Aranjuez, and also about the Casa de Campo, near Madrid, but he did not meet with it north of the Guadarrama range. Lieut.-Col. Irby obtained this species in the Coto del Rey, also in the Coto de Doñana, near Seville. Mr. Chapman (Ibis, 1884, p. 78), in

writing of *G. sharpii*, observes:—"Far out among the boulder-strewn ridges, while Redleg-shooting, I used to find numbers of Green Woodpeckers, miles away from trees; they were attracted thither by the swarms of ants." He further states that it is one of the earliest breeders in Spain. According to Mr. W. C. Tait the present species is abundant all over Portugal. Mons. Adrien Lacroix (Bull. Soc. Zool. France, 1877, p. 486) records the capture of an adult male of this species at Martory, Haute-Garonne, upon the 14th of March, 1877; but he considers it only a local race. The occurrence of this bird (if Mons. Lacroix has not been mistaken in his identification) north of the Pyrenees would be interesting; but it is surprising that a species well known to our English ornithologists who have visited Spain, and by them supposed not to range north of the Guadarrama mountains, should actually be found north of a second range like the Pyrenees. Mistakes in identification do occur, and I cannot divest myself of the idea that this is one*.

6. Gecinus viridis.

Le Pic Verd, Briss. Orn. iv. p. 9 (1760); Buff. Hist. Nat. Ois. vii. p. 355 (1783); Daub. Pl. Enl. pl. 371, incorrect, pl. 879 (♂).

Le Pic Verd du Mexique, Briss. Orn. iv. p. 16 (1760).

Le Pic jaune de Perse, Briss. Orn. iv. p. 20 (1760); Salerne, Hist. Nat. Ois. p. 108 (1767).

The Green Woodpecker, Penn. Brit. Zool. Bds. p. 78, pl. E, ♂ (1766); Wallis, Nat. Hist. Northumb. i. p. 319 (1769); Lath. Gen. Syn. ii. p. 577 (1782); Penn. Arct. Zool. ii. p. 277 (1785); Lath. Gen. Syn. Suppl. i. p. 110 (1787); Lewin, B. Gt. Brit. ii. p. 34, pl. xlvi., ♂ (1796); Mont. Orn. Dict. ii. (1802); Bewick, Hist. Bds. i. p. 136 (1826); Hewits. Mag. Zool. & Bot. ii. p. 313 (1838); Bury, Zool. 1845, p. 915; Thomp. Nat. Hist. Irel. ii. App. p. 441 (1851); Hadf. Zool. xxiii. p. 9608 (1865).

Picus viridis, Linn. Syst. Nat. i. p. 175 (1766); Scop. Ann. Nat. Hist. i. p. 47 (1769); Ger. Stor. Ucc. Ornith. ii.

* [This specimen was not available for examination when I last visited M. Lacroix in May 1879.—H. Saunders.]

p. 48, pl. clxv., ♂ (1769); Tunst. Orn. Brit. p. 2 (1771); Gm. Syst. Nat. i. p. 433 (1788); Lath. Ind. Orn. i. p. 234 (1790); Licht. Cat. Rer. Hamb. p. 17 (1793); Meyer & Wolf, Hist. Nat. Ois. de l'Allem. p. 15, pl. x. ♀ ad., pl. xi. juv. (1805); Pall. Zoogr. Rosso-Asiat. i. p. 408 (1811); Leach, Syst. Cat. Brit. Mus. p. 12 (1816); Nils. Orn. Suec. i. p. 103 (1817); Cuv. Règ. Anim. i. p. 422 (1817); Vieill. N. Dict. xxvi. p. 95 (1818); Temm. Man. d'Orn. i. p. 391 (1820); Brehm, Naturg. Eur. Vög. i. p. 134 (1823); Roux, Orn. Prov. i. p. 92, pls. 57, 58 (1825); Valenc. Dict. Sc. Nat. xl. p. 169 (1826); Risso, Eur. Mérid. iii. p. 60 (1826); Naum. Vög. Deutschl. v. p. 270, pl. cxxxii. (1826); Wagl. Syst. Av. *Picus*, sp. 32 (1827); Savi, Orn. Tosc. i. p. 140 (1827); Werner, Atl. pl. 201 (1827); Flem. Hist. Brit. Anim. p. 91 (1828); Cuv. Règn. Anim. i. p. 449 (1829); Griffith's ed. Cuv. Anim. Kingd. Bds. ii. p. 439 (1829); Less. Traité, i. p. 218 (1831); Ménétr. Cat. Rais. Cauc. p. 46, no. 133 (1832); Selby, Brit. B. i. pt. 2, p. 372, pl. xxxviii. ♂ (1833); Jenyns, Man. Brit. Vertebr. p. 148 (1835); Temm. Man. d'Orn. 2nd ed. pt. 3. Suppl. p. 280 (1835); Gould, B. Eur. iii. pl. 226, ♂ ad. & juv. (1837); Schinz, Wirb. Schweiz, p. 91 (1837); Jard. & Selb. Ill. Orn. i. p. 372 (1839); Macgill. Hist. Brit. B. iii. p. 91 (1840); Keys. & Blas. Wirb. Eur. p. 147 (1840); Yarr. Hist. Brit. B. ii. p. 132 (1843); Schleg. Rev. Crit. Ois. d'Eur. p. xlix (1844); Drumm. Ann. Nat. Hist. 1846, p. 13; Baikie and Hedd. Hist. Nat. Orcad. pt. 1, p. 49 (1848); Schleg. Vog. Nederl. p. 79, pl. 48, ♂ ♀ (1854–58); Hewits. Eggs Brit. B. i. p. 239, pl. lxi. fig. 2 (1856); Linderm. Vög. Griechenl. p. 41 (1860); Sundev. Consp. Av. Picin. p. 60 (1866); Stev. B. Norf. i. p. 285 (1866); Wise, New For. p. 272, and App. iii. p. 308 (1867); Cecil Smith, Bds. Somerset, p. 247 (1869); Sabanaeff, Bull. Mosc. xlii. pt. ii. pp. 185–197 (1869); Elw. & Buckl. Ibis, 1870, p. 188; R. Gray, B. W. Scotl. p. 189 (1871); Harting, Handb. Brit. B. p. 32 (1872); Cord. Ibis, 1875, p. 184: Mommsen, Griech. Jahresz. pt. iii. p. 186 (1875); Giebel, Thes. Orn. iii. p. 185 (1876); Schleg. Vog. Nederl. p. 38, pl. v. figs. 3–5 (1878); Elwes, Ibis, 1880, p. 396; Seeb. op. cit. 1882, p. 209.

Picus semirostris, Linn. Syst. Nat. i. p. 175 (1766); Müll. Linn. Naturg. pt. ii. p. 225 (1773); Gm. Syst. Nat. i. p. 435 (1788); Lath. Ind. Orn. i. p. 238 (1790).

The Yellow Blue-footed Persian Woodpecker, Lath. Syn. ii. p. 584 (1782)

Half-billed Woodpecker, Lath. Gen. Syn. B. ii. p. 586 (1782).

Picus persicus, Gm. Syst. Nat. i. p. 435, no. 34 (1788); Lath. Ind. Orn. i. p. 236 (1790).

Colaptes pinetorum, Brehm, Isis, 1828, p. 1274.

Colaptes frondium, Brehm, Isis, 1828, p. 1274.

Colaptes virescens, Brehm, Isis, 1828, p. 1274.

Colaptes viridis, Brehm, Isis, 1828, p. 1274.

Gecinus viridis, Boie, Isis, 1831, p. 542; Brehm, Vög. Deutschl. p. 198 (1831); Ross, P. Z. S. 1842, p. 1; Bp. Cat. Met. Ucc. Eur. p. 51 (1842); Gray, Gen. B. ii. p. 438 (1846); De Filippi, Cat. Mus. Mediol. p. 21, no. 793 (1847); Blyth, Cat. B. Mus. As. Soc. p. 57, no. 259 (1849); Bp. Consp. Gen. Av. i. p. 126 (1850); id. Consp. Volucr. Zygod. p. 10 (1854); Reichenb. Handb. Scans. Picinæ, p. 347, no. 793, pl. dcxx. figs. 4131–33 (1854); Powys, Ibis, 1860, p. 235; Salvad. Ucc. Sard. p. 32 (1864); Gigl. Ibis, 1865, p. 58; More, tom. cit. p. 135; Degl. & Gerbe, Orn. Eur. i. p. 156 (1867); Gray, List Picid. Brit. Mus. p. 72 (1868); Doderl. Avif. Sic. p. 50 (1869); Gray, Hand-l. B. ii. p. 191, no. 8671 (1870); Salvad. Faun. d'Ital. Ucc. i. p. 34 (1871); Dress. B. Eur. v. p. 77, pl. cclxxxv. (1871); Dubois, Consp. Av. Eur. p. 19 (1871); Bogd. B. Volga, p. 60, no. 41 (1871); Garrod, Ibis, 1872, p. 359; Gould, B. Gr. Brit. iii. pl. lxxiv. ♂ ♀, pl. lxxv. juv. (1873); Brooke, Ibis, 1873, p. 235; Danf. & Harv.-Br. op. cit. 1875, p. 298; Blanf. Zool. E. Pers. ii. p. 135 (1876); Danf. Ibis, 1877, p. 264; id. op. cit. 1878, p. 6; Bogd. B. Cauc. (Russ.), p. 119, no. 184 (1879); Goebel, Vög. Uman. Kr. p. 154 (1879); Russow, Orn. Esth-, Liv- u. Kurl. p. 117 (1880); Brandt, J. f. O. 1880, p. 229; Wharton, Ibis, 1881, p. 257; Gigl. t. c. p. 191; Buchn. & Pleske, Orn. St. Pétersb. Gouvern. p. 76 (1881); Collett, Norges Fuglef. p. 314 (1881); Newt. ed.

Yarr. Brit. B. ii. p. 457 (1881); Salv. Cat. Strickl. Coll. p. 389, no. 1906 (1882); Seeb. Ibis, 1883, p. 22; Irby, t. c. p. 179; Radde, Orn. Cauc. p. 304 (1884); Clarke, Ibis, 1884, p. 144; Saund. t. c. p. 379; Seeb. Hist. Brit. B. ii. p. 364, pl. xviii. (1884); Gigl. Avif. Ital. p. 205 (1886); Salvad. Ucc. Ital. p. 67 (1887); Backhouse, Ibis, 1887, p. 72.

Gecinus pinetorum, Brehm, Vög. Deutschl. p. 197 (1831).

Gecinus frondium, Brehm, Vög. Deutschl. p. 197 (1831).

Gecinus virescens, Brehm, Vög. Deutschl. p. 199 (1831).

Malacolophus viridis, Swains. Classif. B. ii. p. 308 (1837).

Brachylophus viridis, Jard. Nat. Libr. x. p. 355 (1839).

Picus karelini, Brandt, Bull. Sc. Acad. Imp. St. Pétersb. ix. p. 12 (1842).

Gecinus karelini, Gray, Gen. B. ii. p. 438 (1846); Bp. Consp. Gen. Av. i. p. 126 (1850); id. Consp. Volucr. Zygod. p. 10 (1854); Reichenb. Handb. Scans. Picinæ, p. 349, no. 795 (1854); Gray, List Picid. Brit. Mus. p. 74 (1868); id. Hand-l. B. ii. p. 191, no. 8678 (1870).

Chloropicos viridis, Malh. N. Classif., Mém. Acad. Metz, 1848–49, p. 351.

Chloropicus viridis, Malh. Monogr. Picid. ii. p. 118, pl. lxxix. figs. 1–4 (1862).

Chloropicus karelini, Malh. Monogr. Picid. ii. p. 126 (1862).

Gecinus saundersi, Tacz. J. f. O. 1878, p. 349.

Adult male. Above uniform vivid green; wing-coverts uniform green, slightly darker than the back; bastard-wing and primary-coverts black, edged externally with green and spotted with greyish, having a barred appearance; primaries black, edged externally with green, and having numerous patches of white on the outer webs, the inner having their basal half spotted with white; outer webs of secondaries green, with traces of whitish spots; inner webs black, deeply notched or barred with white, the tips washed with green; shafts black; rump bright chrome-yellow; tail-coverts green, edged with bright chrome-yellow; tail black, edged with green at the base and barred with light brownish grey; dwarf

feather dusky black, edged and broadly tipped with green; shafts black; forehead, crown, and nape crimson, bases of the feathers leaden grey; lores and space around the eye, including front half of the ear-coverts, black; malar patch crimson, bordered with black; posterior half of ear-coverts and side of face pale greyish green, shading into brighter green down the side of the neck; hind neck of the same colour as the back; chin and throat dirty greenish white; chest and breast pale greyish green inclining to yellow; remainder of the underparts of a brighter yellow, with indistinct dusky tips to the feathers; thighs with cross markings of olive; under tail-coverts dirty yellowish white, with broad V-shaped markings of greenish dusky; under wing-coverts pale yellow, banded with dusky olive; axillaries yellow, the basal portion being white: "bill greyish black, the lower mandible with a yellowish longitudinal band near the base; irides white; feet dull bluish grey, the claws light greyish brown, with a tinge of blue" (*Macgillivray*). Total length 12·4 inches, culmen 1·9, wing 6·5, tail 4, tarsus 1·2; toes (without claws)—outer anterior 0·85, outer posterior 0·8, inner anterior 0·68, inner posterior 0·4.

Nestling, male. Feathers of the back and the scapulars yellowish olive on the tips and margins, and crossed by a yellowish bar with a white shaft-spot, the bases dusky; rump chrome-yellow, with dusky or dusky olive and white bars showing through; upper tail-coverts tipped and margined with chrome-yellow, the remaining part of the feathers dusky or dusky olive, crossed by brownish-white bars; wing-coverts dusky, more or less washed with yellowish-olive and barred with dull white; bastard-wing and primary-coverts dusky black, edged externally with dull yellowish olive, and having marginal spots of dull white; primaries dusky black, the outer webs spotted along their whole length with white, the innermost margined with yellowish olive, and the inner webs of these spotted with white on the basal margin; the secondaries having the outer webs yellowish olive, the outermost with a trace of dull white spotting, inner webs dusky black, yellowish olive on the tip, with transverse marginal spots of

eye, the innermost feathers almost entirely washed with fulvous olive, with dull white or yellowish bars; shafts dusky black; tail dusky black, the lateral feathers having greyish barring, more or less oblique; shafts dull black; nasal plumes grey; lores dusky black, spotted with greenish white, except immediately in front of the eye; forehead, crown, occiput, and nape scarlet, the tips of the feathers being of this colour, succeeded by a dusky spot, and having leaden-grey bases; hind neck dusky black striped with white, the lower part washed with greenish; face greenish or yellowish white striped with dusky black; the supercilium dusky black spotted with greenish white; malar stripe dusky black, the anterior half spotted with greenish white, the feathers of the posterior half tipped with scarlet; chin, throat, sides of the neck, and fore neck yellowish white striped with dusky black; the whole of the under surface of the body yellowish white, covered with varied transverse markings of blackish olive, the thighs barred with the same; under tail-coverts yellowish white barred with dusky black; under wing-coverts creamy white, with varied olive, black, and dusky markings.

Adult female. Resembles the adult male, but has the malar patch black; the abdomen with dusky V-shaped markings; the thigh-markings less pronounced; the tail not so black, and the shafts brown at the base; the rump of a richer and deeper yellow. Total length 12·4 inches, culmen 1·7, wing 6·25, tail 3·9, tarsus 1·15.

Nestling, female. Resembles the male nestling, but wants the red on the malar stripe, this being dusky black spotted with dull greenish white.

The nestlings of this species differ from those of *G. sharpii* in having the face yellowish white striped with black; the supercilium spotted with olivaceous white; in not having any grey on the sides of the fore neck and chest; the markings on the under surface of the body being more transverse, and the upper tail-coverts barred with dusky olive and dull white.

This is, perhaps, the best known of all the *Gecini*, and the

only remarks I think it necessary to make upon it brought forward with the view of pointing out the vari- een; of so-called species, to which other titles have been assigned, but which, in my opinion, must be referred to *G. viridis*. I think there can be no doubt that the bird described by Aldrovandi (Orn. p. 850) as *Picus luteus cyanopus persicus* was nothing more than the present species; the description was taken from a painting seen in Venice, and not from the bird itself; the latter is said to have come from Persia, and appears, from the description, to be only a phase of plumage found occasionally in specimens of *Gecini*, of different species, inhabiting warm countries. *Picus semirostris* of Linnæus was founded upon a mutilated specimen of the present species, and which Sundevall states is still in the Stockholm Museum. *Le Pic Verd du Mexique* of Brisson (Orn. iv. p. 16) was founded on a bird described and figured by Seba (Cab. Cur. Nat. i. pt. 2, p. 100, pl. lxiv. fig. 3, 1734) as *Ardea mexicana*, but which is really our *G. viridis*, furnished with the legs of another bird, not a Woodpecker. Seba's description of the bird and his figure do not agree, as he makes no mention of the lores and space round the eye being red, as represented in his plate. Brisson, in his description of *Le Pic Verd du Mexique*, evidently taken from Seba, shows that he recognized the bird as a Woodpecker and not a Heron; and he has consequently, upon his own responsibility, bestowed upon it the legs of a Zygodactyle bird. *Picus karelini* of Brandt was described from a specimen obtained in the environs of Astrabad, N. Persia. At my request Mr. Seebohm examined the type, which exists in the Museum of St. Petersburg, and he informs me that he considers it to be nothing more than *G. viridis*; and this is the opinion held by Bogdanow. *Gecinus saundersi* of Taczanowski, from the Caucasus, must, in my opinion, be referred to *G. viridis*; and this is the view taken by Bogdanow and Seebohm. I have in my collection specimens from Lenkoran which are identical with our own Green Woodpecker A curious variety of the present species, with flame-coloured rump and yellow bands on the wings, is in the pos-

on of Mr. J. H. Gurney, jun. (*vide* 'Zoologist,' 1853, p. 3800). Mr. Robert Birkbeck (*op. cit.* 1854, p. 4250) mentions having seen three or four similar examples in the Pisa Museum.

Next to *G. canus* the present bird has the most extended range of all the *Gecini*, inhabiting the greater part of Europe, and being likewise found in Asia Minor and Persia. Wheelwright did not meet with this species in Lapland. In Norway; Dr. Collett records it from Tys Fjord, but it is rarely found further north than latitude 60°. It was also frequently observed by Mr. Hewitson during his visit to Norway; and in writing on the subject (Mag. of Zool. & Bot. ii. p. 313, 1838) he supplies us with the following interesting note:—"We saw several near one of the churches, in the steeple of which (being of wood) they had bored several holes in which to deposit their eggs." In Sweden its general range does not appear to be further north than latitude 60°, although Herr Meves observed it as far north as Jemtland.

In our own islands, Baikie and Heddle never found this species in Orkney, but mention having heard of one or two specimens being obtained. According to the best authorities it appears to have occurred but rarely in Scotland. It is also rare in the North of England, its true home being the more southern counties. In the New Forest (proper) it is tolerably plentiful, but is extremely rare in the Isle of Wight. In Ireland, according to Thomson (Nat. Hist. Irel. i. p. 343, 1849), the present species could not, upon any good authority, be said to have been procured up to that date; but in his Appendix, ii. p. 441, published in 1851, he records a specimen captured at Kilshrewley, near Granard, co. Longford, and gives such good authority for the statement as to place the occurrence of the Green Woodpecker in the Sister Isle beyond all doubt. Throughout France it is a common species, and it ranges into Spain as far as the Guadarrama Mountains, where it is replaced by *G. sharpii*.

I have never seen any specimens of *Gecinus viridis* from Portugal, and as Mr. W. C. Tait ('Ibis,' 1887, p. 304) informs us that *Gecinus sharpii* is very abundant all over that

country, it is improbable that *G. viridis* will be found alone; with it; Portuguese *Gecini* formerly bearing the latter title of are no doubt referable to *G. sharpii*, and not to the present species.

Both Count Salvadori and Prof. Giglioli state that *G. viridis* is very common throughout Italy. It does not appear to exist in Corsica, and it is rare in Sardinia, according to Count Salvadori, Cat. Ucc. Sard. p. 32 (1864), wherein he writes:—"I have not been able to meet with a single living specimen of this species, which Cara says is more common at the North Cape, but even there it must be rare, as Cetti could never find any. In the Museum are seen three specimens." Mr. Brooke, who visited the south of the island upon several occasions, never saw or heard the bird. Doderlein says it is rare in Sicily, particularly in the environs of Messina, Girgenti, and Palermo, and that it breeds in the large woods of the interior. This species is said by Mr. Elwes to be somewhat rare in Denmark. Mr. Cordeaux includes it in his List of the Birds of Heligoland in Mr. Gätke's collection, where is the only specimen known to have occurred on the island. In Holland, Belgium, Germany, Switzerland, and Austria *G. viridis* is found more or less commonly. In Transylvania Messrs. Danford and Harvie-Brown found it common everywhere among the lower oak and beech woods. According to Messrs. Elwes and Buckley it is common in all the woods of Turkey. Drummond says that in Macedonia it is very common in winter. Lindermeyer includes it in his 'Birds of Greece.' According to Dr. Krüper (MS.):—"It is not very common in forests of deciduous trees in Greece, commoner in Olympus, and has not been found in the Cyclades." The Hon. T. L. Powys (Lord Lilford) observed this species in the Ionian Islands. Drummond did not meet with it in Crete. In Russia *G. viridis* is said by Russow (Orn. Esth-, Liv- u. Kurl. p. 117, 1880) to be "very common on the islands of Oesel and Moon, and in all forests of deciduous trees in the Baltic provinces." In the province of Gdowski, according to Buchner and Pleske (Orn. St. Pétersb. Gouvern. p. 76), "the Green Woodpecker is

exceedingly rare, and has only been observed twice." Brandt (J. f. O. 1880, p. 229) writes:—"Sadelin observed it rarely in the province of Petropolitana." It is not included by Brandt in his 'Birds of the North Ural.' Sabanaeff, in his 'Avifauna of the Ural,' says this species was never found by him, but that it most likely occurs in the south-west parts of the Perm Government. Bogdanow (B. Volga, p. 60, 1871) writes:—"I cannot say that the Green Woodpecker is very common here, but it certainly occurs in small numbers in all the leafy forests here in the south as well as in the north. I met with it in the black forests of the rivers Hopre and Medveditiza, in the province of Saratoff, and it ranges as far south as the lower course of the Volga, and is resident about Sarepta according to Rickbeil. Most likely it occurs also about Astrachan, although neither Henke nor myself observed it there. In the fir and greenwood forests it is not so common as in the larch woods. The periodical changes in the life of this bird are not sufficiently known to me to be able to describe the same. In the autumn and winter it leads, like other Woodpeckers, a very irregular life, and appears in such forests and localities where it never appears in the breeding-season." Goebel says it is rare in Uman, and that he only saw it about a dozen times in eleven years. Ménétries states that it is found in the forests at the foot of the Caucasus, and he records it from Salian and Lenkoran. Bogdanow states:—"Very common in the woods, plains, and mountains of the Caucasus." In Asia Minor this species also occurs, and Mr. Danford informs us that, although not common, it is well distributed in the oak and fir woods of the Taurus range. Ross (P. Z. S. 1842, p. 1) remarks:—"This species is to be found in great numbers at Trebizond, and I have shot them as high as Gumushkhangh, which is between Erzeroum and Trebizond." In the collection of the British Museum there is a specimen of a male from the latter locality, collected by Mr. Ross, which presents a curious phase of plumage, the back and scapulars being washed with reddish brown, and the under surface of the body nearly buff, without any tinge of green. I cannot help thinking

that it was from a bird in a somewhat similar phase of plumage (but with the peculiar coloration distributed over other parts) that the painting was taken upon which Aldrovandi founded his species *Picus luteus cyanopus persicus*. *G. viridis* does not occur in Palestine. In Persia it is found, and Mr. Blanford (Zool. E. Pers. ii. p. 135) records a specimen from near Shiraz, obtained in June, and in a note appended by Sir O. St. John, the latter gentleman writes:—"In 1864 I shot a young Green Woodpecker in the oak forest, the only one I have ever seen in Southern Persia. In 1869 my collector procured an adult specimen in the same place. It is probably a rare straggler from the forests of the Zagros hills." Severtzoff did not meet with it in Turkestan. I cannot accept the statement made by Sonnini (Voy. Egypte, iii. p. 363) that the present species occurs, as a bird of passage, in Egypt; we have no reliable record of any Woodpecker ever having been seen in that country.

7. Gecinus awokera.

Picus awokera, Temm. Pl. Col. iv. no. 25, pl. 585 (1826); id. & Schleg. Faun. Japon. p. 72, pl. xxxvi. (1847–49); Sundev. Consp. Av. Picin. p. 60 (1866); Giebel, Thes. Orn. iii. p. 143 (1876).

Gecinus awokera, Gray, Gen. B. ii. p. 438 (1846); Bp. Consp. Gen. Av. i. p. 127 (1850); id. Consp. Volucr. Zygod. p. 10 (1854); Reichenb. Handb. Scans. Picinæ, p. 349, no. 797, pl. dcxx. figs. 4137–38 (1854); Swinh. P. Z. S. 1863, p. 333; Gray, List Picid. Brit. Mus. p. 72 (1868); id. Hand-l. B. ii. p. 191, no. 8672 (1870); Blakist. & Pryer, Trans. As. Soc. Jap. x. p. 136 (1882); Jouy, Proc. U.S. Nat. Mus. vi. p. 308 (1883).

Chloropicos awokera, Malh. N. Classif., Mém. Acad. Metz, 1848–49, p. 351.

Chloropicus awokera, Malh. Monogr. Picid. ii. p. 128, pl. lxxx. figs. 1, 2 (1862).

Adult male. Above, including scapulars, uniform pale green; wing-coverts uniform golden olive, brighter along the forearm; primary-coverts dusky, edged externally with

golden green; quills dusky brown, the outer webs of the outermost primaries margined at the base with golden green, and having numerous white markings along the margin, those of the remainder uniform golden green; the inner webs spotted or deeply notched with white, those of the outer primaries having their apical half uniform; a few of the inner secondaries entirely golden green; shafts blackish brown; rump-feathers green, broadly edged with chrome-yellow; upper tail-coverts olive-yellow, brighter on the margin; tail light dusky brown, edged at the base with green, and having indistinct darker dusky bars; dwarf feather dingy green, the tip yellowish; shafts black, brown at the base; nasal plumes and base of the forehead black, the feathers of the latter tipped with ashy grey; lores black; upper part of forehead, crown, and occiput bright crimson, bases of the feathers leaden grey varied with blackish; nape black; outer edge of the forehead and crown ashy grey, the feathers tipped with dusky; sides of the face and neck light grey; a long and broad red malar stripe on a black ground: chin and throat buffy white, shading into yellowish grey on the chest and breast; entire underparts, including sides, flanks, and thighs, yellowish white, the abdomen having small V-shaped black markings, the other parts having larger and broader markings (somewhat heart-shaped) on the sides and flanks; under tail-coverts yellowish white, with V-shaped black markings or olive bars; under wing-coverts white with a yellow tinge, and having blackish spots and irregular markings; axillaries white, faintly tinged with yellow, and sparingly spotted with blackish: "iris Venetian-red; bill dark greenish, base lemon-yellow; tarsi and toes dull olive-green" (*Jouy*). Total length 11·3 inches, culmen 1·6, wing 5·6, tail 3·95, tarsus 1·15; toes (without claws)—outer anterior 0·75, outer posterior 0·68, inner anterior 0·6, inner posterior 0·35.

Adult female. Differs from the male in having the forehead and crown smoky grey (slightly tinged with greenish upon the hind part of the crown), the feathers tipped and streaked with dusky, the occiput and nape being red (more

of a scarlet than crimson); the chest and breast yellowish; under wing-coverts whiter; axillaries also whiter, with black cross-markings: "the soft parts the same as in the male" (*Jouy*). Total length 11 inches, culmen 1·45, wing 5·55, tail 3·9, tarsus 1·05.

Young, probably female. Upper parts and scapulars dusky, with a slight greenish tinge; wing-coverts, basal margin of the outer webs of the primaries and outer webs of the secondaries dingy olive; the light markings upon the outer webs of the primaries only indicated, and of a dingy yellowish colour; rump and upper tail-coverts not of so bright a yellow as in the adult; forehead and crown ashy brown; occiput dingy scarlet; nape and hind neck dusky; a small dull scarlet cheek-patch; side of the face brownish ashy; from the chin to the chest, inclusive, dingy pale buff, this colour spreading on to the middle of the breast; underparts white, broadly barred with brownish black upon the thighs and under tail-coverts, the white being less pure and the barring browner; tail very indistinctly barred.

This Woodpecker has been supposed, until recently, to be confined to the main island of Japan; but Messrs. Blakiston and Pryer, in their "List of the Birds of Japan" (Trans. As. Soc. Jap. x. pt. 1, p. 136, 1882) suggested the probability of the species ranging into the southern islands also, and their expectations have been realized, as in an amended list by Capt. Blakiston (1884) he records the present species as having been obtained at Nagasaki, in the island of Kiushiu, by Mr. Ringer.

[To be continued.]

II.—*Notes on the Birds of New Zealand.* By T. W. Kirk, Geological Survey Department.

1. Petroeca toitoi.

Settlers' name "Pied Tit"; native name "Miromiro."

I was recently shown a most beautiful example of this species, exhibiting almost pure albino plumage; it is in the private museum of Mr. S. H. Drew, of Wanganui. The

only indication of the normal colouring is a small patch of faint grey on one of the primaries, the whole of the remaining plumage being a most clear white.

As the unfortunate victim was killed with a full charge of powder and an ounce of No. 4 shot, the internal anatomy was so much knocked about that Mr. Drew was unable to ascertain the sex. He has, however, by careful skinning and mounting, succeeded in transforming the battered skin into a really good museum-specimen, a result of which, as an amateur taxidermist, he may well be proud. This is, I believe, the first notice of albinism in the Pied Tit.

The specimen was procured at Paraekaretu, in the Rangitikei district, by Mr. Tripe.

2. Anthus novæ-zealandiæ.

Settlers' name "Ground Lark"; native name "Pihoihoi."

Varieties inclining to albinism are known to occur occasionally in this species; but while travelling through the bush on the east coast of the Wellington province, I came on a Maori plantation, and was shown by one of the natives a Ground Lark exhibiting a tendency both to albinism and melanism. The following is a description, jotted down in my pocket-book:—Top of head, and down as far as a line through the eye, dull black; the whole of the body and wings, with the exception of the two outer primaries, were a delicate creamy white; the outer primaries retained the normal greyish-brown colour. The outside tail-feathers, which in an ordinary specimen would be white, were in this case jet-black.

This bird, which was one of the most curious freaks of nature I ever saw, had been tamed, would come when called and allow itself to be picked up and examined, as though conscious of deserving attention on account of its extraordinary and fantastic dress. I endeavoured to effect a purchase, but without success, the Maoris appearing to set great store by their pet.

3. Phalacrocorax punctatus.

Settlers' name "Spotted Shag."

Writing of this species, Dr. (now Sir W.) Buller says, "This

beautiful representative of the Crested Shag is abundant on the coast of the South Island, but is seldom met with on the northern side of Cook Strait. I observed a party of three at the mouth of the Waikanae River in January 1864; two young birds were killed in Wellington in the winter of 1865; and another was shot in the Gulf of Hauraki, near Auckland; and these are the only instances I know of its occurrence in the North Island * * * I have never had an opportunity of examining the eggs, but I understand that three is the usual number" ('Manual of N. Z. Birds,' p. 95). It will therefore be interesting to note that I was lately informed, by Mr. J. C. McLean, that a colony of fifteen or sixteen of these birds has for more than five years been established on a reef inside Cape Kidnappers.

The latter gentleman states that he has collected the eggs, but never found more than two in a nest. In December 1885 there were five nests, placed at equal distances apart, along the ledge which runs on one side of the rock about three feet from the top. They were composed of seaweed, and were but little larger than the nests of the Mackerel Gull (*Larus scopulinus*, Forst.). One nest had *two* eggs in, and each of three others contained *two* young birds covered with black down; the fifth was empty. On the other side of the rock, out of reach, was another nest; this also contained but two eggs. On visiting the locality again last December the nests were found to be more numerous; but apparently the season was much later, as there were neither eggs nor young birds visible, but the old ones were grouped about, and allowed him to approach quite close before they took wing; their breeding-place being very difficult of access, it is evident they are not often disturbed. The egg is smaller than that of the Black Shag (*P. novæ-hollandiæ*, Gould), and very dirty. The original colour is pale blue.

Mr. McLean has kindly promised to furnish me with the measurements of the eggs in his possession.

The Cape is also the breeding-ground of a large number of Gannets (*Dysporus serrator*).

4. Sterna antarctica, Forst.

Common Tern; native name "Tara."

The local name of this bird, in the neighbourhood of Cape Kidnappers, is "The Plough Bird," or "Plough Boy," given on account of its habit of following the farmer's plough so persistently for the purpose of obtaining the grubs &c. thus exposed.

The Kea has acquired the taste for mutton, attacking and killing the sheep; the Tara has learned to look to the farmer for assistance in providing food; it yet remains to be seen how far civilized tastes will be adopted by New-Zealand birds, many of which show a decided inclination to adapt themselves to circumstances, although, unfortunately, many others are fast disappearing.

5. Nestor meridionalis, Gmel.

Brown Parrot; native name "Kaka."

The author of the 'History of the Birds of New Zealand' has described several varieties of this bird; one gorgeously coloured specimen he formerly considered a distinct species, and differentiated it with the title of *N. superbus*. Further examination, however, convinced him that it was only a variety of the Kaka, and he accordingly sank the specific name. In 1884 I recorded the capture of an almost identical specimen at Waikanae, and now another, hardly to be distinguished, is to be seen on view in the shop of Mr. Leardet, taxidermist. I am informed that this latest addition to the long list of New-Zealand birds presenting abnormal colouring was shot in the Kaikoura mountains.

6. Lobivanellus personatus.

Several instances are mentioned in the 'Transactions of the New Zealand Institute' of the discovery of Australian birds on the shores of these islands, viz.:—

Australian Tree Swallow (*Hirundo nigricans*, Vieill.)*.

Royal Spoonbill (*Platalea regia*, Gould), by Dr. Buller†.

* Trans. N.Z. Inst. vol. xi. p. 360. † Ibid. ix. p. 337.

Australian Roller or Dollar-bird (*Eurystomus pacificus*, Lath.), by Mr. F. E. Clarke*.

Red-capped Dotterel (*Charadrius ruficapillus*, Temm.), by myself†.

The species now to be noticed is more beautiful than any of our previous visitants. The Masked Plover is one of the Spur-wings, and stands about 12 inches high. The body is slight, very elegantly proportioned, and the general appearance is extremely graceful. It is thus described in Gould's 'Handbook to the Birds of Australia' (vol. ii. p. 221), and the New-Zealand specimen agrees in every particular with the description:—"Crown of head and occiput jet-black; sides of face, back of neck, rump, and all the under surface pure white; back and scapularies light brownish grey; wing-coverts grey; primaries deep black; secondaries white at the base on their inner webs, cinnamon-grey on their outer webs, and largely tipped with black; tail white at the base, largely tipped with black, the extreme ends of the feathers being cinnamon-grey, particularly the two centre ones; irides primrose-yellow; wattles lemon-yellow; bill lemon-yellow at base, black at the tip; legs and feet carmine-red; the scales in front blackish green."

The bird was observed in a field at Kai Iwi by Mr. G. Penke, who at once went to the house for a gun; taking a long shot, he fired, and the bird dropped, but when secured appeared quite unhurt, and lived for some time in confinement, refusing food almost entirely, and died, apparently from starvation rather than from any other cause. It was mounted, and is now in Mr. S. H. Drew's museum at Wanganui.

Both sexes possess the spur on the wing, which is a very noticeable feature, but much more developed in the male than in the female, and proves a very effective weapon in warfare. The yellow-coloured mask is supposed to be for the protection of the feathers of the face, the bird being very fond of thrusting its beak into mud and sand in search of small crustacea or the larvæ of Coleoptera, which form the staple of its food.

* Trans. N.Z. Inst. vol. xiii. p. 454. † Ibid. vol. xii. p. 246.

III.—*On the Hornbills of the Ethiopian Region.*

By Captain G. E. Shelley, F.Z.S.

Key to the Genera.

a. Tarsus long, much longer than half the length of the bill, measured from the gape. In adults the sides of the head and upper throat bare, with wattles on the throat ..... 1. *Bucorvus.*

b. Tarsus short, not half the length of the bill, measured from the gape.

*b*¹. Tail square or rounded; less than half the length of the bird.

*b*². Cheeks and a large wattle on the centre of the throat bare..... 2. *Ceratogymna.*

*c*². Cheeks and throat feathered.

*c*³. Bill stouter and not so much compressed at the sides. Generally with a large casque ..... 3. *Buceros.*

*d*³. Bill comparatively more slender and much compressed at the sides ..... 4. *Lophoceros.*

*c*¹. Tail long and strongly graduated; more than half the length of the bird..... 5. *Berenicornis.*

1. Bucorvus.

1831. *Bucorvus*, Less. Traité d'Orn. 1831, p. 259	Type. *B. abyssinicus.*
1847. *Tmetoceros*, Cab. Wiegm. Arch. 1847, p. 345	*B. abyssinicus.*
1849. *Bucorax*, Sundev. Œfv. K. Vet. Ak. Förh. 1849, p. 161	*B. abyssinicus.*

Key to the Species.

a. Bill with a large pale-coloured patch near the base of the upper mandible. Casque widely opened in front in adult males ..... 1. *B. abyssinicus.*

b. Bill entirely black, with no pale-coloured patch near the base of the upper mandible. Casque apparently always closed in front ..... 2. *B. caffer.*

Owing to the great similarity of these species and the want of sufficient specimens, I have been unable satisfactorily to unravel their synonymy. *B. abyssinicus* inhabits North-

east Africa and Senegambia, and probably extends down the west coast, possibly to Angola. *B. caffer* is the only species met with in South Africa, and extends northwards on the east coast, certainly to the Pangani River, and is probably the only one met with south of the equator in East Africa. Upon this supposition, which is not yet proved, I have based my synonymy and distribution.

1. Bucorvus abyssinicus.

Buceros abyssinicus, Bodd. Tabl. Pl. Enl. 1783, p. 47; Hartl. J. f. O. 1855, p. 361[1].

Buceros africanus, Lath. Ind. Orn. i. 1790, p. 143.

Buceros brac, Dumont, Dict. Sc. Nat. vi. 1817, p. 201.

Tragopan abyssinicus, Gray, List Gen. B. 1841, p. 65; Rüpp. Syst. Uebers. p. 79.

Bucorax abyssinicus, Hartl. Orn. W.-Afr. p. 165[2]; id. J. f. O. 1861, p. 261[3]; Monteiro, Ibis, 1862, p. 338[4]; Sharpe, Ibis, 1869, p. 385[5]; Bocage, P. Z. S. 1873, p. 698.

Tmetoceros abyssinicus, Cab. & Hein. Mus. Hein. ii. 1860, p. 175; F. & H. Vög. Ostafr. p. 480[6] (part.); Finsch, Trans. Z. S. vii. p. 279[7].

Buceros carunculatus abyssinicus, Schl. Mus. P.-B. i. *Buceros*, 1862, p. 19.

Buceros carunculatus guineensis, Schl. l. c. p. 20; Bocage, P. Z. S. 1873, p. 698.

Bucorvus abyssinicus, ? Sclat. P. Z. S. 1864, p. 111[8]; Blanf. Geol. & Zool. Abyss. p. 330[9]; Antin. & Salvad. Ann. Mus. Civ. Gen. 1873, p. 420[10]; Reichen. J. f. O. 1875, p. 12[11]; Elliot, Monogr. Bucerot. pl. 1; Salvad. Ann. Mus. Civ. Gen. 1884, p. 101[12]; Dubois, Bull. Mus. Belg. iii. 1884, p. 221; Rochebrune, Faun. Sénégamb., Ois. p. 113[13].

Tmetoceros habyssinicus, Heugl. Orn. N.O.-Afr. pp. 731, clvi[14].

Bucorvus pyrrhops, Elliot, Ann. & Mag. Nat. Hist. xx. 1877, p. 171; id. Monogr. Bucerot. pl. 2.

Bucorax guineensis, Bocage, P. Z. S. 1873, p. 698.

Bucorvus guineensis, Rochebrune, Faun. Sénégamb., Ois. xx. p. 113.

Bucorvus abyssinicus, var. *guineensis*, Dubois, Bull. Mus. Belg. iii. 1884, p. 221.

? *Bucorvus caffer*, Rochebrune, Faun. Sénégamb., Ois. p. 114.

Hab. "Not found by us in Sambar, but met with in the mountains of Bogos and Abyssinia, Takah, throughout the whole of Abyssinia southward to Shoa, in Fazogl, Senar, Kordofan, and the White Nile district, westward as far as the Kosanga River" (*Heuglin*[14]); Gazelle River (*Antinori*[14]); Senafé and Facado in May, Bejook, on the Anseba, July, as low near the coast as Ain in August (*Jesse*[7]). In Abyssinia it is chiefly found at about 4000 feet and up to 7000 or 8000 feet, but is occasionally met with at a lower elevation, as I once saw a bird at Koomali (*Blanford*[3]); Anseba and Keren (*Antinori & Beccari*[10]). Shoa, at many localities (*Antinori*[12]); ? Unioro and Madiland (*Speke*[8]). It crosses to West Africa and is common in Senegambia (*Rochebrune*[13]); Gambia; Bissao, Galam (*Beaudouin*[3 6]); Fantee (*Ussher*[5]); Accra (*Pel*[1 2]); Abouri, in the Aguapim mountains (*Shelley & Buckley*); Camaroons (*Reichenow*[11]); Pungo Andongo, in Angola (*Monteiro*[4]).—N.B. It is quite possible that the Angolan bird may be *B. caffer*.

2. Bucorvus caffer.

Buceros carunculatus cafer, Schl. Mus. P.-B. *Buceros*, 1862, p. 20.

Bucorax abyssinicus, Gurney (nec Bodd.), Ibis, 1861, p. 132[1]; Kirk, Ibis, 1864, p. 325[2].

Bucorvus abyssinicus, Gurney, Ibis, 1868, p. 162[3]; Ayres, Ibis, 1869, p. 296[4]; Gurney, ed. Anderss. B. Damara Land, p. 205[5]; Shelley, P. Z. S. 1881, p. 591[6].

Tmetoceros abyssinicus, F. & H. Vög. Ostafr. p. 480 (part.); Finsch, Zeitschr. ges. Orn. 1884, p. 361[7]; id. J. f. O. 1885, p. 126[8]; Reichen. J. f. O. 1887, p. 60[9].

Bucorax cafer, Bocage, P. Z. S. 1873, p. 698[10]; id. Orn. Angola, p. 111[11]; Sharpe, ed. Layard's B. S. Afr. pp. 122, 808[12].

Bucorvus cafer, Elliot, Monogr. Bucerot. pl. 3; Shelley, Ibis, 1882, p. 245[13].

Buceros abyssinicus, var. *caffer*, Dubois, Bull. Mus. Belg. iii. 1884, p. 222.

Hab. Confined to East and South Africa.

Usequa, Ungu, Ruwana, Mori, Maurui, Bamangwato (*Fischer*[7 8 9]); Usambara Hills near Pangani (*Kirk*[6], *Shelley Mus.*); Zambesi (*Kirk*[2]); Mashoona[13], Transvaal (*Ayres*[3 4]); Natal (*Ayres*[1]); Zululand (*Gordge, Shelley Mus.*); common on the eastern frontier of Cape Colony (*Layard*); East London (*Richard*[12]); Ondonga and Okavango River (*Andersson*[5]); Quillengues and Humbe, in Mossamedes (*Anchieta*[11]).

2. Ceratogymna.

1854. *Ceratogymna*, Bp. Consp. Vol. Anisod. 1854, p. 2 . . . . . Type. *C. elata.*

1859. *Sphagolobus*, Cab. Mus. Hein. ii. 1859, p. 171 . . . . . *C. atrata.*

Key to the Species.

a. Tail white, with the two central feathers black . . . . . 3. *C. elata.*

b. Tail black, with one third of the ends of all but the centre feathers white . . . . . 4. *C. atrata.*

3. Ceratogymna elata.

Buceros elatus, Temm. Pl. Col. 1830, pl. 521. f. 1; Hartl. J. f. O. 1855, p. 361[1]; id. Orn. W.-Afr. p. 161[2]; Gurney, Ibis, 1859, p. 153[3]; Ussher, 1874, p. 51[4]; Dubois, Bull. Mus. Belg. iii. 1884, p. 198; Büttikofer, Notes Leyden Mus. 1885, p. 204[5].

Buceros cultratus, Sundev. Œfv. Vet.-Ak. Förh. 1849, p. 160, ♀; Hartl. Orn. W.-Afr. p. 161[6].

Ceratogymna elata, Bp. Consp. Vol. Anisod. 1854, p. 2; Elliot, Monogr. Bucerot. pl. 23; Rochebrune, Faun. Sénégamb., Ois. p. 118[7].

Hab. W. Africa: Gaboon (*Verreaux*[6]); St. John's River (*McDowell*[2]); Calabar (*Laurein*[3]); Ibadan (*Hinderer*[3]); Gold Coast (*Pel*[1]); Denkera, forest in the interior (*Ussher*[4]); Liberia (*Büttikofer*[5]); Sierra Leone (*Afzelius*[2]); Casamanse, Gambia, Senegambia (*Rochebrune*[7]).

4. Ceratogymna atrata.

Buceros atratus, Temm. Pl. Col. 1830, pl. 558[1]; Hartl. J. f. O. 1855, p. 361[2]; id. Orn. W.-Afr. pp. 162[3], 274[4]; Cass. Pr. Ac. Philad. 1859, p. 139[5]; Ussher, Ibis, 1874, p. 51[6]; Bocage, Orn. Angola, p. 113[7]; Reichen. J. f. O. 1877, p. 18[8]; Hartl. Abhandl. nat. Ver. Brem. viii. 1882, p. 208[9]; Dubois, Bull. Mus. Belg. iii. 1884, p. 199; Büttikofer, Notes Leyden Mus. 1885, p. 205[10].

Buceros poensis, Fraser, Ann. & Mag. Nat. Hist. 2nd ser. xv. 1855, p. 136, ♀[11].

Sphagolobus atratus, Cab. & Heine, Mus. Hein. ii. 1860, p. 171; Elliot, Monogr. Bucerot. pl. 24; Bouvier, Cat. Ois. Marche &c. 1875, p. 28[12]; Sharpe, Journ. Linn. Soc., Zool. xvii. 1884, p. 436[13].

Hab. W. Africa, from Angola to Liberia, and inland to 5° N. lat. on the White Nile.

Equatorial Africa, near the Bari Negro country, Upper White Nile at Lado (*Emin Pacha*[9]); Semmio in the Nyamnyam country (*Bohndorff*[13]); Cabinda (*Anchieta*) and Cazengo (*Toulson*) in Angola (*Bocage*[7]); Loango Coast (*Falkenstein*[8]); Muni River, Gaboon (*Du Chaillu*[4]); Ogowè River (*Du Chaillu*[5], *Marche*[12]); Fernando Po (*Fraser*[11]); Calabar (*Laurein*[3]); Gold Coast (*Pel*[2]), Denkera (*Ussher*[6]), and Ashantee (*Mus. Lugd.*[1]); Liberia (*Büttikofer*[10]).

3. Buceros.

	Type.
1766. *Buceros*, Linn. S. N. i. 1766, p. 153 .	*B. bicornis.*
1849. *Anthracoceros*, Reichb. Syst. Av. 1849, pl. 49	*B. malabaricus.*
1859. *Bycanistes*, Cab. Mus. Hein. ii. 1859, p. 171	*B. buccinator.*
1878. *Pholidophalus*, Elliot, Monogr. Bucerot. pl. 32	*B. fistulator.*

Key to the Species.

a. Tail with the two centre feathers entirely black, or occasionally with narrow white ends or narrow white bases.

a^1. With no white on the quills. White of abdomen not extending on to the chest ..... 5. *B. cristatus.*

b^1. With portion of the secondaries white. Chest and abdomen white.

b^2. With no white on the greater wing-coverts.

b^3. Casque large. With more than half of all the secondaries and tail-feathers black 6. *B. buccinator.*

c^3. Casque obsolete or rudimentary; bill strongly corrugated.

c^4. White of secondaries not extending over more than the end-half of the feathers. Basal half of all the tail-feathers black 7. *B. fistulator.*

d^4. White of secondaries extending to their bases. White of tail variable, according to age, always covering more than the end-half of all but the centre feathers, and in fully adults reaching to the base, or nearly so, of these feathers 8. *B. sharpii.*

c^3. With broad white ends to the greater coverts; casque strongly developed.

d^3. Outer primaries entirely black. With a broad black subbasal band on the tail .. 9. *B. subcylindricus.*

e^3. The greater part of the outer and the ends of all the primaries white. Tail, with the exception of the two centre feathers, entirely white ..... 10. *B. leucopygius.*

b. Entire tail, including the two centre feathers, white, with a broad black central band.

f^1. With broad white ends to the greater wing-coverts. Black of the chest extending down the front of the thighs ..... 11. *B. cylindricus.*

g^2. With no white ends to the greater wing-coverts. Entire thighs white ..... 12. *B. albotibialis.*

5. Buceros cristatus.

Buceros cristatus, Rüpp. N. W. 1835, p. 3, pl. 1[1]; id. Syst. Uebers. p. 79; Cass. Pr. Ac. Philad. 1859, p. 139[2]; Kirk, Ibis, 1864, p. 326[3]; Sclat. P. Z. S. 1864, p. 111[4]; F. & H. Vög. Ostafr. p. 482[5]; Heugl. N.O.-Afr. pp. 730, clvi; Fisch. & Reichen. J. f. O. 1880, p. 141[6]; Dubois, Bull. Mus. Belg. iii. 1884, p. 200; Fisch. Zeitschr. ges. Orn. 1884, p. 361[6]; id. J. f. O. 1885, p. 126[6]; Shelley, P. Z. S. 1885, p. 224[7]; Reichen. J. f. O. 1887, p. 60[8].

Bycanistes cristatus, Cab. Mus. Hein. ii. p. 172, note; Cab. V. d. Decken's Reis. iii. p. 38[9]; Elliot, Monogr. Bucerot. pl. 26; Shelley, P. Z. S. 1881, p. 519[10]; Salvad. Ann. Mus. Civ. Gen. 1884, p. 102[11]; Rochebrune, Faun. Sénégamb., Ois. p. 118[12].

Hab. East Africa from Abyssinia to the Zambesi and Senegambia, according to M. Rochebrune, where, however, it is not common. The records of its occurrence on the Camma River, in Gaboon, and in Natal require additional confirmation.

Southern parts of Lake Tana (*Rüppell*[1]); Shoa (*Antinori*[11]); Uganda (*Speke*[4]); throughout Masai-land, at Kilimanjaro (*H. H. Johnston*[7]); Schadel, Gt. Arusha Lake, Mkarama, Masinde, Nguru Mountain, Msingissia (*Fischer*[6 8]); Usambara (*Kirk*[10]); Shiré and Zambesi Rivers (*Kirk*[3], *Brit. Mus.*); Bakel, Kita, and the forests of Bakoy and Falémé (*Rochebrune*[12]); ? Camma River (*Du Chaillu*[2]); ? Natal (*Mus. Kirchhoff*[5]).

6. Buceros buccinator.

Buceros buccinator, Temm. Pl. Col. 1830, p. 284; Gurney, Ibis, 1864, p. 133[1]; Kirk, Ibis, 1864, p. 326[2]; F. & H. Vög. Ostafr. p. 484; Sharpe, ed. Layard's B. S. Afr. p. 125[3]; Bocage, Orn. Angola, p. 540[4]; Dubois, Bull. Mus. Belg. iii. 1884, p. 200; Fisch. J. f. O. 1885, p. 126[5].

Bycanistes buccinator, Cab. Mus. Hein. ii. p. 171; id. V. d. Decken's Reis. iii. p. 38[6]; Elliot, Monogr. Bucerot. pl. 27; Shelley, P. Z. S. 1881, p. 591[7].

Hab. East Africa south of the equator to Natal, Kingwilliamstown, the Knysna in Cape Colony and northwards to Angola.

Wito, Pangani, Usaramo, Nguraberg, Lindi (*Fischer*[5]); Kisuani (*V. d. Decken*[6]); Melinda and Usambara Mountains (*Kirk*[7]); Shupanga in Zambesi region (*Kirk*[2], *Brit. Mus.*); Natal (*Ayres*[1]); Kingwilliamstown (*Trevelyan, Brit. Mus.*); Knysna (*Victorin*[3]); Talla Magongo, in Angola (*Schutt*[4]).

7. Buceros fistulator.

Buceros fistulator, Cass. Pr. Ac. Philad. 1850, p. 68[1]; Hartl.

Orn. W.-Afr. p. 162[2] (part., nec Gaboon); id. J. f. O. 1861, p. 261[3] (part.); Ussher, Ibis, 1874, p. 51[4]; Dubois, Bull. Mus. Belg. iii. 1884, p. 203 (part.); Büttikofer, Notes Leyden Mus. iv. 1885, p. 206[5]; Hartert, J. f. O. 1886, p. 596[6].

Pholidophalus fistulator, Elliot, Monogr. Bucerot. pl. 32; Rochebrune, Faun. Sénégamb., Ois. p. 119[7].

Hab. West Africa, from the Niger to Senegambia.

Loko and Iddah on the Niger (*Hartert*[6]); Dabocrom (*Pel*[2]); Gold Coast (*Ussher*[4]); Liberia (*Büttikofer*[5]); St. Paul's River (*McDowell*[1]); Sierra Leone (*Linnier*[3]); Casamanse, Gambia, Melacorée, and M'Bao (*Rochebrune*[7]).

8. Buceros sharpii.

Buceros fistulator, Cass. (nec Cass. 1850) Pr. Acad. Philad. 1859, p. 139[1]; Sharpe, P. Z. S. 1871, p. 134[2]; Reichen. J. f. O. 1877, p. 19[3].

Buceros sharpii, Elliot, Ibis, 1873, pp. 177, 179[4]; Bocage, Orn. Angola, p. 114[5]; Oust. Bull. Nouv. Arch. Mus. Paris, 1880, p. 69[6].

Pholidophalus sharpii, Elliot, Monogr. Bucerot. pl. 33.

Buceros viti, Dubois, Bull. Mus. Belg. iii. 1884, p. 204[7].

Buceros fisculator, var., Dubois, t. c. pl. 11.

Hab. West Africa from Angola to the Niger.

Angola (*Hamilton*[2 4], *Brit. Mus.*); Cazengo (*Hamilton*[5]); Viti, on the Congo (*Dubois*[7]); Loango Coast (*Falkenstein*[3]); Gaboon (*Verr.*[4]); Camma and Muni Rivers (*Du Chaillu*[1]); Ogowè River (*Marche*[6], *Ansell, Brit. Mus.*); Niger (*Baikie, Brit. Mus.*).

As the specimen in the British Museum labelled Niger (*Baikie*) undoubtedly belongs to this species, I should like to have examined the specimens collected on that river by Herr Hartert (*vide suprà*); but I see no reason why both the species should not occur there, as the locality where the British-Museum specimen was collected may be distant from either Loko or Iddah.

9. Buceros subcylindricus.

Buceros subcylindricus, Sclat. P. Z. S. 1870, p. 668, pl. 39; 1871, p. 489; Dubois, Bull. Mus. Belg. iii. 1884, p. 201[1].

Bycanistes subquadratus, Cab. J. f. O. 1880, p. 350, pl. 1[2]; Elliot, Monogr. Bucerot. pl. 28; Bocage, Orn. Angola, p. 540[2].

Bycanistes subcylindricus, Elliot, Monogr. Bucerot. pl. 29.

Buceros subquadratus, Hartl. Abhandl. nat. Ver. Bremen, viii. 1882, p. 208[3].

Hab. Talla Mogongo, in Angola (*Schütt*[2]). Nyam-nyam country (*Mus. Brux.*[1]). Upper White Nile district (*Emin Bey*)[3].

Mr. Sharpe informs me that he never saw the specimen from Bohndorff's collection which M. Dubois describes.

10. Buceros leucopygius.

Buceros leucopygius, Dubois, Bull. Mus. Belg. iii. 1884, p. 202, pl. 10, fig. 1[1].

Pholidophalus sharpii, Sharpe, Journ. Linn. Soc., Zool. xvii. 1884, p. 438[2].

Hab. Semmio and Ndoruma, in the Nyam-nyam country (*Bohndorff*[1 2]).

Mr. Sharpe only met with one specimen in M. Bohndorff's Nyam-nyam collection, labelled "Ndoruma," which he referred to *P. sharpii*, while M. Dubois records two specimens, both from Semmio, out of the same collection.

11. Buceros cylindricus.

Buceros cylindricus, Temm. Pl. Col. 1830, pl. 251. fig. 2; Hartl. Orn. W.-Afr. p. 162[1]; Cass. Pr. Ac. Philad. 1859, p. 139[2]; Ussher, Ibis, 1874, p. 51[3]; Dubois, Bull. Mus. Belg. iii. 1884, p. 201; Büttikofer, Notes Leyden Mus. iv. 1885, p. 206[4].

Bycanistes cylindricus, Cab. Mus. Hein. ii. 1860, p. 173; Elliot, Monogr. Bucerot. pl. 30; Bouvier, Cat. Ois. Marche &c. 1875, p. 28[5].

Buceros casuarinus, G. R. Gray, Ann. & Mag. Nat. Hist. viii. p. 1871, pp. 17, 437; Sclater, P. Z. S. 1885, p. 851.

Pholidophalus casuarius, Elliot, Monogr. Bucerot. pl. 34.

Hab. North Africa, Gaboon to Liberia.

Camma River (*Du Chaillu*[2]): Ogowè River, in Ga-

boon (*Marche*[5]); Ashantee (*Pel*[1]); Fantee, Gold Coast (*Ussher*[3]); Liberia (*Büttikofer*[4]).

12. Buceros albotibialis.

Buceros albotibialis, Reichen. J. f. O. 1877, p. 19 (no descr.)[1]; Cab. & Reichen. t. c. p. 103 (orig. descr.); Bocage, Orn. Angola, p. 540; Dubois, Bull. Mus. Belg. iii. 1884, p. 202.

Bycanistes albotibialis, Elliot, Monogr. Bucerot. pl. 31.

Hab. West Africa. Myambo country (*Petit, Brit. Mus.*); Loango Coast (*Falkenstein*[1]).

4. Lophoceros.

	Type.
1828. *Lophoceros*, Hempr. & Ehr. Symb. Phys. fol. *z*	*L. nasutus.*
1828. *Alopius*, Hempr. & Ehr. t. c. fol. *a a* (nec *Alopus*, Schönh. 1826, Coleoptera)	*L. erythrorhynchus.*
1831. *Tockus*, Less. Traité Orn. p. 252	*L. erythrorhynchus.*
1842. *Rhynchoceros*, Gloger, Hand- u. Hilfsb. 1842, p. 335	*L. melanoleucus.*
1849. *Grammicus*, Reichb. Syst. Av. p. 49	*L. nasutus.*

Key to the Species.

a. Breast white.

a[1]. Head, neck, and upper parts black, with the exception of the second and third pairs of tail-feathers, counting from the outer ones, which are black and white or entirely white.

a[2]. Tip of the bill with no trace of red. Lower mandible smoother, and in adults with an oblique band of black from the middle towards the base. Tail with the second and third pairs of feathers, counting from the outer rectrices, black for more than half their length . . . . . 13. *L. fasciatus.*

b^2. Tip of the bill always more or less red. Lower mandible rougher, and with no oblique black band. Tail with the second and third pairs of feathers, counting from the outer rectrices, entirely white in full adults, the basal portions often having some black in the less mature birds, but this black never extends over one half of the feather ..... 14. *L. semifasciatus.*

b^1. Head and neck never black.

c^2. Head and throat brown or grey.

c^3. Bill red.

c^4. Tail-feathers, not all tipped with white. Larger.

c^5. With no white band down the wings.

c^6. Larger. With no buff at the base of the bill. With two pairs of tail-feathers entirely white..... 15. *L. hemprichi.*

d^6. Smaller. With a narrow buff base to the bill. White on the tail confined to a broad terminal band on some of the feathers..... 16. *L. melanoleucus.*

d^5. With a white band down the wing, formed by the centre quills being white ..... 17. *L. monteiri.*

d^4. With a white terminal band to all the tail-feathers. Smaller.... 18. *L. camurus.*

d^3. Bill not red, but sometimes washed with that colour in the females. Lower mandible more or less obliquely ridged. General colouring: above brown, all the wing-coverts broadly edged with buff, and the tail with a white terminal band.

e^4. Male: bill black, with a buff patch on the upper mandible and several oblique buff ridges on the lower one.

e^5. With no casque to the bill .... 19. *L. nasutus.*

f^5. With a well-developed low casque to the bill..... 20. *L. epirhinus.*

f^4. Bill buff ..... 21. *L. pallidirostris.* 31,
d^2. Throat white. Bill red or yellow. "
g^3. Above brown, wing-coverts spotted with white.
g^4. Bill red.
g^5. Head darker; forehead grey, like the crown. Cheek and ear-coverts more or less shaded with grey. The dark bar on the outer tail-feather nearly always very distinct ..... 22. *L. erythrorhynchus.*
h^5. Head paler; a broad white forehead. Cheeks, ear-coverts, and entire under surface of the neck and body uniform white. Outer tail-feathers uniform white in one specimen, and with only a slight brown patch in the other, indicating where the bar occurs in *L. erythrorhynchus* ..... 23. *L. damarensis.*
h^4. Bill yellow.
i^5. Dark markings, when present on the fore neck and breast, confined to shaft-stripes. Bare skin round the eye grey; bare skin on the throat generally grey .. 24. *L. flavirostris.*
j^5. Dark markings on the fore neck and breast always present and confined to the edges of the feathers. Bare skin of the head and throat yellow, with no shade of grey.
j^6. The white on the two pairs of outer tail-feathers partially crossed by an imperfect dark band, very much narrower than the white ends to these feathers. The outer feather always with a largish dark basal portion ..... 25. *L. leucomelas.*
k^6. The white on the three pairs of outer tail-feathers crossed by an even broad dark band, not narrower than the white ends to these feathers. The

outer feather with a brown basal spot surrounded by white ..... 26. *L. elegans.*

*b*³. General colouring of upper parts black and white. The wing-coverts uniform black, with the exception of a few of the centre greater coverts, which are white, like some of the centre quills, and together form a white band down the wing ..... 27. *L. deckeni.*

b. Breast dusky black, slightly paler than the head and upper part ..... 28. *L. hartlaubi.*

13. Lophoceros fasciatus.

Le Calao longibande, Levaill. Ois. Afr. v. p. 115, pl. 233 (1806).

Buceros fasciatus, Shaw, Gen. Zool. viii. 1811, p. 34; Cranch in Tuckey's Exped. River Zaire, App. 4, p. 407[1]; Jard. Ann. Nat. Hist. xvii. p. 85[2]; Hartl. Orn. W.-Afr. pp. 163, 274[3] (part., nec Casamanse); Reichen. J. f. O. 1877, p. 18[4]; Dubois, Bull. Mus. Belg. iii. 1884, p. 214 (part.).

Tockus fasciatus, Bp. Consp. Av. i. p. 98; Cass. Pr. Ac. Philad. 1859, p. 140[5]; Bocage, Orn. Angola, p. 123[6]; Elliot Monogr. Bucerot. pl. 50, upper figure; Sharpe, Journ. Linn. Soc., Zool. xvii. 1884, p. 435[7].

Buceros semifasciatus, Hartl. Orn. W.-Afr. p. 163[8] (part., Gaboon).

Hab. Angola to Gaboon, and North-eastwards to Equatorial Africa.

Angola (*Mus. Lugd.*[6]); Congo (*Tuckey*[1]); Loango Coast (*Falkenstein*[4]); Gaboon (*Verreaux*[5]); Camma, Ogowè, Moonda rivers, and Cape Lopez[3] (*Duchaillu*[3]); ? Old Calabar[2] (*teste Jardine*); Semmio and Ndoruma in Nyam-nyam (*Bohndorff*[7]); Kubbi and Tingasi (*Emin Bey, Brit. Mus.*).

Dr. Rochebrune claims to have met with this species in Senegambia.

14. Lophoceros semifasciatus.

Buceros melanoleucus, Vieill. (nec Licht.) N. D. iv. 1816, p. 595.

Buceros semifasciatus, Hartl. J. f. O. 1855, pp. 356, 361[1]; id. Orn. W.-Afr. p. 163[2] (part.); Büttikofer, Notes Leyden Mus. iv. 1885, p. 208[3].

Buceros fasciatus, Hartl. Orn. W.-Afr. p. 163[4] (part., Casamanse); Gurney, Ibis, 1859, p. 153[5].

Tockus semifasciatus, Sharpe, Ibis, 1869, p. 192[6]; Reichen. J. f. O. 1875, p. 13; Elliot, Monogr. Bucerot. pl. 50, lower figure; Shelley, Ibis, 1883, p. 558[7]; Rochebrune, Faun. Sénégamb. p. 120[8]; Hartert, J. f. O. 1886, p. 595[9].

Hab. W. Africa. From the Niger to Senegambia.

Shongo (*Forbes*[7]); Iddah (*Hartert*[9]) on the Niger; Ibadan (*Hinderer*[5]); Gold Coast and Rio Boutry (*Pel*[1]); Accra (*Haynes*); Fantee (*Ussher*[6]); Liberia (*Büttikofer*[3]); Gambia (*Moloney*); Casamanse, Gambia, Senegambia (*Rochebrune*[8]).

15. Lophoceros hemprichi.

Lophoceros hemprichii, Ehr. in Hempr. & Ehr. Symb. Phys. 1828, fol. *a a*, note.

Buceros limbatus, Rüpp. N. W. p. 5, pl. 2. fig. 1[1]; Finsch, Trans. Zool. Soc. vii. 1870, p. 279[2].

Tokus limbatus, Rüpp. Syst. Uebers. p. 79.

? *Buceros coronatus*, Des Murs (nec Shaw) in Lefebvr. Voy. Abyss. 1854, p. 127.

Buceros hemprichi, Finsch, Trans. Zool. Soc. vii. 1870, p. 317; Heugl. Orn. N.O.-Afr. pp. 724, clv[3].

Tockus hemprichii, Blanf. Geol. & Zool. Abyss. p. 326[4]; Antin. & Salvad. Ann. Mus. Civ. Gen. 1873, p. 417[5]; Elliot, Monogr. Bucerot. pl. 52; Salvad. Ann. Mus. Civ. Gen. 1884, p. 103[6].

Alopius hemprichii, Dubois, Bull. Mus. Belg. iii. 1884, p. 215.

Hab. N.E. Africa.

"A mountain species—Dega region of Abyssinia, from 5000 to 11,000 feet. If I remember rightly, I have received it from the Upper White Nile and from Kordofan" (*Heuglin*[3]). Senafé (*Jesse*[2]); in Bogos from Sciotel, Keren, Deghi, Ossa (*Antinori & Beccari*[5]); Anseba valley (*Blanford*[4]); Letmarafia, Mahaluonz, and Amba karra in Shoa (*Antinori*[6]).

16. Lophoceros melanoleucus.

Buceros melanoleucus, Licht. Cat. Rer. Nat. Rar. 1793, p. 8[1]; F. & H. Vog. Ostafr. p. 485[2]; Heugl. Orn. N.O.-Afr. pp. 720, clv[3]; Fisch. & Reichen. J. f. O. 1879, p. 343[4], 1880, p. 141[5]; Böhm, J. f. O. 1883, p. 168[6]; Dubois, Bull. Mus. Belg. iii. 1884, p. 214; Shelley, P. Z. S. 1885, p. 224[7]; Dubois, Bull. Mus. Belg. iv. 1886, p. 147[8].

Le Calao couronné, Levaill. Ois. Afr. v. 1806, p. 117, pls. 234, 235.

Buceros coronatus, Shaw, Gen. Zool. viii. 1811, p. 35; ? Swains. B. W. Afr. ii. p. 257.

Tockus melanoleucus, Bp. Consp. Av. 1850, p. 91[9]; Hartl. J. f. O. 1861, p. 261[10]; Gurney, Ibis, 1862, p. 157[11]; Sclat. P. Z. S. 1864, p. 111[12]; Kirk, Ibis, 1864, p. 327[13]; Sharpe, P. Z. S. 1870, p. 149[14]; id. Cat. Afr. B. p. 9[15]; Gurney ed. Anderss. B. Damara Land, p. 208[16]; Reichen. J. f. O. 1875, p. 12[17]; Nicholson, P. Z. S. 1878, p. 358[18]; Bocage, Orn. Angola, p. 116[19]; Sharpe, ed. Layard's B. S. Afr. p. 127[20]; Elliot, Monogr. Bucerot. pl. 49; Shelley, P. Z. S. 1881, p. 519[21]; Rochebrune, Faun. Sénégamb. p. 119[22].

Toccus coronatus, Bodd. Gurney, Ibis, 1861, p. 133.

Lophoceros melanoleucus, Cab. in V. d. Decken's Reis. iii. 1869, p. 37[23]; id. J. f. O. 1878, p. 235[24]; Schalow, J. f. O. 1883, p. 348[25]; Fisch. J. f. O. 1885, p. 126.

Hab. The whole of Africa south of about 5° N. lat.

E. Africa: Usaramo (*Speke*[2]); Usanga and Mbaromu (*V. d. Decken*[23]); Kilimanjaro (*H. H. Johnston*[7]); Ndi (*Hildebrandt*[21]); Pangani River, Usambara (*Kirk*[21]); Mombas (*Wakefield, Brit. Mus.*); Mugonga[25] and Kium (*Böhm*[6]); Tanganika (*Storms*[8]); Mambrui (*Fischer*[4]); Wito, Pangani, Usegua, Bagamoyo[5], and Lindi (*Fischer*[26]); Zanzibar (*Bojer*[10], *Kirk*[12]); Dar-es-Salaam (*E. C. Buxton*[15]); Mosambique (*Peters.*[2]).

S. Africa: Shiré in Zambesi district (*Kirk*[13]); Natal (*Ayres*[11]); Caffraria (*Licht.*[1]); Elands Post (*Atmore*[15]); Geneivafontein and Knysna (*Layard*[20]); Damara (*Chapman*[20]); Ovampo (*Andersson*[16]); Cunene River and Caconda in Mossamedes and Humbe and Biballa in Benguela (*Anchieta*[19]).

W. Africa: Pungo Ondongo and Ambaka (*Anchieta*[15 19]); Galungo-alto (*Welwitsch*[19], Brit. Mus.); Rio Dande (*Sala*[19], *Brit. Mus.*); Camaroons (*Reichenow*[17]). Interior of Senegambia (*Rochebrune*[22]).

17. Lophoceros monteiri.

Tockus monteiri, Hartl. P. Z. S. 1865, p. 87, pl. 5[1]; Gurney, ed. Anderss. B. Damara Land, p. 208[2]; Sharpe, ed. Layard's B. S. Afr. p. 129[3]; Bocage, Orn. Angola, p. 121; Elliot, Monogr. Bucerot. pl. 53.

Alophius monteiri, Dubois, Bull. Mus. Belg. iii. 1884, p. 219.

Hab. S. Afr. Damara and Benguela.

Damara (*Andersson*[2]); Benguela (*Monteiro*[1]); Katumbella (*Sala*[3]).

18. Lophoceros camurus.

Tockus camurus, Cass. Pr. Ac. Philad. 1856, p. 319[1]; 1859, p. 140[2]; Reichen. J. f. O. 1875, p. 13[3]; Bouvier, Cat. Ois. Marche &c. p. 20; Bocage, Orn. Angola, p. 541[4]; Elliot, Monogr. Bucerot. pl. 59; Sharpe, Journ. Linn. Soc., Zool. xvii. 1884, p. 436[5].

Buceros pulchrirostris, Schl. Ned. Tijdschr. Dierk. i. 1862, p. 74, pl. 4[6].

Tockus pulchrirostris, Sharpe, Ibis, 1870, p. 485[7]; id. P. Z. S. 1871, p. 604[8].

Buceros camurus, Reichen. J. f. O. 1877, p. 18[9]; Büttikofer, Notes Leyden Mus. iv. 1885, p. 210[10].

Alophius camurus, Dubois, Bull. Mus. Belg. iii. 1884, p. 220.

Hab. W. and Central Africa: from the Loango Coast to Liberia and to the Nyam-nyam country in North-east Equatorial Africa.

North bank of the Congo (*Spencer Shield, Brit. Mus.*); Loango Coast (*Falkenstein*[6]); Elobe, in Gaboon (*Ansell, Brit. Mus.*); Gaboon (*Walker, Brit. Mus.*); Camma River and Cape Lopez (*Duchaillu*[2]); Camaroons (*Crossley*[8] *& Reichenow*[9]); Volta River and Fantee (*Ussher*[7]); Liberia (*Büttikofer*[10]); Sassa in Nyam-nyam (*Bohndorff*[4], *Brit. Mus.*).

19. Lophoceros nasutus.

Buceros nasutus, Linn. S. N. i. 1766, p. 154 (Senegambia)[1]; Hartl. Orn. W.-Afr. p. 164[2]; F. & H. Vög. Ostafr. p. 486[3]; Finsch, Trans. Z. S. vii. p. 277[4]; Heugl. Orn. N.O.-Afr. pp. 723, clv[5]; Fisch. & Reichen. J. f. O. 1878, p. 254[6]; Hartl. Abhandl. nat. Ver. Brem. vii. 1881, p. 111[7]; Bohm, J. f. O. 1883, p. 169[8]; Dubois, Bull. Mus.-Belg. iii. 1884, p. 212 (part.).

Le Calao nasique, Levaill. Ois. Afr. v. 1806, pl. 236.

Lophoceros forskalii, Hempr. & Ehr. Symb. Phys. Av. 1828, fol. *z*, note, ♂.

Lophoceros hemileucus, Hempr. & Ehr. t. c. fol. *a a*, note, ♀.

Buceros hastatus, Cuv. Règne An. i. 1829, p. 446, note.

Buceros pœcilorhynchus, Lafresn. Rev. Zool. 1839, p. 257; Hartl. Orn. W.-Afr. p. 164.

Tockus nasutus, Rüpp. Syst. Uebers. 1845, p. 79; Hartl. J. f. O. 1861, p. 261[9]; Blanf. Geol. & Zool. Abyss. p. 329[10]; Shelley & Buckley, Ibis, 1872, p. 286[11]; Salvad. Ann. Mus. Civ. Gen. 1873, p. 418[12]; Bouvier, Cat. Marche &c. 1875, p. 27[13]; Hartert, J. f. O. 1886, p. 596[14].

Buceros nasutus, vars. *senegalensis* et *orientalis*, Sundev. Œfv. k. Vet.-Ak. Förh. 1850, pp. 108, 130.

Lophoceros nasutus, Cab. J. f. O. 1878, p. 236[15]; Schalow, J. f. O. 1883, p. 348[16]; Dubois, Bull. Mus. Belg. iii. 1884, p. 212 (part., nec S. Afr.); Salvad. Ann. Mus. Civ. Gen. 1884, p. 103[17]; Rochebrune, Faun. Sénégamb., Ois. p. 119[18]; Fischer, J. f. O. 1885, p. 126[19].

Tockus pœcilorhynchus, Hartl. J. f. O. 1861, p. 261[20].

Hab. Southern Taka and Nubia, northward to 17° or 18° N. lat.; Sennaar, Kordofan, and the whole of Abyssinia with the exception of the high mountainous regions; the districts of Sobat, White Nile, Gazelle River eastward to the Kosanga. The coast regions of Samhar, in Danakil, Somali and S. Arabia (*Heuglin*[5]). Ain and Mohaber (*Jesse*[4]); Keren and Anseba Valley (*Antinori & Beccari*[12]); Koomayli and Lebka Valley (*Blanford*[10]); Shoa (*Antinori*[17]); Lado (*Emin Pacha*[7]); Usaramo (*Speke*[3]); Rabai, near Mombas in Wanikaland (*Fischer*[6]); Duruma (*Hildebrandt*[15]); Kakoma (*Böhm*[8 16]).

On the West Coast: Camma River (*Duchaillu*[9]) in Gaboon; Niger[14] (*Baikie, Brit. Mus.*); Quaminfio, near Accra (*Shelley*[11]); Gold Coast; Bissao and Casamanse (*Verreaux*[3]); Gambia (*Moloney*); Senegambia (*Rochebrune*[13 18]).

20. Lophoceros epirhinus.

Buceros nasutus, var. *caffer*, Sundev. Œfv. k. Vet.-Ak. Förh. 1850, p. 108[1].

Buceros epirhinus, Sundev. *l. s. c.*

Toccus pœcilorhynchus, Kirk (nec Lafr.), Ibis, 1864, p. 327[2].

Buceros nasutus, Ayres (nec Linn.), Ibis, 1871, p. 260, 1879, p. 285[3].

Tockus nasutus, Gurney, ed. Anderss. B. Damara Land, p. 206[4]; T. E. Buckley, Ibis, 1874, p. 365[5]; Bocage, Orn. Angola, p. 118[6]; Sharpe, App. Oates's Matabele Land, p. 304[7]; id. ed. Layard's B. S. Afr. pp. 133, 808[8].

Lophoceros nasutus, Elliot, Monogr. Bucerot. pl. 47 (part.).

Hab. S. Africa.

Shiré Valley in the Zambesi district (*Kirk*[2]); Kanye, Matabele (*Exton*[3], *Brit. Mus.*); Matloutsi River (*Oates*[7], *Brit. Mus.*); Bamangwato (*T. E. Buckley*[5]); Oliphant's Nek (*Barratt*[8]); Rustenberg, Magaliesberg, Potchefstroom, Limpopo (*Ayres*[3]); Damara Land and Lake Ngami (*Andersson*[4]); Huilla in Mossamedes (*Anchieta*[6]).

21. Lophoceros pallidirostris.

Buceros pallidirostris, F. & H. Vög. Ostafr. p. 871[1].

Tockus pallidirostris, Bocage, Orn. Angola, p. 117[2].

Buceros nasutus, var. *dubia*, Dubois, Bull. Mus. Belg. iii. 1884, p. 213, pl. x. fig. 2[3].

Hab. Caconda[1 2], in Benguela (*Anchieta*); Lake Tanganika[3] (*Storms*).

In the original description of this species it was unfortunately compared with *L. melanoleucus*, with which it has very slight affinity. The type described was a Caconda specimen, and a similar specimen from the same locality has been presented to me by Prof. Barboza du Bocage. On

comparing my specimen with the description and figure of the head of *Buceros nasutus*, var. *dubia*, Dubois, I find the two names undoubtedly apply to the same species.

22. Lophoceros erythrorhynchus.

Le Calao Toc, Levaill. Ois. Afr. v. 1806, p. 122, pl. 238.

Buceros nasutus, Vieill. (nec Linn.) Enc. Méth. i. 1823, p. 305, pl. 10. fig. 3.

Buceros erythrorhynchus, Temm. Pl. Col. ii. 1824, Buceros, sp. 19, text; Hartl. Orn. W.-Afr. p. 165[1]; Ayres, Ibis, 1869, p. 296[2]; F. & H. Vög. Ostafr. p. 491[3]; Finsch, Tr. Z. S. vii. p. 278[4]; Heugl. Orn. N.O.-Afr. pp. 727, clv[5]; Hartl. Abhandl. nat. Ver. Brem. vii. 1881, p. 112[6]; Böhm, J. f. O. 1883, p. 169[7].

Alophius erythrorhynchus, var. *leucopareus*, Hempr. & Ehr. Symb. Phys. 1828, fol. *a a*, note 1.

Tockus erythrorhynchus, Less. Traité Orn. 1831, p. 252; Rüpp. Syst. Uebers. p. 79; Kirk, Ibis, 1864, p. 327[8]; Sharpe, Ibis, 1867, p. 192[9]; Blanf. Geol. & Zool. Abyss. p. 328[10]; Sharpe, Cat. Afr. B. 1871, p. 9[11]; Gurney, ed. Anderss. B. Damara Land, p. 211[12]; Antin. & Salvad. Ann. Mus. Civ. Gen. 1873, p. 417[13]; Buckley, Ibis, 1874, p. 365[14]; Bouvier, Cat. Marche &c. 1875, p. 27[15]; Bocage, Orn. Angola, p. 120[16]; Elliot, Monogr. Bucerot. pl. 56; Sharpe, ed. Layard's B. S. Afr. p. 131[17]; id. Journ. Linn. Soc., Zool. xvii. 1884, p. 435[18]; Salvad. Ann. Mus. Civ. Gen. 1884, pp. 103, 262[19]; Rochebrune, Faun. Sénégamb., Ois. p. 121[20]; Ayres, Ibis, 1886, p. 289[21]; Hartert, J. f. O. 1886, p. 596[22].

Buceros rufirostris, Sundev. Öfv. k. Vet.-Ak. Förh. 1850, p. 50.

Rhynchaceros erythrorhynchus, Cab. Mus. Hein. ii. 1860, p. 166; id. J. f. O. 1878, p. 235[23]; Schalow, J. f. O. 1883, p. 348[24]; Fisch. Zeitschr. ges. Orn. 1884, p. 362; id. J. f. O. 1885, p. 126[25].

Alophius erythrorhynchus, Dubois, Bull. Mus. Belg. iii. 1884, p. 218.

Hab. The whole of Africa south of about 17° N. lat.

Southern Taka and Nubia south of about 17° or 18° N. lat.:

Sennaar, Kordofan, and the whole of Abyssinia, with the exception of the high mountain regions. Sobat, White Nile, Gazelle River westward to the Kosanga. The coast-lands of Samhar, in Danakil, Somali Land, and South Arabia (*Heuglin*[3]); Rayrayguddy (*Jesse*[4]); Keren (*Antinori & Beccari*[13]); Mayen, at 3500 feet; Senafé, Samhar, Lebka Valley, and Anseba River (*Blanford*[10]); Shoa (*Antinori*[19]); Efat, in Shoa (*Harris, Brit. Mus.*); Lado (*Emin Pacha*[6]); Dembo, in Nyamnyam (*Bohndorff*[18]); Usaramo, Nguruman, Mossiro (*Fischer*[25]); Taita (*Hildebrandt*[23]); Kakoma (*Böhm*[7 21]). S. Africa: Zambesi (*Kirk*[8]); Tette (*Kirk, Brit. Mus.*); Matabele and Bamangwato (*T. E. Buckley*[14]); Mashoona (*Ayres*); Transvaal (*Ayres*[2 21]); Knysna (*Victorin*[17]). Lake Ngami, Okavango River, and Ondonga in Ovampo-land (*Andersson*[12]); Cunene River, Huilla, and Capangombe in Mossamedes (*Anchieta*[16]). In W. Africa: Cabinda, N. of the Congo (*Anchieta*[16]); Abhor (*Thomson*[1]) and Gora on the Niger (*Hartert*[22]); Gold Coast, Fantee (*Ussher*[9]); Rio Boutry (*Pel*); Senegambia[15] (*Rochebrune*[20]); Casamanse (*Verreaux*).

23. Lophoceros damarensis, sp. n.

? *Buceros erythrorhynchus*, Sundev. (nec Temm.).

Tockus erythrorhynchus, Gurney, ed. Anderss. Damara Ld. p. 211 (part., Damara).

The only specimens of this species which I believe to be known are two males in the British Museum, labelled respectively Objimbinque and Schmelen's Hope (*Andersson*).

Mr. Andersson, in writing about *L. erythrorhynchus*, perfectly recognized this form, which he well described. He observes:—"I have also met with it in Damara Land proper, at Objimbinque and Schmelen's Hope; but specimens from these two last-named localities differ considerably from those found in more northern parts." As to its being a sexual or seasonal plumage, this is disproved by the very large series of *L. erythrorhynchus* I have examined from nearly all parts of Africa. The white forehead is, perhaps, its strongest specific mark; and as Prof. Sundevall appears to have taken this as typical *L. erythrorhynchus*, and re-named the really

typical greyer-cheeked race as his *B. rufirostris*, I have proposed a new name for the Damara bird.

24. Lophoceros flavirostris.

Buceros flavirostris, Rüpp. N. W. 1835, p. 6, pl. 2; Speke, Ibis, 1860, p. 244[1]; Finsch, Tr. Z. S. vii. p. 278[2]; F. & H. Vög. Ostafr. p. 490; Heugl. Orn. N.O.-Afr. pp. 725, clv[3].

Tockus flavirostris, Rüpp. Syst. Uebers. 1845, p. 79[4]; Blanf. Geol. & Zool. Abyss. p. 327[5]; Elliot, Monogr. Bucerot. part., N.E. Afr., nec pl. 51; Salvad. Ann. Mus. Civ. Gen. 1884, pp. 104, 262[6].

Rhynchaceros flavirostris, Cab. J. f. O. 1878, p. 235[7].

Hab. Confined to E. Africa, between about 15° N. lat. and 5 S. lat.

From the hot valleys of Schoho-land this bird extends to the Bay of Adulis and to Samhar; also collected near Moiet Schahadi below Mekulu, but not on the coast-region itself (*Heuglin*[3]); Kordofan, Nubia, Abyssinia (*Rüppell*[4]); Undel Well and Rayrayguddy (*Jesse*[2]); Abyssinia, from 2500 to 3000 feet in January and February, and from 7000 to 8000 feet in May and June; about Senafé (*Blanford*[5]); Shoa (*Antinori*[6]); Efat in Shoa (*Harris, Brit. Mus.*); Somali (*Speke*[1]); Ndi in Taita (*Hildebrandt*[7], *Brit. Mus.*).

25. Lophoceros leucomelas.

Buceros leucomelas, Licht. Verz. Säugeth. u. Vög. 1842, p. 17[1].

Buceros flavirostris, Ayres (nec Rüpp.), Ibis, 1871, p. 260[2]; 1879, p. 295[3].

Tockus flavirostris, Sharpe, Cat. Afr. B. p. 9[4] (part., S. Afr.); Gurney, ed. Anderss. B. Damara Ld. p. 210[5]; Buckley, Ibis, 1874, p. 365[6]; Shelley, Ibis, 1875, p. 82[7]; Sharpe in Oates's Matabele Land, p. 304[8]; id. ed. Layard's B. S. Afr. pp. 130, 808[9]; Elliot, Monogr. Bucerot. part., nec pl. 51; Shelley, Ibis, 1882, p. 245[10].

Hab. Confined to S. Africa.

Kanye in Matabele (*Exton*[8]); Mashoona-land (*Ayres*[10]). Common from the north of Transvaal through Bamangwato (*T. E. Buckley*[6]); Motloutsi and Crocodile River (*Oates*[8]);

Transvaal (*Ayres*[2 3]); Umgeni River in Natal (*Shelley*[7]); Kuruman (*Exton*[5]); Gt. Namaqua[4] and Damara (*Andersson*[6]). Caffraria (*Lichtenstein*[1]).

Dr. Reichenow, at my request, has most kindly examined the type of *Buceros leucomelas*, Licht., and informs me, with other notes, that the bill is yellow, and that the dark portions of the feathers of the lower throat and front of the breast are confined to their sides, and are not shaft-stripes. This, together with the locality, "Caffraria" or Natal, decides conclusively that this species is the true *Buceros leucomelas*, Licht.

26. Lophoceros elegans.

Toccus elegans, Hartl. P. Z. S. 1865, p. 86, pl. 4[1].

Tockus flavirostris, Sharpe, Cat. Afr. B. p. 9[2] (part.); Bocage, Orn. Angola, p. 119[3]; Elliot, Monogr. Bucerot. pl. 51 (part., Benguela).

Hab. Confined to S.W. Africa.

Moconja, Capangombe, Huilla (*Anchieta*[3]) in Mossamedes; Benguela (*Monteiro*[1], *Brit. Mus.*). Galungo and Loanda (*Sala*[2], *Brit. Mus.*).

I would remark that the occurrence of this species in Angola is not absolutely certain, as I believe when Sala's specimens were received that gentleman had been collecting in Mossamedes. It would appear to me more natural that this should be a very local and purely S. African form, being allied to *L. leucomelas* about as closely as *L. damarensis* is to *L. erythrorhynchus*. Both of these I consider to be only just separable as species.

27. Lophoceros deckeni.

Buceros (*Rhynchaceros*) *deckeni*, Cab. V. d. Decken's Reisen, iii. 1869, p. 36, pl. 6.

Buceros deckeni, F. & H. Vög. Ostafr. p. 489; Böhm, J. f. O. 1883, p. 170[1].

Rhynchaceros deckeni, Cab. J. f. O. 1870, pl. 1; 1878, p. 235[2]; Fisch. Zeitschr. ges. Orn. 1884, p. 362[3]; id. J. f. O. 1885, p. 126[4]; Reichen. J. f. O. 1887, p. 60[5].

Tockus deckeni, Elliot, Monogr. Bucerot. pl. 57.

Tockus bocagei, Oust. Bull. Soc. Phil. Paris, 1881, p. 161[6]; Rochebrune, Faun. Sénégamb., Ois. p. 121, pl. 13[7].

Alophius deckeni, Dubois, Bull. Mus. Belg. iii. 1884, p. 217.

Hab. Near the confines of Galla and Somali (*M. Abdon Gindi*[5]); Brava (*Fischer*[4]); south to Ugogo (*Böhm*[1]), and west to the inland forests of Senegambia (*Dr. Cohn*[7]). Also towards Masai-land, Usandawa[5], Inkaramo, Nguruman and Walikaland (*Fischer*[4]), Duruma, Taita, and Ukamba (*Hildebrandt*[2]); Lamu (*Jackson, Brit. Mus.*).

28. Lophoceros hartlaubi.

Tockus hartlaubi, Gould, P. Z. S. 1860, p. 350; Sharpe, Ibis, 1870, p. 485[1]; Elliot, Monogr. Bucerot. pl. 58.

Buceros nagtglassi, Schl. Neder. Tijd. Dierk. i. 1862, p. 56, pl. 2.

Buceros hartlaubi, Reichen. J. f. O. 1877, p. 18[2]; Büttikofer, Notes Leyden Mus. iv. 1885, p. 209[3].

Tockus nagtglassi, Bocage, Orn. Angola, p. 541.

Alophius hartlaubi, Dubois, Bull. Mus. Belg. iii. 1884, p. 217.

Hab. W. Africa: Loango Coast (*Falkenstein*[2]); Gold Coast (*Ussher*[1]); Liberia (*Büttikofer*[3]).

5. Berenicornis.

1850. *Berenicornis*, Bp. Consp. Gen. Av. 1850, p. 91 . . . . . Type. *B. comatus.*

a. Sides of the head black or faintly marked with white. Greater wing-coverts and quills boldly tipped with white. Casque longer, reaching over more than ¾ length of culmen . . . . . 29. *B. albocristatus.*

b. Sides of the head white or faintly marked with black. Greater wing-coverts and quills uniform black. Casque shorter, not reaching over ¾ length of culmen . . . . . 30. *B. leucolophus.*

29. Berenicornis albocristatus.

Buceros albocristatus, Cass. Journ. Ac. Philad. 1850, p. 135, pl. 15[1]; Hartl. Orn. W.-Afr. pp. 163[2], 274 (part.); Reichen. J. f. O. 1875, p. 12[3]; Sharpe & Bouvier, Bull. S.

Z. France, 1876, p. 310[4]; Reichen. J. f. O. 1877, p. 18[5]; Bocage, Orn. Angola, p. 540; Dubois, Bull. Mus. Belg. iii. 1884, p. 207; Büttikofer, Notes Leyden Mus. iv. 1885, p. 207[6].

Berenicornis macrourus, Bp. Consp. Av. 1850, p. 91 (ex Temm. MS.).

Berenicornis albocristatus, Cass. Proc. Ac. Philad. 1859, p. 139[7]; Sharpe, P. Z. S. 1871, p. 604[8]; Bouvier, Cat. Ois. Marche &c. 1875, p. 27[9].

Anorrhinus albocristatus, Elliot, Monogr. Bucerot. pl. 40.

Hab. W. Africa to the north of the Congo: Louembe and Chikambo (*Lucan & Petit*[4]); Loango Coast (*Falkenstein*[5]). In the Gaboon, Camma, Inuni, and Memda rivers (*Duchaillu*[7]), and Ogowè (*Marche*[9]). Camaroons (*Crossley*[9] & *Reichenow*[3]). Liberia (*Büttikofer*[6]); St. Paul's River (*McDowell*[1 2]).

30. Berenicornis leucolophus.

Buecros albocristatus, Hartl. (nec Cass.) Orn. W.-Afr. p. 163[1] (part.); Shelley & Buckley, Ibis, 1872, p. 286[2].

Berenicornis albocristatus, Sharpe, Ibis, 1869, p. 385[3].

Berenicornis leucolophus, Sharpe, Zool. Rec. 1873, p. 52[4].

Anorrhinus leucolophus, Elliot, Monogr. Bucerot. p. 41.

Buceros albocristatus, var. *leucolophus*, Dubois, Bull. Mus. Belg. iii. 1884, p. 208.

Hab. W. Africa: confined to the Gold Coast.

Rio Boutry (*Pel*[1]); Abouri (*Shelley & Buckley*[2]); Fantee (*Ussher*[3 4]).

IV.—*On the Birds of Bhamo, Upper Burmah.*

By Eugene W. Oates, F.Z.S.

(Plate I.)

In 1881 the taxidermist of the Phayre Museum of Rangoon was despatched to Bhamo to form a collection of birds. I had an opportunity of examining all the skins immediately on their arrival in Rangoon; but as the results were not very noteworthy, I have hitherto deferred making any systematic list of them.

By the courtesy of my friend Mr. Leonardo Fea, of the Genoa Museum, who has been collecting birds at Bhamo for some time, I have been favoured with a copy of Count Salvadori's paper on the birds of Upper Burmah recently published in the 'Annali del Museo Civico di Storia Naturale di Genova,' vol. iv. 2nd series, pp. 568–617.

The Count presents us with a list of 111 species, chiefly, if not entirely, procured in Bhamo. On looking over my notes of the taxidermist's collection, already referred to, I find there are a considerable number of birds obtained at Bhamo which Mr. Fea had not the good fortune to meet with. On the other hand he procured many species which the museum collector failed to obtain.

Count Salvadori has dealt exhaustively with the birds that came under his notice, and I therefore propose to enumerate only those species which are not mentioned in his paper. They amount to 34, and to this number may safely be added *Anser cinereus*, of which, however, I have not received a specimen. It is reported to be very common in the cold season in the upper parts of the Irrawaddy, and some of my friends have assured me that they have shot it.

It is to be regretted that so little is known about the birds of Upper Burmah, considering that the whole country has been traversed by our troops for the past two years, and that a large number of civil officers, in addition, are permanently located in all parts of the country.

1. Garrulax belangeri, Less.; Oates, B. Brit. Burm. vol. i. p. 33.

Two specimens, the only ones brought to Rangoon, are identical with Pegu birds. Mr. Fea procured *G. leucolophus* only.

2. Dryonastes ruficollis (Jard. & Selb.); Sharpe, Cat. Birds, vol. vii. p. 454.

3. Megalurus palustris, Horsf.; Oates, op. cit. i. p. 106.

4. Parus atriceps, Horsf.; Oates, op. cit. i. p. 125.

5. Sitta frontalis, Horsf.; Oates, op. cit. i. p. 134.

6. Buchanga longicaudata (A. Hay); Oates, op. cit. i. p. 220.

7. Pratincola maura (Pall.); Oates, op. cit. i. p. 279.

8. Oreicola ferrea (Hodgs.); Oates, op. cit. i. p. 283.

9. Uromitrus filiferus (Steph.); Oates, op. cit. i. p. 307.

10. Cinnyris asiatica (Lath.); Oates, op. cit. i. p. 321.

11. Melophus melanicterus (Gm.); Oates, op. cit. i. p. 357.

11 a. Acridotheres albocinctus*. (Plate I.)

Acridotheres albocinctus, Godw.-Aust. & Wald. Ibis, 1875, p. 251; Salvad. Ann. Mus. Civ. Genova, ser. 2, iv. p. .

This appears to be an excessively common species. Count Salvadori has pointed out in his paper that certain parts of the plumage of this bird were incorrectly described by its discoverers.

12. Pica pica (Linn.); Sharpe, Cat. Birds, iii. p. 62.

Two fine specimens were brought down, and the collector told me it was not uncommon.

13. Urocissa occipitalis (Bl.); Oates, op. cit. i. p. 400.

14. Iynx torquilla, Linn.; Oates, op. cit. ii. p. 23.

15. Picus macii, Vieill.; Oates, op. cit. ii. p. 33.

16. Chrysophlegma flavinucha (Gould); Oates, op. cit. ii. p. 43.

17. Dichoceros bicornis (Linn.); Oates, op. cit. ii. p. 87.

18. Circus æruginosus (Linn.); Oates, op. cit. ii. p. 176.

19. Haliaëtus leucoryphus (Pall.); Oates, op. cit. ii. p. 200.

20. Pernis ptilorhynchus (Temm.); Oates, op. cit. ii. p. 207.

* [We are pleased to be able to give a figure of this interesting species from the type-specimen kindly lent to us by Col. Godwin-Austen for this purpose. This agrees very fairly with a skin forwarded by Mr. Oates, which he has desired us to present to the British Museum.—Edd.]

21.
ii. 7



J. G. Keulemans del. et lith.

ACRIDOTHERES ALBOCINCTUS.

Mintern Bros. imp.

21. Microhierax cærulescens (Linn.); Oates, op. cit. ii. p. 211.

22. Phalacrocorax pygmæus (Pall.); Oates, op. cit. ii. p. 234.

23. Ardea insignis, Hodgs.; Oates, op. cit. ii. p. 245.

24. Ardea cinerea, Linn.; Oates, op. cit. ii. p. 243.

25. Xenorhynchus asiaticus (Lath.); Oates, op. cit. ii. p. 264.

26. Dissura episcopus (Bodd.); Oates, op. cit. ii. p. 265.

27. Tadorna casarca (Linn.); Oates, op. cit. ii. p. 277.

28. Dafila acuta (Linn.); Oates, op. cit. ii. p. 279.

29. Chettusia cinerea (Bl.); Oates, op. cit. ii. p. 372.

30. Gallinago stenura (Kuhl); Oates, op. cit. ii. p. 383.

31. Larus ichthyaëtus (Pall.); Oates, op. cit. ii. p. 414.

32. Sterna seena, Sykes; Oates, op. cit. ii. p. 423.

33. Sterna melanogaster, Temm.; Oates, op. cit. ii. p. 424.

34. Rhynchops albicollis, Swains.; Oates, op. cit. ii. p. 436.

V.—*Notes on the Birds of Teneriffe.*

By Capt. Savile G. Reid, R.E.

[Concluded from vol. v. page 435.]

No account of the birds of Teneriffe would be complete without mention of the Grey Wagtail (*Motacilla melanope*), a common and familiar resident, universally beloved and unmolested. I found several nests in the stone walls of the unfrequented lanes on the outskirts of Orotava and in the steep fern-covered sides of the rocky ravines, or "barrancos," in the vicinity. These birds may be seen at all hours of the day chasing flies on the roofs of the houses in the town, and are, no doubt, of great service to the com-

munity at large in keeping down the many insect pests frequenting the lower levels of the island.

Dr. Crotch informed me that he had certainly met with the Yellow Bunting (*Emberiza citrinella*); but I did not observe it myself, nor did I see, or hear of, the Short-toed Lark, or the Siskin, though both are said to inhabit Teneriffe.

I was equally unfortunate as regards the Kingfisher (*Alcedo ispida*), which Mr. Godman met with; and the Pied Flycatcher (*Muscicapa atricapilla*), included by Webb and Berthelot in the Teneriffian list.

The Hoopoe (*Upupa epops*) is a common bird, and soon attracts the attention of even the most unornithological visitor. I found it fairly numerous in the island at the beginning of February, and there seems no doubt that some few pass the winter there, many others appearing in spring. These handsome birds are fond of sitting on the walls or trees in the vicinity of the "carretera," or main road, and are easily approached, either on foot or horseback. I have seen five or six on the same heap of stones in a vineyard close to the thoroughfare. They were just beginning to breed when I left the island, early in April; the only nest I came across was in the middle of a big stone wall, overgrown by the branches of an ancient fig-tree, quite unassailable. The local name in Teneriffe, "Tabobo," exactly expresses the curious note of the Hoopoe, a very familiar sound to me as I sat sketching in the barrancos near the hotel at Orotava. Viera gives as its common name "Abobito." He says it is not difficult to rear the young, by feeding them on raw meat, and the old birds also get reconciled to captivity and catch flies &c.

There is, I believe, only one species of Woodpecker found in the island, the Great Spotted Woodpecker (*Dendrocopus major*), and this, as might be expected, is confined to the pine-belt high up on the mountain-side. I obtained a pair in the pine-woods above La Guancha, on the 15th Feb. Its local name in this place is "Peto"; in other districts the bird is called "Carpintero," or "the carpenter."

No species of Bee-eater regularly visits Teneriffe, I believe; but Viera, in his Dictionary, mentions the arrival of considerable flocks in Gran Canaria in 1788 and 1800. His description is that of the common *Merops apiaster*.

The migratory species of Shrike which arrives in Teneriffe about the end of March is undoubtedly *Lanius algeriensis*. I was unable to procure specimens during my stay, but young Baeza (son of my poor friend the captain), acting under my orders, went on an expedition, after my departure, to the Punta de Teno, the north-western extremity of the island, and procured several skins there. These I have compared with examples of the other Grey Shrikes in my collection, and have come to the conclusion that they are *L. algeriensis*. This identification endorses the opinion of Sharpe and Dresser ('Birds of Europe,' vol. iii. p. 389), who predicted that this form would prove to be the one occurring in the Canary Islands. It appears to be numerous in the vicinity of the Punta de Teno, where it breeds, but, so far as I could ascertain, it is comparatively rare on the eastern side of the island.

There are but two game birds to be found in any numbers in Teneriffe, the Barbary Partridge (*Caccabis petrosa*) and the Quail. Woodcocks are resident in the ravines high up on the mountain, but are too rare to afford sport to the native "cazadores," and Snipe are never met with in any numbers in the winter, owing to the want of suitable places for them.

The Partridge is tolerably numerous in the upper and rougher portions of the island; but, from what I could hear, no big bags are made, owing to the difficult nature of the ground and the well-known running powers of the bird. I saw a good many during my ornithological rambles, and shot two or three, for identification, in magnificent plumage. They are most plentiful on the southern slopes, near Vilaflor, whence I have some eggs, presented to me by my friend Don Ramon Gomez, taken about the 1st April. Baeza repeatedly assured me that he had been Partridge-shooting on the north side of Gran Canaria, the island nearest to Teneriffe on the

east side, and that the species found there was the Red-legged Partridge (*C. rufa*). I made many inquiries about this, and, on the whole, am inclined to believe his statement, which I hope to see verified at no very distant date.

It is quite possible that *C. rufa* has been introduced into Gran Canaria; but it will be somewhat curious if it is the only species occurring there, and *C. petrosa* the only one in Teneriffe.

Viera says of the "Perdiz," that it is common to both Canaria and Teneriffe, and has been introduced without success into Palma. In his description of the bird he says it has the neck and gorge bordered with dark spots (manchitas oscuras). Whether this applies to *C. rufa* or to *C. petrosa* seems uncertain, but I should say the former, for *C. petrosa* has white spots on a chocolate or rich red ground.

Quails are resident in numbers in Teneriffe, and very good sport is to be had, especially near Tacoronte and Laguna, in the months of August and September. A moderate shot is dissatisfied with less than 20 couple, I am informed, and many thousands must be killed every year. Still they do not appear to diminish in numbers, and during the months of February and March I was constantly putting them up in the maize- and wheat-fields, whilst their curious triple note was to be heard on all sides.

I, of course, saw nothing of the Bustard of the eastern islands—the Houbara (*Otis undulata*). It is not found except in Fuerteventura, where it is apparently common, and in Lanzarote, where it is scarce or accidental. I saw a pair of eggs in the museum at Tacoronte, which were small editions of those of *O. tarda*. There seems to be no doubt about the species, but I should much like to have obtained a specimen.

Under the name "polla de agua," Viera, in his Dictionary (1799), describes the Moorhen (*Gallinula chloropus*), and states that it has occurred occasionally in Gran Canaria; but I do not think it has been obtained in Teneriffe. He also mentions the Common Coot (*Fulica atra*) as occurring and breeding in Gran Canaria. It is certainly found in Teneriffe,

for I saw a live bird in Tacoronte in February, which had been captured in the vicinity, and was looking healthy and comfortable in a big cage. The hospitable owner informed me that a few came every year to the island.

I cannot include the "Ganga," or Sand Grouse of Fuerteventura (*Pterocles arenarius*), in my list; but I may mention that Viera, who calls it *Lagopus pyrenaica*, Linn., gives, in his Dictionary, a description of a *Pterocles* as follows:—

"A bird of the family of the Gallinules, and of the size of a Partridge, whose beak is nearly straight, with the nostrils at the base of the upper mandible united to the feathers of the forehead. Its wings are long. From the tail start two feathers half as long again as the others, getting gradually thinner till they terminate in a point. The head, neck, and shoulders show several points and spots, which are black, greenish and red, while the lower portion of the body is black. The feet are ashy, covered with a feathery down, claws black. On the throat are three black lines, like a necklace. It breeds in the island of Fuerteventura."

This description would seem to apply to *Pterocles alchata*, except that the abdomen is given as *black*, as in *P. arenarius*. Perhaps both species have occurred, and the description has thus got somewhat mixed. (See Dresser's 'Birds of Europe,' vol. vii. pp. 63 & 70.)

Viera carefully describes the Courser (*Cursorius gallicus*) of the eastern islands under the expressive name of "Engañamuchachos" (Anglicè "Cheat-the-boys"), from its habit of squatting and permitting a near approach, and then running off like a greyhound, to the great disappointment of its would-be captor. I need not say that this sand-loving bird is not found in the rocky island of Teneriffe.

The Stone Curlew (*Œdicnemus scolopax*) occurs sparingly in the few suitable spots in Teneriffe, and breeds near Orotava. I have eggs taken there in a comparatively level piece of corn-field near the Botanical Gardens. I saw one or two there, and also heard the note of the bird near Buena Vista.

Viera describes the Golden Plover as occurring in flocks in the rainy season, but I failed to obtain any information

about it in Teneriffe. The Lapwing undoubtedly visits the island, and Don R. Gomez has two examples in his museum, obtained near Orotava. He also had a specimen of the Ringed Plover (*Ægialitis hiaticula*), which he kindly gave to me, and informed me that the bird is not uncommonly met with along the shore. Viera appears to allude to it under the name of "chorlito de collar."

I did not come across the Turnstone, Woodcock, or Snipe during my stay.

I saw a single Common Sandpiper (*Tringoïdes hypoleucus*) on the shore near Orotava on the 5th February, and this was the only representative of the Scolopacidæ I met with. Many other species occur, however; for Don R. Gomez has local specimens of the Curlew and the Redshank in his collection, and Juan Baeza has recently sent me a Curlew, a Ruff (*Machetes pugnax*), and a Curlew Sandpiper (*Tringa subarquata*), obtained by himself near Orotava.

I was rather surprised at the absence of all species of Cormorant from the very suitable coasts of Teneriffe near Orotava, and equally surprised to find the Common Heron (*Ardea cinerea*) in pairs on the rocks there. I imagine it must breed in the cliffs, as it does in other parts of the world, but I was unable to ascertain this for a fact. Viera's Dictionary contains a description of this bird as follows:—"Garza (*Ardea*). A well-known bird, which is seen on the sea-shore and by the pools in our islands, a visitor from the neighbouring coasts of Africa; they always appear in pairs." He then gives an account of two other Herons, which he calls "Garza cangrejera" (*Cancrophagus*) and "Garzeta" (*Ardea alba minor*). A specimen of the former, taken at the lake (now drained) at Laguna, in Teneriffe, appears, from his description, to have been a Squacco (*A. ralloides*), while the latter, which he describes from an example obtained in Gran Canaria, and speaks of as not uncommon, is probably *A. bubulcus*, the Buff-backed Heron. I did not meet with either, but Gomez has a local specimen of *A. ralloides* in his museum.

The Spoonbill (*Platalea leucorodia*) has occurred in Tene-

riffe, one having been obtained by Gomez near Orotava. Unfortunately the bill is the only portion he has preserved, but he described the bird to me, and there is no doubt that it may be safely added to the Teneriffian list.

The Anatidæ are out of place in an island like Teneriffe, now that the ancient lake at Laguna is a thing of the past. It must have been a grand place for all sorts of wild-fowl in the old days, but now, alas! there is nothing left but a small square tank, full of frogs and weeds, to mark the site of the former extensive sheet of water. I paid a visit to this miserable relic of the good old times, and left the spot a sadder, if not a wiser, ornithologist.

Viera talks of Ducks, which he calls "*Patos berberiscos*," and which appear to have been the Common Wild Duck (*Anas boschas*).

I have often wondered what species were included amongst the Wild-fowl the Governor's Peregrines were bullying on the lake at the time he was amusing himself in watching the "chasse" from the citadel of Laguna (see 'The Ibis,' 1887, p. 430). A real good marshy lake in the Canary Islands would be something to dream of.

The country people spoke to me of Ducks as appearing occasionally in winter, generally flying overhead, but they could give me no information as to the species. A Duck is a Duck, and nothing more, in this rocky island.

The Common Tern (*Sterna fluviatilis*) is of frequent occurrence in the summer months in Teneriffe. I have received both skins and eggs from Gomez, though I never saw it myself, nor did I come across any other Terns during my stay. Doubtless several species are found in the eastern islands and detached rocks adjoining them, where there are many suitable breeding-places for all sorts of sea-birds.

Gulls were numerous at Santa Cruz when we landed there, on the 4th February, but apparently of only two species, the Lesser Black-backed (*Larus fuscus*) and a Herring Gull, which I then recorded as *L. argentatus*, but which, from subsequent observations, made at the same place on my return, I believe to have been *L. cachinnans*, the Yellow-legged Her-

ring Gull. There was a large gathering of these Gulls off the Mole on the 8th April, when we were waiting for the steamer to arrive and take us home, and I watched them carefully through my telescope for some time. Their legs were undoubtedly yellow, and I cannot but think they were *L. cachinnans*. Probably both species occur.

The Kittiwake was frequently to be seen off the shore at Orotava, and Gomez has a specimen in his collection. Mr. Godman thinks this Gull may breed on the rocky coasts of Teneriffe; and I should say this was more than probable, though I found the information to be obtained from the natives as to the various species of Gulls, Terns, and Shearwaters was, to say the least of it, misleading.

Of the Shearwaters and Petrels I obtained examples of four different species, *Puffinus kuhli*, *P. anglorum*, *P. obscurus*, and *Oceanites marinus*, Lath.; but I did not meet with Bulwer's Petrel (*Bulweria columbina*), which does not, I fancy, range so far to the westward as Teneriffe, though, owing to its nocturnal habits, it might easily escape observation.

Early in March a friend, much addicted to deep-sea fishing off the port of Orotava, informed me that there were constantly hundreds of sea-birds of some sort round his boat all day long, evidently engaged, like himself, in fishing. My curiosity was roused, and on the 19th of that month, when the sea *looked* tolerably smooth, I embarked with a small party of friends, and young Baeza, in a substantial fishing-boat in search of specimens. The treacherous ocean belied its peaceful appearance, however, and we all felt remarkably uncomfortable in a very short time; but we stuck to our ship manfully, and long enough for me to get what I wanted. It really was worth all the discomfort, so far as I myself was concerned, to see such a sight:—hundreds of *Puffinus kuhli* and *P. anglorum* on the wing and in mixed flocks on the surface of the water, so busily engaged in their onslaught on the shoals of fish that they hardly took any notice of us. We shot three or four of each species, and then turned our boat's head for the shore, where we landed and unanimously decided to remain until our evil destiny compelled us to

return once more to England! My experience of the Procellariidæ is small, and I never imagined they were to be found in such numbers and to be so easily obtained. I do not think there were more than the two species I have mentioned. We inspected them as carefully as the violent tossings of the boat would allow, through my binoculars, and both Major Loyd (a good observer) and myself came to this conclusion.

Juan Baeza has recently sent me the egg of a large Shearwater, but with no information as to where it was obtained. I presume it comes from Teneriffe itself, and is the egg of *P. kuhli*. It measures 2·83 by 1·97 inches, being somewhat larger than eggs of this bird in my collection from the island of Filfla, near Malta.

Gomez has a specimen of the Dusky Shearwater (*Puffinus obscurus*) in his museum, and he kindly gave me one in the flesh, picked up on the shore at Orotava on the 15th March. It undoubtedly breeds in the western detached islets. I cannot understand why this bird is omitted by Mr. Dresser from the European list. It has been obtained within British limits, and surely the numbers occurring *and breeding* in the Atlantic islands—Madeira, the Desertas, Porto Santo, the Canaries, &c.—would entitle it to be regarded as something more than a straggler from the American coasts.

A boy brought me a live example of an interesting little Petrel, *Oceanites marinus*, Lath., on the 20th March. It had been knocked over with a fishing-rod the previous evening. I was quite puzzled by its appearance, and could not determine its species; but my friend Capt. G. E. Shelley, who most kindly looked over my birds for me, identified it on my return home. He informed me that it has been obtained once or twice in the Canarian archipelago, and is an African species, though (somewhat unaccountably) not recorded from the west coast of that continent, where, however, it doubtless occurs.

While on the subject of these Shearwaters, I cannot help mentioning a very interesting fact with respect to the parasites infesting the specimens I obtained. A keen microscopist, Mr. R. E. Crickitt, was staying at our hotel in

Orotava, and, at his request, I carefully collected examples of the parasites from my four species, which he subsequently mounted on slides for his microscope. An examination of these formidable-looking (under the magnifying-power) creatures gave the following startling results :—The parasites from *P. kuhli* and *P. anglorum* are alike, or at any rate very similar, while those from *P. obscurus* and *O. marinus* also resemble each other. The latter have no eyes, and belong to a set peculiar to night-flying birds; the former have eyes and are usually met with in birds seen abroad by daylight! Is this accidental, or is it part of a regular system of nature?

I did not meet with the Razorbill (*Alca torda*) myself, but Don Ramon Gomez has specimens in his collection from the neighbourhood of Orotava. This is the only member of the Alcidæ I recorded as Teneriffian. Viera mentions several sea-birds in his Dictionary; but his descriptions are somewhat puzzling, and I cannot make out clearly what they refer to.

Though very common, I never succeeded in obtaining a specimen of the Raven. On several occasions young Baeza, when out with me, had an easy chance of securing one; but one time he did not fire, and another he missed, and so I came away without one. I was sorry for this, as the bird seemed to me smaller than the ordinary European *Corvus corax*, and may prove to be of a different species, perhaps *C. tingitanus*, the Tangier Raven of Col. Irby. A pair of eggs marked "Cuervo," in the Tacoronte Museum, looked no larger than those of *C. corone* or *C. cornix*.

Another bird I was anxious to obtain, the migratory Turtle Dove, which visits the island every summer, I did not remain late enough to procure. There seems to be a doubt as to which species it is, but I hope to receive specimens shortly and to clear this up.

I have now, I think, gone through my list of species recorded in Teneriffe—68 during my residence there, and 3 more subsequently, making 71 in all: not a very large total, certainly, but not bad, considering the limited area I worked.

In conclusion I will give the local names for the most common species, which may prove useful to the ornithological visitor to Teneriffe. I think these names may be pretty safely relied upon, though it is almost impossible to make out exactly to which bird some of these names belong.

Egyptian Vulture, "Guirré"; Kestrel, "Cernicalo"; Buzzard, "Aguililla"; Kite, "Milano"; Sparrow Hawk, "Gavilan"; Long-eared Owl, "Coruja"; Barn Owl, "Lechuza"; Great Spotted Woodpecker, "Peto," "Carpintero"; Hoopoe, "Tabobo"; Swifts, "Andoriña"; Swallow, "Golondrina"; Blackbird, "Mirlo"; Ultramarine Titmouse, "Frailero"; Chiffchaff, "Hornero"; Blackcap, "Capirote"; Spectacled Warbler, "Ratonero"; Grey Wagtail, "Pispa," "Alpispa"; Canarian Pipit, "Caminero"; Common Bunting, "Pájaro pollo," "Triguero"; Rock Sparrow, "Chillon," "Gorrion"; Teydean Chaffinch, "Pájaro azul," "Pájaro de Teide," "Pájaro de la Cumbre"; Azorean Chaffinch, "Pempillon," "Tintillon"; Linnet, "Millero," "Triguero"(?); Goldfinch, "Jilguero," "Pintacilgo," "Pintado"; Canary, "Canario"; Raven, "Cuervo"; Rock Dove, "Paloma salvaje"; Barbary Partridge, "Perdiz"; Quail, "Codorniz"; Stone Curlew, "Alcaraván"; Sandpiper, Dunlin, &c., "Patito"; Heron, "Garza"; Terns, "Jarajao"; Gulls, "Gaviota"; Shearwaters, "Pardela."

This list includes nearly all the species likely to be met with in Teneriffe. I have local names for others, but they are either doubtful or simply Spanish translations of the English names.

VI.—*On the Genus* Cyclorhis, *Swains.*

By Hans von Berlepsch.

In a recent number of 'The Ibis' Mr. Sclater has published an important account of the genus *Cyclorhis*, which has interested me very much, as I have always given special attention to this somewhat difficult genus of *Vireonidæ*.

Seeing that there are several points in which I do not quite agree with my friend Mr. Sclater, I wish to direct once more

the attention of the readers of 'The Ibis' to this already much discussed matter, pointing out where my views are different from those held by the latest authority on that subject.

Mr. Sclater lays much stress on the form or thickness of the bills in the species of *Cyclorhis*. It is evident that in several species the bill is much more slender or less high than in others. For instance, I agree that in many northern species, viz. *C. flavipectus, virenticeps, contrerasi,* and *guianensis,* the bill is more slender than in the southern ones. The group containing *C. nigrirostris* and *atrirostris* is still more remarkable for their small and feeble bills, and in this case the form of the bill may be well taken as a criterion to recognize the species. On the other hand, I cannot agree that the southern species, viz. *C. albiventris, ochrocephala,* and *altirostris* of Sclater's list differ among themselves so constantly in the form of bill as Mr. Sclater asserts. As a rule, it is true that *C. altirostris,* Salv., has the bill somewhat higher and thicker than *C. albiventris* and *C. ochrocephala*; but in my collection there are several specimens of *C. albiventris* from Bahia, and a skin from Buenos Ayres of *C. ochrocephala,* which possess bills quite as high as in typical *C. altirostris,* although not so broad on the culmen as in the latter. What I would point out is that in the form of this organ much individual difference is observable, and that it does not seem advisable to make much use of this difference for a key to facilitate the distinction of the species of *Cyclorhis*.

I shall now proceed to point out my views regarding the different species of *Cyclorhis* in the order in which they are given in Mr. Sclater's article.

1. Cyclorhis flaviventris, Lafr.

Regarding *C. flaviventris yucatanensis,* Ridgw., and *C. insularis,* Ridgw., I am in the same position as Mr. Sclater. Not having seen these birds, I am unable to form an opinion about them. The former seems very slightly different from typical *C. flaviventris,* and *C. insularis* ought perhaps rather to be compared with *C. flavipectus subflavescens*. In

fact, I can hardly conceive any difference between Ridgway's description of *C. insularis* and the latter species.

In the Rev. Am. Birds, i. p. 387, Prof. Baird alludes to certain skins of *C. flaviventris* from Guatemala, which lack the black of the lower jaw. I have a similar specimen from Vera Paz, which has the basal half of the under mandible reddish brown like that of the upper, and shows no traces of a plumbeous spot. The bill, further, is much shorter and more feeble than in a specimen from Mexico, the superciliary stripe much paler, the pileum much suffused with brownish, and the olive of the back much darker; wings and tail shorter. I am by no means satisfied that this is simply the young of *C. flaviventris*. But from Prof. Baird's and Mr. O. Salvin's remarks it appears that both forms are to be found together in Guatemala. Prof. Cabanis has also mentioned a specimen of *C. flavipectus* with uniform reddish under mandible.

2. Cyclorhis flavipectus, Scl.

As Mr. Sclater remarks, specimens from Costa Rica and Veragua are perhaps separable as a subspecies, *C. flavipectus subflavescens* (Cab.). But the points of distinction urged by Prof. Cabanis do not hold good. The yellow of the underparts in the northern form is not more extended, but even sometimes more restricted, paler and more greenish than in typical specimens from the south. Nevertheless the northern bird may be distinguished by the paler greyish olive of the upper parts, the paler rufous superciliary stripe, and darker ashy sides of head and chin, and perhaps by the slightly larger dimensions.

Specimens of *C. flavipectus* from Bogota generally show a much purer and deeper golden yellow on the underparts than those from Venezuela and Trinidad.

3. Cyclorhis virenticeps, Scl.

4. Cyclorhis contrerasi, Tacz.

I have nothing to add to Mr. Sclater's account of these species.

5. Cyclorhis guianensis (Gm.).

In this species much individual variation is observable, and there are specimens of *C. flavipectus* from Porto Cabello, Venezuela, and Trinidad, which somewhat approach to *C. guianensis*, although they show less greyish suffusion on the belly, and have a lighter tip to the under mandible. The brownish suffusion on the ashy pileum is an individual character, and is found in immature specimens of *C. flavipectus* as well as in *C. guianensis*. I should remark, however, that but one specimen from Trinidad in Mus. H. v. B. shows the pileum as clear bluish ash as in *C. guianensis*, other Trinidad skins possessing rather a brownish cap, as do the majority of specimens from Bogota and Venezuela.

Prof. Baird says that *C. guianensis* has the legs dusky. In two skins from British Guiana I found them dusky; but in the majority from the same locality, and in two birds from N.E. Peru, they are rather pale flesh-colour, just as in true *C. flavipectus*.

6. Cyclorhis albiventris, Scl.

Mr. Sclater expresses his opinion that *C. albiventris* cannot be = *C. cearensis*, Baird, because the latter is stated to possess a decided buff tinge on the belly. Now several of my specimens from Bahia, belonging certainly to *C. albiventris*, show a buff tinge on the sides of the belly, which is wanting in others. *C. cearensis*, Baird, is based on two specimens from Ceara; but Prof. Baird says, "a specimen from Bahia is quite similar."

Therefore I think there cannot be the slightest doubt that *C. albiventris* is a synonym of *C. cearensis*. Mr. Sclater certainly would agree with me that it is quite improbable, or nearly impossible, that two so similar species, only differing in the presence or absence of a buffy tinge to the white belly, should occur in one and the same locality. In fact, the buffy tinge of the belly is rather an individual character, being likewise found in young or freshly moulted specimens of *C. guianensis*; and even specimens of *C. ochrocephala* differ among themselves in that respect, the belly

being in some of them more strongly suffused with ochraceous than in others *.

I have examined a specimen in the Vienna Museum collected near Goiaz (♂, coll. 12th August, 1823) by Joh. Natterer (not distinguished by von Pelzeln from his *C. wiedi*), and have found it to be quite identical with my Bahia skins of *C. cearensis*.

From *C. guianensis*, *C. cearensis* differs in its dusky legs, stouter, higher bill, and the more restricted plumbeous mark of the under mandible; in *C. guianensis* nearly the whole of the under mandible being plumbeous, while in *C. cearensis* the plumbeous colour extends halfway or two-thirds from the base. Further, *C. cearensis* has always a brownish cap, never of so clear a plumbeous grey as in *C. guianensis*. The yellow of the breast and sides is usually much paler and more restricted, the belly purer white to a great extent, and *without any greyish cast*.

The synonymy of this species will stand as follows :—

Thamnophilus guianensis, Pr. Wied (nec Gm.), Beitr. iii. (1831), p. 1016 (Campo geral).

Cyclorhis cearensis, Baird, Rev. Am. Birds, i. (1866), p. 391 (Ceara and Bahia).

Cyclorhis albiventris, Scl. & Salv. Nomencl. Av. Neotr. 1873, p. 156 (typ. de Bahia).

Cyclorhis wiedi (partim), Pelzeln, Orn. Brasil. p. 74 (specim. ex Bahia & Goiaz).

Hab. Para (*Mus. Brit. fide Gadow*); Pernambuco (*fide Gadow*); Ceara (*Baird*); Bahia (*Baird, Scl. & Salv., Berlepsch*); Goiaz (*Natterer*).

7. Cyclorhis ochrocephala, Tsch.

Tschudi evidently confounded several species under the above name when he stated that his *C. ochrocephala* inhabits "Brasil. merid., Buenos Ayres, Bolivia, and Peru"†; but his

* Although Prof. Baird did mention the buff tinge as a distinguishing character of *C. cearensis*, he would probably lay greater stress on the fact that in *C. cearensis* the greyish tinge of *C. guianensis* is altogether absent.

† The bird from Bolivia would be *C. viridis* (Vieill.), and that from Peru *C. guianensis* (Gmel.).

diagnosis certainly applies to the species which Mr. Sclater and I myself take for it.

Comparing specimens from S. Paulo, Rio Grande do Sul, and Buenos Ayres, I do not find any constant differences between them.

Syn. *Cyclorhis guianensis*, Swains. (nec Gmel.); *C. viridis*, Cab., Gadow, Scl. & Salv., Durnf., White (nec Vieill.!).

Hab. Prov. Rio: Rio de Janeiro (*Natterer, Scl. & Salv., Mus. H. v. B.*); S. Paulo (*Natterer & Duschanek in Mus. H. v. B.*); Rio Grande do Sul (*Jhering in Mus. H. v. B.*); Argentina, Buenos Ayres (*Burm., Durnf., Mus. H. v. B.*); Corrientes (*White*, two spec. exam. by *H. v. B.*).

8. Cyclorhis wiedi, Pelzeln (not admitted by Mr. Sclater).

Mr. Sclater says "*C. wiedi* of Pelzeln (Orn. Bras. p. 74), of Parana, is also barely separable." In my mind *C. wiedi*, Pelzeln, is as perfectly valid a species as many others admitted by Mr. Sclater. It combines the long rufous superciliary stripe of *C. cearensis* with the uniform rufous under mandible (without any trace of plumbeous spot) of *C. ochrocephala*.

I have examined one skin of this species, kindly submitted to my inspection by Mr. Sclater, which belongs to his collection. It is a typical *C. wiedi*, Pelzeln, "♀," collected near Engenho do Gama, Matogrosso, July 27, 1826, by the late Joh. Natterer. This bird generally agrees in coloration with *C. cearensis* of Bahia, having the broad rufous superciliary stripe extended, as in that species, to the sides of the nape; but there is not the slightest trace of a plumbeous spot at the base of the lower mandible. The bill seems to be more slender, the legs paler, the breast and the sides of the body of a brighter and deeper yellow; the back of a brighter more yellowish olive-green; the belly more suffused with buff or rusty than in *C. cearensis*.

Unfortunately, I have not yet examined the specimens from Cuyaba, Matogrosso, and Rio Paraná (coll. Natterer) which are in the Vienna Museum, but I have little doubt that

they also belong to this species, with long rufous supercilia and uniform rufous under-mandible.

Mr. von Pelzeln unfortunately confounded *C. cearensis* with his *C. wiedi*, saying in the diagnosis, "rostro brunneo, mandibulæ basi in individuis nonnullis plumbea." His specimens from Bahia (*Sello*) and Goiaz (*Natt.*) are undoubtedly referable to *C. cearensis*.

Prof. Baird, in Rev. Am. Birds, p. 392, under the name of *C. viridis*, describes a female from Paraná (S. I. no. 20, 976), which evidently belongs to *C. wiedi*. He describes his bird as follows:—"Bill rather dusky, under mandible somewhat darker, but without a distinct spot as in *C. guianensis*. Forehead ochrey brown, this colour extending narrowly above and beyond the eye to the nape."

The synonymy of this species will stand as follows:—

Cyclorhis wiedi, Pelzeln, Orn. Bras. (1868), pp. 74, 137, 138, partim! (excl. specim. ex Bahia & Goiaz), typ. ex Matogrosso & Paraná.

Cyclorhis wiedi, Gadow *, Cat. Birds B. M. viii. (1883), sub *C. ochrocephala*.

Cyclorhis viridis, Baird (nec Vieill.), Rev. Am. Birds, i. (1866), p. 392 (Paraná), excl. syn. et specim. ex Bolivia.

Hab. Matogrosso (*Natterer*); Paraná (*Natterer & Page*, in U.S. Nat. Mus.).

9 (Sclater's no. 8). Cyclorhis altirostris, Salv.

I do not understand why Mr. Sclater does not accept the term "*viridis*" for this species. Azara's description of his "Habia verde," on which Vieillot based his *Saltator viridis*, is as clear as it could be. In the French translation of Azara it is said, "Un trait rougeâtre qui prend aux narines, passe au dessus des yeux," and further, "Le bec est rouge de corail, terne en dessus, bleu en dessous."

This, I should think, is enough to prove that neither *C. ochrocephala* nor *C. wiedi*, the only species which touch the frontiers of Paraguay, can come into the question. Moreover,

* Gadow refers *Thamnophilus guianensis*, Pr. Wied, as a synonym to *C. wiedi*, but Pr. Wied's description evidently belongs to *C. cearensis*.

I have received the very bird from Asuncion in Paraguay, which proved to be quite identical with *C. altirostris*, Salvin, from Tucuman *.

At one time Mr. Sclater† correctly referred his Bolivian skin to *C. viridis*, Vieill., but more recently he has transferred that name to the species of S.E. Brazil and Argentina, which is entitled to the name of *C. ochrocephala*, Tschudi. That the term *C. altirostris* imposed on *C. viridis* by Mr. O. Salvin is an appropriate name cannot, in my mind, justify us in abandoning the old name *C. viridis*, Vieill., about the correct application of which there can be not the slightest doubt.

C. viridis (Vieill.), then, is a near ally of *C. cearensis*, Bd., but is larger in all its dimensions, and has a larger, stouter, usually higher bill. The olive of the upper parts is duller and more of a greyish tint; the yellow of the breast is duller or more greenish yellow; the abdomen more suffused with rusty.

Its synonymy is:—Azara, "Habia verde," no. 89, undè *Saltator viridis*, Vieill., Enc. Méth. ii. (1820), p. 793 (typ. ex Paraguay).

Laniagra guianensis, d'Orb. & Lafr. Synops. Av. i. (1837), p. 9; d'Orb. Voy. Ois. p. 160 (Corrientes, Arg.: Chiquitos, Yungas, Ayupaya, & Rio Grande, Bolivia).

Cyclorhis viridis, Scl. P. Z. S. 1858, p. 448 (Paraguay & Bolivia); id. Cat. Coll. Am. B. p. 46, no. 280 (Bolivia); Baird (part.), Rev. Am. B. i. p. 392 (Boliv. ex Sclater).

Cyclorhis altirostris, Salv. Ibis, 1880, p. 352 (typ. ex Salta).

Hab. Paraguay (*Azara & Rohde*); N. Argentina, Salta (*Durnford, Mus. Salv. & Godm.*); Tucuman (*Schulz, Mus. H. v. B.*); Bolivia (*Mus. Sclater & d'Orbigny*).

10 (Scl. no. 9). Cyclorhis nigrirostris, Lafr.

11 (Scl. no. 10). Cyclorhis atrirostris, Scl.

It is difficult to form an opinion about this new species, as the specimen described is evidently in immature plumage;

* *Cf.* Berl. Journ. f. Orn. 1887, p. 5.

† Scl. Cat. Coll. Am. Birds, p. 46, no. 280.

but I may remark that a young bird of *C. virenticeps*, Scl., in my collection, has the upper and under mandible uniform blackish, thus differing from adults of that species, which have the upper mandible pale-coloured. May not the coloration of the bill in the new species be due to immaturity also? Otherwise the affinities of the new species are certainly with *C. nigrirostris*, as Sclater remarks, not with *C. virenticeps*.

In consequence of what I have said in the preceding pages, the species of *Cyclorhis* should, according to my views, stand as follows:—

1. Cyclorhis flaviventris, Lafr. S. Mexico, Guatemala.

? 1 *a*. Cyclorhis flaviventris yucatanensis, Ridgw. Yucatan.

2. Cyclorhis flavipectus, Scl. Colombia, Venezuela, Trinidad.

2 *a*. Cyclorhis flavipectus subflavescens (Cab.). Costa Rica, Veragua.

2 *b*. Cyclorhis insularis, Ridgw. Cozumel Isl.

3. Cyclorhis guianensis (Gmel.). Cayenne, Brit. Guiana, Amazonia sup. (et infer. ?).

4. Cyclorhis cearensis, Baird. Brasil. or. (Para? to Bahia), Goiaz.

5. Cyclorhis viridis (Vieill.). Paraguay, Tucuman, Salta, Bolivia.

6. Cyclorhis wiedi, Pelzeln. Matogrosso, Parana.

7. Cyclorhis ochrocephala, Tschud. Rio Janeiro, Rio Grande do Sul, Argentina or. & occ.

8. Cyclorhis virenticeps, Scl. Ecuador occ., Peru sept. occ.

9. Cyclorhis contrerasi, Tacz. Peru sept. in montibus.

10. Cyclorhis nigrirostris, Lafr. Bogota, Antioquia.

? 11. Cyclorhis atrirostris, Scl. Ecuador.

According to my views the following key for determining the species of *Cyclorhis* would be the most natural one:—

A. Bill stout, upper mandible pale.
N.B.—The young of *C. virenticeps* is an exception.
a. Base of lower mandible more or less plumbeous *.
a'. Belly yellow like breast.
a''. Lower parts intense yellow ..... 1. *flaviventris*.
b''. Lower parts pale yellow..... 1 *a. flaviv. yucatanensis*?
b'. Belly white, greyish white, or ochraceous.
c''. Pileum pure cinereous in adults, suffused with brownish in immature plumage. Legs flesh-coloured or dusky.
d'''. Belly nearly pure or rusty white. Legs always flesh-coloured.
e''''. Upper parts bright yellowish olive; supercilia deep chestnut; sides of head and chin ashy white ..... 2. *flavipectus*.
f''''. Upper parts greyish olive; supercilia bright rufous; sides of head and chin darker cinereous ..... 2 *a. flavip. subflavescens*. / 2 *b. insularis*?
e'''. Belly suffused with ashy; legs sometimes dusky ..... 3. *guianensis*.
d''. Pileum always suffused with brownish; legs dusky plumbeous.
g''''. Smaller, bill moderately stout. 4. *cearensis*.
h''''. Larger, bill very stout..... 5. *viridis*.
e''. Pileum mostly green; legs pale flesh-coloured.
i''''. Pileum uniform green ..... 8. *virenticeps*.
k''''. Pileum green mixed with chestnut ..... 9. *contrerasi*.
b. Base of lower mandible never plumbeous; bill uniform reddish.
c'. Rufous superciliary stripe ending above the eye ..... 7. *ochrocephala*.
d'. Rufous superciliary stripe protracted to the sides of the occiput or nape.. 6. *wiedi*.
B. Bill small, upper mandible always black.
c. Bill black, basal third of lower mandible flesh-coloured ..... 10. *nigrirostris*.
d. Bill uniform black ..... 11. *atrirostris*?

* Some specimens of *C. flaviventris* and *C. flavip. subflavescens*, perhaps immature birds, lack the plumbeous on the base of the under mandible.

VII.—*Remarks on the* Acanthizæ *of Tasmania.*

By Colonel W. V. Legge, R.A., F.Z.S.

The largest species of the so-called "Acanthizas" of Tasmania is the *Acanthiza magna* of Gould, figured as a *Sericornis* in his Supplement, and described later in his 'Handbook,' vol. i. p. 373, as an *Acanthiza*. A comparison of this species with its Tasmanian allies, the members of the genus *Acanthiza*, and with *Sericornis humilis*, has led me to the conclusion that the structure of its bill and wing warrant its separation from these latter genera, and I therefore propose a new genus for its reception, which I call *Acanthornis*. The bill in *Acanthornis* is distinctly curved throughout, and is also laterally compressed, while the bills in *Acanthiza* and *Sericornis* are straight and wide at the base, and less compressed than in the former. The wing in *Acanthornis* is also rounded, and the primaries curved, forming a typically hollow Timeliine wing; the second and third quills are proportionately shorter than the same in *Acanthiza*, and the fourth is likewise shorter and not sub-equal with the fifth, as in the latter genus. In structure the wing of the bird in question resembles that of *Sericornis*, which is hollow and thoroughly Timeliine. The following diagnoses of the three genera show their different characteristics :—

Acanthiza.—Bill short and straight, with the commissure straight from the nostrils to the tip. Wing rather pointed, with the quills straight, the first half the length of the fourth, and the second subequal with the eighth. Tail with a subterminal black band. Tarsus distinctly plated.

Acanthornis.—Bill longer, curved throughout, the commissure curved from base to tip, compressed laterally between the position of the nostrils and the tip. Wing rounded and concave, with the first quill half the length of the fifth, which is the longest; the second shorter than any of the inner primaries; the third considerably shorter than the fourth, which is less

than the fifth and longest. Tail with a subterminal dark band. Tarsus covered with a single plate.

Sericornis.—Bill longer than in *Acanthiza*, straight, the commissure straight from gape to tip. Wing rounded and concave, the wing-formula the same as in *Acanthornis*. Tail shorter than in the two preceding genera, without any dark bar. Tarsus covered with a single plate, or with almost obsolete broad scales.

Acanthornis magna is not uncommon on the slopes of Mount Wellington, Tasmania, and about the edges of forests on other southern mountains in the island, but from its retiring nature escapes observation, and its distribution is consequently not well worked out as yet. In a future note I hope to be able to say something of its habits and to describe its nest and eggs.

VIII.—*Ornithological Notes of a Tour in Cyprus in* 1887. By Dr. F. H. H. Guillemard, M.A., F.Z.S. *With a Preface by* Lord Lilford.

(Plate II.)

Preface.

Although well aware that the author of the "Cruise of the 'Marchesa'" stands in no need of any introduction to those interested in ornithology, I may perhaps be allowed to mention that the collecting tour in Cyprus described in the following article was undertaken by Dr. Guillemard on my behalf.

I visited the southern and eastern coasts of the island in the spring of 1875 in the yacht 'Zara,' but owing to many delays on our voyage from Marseilles, the uncertainty concerning anchorage, and other causes, I had not much time to spare before the great heats of summer, and my rambles were confined to short distances from the sea. Soon after the British occupation of the island in 1878, I sent out Mr. W. Pearse, who had been with Mr. Danford in Asia Minor, to collect for me in Cyprus; but, on the whole, this

expedition was very meagre in zoological results, and unhappily ended in the death of the collector. I had, probably in common with many other British ornithologists, been hoping for some information on the fauna of Cyprus from some of our countrymen more or less permanently established there, ever since the year just mentioned, but in vain; and as I am convinced that the island, if properly worked, could show at least as long a list of birds as any district of equal area washed by the Mediterranean, I requested Dr. Guillemard to see what he could do there. I am very glad to say that he is about to start very shortly on a second collecting expedition to Cyprus, and I hope, with the permission of the Editors, to present the readers of 'The Ibis' before very long with a detailed list of the birds met with by him, Mr. Pearse, and myself.—L.

Bournemouth, Nov. 1887.

Those who are acquainted only with the more western islands of the Mediterranean—Corsica, with its snow-capped peak of Monte Rotondo peeping from above the pine-groves; Sicily, with Taormina, the champion view of Europe; Corfu, the richness of whose verdure is hardly to be surpassed even by Madeira—will be more than disappointed with the first view of Cyprus. They may consider themselves fortunate if their first port should chance to be Limassol. The long row of white houses, dotted here and there with date-palms; the tent-besprinkled slopes of Polymedia running back to the spurs of the Troödos range; the sunlight dancing on the crisp blue waters of the bay (and when is there not sun in Cyprus?)—all these form a pleasant picture enough; but the traveller is somehow conscious that the island has done her best; that she has, in short (may I be pardoned the metaphor!), got all her goods in the shop-window; and this impression is perhaps not entirely removed on a closer acquaintance. There are, no doubt, charming views in Cyprus; but they are those where the barren treelessness, so characteristic of the country, becomes softened or obliterated by the charm of distance.

Larnaka, however, is another affair altogether. Coasting round the island from Limassol one gets gradually prepared to expect little in the way of scenery. The land lessens in height, and is sparsely dotted with caroub-trees, which leave the glaring white gypseous soil far too much in evidence to be pleasant to the eye. Before reaching the port even the caroubs disappear. A long, low, and perfectly barren promontory, Cape Kiti, is rounded, and then the steamer drops anchor, leaving the naturalist to wonder whether he had not better continue his journey in her and leave Cyprus alone. He would make a great mistake if he were to do so; for the island, though not the most beautiful, is probably the most interesting in the Mediterranean Sea. Archæologically speaking, it certainly is so; but with archæology we have here nothing to do.

I landed at Larnaka on the 22nd of February. It was not long before I was experiencing the hospitality which the English in Cyprus apparently make it a point of honour to dispense to strangers. In many years of wandering I do not think I ever met with a more kindly welcome than that afforded me throughout the island, and I can only wish that 'The Ibis' had a larger circulation in Cyprus, in order that I might testify my appreciation of the kindness of my many hosts.

In the bazaar there were no birds of any special interest, though dozens of Goldfinches, many *Caccabis chukar*, and a few Calandra Larks hung up in cages for sale. The Red-legs get very tame and are often let out for an airing in front of their master's shop, where they take as little notice of the crowded traffic of the bazaar as a Seven Dials' fowl does of his surroundings. My host, too, had an aviary, or the rudiments of one. A Magpie, his character apparently none the better for his nationality, hopped warily about the garden, and had as companions a Francolin and two *Strix flammea*. The latter had been caught in Larnaka; but the species cannot be very common, as I never saw and only once doubtfully heard it during my stay in Cyprus. The Little Owl, *Athene noctua*, is abundant in the town, as it is, indeed,

in almost every part of the island I visited. It inhabits the roofs of the houses, and its slight domestic disagreements or faint cat-like mewings are common sounds of the night in a Cypriote house. At a later visit to Larnaka I obtained a good series of eggs of this species.

A walk in the environs of the town on the morning after my arrival was almost devoid of interest from an ornithologist's point of view. I visited the Government Gardens. The word garden can only be applied to the result of the floricultural endeavours of the islanders by a person whose sense of humour is subordinated to that of politeness; but it is unkindly Nature, and no unskilfulness on the part of the gardener, that causes the failure. These grounds were perhaps nearer to success than any others I saw, or would have been had they been under cultivation; but they had been deserted for two or three years or more. The ruined cottage at the entrance spoke only too plainly of the monetary disabilities under which Cyprus is labouring. The Turkish debt hangs like a millstone round her neck, and, until it is removed, all progress, whether in the Government Gardens or in the affairs of the island, will be alike an impossibility.

Larnaka is a poor collecting-ground, except for marsh- and lake-haunting birds, and being anxious to choose a good spot at which to establish myself for the spring migrants, I started for Nikosia without delay. The road, constructed by the English, traverses the dreary plain of the Mesorea (or Messaria, as it is invariably misspelt), the only interest of which is geological. At no very far distant epoch Cyprus existed as two separate islands, that to the north, long and narrow, a single mountain-range two or three thousand feet in height; that to the south less long, but of greater area—the present Troödos range. The intervening plain bears abundant evidences of its upheaval. It is dotted here and there with low flat-topped hills, and in many places extensive beds of fossil shells exist. In some of these that I afterwards examined there were large quantities of *Ostrea*, *Pecten*, and *Cyprina*.

The Mesorea is visited by *Otis tetrax*, which is occasionally

to be seen in the Nikosia market; and also, but more rarely, by *Otis tarda*, of which Mr. King, the District Commissioner, told me he had once had a recently-killed specimen brought to him. A species of *Pterocles* is now common, and I learnt on good authority that it breeds in the island. Among the birds I noticed on the road to the capital were the Magpie, Hooded Crow, Bunting, Goldfinch, Great Tit, *Saxicola morio*, and *Tinnunculus cenchris*, all of which are extremely common and generally distributed in almost every part of Cyprus I visited; the Bunting alone, perhaps, confining itself to low altitudes. The Chaffinch, of which I saw a single specimen, appears to retreat to the hills for the summer. A Stonechat or two were to be seen perched on the summit of the parched and stunted bushes, and I remarked a flock of Lapwings, a bird I never met with afterwards. Of the extraordinary abundance of the Crested Lark I need say nothing. At one place a migration of a small species of *Julus* was going on, the road being covered with them for fifty yards or more.

Everyone who has travelled in the East must have remarked that the Corvidæ have a distinct predilection for a town life. Ravens and Carrion Crows find Nikosia a good hunting-ground and are tame enough, and around the beautiful church of Santa Sophia, now a mosque, the Jackdaws chatter in hundreds. There are few other birds in the neighbourhood. *Vultur fulvus* floats lazily in the cloudless sky, or sits at the edge of the low, truncated *kopjes* near the Larnaka gate; and within the town *Tinnunculus cenchris* is nearly as common as the ubiquitous Sparrow; but these practically complete the list. On the 24th February I saw the Swallow for the first time, and three days later they were abundant. The temperature at this date was distinctly cold, for although at mid-day the mercury might stand at 65° Fahr. in the shade or even higher, it sank at night to 39° in the verandah. From the clearness and thinness of the air such weather is more felt than might be imagined, and though the Greek and Turkish houses are for the most part without fires, the English sit round their stoves with the same enjoyment as they gather on the hearth-rug at home in winter.

Finding a servant, procuring ammunition from Limassol, and trying to acquire some information about the island, took up some little time, and I did not leave the capital till March 4th. I had determined on visiting the lighthouse at the extremity of the Akrotiri peninsula for a few days, in order to watch the arrival of the migrants. All travelling is done in Cyprus by mule, and my first introduction to the native saddle, which I had resolved on using, was no more pleasant than such introductions usually are. Over the *stratouri*, as it is called—a pack-saddle of good pattern, so far as the comfort of the animal is concerned—is thrown a pair of strong saddle-bags of the ordinary Syrian type. A pair of stirrups, tied together with cord, is then laid across, and on the top a four-fold *paplouma* or quilt. Although there is a girth, it is never tightened, and the creature's load, whether animate or inanimate, depends almost entirely upon balance for its safety. Equitation in Cyprus appears to the tyro to offer no certainties but a broken neck; but after a time he learns to prefer the native saddle to an English "Peat," at all events for work upon the island.

We had hardly left Nikosia an hour, before some heavy rain-clouds, which had been threatening for some time, broke over us, accompanied by a bitter wind from the north-west. The barren, lifeless plain looked dreary beyond description, and on reaching the Idalia river, a dry, stony watercourse, as are most of the "rivers" of Cyprus, I decided to halt for the night. I obtained lodgings at a Turkish house in the little village of Pera-khorio. Next morning the villagers brought me a small stone head of Assyrian type, in excellent preservation, and a tame Rook. These birds do not appear to be common, as, indeed, might be expected; and I believe the greater part, if not all of them, leave the island in the spring.

Next morning the weather was fine, and the wind had veered to north-east. In spite of the sun, it was so cold in the forenoon that I wore a thick pea-jacket with pleasure. Our way lay southward towards Mount Stavrovouni, and leaving the plain we came into a country of low, irregular

hills, the valleys between which were chiefly vineyards and corn-land. The vines, however, were leafless, and no sign of spring in the shape of an anemone or ranunculus was to be seen. We passed large flocks of goats, which were invariably accompanied by still larger flocks of the White Wagtail, each animal having two or three of these birds in close attendance.

A decided change was visible on arriving at the southern slopes of the island. Anemones appeared, a few stray butterflies were occasionally to be seen (*Pontia cardamines, Pieris cratægi,* and *Gonepteryx rhamni*), and low bushes afforded cover for various birds. I saw a tolerable number of Blackbirds, some specimens of *Anthus,* the Wren, Robin, Redstart (*Ruticilla titys*), and the first and only Blue Tit that I met with in the island. At one place I noticed a solitary *Hirundo rufula,* a species which I did not again come across until long afterwards. Although it is, perhaps, to be found in each of the Districts of the island, it is very local. It occurs at Famagusta, at the ruins of Bellapais, at Kyrenia, in the pass above Lanarka tou Lapethou, and near the village of Poli; but at all these places it seemed to frequent the immediate neighbourhood of its home, and never to go far a-field.

Arriving at Tochni, an old Greek woman welcomed me at her house in the customary Cypriote fashion, swinging a small censer around me and enveloping me in little clouds of perfumed smoke. On such occasions the guest bows, thanks his host, and making the sign of the cross is thereafter protected from evil spirits during his residence in the house. Next day they brought me a lad who was said to be suffering from the sting of a "σφαλάγγη" inflicted five months before. Whether the injury was due to this cause or not I cannot say, but the right eye was completely hidden by an indurated and ill-looking swelling of the upper eyelid and neighbouring parts, and its structure in all probability destroyed. The σφαλάγγη, a sand-wasp of the genus *Mutilla* (*M. hungarica*), is extremely dreaded by the Cypriotes, who believe its sting to be occasionally capable of causing death.

On the 7th of March I found myself established at the

lighthouse at Cape Gato. The headland is said to be so called from the number of cats that at one time ran wild in the neighbourhood. There are none now, at least I never saw any; but on two or three occasions I came across places where the ground had been rooted up by pigs. The wild boar, however, does not exist in Cyprus, and these, like the cats, are merely tame animals escaped from civilization. The light is 109 feet above the sea, and is a dioptric of the fourth order, flashing every two minutes, and visible at a distance of twenty miles. The Akrotiri peninsula, at the extremity of which it is placed, is practically uninhabited, and is a wide stretch of barren moorland, which in the neighbourhood of Cape Gato is covered with stunted bushes. Here and there a travesty of a tree is to be seen, with an inclination of branches sufficient to show that the prevailing winds are from the west.

I stayed ten days at the lighthouse, and was on the whole disappointed with the result. The spring migration was no doubt in full swing, but no birds ever came to the light, and the lighthouse-keeper, a Cypriote Greek, told me that, excepting upon two occasions, he had never known a bird killed. The Spectacled Warblers (*Sylvia conspicillata*), flying with their short jerky flight from one low bush to another, were tolerably plentiful for the first two or three days; but afterwards they became decidedly less so, having most probably taken their departure for other parts of the island. Although some may remain the winter, a great number of them are no doubt migrants. In Cyprus they appear chiefly to haunt the semi-moorland country such as I have just described, and are fairly common on the great stretch of flat uncultivated land lying between Larnaca and Famagusta. I have never seen them in the bush-country in the hills, as one sees them in Madeira. I was delighted to meet with the beautiful little *Sylvia melanothorax* on the first morning after my arrival. I found them in pairs, not plentiful at first, but becoming more so before my departure on the 17th March. Although I shot them afterwards in many different places in the island, from the sea-level up to 2000 feet or more in altitude, I

never succeeded in obtaining their eggs, though I believe that I might have done so on the Akrotiri peninsula had I remained there till the breeding-season. Lord Lilford, however, tells me that he was never able to discover the nest, although the birds were evidently breeding in considerable numbers in the neighbourhood of Salamis.

Sylvia melanothorax appears to frequent much the same ground as the Spectacled Warbler. With regard to its habits, I can add little to the description of Canon Tristram. In the male the eye-ring is red; the iris ruddy brown or, sometimes, yellowish; and the feet and tarsus vary from dark brownish yellow to ruddy brown. The female has a much less bright eye-ring, the iris is less ruddy, and the feet are paler. The bill in both is dark brown, the proximal end of the lower mandible being of a pale fleshy-yellow. Length in the flesh:—♂, 13·4–13·8 centimetres; ♀, 13·4–13·5.

Haunting the same ground as the above two species, but so uncommon that I only secured two specimens, was *Sylvia melanocephala*. I never saw it again in any other part of the island, although I believe Lord Lilford found it tolerably abundant near the Karpas.

The perpendicular cliffs forming the southern boundary of the peninsula were the home of many *Gyps fulvus*, Rock-Pigeons, and Kestrels (*Tinnunculus cenchris*), and on a slab of rock immediately below the lighthouse, inaccessible except by boat, a seal might often be seen "hauled up." Here, too, I shot the beautiful *Falco eleonoræ*, and watched through my telescope the movements of a pair of Cormorants. When walking along the eastern coast I twice disturbed *Alcedo ispida* from its perch on a small rock at the head of a miniature bay. That *Halcyon smyrnensis* exists in Cyprus I have no doubt whatever, for the bird was well described to me by two different persons; and Lord Lilford tells me that he also had credible evidence as to its occurrence. Rather more curious is the fact that *Ceryle rudis* is also found on the island. Its appearance and habits were described to me in such a manner by Mr. Cade, the present Commissioner of the Kyrenia district, who had been for some time a resident

time, west coast of Africa, as to leave no room for doubt Hay the matter.

On the moorlands a few Robins and Blackbirds were to be seen, and the snapping note of the Stonechat, a bird so shy as seldom to admit of a near approach, was a familiar sound. But the one common bird was the Song Thrush, at that time preparing for its departure. I do not know that I have ever seen a species occurring in greater abundance than this. Almost every step put up one, and small isolated bushes would quite commonly afford shelter to five or six. Spring at this time might be said to be fairly established. Butterflies of the genus *Polyommatus* and *Papilio machaon* were common, and the ground was covered with yellow ranunculus and anemone. The minimum night-temperature at this time ranged from 44°–49° Fahr., the diurnal maximum in the shade from 63°–72°. The wind was chiefly easterly, often veering with the sun to west, and not unfrequently blowing very hard. One of the chief characteristics of Cyprus, indeed, is the prevalence of strong winds. On several days during my stay on the island it was almost impossible to go out of doors, the dust occasioned by these gales being well nigh intolerable.

Wandering one day among the scrub, about two miles from the lighthouse, I suddenly came across some ruins of great interest, which I afterwards found to be unknown to the English on the island. Passing over the less important remains, the chief feature was a chamber of large size (72 by 36 feet) hewn in the solid rock. The top of its roof was level with the surrounding soil, and the entrance was reached by a passage, also rock-hewn, with a stiff slope. About twenty yards to the west was a similar chamber, but in this one the roof has fallen in. Whether these remains are of the nature of tombs or temples it is difficult to say; but there is little doubt that they owe their existence to Phœnician hands. The Akrotiri peninsula was in those days well populated. A little further to the west are the ruins of Katalymata, and still nearer Cape Zephgari lie the broken columns and shapeless stone-heaps of Kurias. The remains

of yet another city can be made out on the coast aboũ believe distant from these two, and the cliff-face is in many p had I dotted with rock-cut tombs and old quarry-workings.

These sites of ancient cities are often the best hunting-grounds for the ornithologist, and here I shot the only Blue Rock Thrush that I obtained in Cyprus. When I first saw it, it was sitting on the top of a small tree. I mistook it for a Starling, and, although familiar with the bird, it was not until it flew down on a low stone that I recognized it. Here, too, on March 10th, I saw the first Hoopoe, a bird which seemed to me to be far less common on the island than in Greece. I was assured by two or three people, however, that it was not nearly so abundant as usual.

Although during my stay at the lighthouse I was on the alert at various times in the night for the passage of migrants, I never either saw or heard any, except on one occasion, when for about half an hour a flight passed over us at no great height. I could not, however, succeed in distinguishing with certainty the note of any one species, although it is probable that some of them were Wheatears; for next morning (March 14th) these birds, of which up till then not a single specimen had appeared, were quite common, and I could have shot thirty or forty of them had I wished to do so.

The Akrotiri promontory is nearly separated from the mainland by a salt lake about three or four miles long, which in bygone days must have communicated with the sea. To the south it has no well-defined limit, and loses itself imperceptibly in a vast expanse of dead level white sand, the glare from which is blinding. On this side I found few birds save a stray Redshank and the two Ringed Plovers (*Ægialitis hiaticula* and *Æ. minor*). My only rarity was *Æ. geoffroyi*. A curious incident occurred one day as I was walking along this barren shore, the surface of which was so smooth and flat that a marble would have been noticeable at a distance of fifty yards. A Snipe got up almost at my feet. That it should be found at all in such a place was curious enough, but that it should have escaped observation was almost incredible.

time, the 17th March I changed my quarters to Episcopi, Hardle Turkish village near the site of the ancient Curium. Unlike most Cypriote villages it was decidedly pretty. An abundance of clear little streams brattled through the streets, and each house had its garden of lemons, mulberries, figs, and apricots. The latter trees were in full blossom, and the ground was everywhere strewn with the fallen petals. Ten or twelve miles away to the south-east I could plainly discern the lighthouse I had just left, while to the west the yellow, hewn bluff of Curium stood out in bold relief against the blue waters of the bay.

The fields surrounding the village were tilled and irrigated with great care, and birds were numerous. The gardens would, no doubt, have been a better collecting-ground; but as the owners were chiefly Mohammedans, I could not obtain permission to shoot in them. A goodly number of caroub trees (*Ceratonia siliqua*) were scattered about. They are planted singly, in the middle or by the side of the fields, never in groves, and their fruit (the "locust bean" of commerce) is one of the most important exports of Cyprus. In each of these trees one or more Thrushes were invariably to be found, and the clear loud "wheet" of *Phylloscopus rufus*, and the ringing note of the Great Tit, were constantly to be heard among their branches. The Linnets (the Eastern form, *Fringilla bella*) and Goldfinches fed in great numbers on the freshly tilled land, and were still packed in flocks at the end of March. The latter may be said to be the commonest bird in Cyprus; nowhere else have I seen it in such enormous numbers.

I had obtained *Phylloscopus rufus* on the 8th of March, but it was not until the 18th that I saw the first Blackcap. A day or two later they became numerous. This species, I believe, has been called the "Cyprus bird," from its abundance on the island. The name is not undeserved, for, with the exception, perhaps, of *Hypolais elaica*, it is the commonest of all the Warblers. About this time the Swallows were commencing to build. Their tameness was extraordinary. While brushing my hair one morning before an old looking-glass

hanging from the wall, a pair of them came and perch[ed] believe it, pouring out a torrent of song, regardless of my prese[nce] had I Another pair always roosted in my room at Episkopi, their [per]perch being within a couple of yards of where I usually sat. Their regularity in beginning the day was wonderful. From a quarter to ten minutes to six (never later and never earlier) they left their roosting-place for their first short flight up and down the room, and I was left but little peace until they were let out.

One of my first excursions from Episcopi was to Curium, a site that has probably been more explored by archæologists (*soi-disant* or otherwise) than any other in the island. Its yellow cliffs were the haunt of innumerable Jackdaws and Kestrels (*Tinnunculus cenchris*), and the great prickly lizard, *Agama stellio*, watched, motionless, here and there on the summits of the fallen stones below. On the hill where the city once stood, now a mass of rubble overgrown with scrub, I found *Caccabis chukar* abundant. The Kestrels were, no doubt, breeding, and I shot one in the act of bringing a Thrush to the nest. Judging from dissection, however, their food appears to consist chiefly of Coleoptera and Locusts. In skinning them I found that the greater part of the body-surface immediately beneath the skin was dotted with numerous ova, about one half the size of those of the bluebottle fly. A strong lens showed two minute black dots at one end. I did not meet with these ova in any other bird I skinned in Cyprus, but I found them on all the Kestrels I examined.

On the road towards Colossi, where stands a massive square tower, built, probably, at the beginning of the 14th century by the Lusignans, the country was too open to offer many attractions. Its only beauty lay in the wealth of little blue iris (*Iris sisyrinchium*) which lines the road on either hand, and the cyclamens springing from the interstices of the rocks. The Kuris river (an open nullah of dry sand and boulders) is crossed soon after leaving the village. Feeding on some bushes on its banks, I shot the Serin Finch, which, on the whole, is not common on the island. In habits, note, and general appearance this bird, which I here shot for the first

time, reminded me strongly of the African *Fringilla angolensis*. Harriers were not uncommon, but very shy, and it was some days before I succeeded in obtaining one, a beautiful old male *Circus swainsoni*. The only *rarity* that I saw during my stay at Episkopi was a *Regulus* of some species, which I was unlucky enough to fail in obtaining.

The scattered stones with which the fields and roadsides of Cyprus are so abundantly provided afforded a good hunting-ground for the Coleopterist; but the spoil to be obtained by turning them over was by no means limited to beetles. Under nearly every one might be found the pretty spotted lizard *Chalcides ocellatus*, a small species of *Julus*, and not unfrequently a scorpion (*Buthus europæus*), at this season generally immature. *B. peloponnensis* is apparently a far less common species. While searching a bed of brilliant yellow *Calendula* for insects, I one day noticed a fly struggling in a most energetic manner upon one of the flowers without any apparent reason. My curiosity being roused, I examined it more closely, and then, to my astonishment, discovered that the creature was in the jaws of a spider, which, in colouring, exactly matches the vivid yellow of the corolla that served at once as its home and lure. I had had the flower in my hand some time, I dare say three or four seconds, before I saw it. Afterwards, on careful examination of the flowers around, I found that these spiders were abundant, but in every case they kept carefully to the corolla, where alone they remained invisible.

This species (*Thomisus onustus*) is also, as the Rev. O. P. Cambridge informs me, found sparingly in the heath districts of the south of England, and varies in tint according to the colour of the blooms it inhabits. The female alone appears to adopt this method of procuring its food, the male being very rarely found.

Athene noctua exists in such numbers at Episkopi that the village may be regarded as its metropolis. Its clear ringing note, "*poo, pooep*," can be heard in almost every garden—seldom or never by day (although the bird often flies at that time), and not very commonly at night. Theirs is the

"Song of the setting sun," beginning when the muezzin shouts his mournful cry from the minaret, and the connexion of the two sounds and the brilliant sunsets that accompanied them are among the most vivid of my recollections of the little Turkish village. The Cypriotes have a quaint story about the bird, under the idea, which I could never personally confirm, that the two notes, as in the case of the African *Telephonus bacbakiri*, are uttered by different birds. They say that one of these Owls once borrowed four loaves of a friend and only returned three, declaring that to have been the number lent. Their descendants have ever since kept up the quarrel, and that is why, when the one says "τριϛ," the other instantly retorts with "τ'σ'ρα." I regret that I am unable to say whether the note is only uttered by the female.

The season was hardly yet sufficiently advanced for snakes, but on returning to my house one evening I found that a peasant had brought me a very fine specimen of *Zamenis viridiflavus*, 4 feet 5 inches in length, brownish green, with a bright yellow belly. This species is very common on the island, and I afterwards obtained a good series of the different varieties.

It was not until a day or two before my departure from Episkopi that I found that there was a good marsh at the north-west corner of the salt lakes I have already mentioned. It was within tolerably easy reach, and I visited it twice. I understood from the officers of the 49th Regt., then quartered at Limassol, that it abounded in the winter with Ducks of many kinds. I found a few Mallard and Teal, and Snipes were very abundant. From a flock of eight or ten I shot a Ruff in immature or non-breeding plumage; but I got nothing of special interest, with the exception of *Sylvia rueppelli*, which I found haunting the tamarisk-bushes in, or on the edges of, the swamp.

I left Episkopi March 29th. The village, as I afterwards learnt, was supposed to be unhealthy, and although I had not been actually laid up, I had never felt well during the whole of my stay there. The neighbourhood of the salt lakes

has a bad name, and at the village of Akrotiri, which is situated close to them, the infant mortality is said to be such that there is always one (but only one) baby in the place. Passing through Limassol, and picking up a few necessary provisions, I struck northwards into the mountains, having fixed on Jerona, a little hamlet at an altitude of 1700 feet, as my station for a few days. I camped *en route* at the village of Agrounda. It was my first experience under canvas in Cyprus, and by no means a very pleasing one, for, in spite of having barricaded the tent to the best of my ability with my luggage, it was burglariously entered, and everything eatable stolen by pariah dogs during the night. To the last day of my residence on the island I could never make up my mind as to whether camp or village life was the lesser evil. In the one case I warred with dogs and ants, in the other with fleas and a less lively but equally obnoxious insect. I was like the gentleman who sought advice as to the matrimonial state. It did not matter whether I took up my quarters with the village Muktar, or went under canvas. In either case I was sure to regret my action.

The southern range of mountains affords some exceedingly fine views, and the abruptness of the valleys reminded me strongly of some parts of Madeira, though it must be admitted that the lack of trees detracts considerably from the beauty of the scenery. The hills were ablaze with flowers—rock-roses, cyclamens, and furze; but I do not think I ever saw a country poorer in bird-life. Not a single Raptorial bird was to be seen, and the only species I noticed during a whole day's ride were *Saxicola morio*, *Emberiza cæsia*, and *Sylvia melanothorax*. I found Jerona a dirty village, with still dirtier inhabitants, but magnificently situated on a spur overlooking a deep and picturesque valley. There were no more birds here, however, than I had seen on my way up from Agrounda, and, after a day's rest, I decided to push on. My next stopping-place was Leokara, a large village some hours to the eastward; but I met with no better fortune here than at Jerona, and I left as soon as I was able, reaching Larnaka on the 7th of April. I should have started a day

earlier but for the fact that heavy rain was falling in the low country. The season of 1887 was one of extraordinary drought—a drought so severe that in the eastern parts of the island there was practically no harvest, and in consequence the people were reduced almost to a state of famine. During the whole period of my residence in Cyprus I only saw rain upon three occasions. I am bound to say, however, that on one of them at least three inches must have fallen.

To the south of Larnaka, at no great distance from the town, is a large salt lake, which affords an inexhaustible supply of salt of excellent quality, a monopoly of the British Government. Along its level, glaring shore it is rare to see a bird, but towards the south-western extremity a little stream expands to form a marsh, in which I found many species of water-fowl. *Ardea cinerea*, *A. bubulcus*, and *A. comata* were here, and, in spite of the lateness of the season, I found plenty of full Snipes and a single Jack. The natives told me that some of the former remain throughout the summer; but as they are largely given to needless romancing, I do not guarantee the accuracy of the statement. The tiny *Cisticola schœnicola* was abundant, rising twenty or thirty feet into the air when disturbed, and plunging up and down in a series of short dives, uttering at each its single note of alarm. On the outskirts of the marsh I shot the Waterhen (*Gallinula chloropus*) and the Sedge Warbler (*Acrocephalus phragmitis*); but the best bird in my bag was *Porzana parva*, retrieved from deep water by a good mongrel belonging to a peasant, who twice threw the bird back into the pool in order to demonstrate the extraordinary sagacity of his dog, heedless of my cries of mingled rage and anxiety from the opposite bank.

The Greek Easter was at this time in full swing, but its festivities were, perhaps, a little less festive than usual, owing to the prevailing agricultural depression. Food had become so expensive that the natives had to part with their mules, donkeys, and cattle for what they would fetch: a sum, in many cases, inconceivably small. My host's servant one day bought an excellent little cow for three shillings and four

pence, and a week or two later, when at Kyrenia, I found that donkeys were being shipped across to the Karamanian coast in large numbers by an enterprising Hebrew. No one, however, cared to do any work during the holiday season; and, partly because I was unable to get transport, partly because I had found an excellent lake for water-fowl to the north of Larnaka, I remained in the town until April 19th.

I heard the first Cuckoo April 13th, and saw one four days later. At this season the Sparrows in the town collect in large flocks of four or five hundred individuals, just before sunset, and fly round and round for half an hour or more before going to roost. In no part of the world have I seen such enormous numbers of Swifts as in Larnaka, but they were all *Cypselus apus*. As on my first visit, I found birds scarce, and the only species worthy of mention was *Pycnonotus xanthopygius*. Although I did not shoot it, I have little doubt about the bird, for it perched in a tree above me, within a couple of yards of my head. At the lake to the north of Larnaka (a nice sheet of water, about an hour's ride from the town) I found *Plegadis falcinellus* in small flocks of a dozen or fifteen individuals. They permitted a tolerably near approach; but the Stilts, of which there were numbers, were exceedingly shy. Each time I visited the place I found three Swans swimming in conscious security in the middle of the lake. I tried a long shot at them on one occasion, and, whether in consequence of this or not I cannot say, a peasant several days later brought in a wounded bird to my host. It turned out to be *Cygnus olor*.

Leaving Larnaka I rode to Famagusta, or rather to its Christian suburb, Varosia. The road lies for a few miles along the shore, and then, turning off at the head of Larnaka Bay, crosses the barren stretch of land which ends in the Cape Greco promontory some 20 miles to the S.E. Nothing more dreary and depressing can well be conceived. The plain is nearly a dead level, featureless save for one or two ruined and solitary churches, which are visible at an immense distance, and add still further to the effect of loneliness and desolation. I had found an enormous flock of *Larus melano-*

cephalus at the head of the bay, feeding about half a mile inland on beetles and *Helix pisana*, a snail which exists in such numbers that the herbage and stunted shrubs were nearly white with them in some places. But after leaving the sea hardly a bird was to be seen. With the exception of the Crested Lark, I think that a solitary Harrier and a few pairs of *Sylvia conspicillata* were the only species I noticed.

Varosia shows what may be done in Cyprus with plenty of water and careful cultivation. A strip of gardens extends along the coast between the village and the sea for a distance of about three or four miles. They are the great pomegranate- and orange-orchards of the island. Here I spent three or four days in the vain hope of finding some of the rarer Warblers. The Blackcap and *Hypolais elaica* were common enough, but there appeared to be no other, except a few *Phylloscopus sibilatrix*. *H. elaica* I found here for the first time (April 21st), so that it must be a tolerably late arrival. It is the commonest of its family, being found at every altitude and in every part of the island; but the olive-trees seem to be its favourite hunting-ground. The song is a meaningless unfinished warble, consisting generally of four or five notes repeated over and over again.

The walls of the magnificent fortress of Famagusta and the ruins of the numerous churches destroyed by the Turkish bombardment of 1571 are tenanted by innumerable Jackdaws and *Tinnunculus cenchris*, and not a few *Athene noctua*. On the battlements I shot *Hirundo rufula*, and found its nest in a rock-hewn cavern, attached to the smooth flat roof. In general this is the situation adopted, but sometimes the back of the nest is built against a beam, or against a wall where it joins the ceiling. The entrance is a short tunnel, with a slightly covered lip. The eggs are pure white, and, in this case, were six in number.

I heard the Bee-eater (*Merops apiaster*) on April 24th, and saw it and the Roller on the following day. Both are abundant in Cyprus. On the 26th I visited a small lake about a couple of miles westward of the town. The graceful little Tern, *Sterna minuta*, hovered at the mouth of a small stream

that fed it, and was almost the only species that permitted me to approach within reasonable range. I saw also *Sterna caspia, Larus melanocephalus*; the three Herons, *Ardea bubulcus, garzetta,* and *comata*; the small Plovers *Æ. cantianus, hiaticula,* and *minor*; and a species of Whimbrel. *Anthus cervinus* I found feeding in small flocks of twenty or thirty individuals on the wet ground near the lake, and, in spite of the lateness of the season, I put up a number of Snipes. The only uncommon bird in my bag, however, was the Little Grebe (*Podiceps minor*). The Turtle Dove (*Turtur auritus*) arrived about this date, and on my ride back I disturbed numbers of them from the caroub trees.

I had intended, after leaving Famagusta, to proceed to the Karpas, a long promontory jutting out for 40 or 50 miles at the north-east part of the island; but the little time left to me before the summer, and the fact that a famine was then prevailing in that district, made me resolve on making for the north-east at once. Not a mule was to be had in the whole of Famagusta, but, fortunately, a rough road existed as far as Lefkonico, and I was able to get a native cart to carry my baggage thither, trusting to find mules or donkeys to carry it on to Akanthu, where I proposed to take up my quarters for a week or so. On my way I passed a nice marsh (little, if at all, known to the English), where I put up several Snipes and Ducks, although only walking a few yards into it. At Lefkonico I was detained for two days by incessant rain. A torrent, about eighteen inches in depth, rushed through the streets, and all going out was an impossibility until the afternoon of the second day. I found a nest of *Melanocorypha calandra,* with the eggs already hard-set, and saw a few *Cypselus melba* and a great number of Bee-eaters. The barley was being cut and carried, and I was astounded at the enormous number of Turtle Doves feeding in the fields. In one flock there must have been at least six or seven hundred birds, and were more probably a thousand. The ravages of this species, I should imagine, must be distinctly felt by the farmers. I ought to add, however, that I never saw them so numerous at any other place on the island.

The track from Lefkonico to Akanthu crosses the northern range by a low pass, so low, indeed, that it is hardly worthy of the name. The mountains, too, are on a corresponding scale, for they are nowhere much above 3000 feet in height; but the abruptness of their northern face makes the scenery very much finer than would be expected, and this coast is undoubtedly the most beautiful part of the island. I had hoped to find something new in the fauna or flora, and was not disappointed, for directly after beginning the descent on the further side I shot a specimen of the beautiful *Emberiza melanocephala*, and soon found it to be common enough here, though south of the pass not one was to be found. I afterwards noticed a few on the Troödos range; but the true home of this species is on the northern coast. The same may be said of the two Shrikes, *Lanius nubicus* and *L. collurio*. The former I observed in two or three places on the slopes of the southern mountains, but, to the best of my recollection, I never saw the Red-backed Shrike anywhere but at the north of the island and on Mt. Troödos. It is worthy of note that in almost every individual of these two species I found three or four filiform helminths beneath the skin at the back of the neck.

Akanthu was in many ways an interesting place, though its interest perhaps lay more in the people and their customs then in anything else. They were more energetic than the ordinary Cypriote, although possibly quite as little to be depended on, and I was able to get a few men to help me in collecting, which I had hitherto found almost impossible. From the crags above the village I got three young *Gyps fulvus*, one of which (brought to me on May 5th) had only been hatched four or five days. *Scops giu* was also brought alive to me, having been taken while sitting on its eggs from a hole in the roof a house. The village was placed on a series of arid spurs about six hundred feet above the sea, and if one chose to look for them, there was no lack of scorpions and *Scolopendræ*, although they seldom obtruded themselves on one's notice. Life was, nevertheless, a burden from other causes. Sand-flies and mosquitos harassed one at night, and

countless thousands of flies by day. As for the fleas, Cyprus is no exception to the rule that in the East, like the poor, we have them always with us.

Of what the world at large calls obnoxious creatures, perhaps one of the best that I secured was a magnificent specimen of *Vipera xanthina*. It was of considerable length, and as thick as the middle of a man's forearm. The rapid tapering of the tail and the dirty colouring of the reptile give it a repulsive appearance, which is not belied by its character. The Commissioner for the Famagusta district informed me of the death of a man from snake-bite just at this time, the event occurring at the village at which he happened to be staying, and I have no doubt that it was to this species that it was due. Such occurrences must be very rare. Travellers have given the island a bad name for snakes, and have repeated over and over again the statement that the natives wear high boots to protect them from the "deadly asps" with which it abounds. It is true that snakes are extraordinarily abundant in Cyprus, and equally true that every peasant wears high boots, but almost all these reptiles are harmless, and the boots are worn as a protection against the thorns with which the stunted bushes are so liberally provided. *Koufi* is the name by which almost every snake except *Zamenis viridiflavus* is known, and even the little *Typhlops vermicularis* is inserted in the Cypriote black list.

I heard the first Nightingale on the 4th May. On the 9th I left Akanthu and proceeded westward in the direction of Kyrenia, skirting the shore closely. In many places traces of rock-cut tombs and quarries and heaps of rubble testified to the fact that in Greek or pre-Greek days this coast must have been thickly populated. *Anthus arboreus* fed in pairs in the stubble, or rather what should have been the stubble, for here the corn is generally pulled up by the roots, and the latter cut off against a fixed sickle. *Emberiza melanocephala* was very common, but it was singular to note how much the males were in excess of the females. At one place I heard the Francolin, a bird which is apparently becoming rarer from year to year in Cyprus, or at any rate

more limited in its distribution, although it is still abundant at the southern and western parts of the island.

I camped below the ruins of Bellapais, a magnificent semimonastic building of the Lusignan period, with a great part of the beautiful cloisters still standing, and spent most of the following day in photographing it. *Hirundo rufula* was in great abundance here, and in a large hall, which was doubtless the refectory, there were many nests. Most of them were inaccessible, but from one I took some eggs, no doubt of a second clutch. The Commissioner of the Kyrenia district, with whom I was staying later, informed me that a pair had raised three broods of young ones in one season in a nest built in his bedroom.

The medieval fortress of Kyrenia, and the remains of the walls and other fortifications by which the ancient town was surrounded, would take many days thoroughly to explore, and I regretted that I had not more time to devote to them. My rambles in the neighbourhood were very unproductive. There are numerous foxes, as there are, indeed, in most parts of the island. Hares, too, are fairly abundant. A native sportsman at Akanthu, who seemed a tolerably good observer, declared that there were two species of the latter animal, one of which was entirely confined to the mountains. He described it as being of a darker colour and smaller size; but though I offered to pay him well if he brought a specimen, I never got one. Those that I shot on the island did not seem to differ from our species. Their average weight was a little over 7 lbs.

I arrived at Lapethus, a village a few miles to the west of Kyrenia, on the 15th May. With its streams of running water and abundance of greenery it has a fair claim to be considered one of the prettiest places in the island. Here I wasted three days in a vain search for caves, none of those I found being of sufficient size to render digging worth while. I hardly added a specimen to my collection. Few birds were to be seen, and I find in my diary a note against a *Sylvia melanothorax* I shot here, "anything but common on this northern side." This part and the promontory of

Kormakiti just beyond are two of the best places for Woodcocks in the island.

The heat by day had by this time become very great, an unpleasant reminder that my time on the island was drawing to a close, and that I had still a considerable amount of ground to be worked before my departure. I was desirous of seeing something of the southern slopes of the range before I quitted the district, and accordingly started on the 19th May for a hamlet known as Larnaka tou Lapethou. This place is supposed, though I do not know exactly why, to have been the burial-place of the city of Lapethus in ancient days. It seems to the last degree improbable that they should have taken the trouble to carry their dead over rough mountain-paths to a place so far distant; for Larnaka, though not far off as the crow flies, is, owing to the impassable nature of the mountains, quite three hours by road from the ruins of Lapethus. From whatever reason, however, there are remains of many tombs, and, in particular, a bilingual inscription in Phœnician and Greek, described by Cesnola, which I was anxious to photograph. I stayed a day only at this place—long enough for me to take my views and copies and to remark upon the paucity of bird-life. It is singular that there should be so few birds of prey in these mountainous districts. My servant told me that he had put up a covey of Red-legs, the young birds "grandes comme une Caille," close to our camp, and there were other evidences of the earliness of the season in the parched appearance of the surrounding country.

I descended into the plains and reached the village of Morphou, a place of some little size, on the evening of May 20th. The ride across the endless stretch of level ground was uninteresting to a degree. The harvest, which was fairly good in this district, was in most places carried. The ubiquitous Sparrow, a stray Grey Crow or two, and innumerable Swifts were the only birds I noticed, with the exception of a pair of Black Vultures (*Vultur monachus*), an old bird and a full-grown young one. The latter I was fortunate enough to shoot with a charge of No. 6. shot, after a long stalk and

a trudge of two or three miles. He measured 9 feet 5 inches from tip to tip, and was so heavy and unmanageable that, finding I could not drag him back to my mule, I reluctantly left him, after cutting off the head and feet.

There was nothing to keep me at Morphou except a marsh, or what was described to me as one, in its neighbourhood. The drought had had its effect upon it, however, and I found it like a pond, little else but dry land and water nearly reaching my waist. Numbers of Pratincoles were hawking over it, and now and again dropping on the shingle of the neighbouring beach to rest. I was glad to do the same, for a slight touch of African fever from which I was suffering rendered me incapable of much exertion under such a powerful sun. From what I saw I judged that the marsh, from an ornithologist's point of view, was comparatively deserted.

I had planned my route to the southern and western parts of the island *viâ* Lefka and the much be-praised Maratassa valley, and started on May 23rd. The former place is charmingly bowered in mulberry and other fruit-trees and abounds in Nightingales. I saw here for the first time a beautiful little lizard, which in appearance reminded me of a Charr, the belly being bright pink and the sides ornamented with well-marked blue spots, probably a brilliantly coloured variety of *Lacerta muralis*. The Maratassa valley is disappointing, but the beautiful stream of clear water that rushes down between its abrupt sides atones for much in such an arid land as Cyprus. It can hardly be called a gorge, yet it is not a valley. Great quantities of grapes are grown here, often in apparently inaccessible places, and it is said that lives are sometimes lost in gathering them and in tilling the land.

In the second night after leaving Morphou I camped at Kalopanagiotissa, a village bisected by the stream, and reminding me strongly of others I had seen in Japan in similar localities, even down to the black colour of the huts, and the necessary vehemence of the conversations carried on across the water. Just below the village the stream passes between almost inaccessible cliffs, a fact brought unpleasantly

inches
that,



J. G. Keulemans del. et lith.

PARUS CYPRIOTES

Mintern Bros. imp.

to my notice from my having pursued a *Cinclus* into a place in which advance and retreat were equally impossible. My safe arrival at the top of the cliff after a desperate climb was a piece of good fortune for which I cannot be sufficiently thankful.

I reached Kikko Monastery on the 25th May. It is situated at an altitude of 4000 feet, and is the home of a hundred monks and probationers, and many thousands of Swifts, Swallows, and Martins. The deep valleys around are clothed with arbutus and other evergreens, but the hills are arid-looking enough, their barren shaly rock only half hidden by vegetation. I had hoped to find some marked change in the bird-life at this elevation, but I was doomed to disappointment. The ever-present *Saxicola morio* and equally ubiquitous *Emberiza cæsia* were common enough, and in the thicker coppices the Nightingale and Garden Warbler poured out a torrent of song, but there was little else, and I cursed my stupidity in having dismissed my mules and condemned myself to a five days' imprisonment in such a place.

At a short distance from the monastery there was a clump of pines where it was possible to obtain some little shade from a sun that had by this time become unpleasantly powerful. It was while watching, gun in hand, beneath these, that I first obtained a Coal Titmouse, which at once struck me by the extreme darkness of the plumage of the under surface. Mr. Dresser has described it at a recent meeting of the Zoological Society as a new species, and named it *Parus cypriotes* (Plate II.). It differs, he says, from *Parus ater* in having the upper parts brownish, as in *Parus britannicus*, but rather darker, in having the white nuchal patch almost obsolete, and in having the black on the throat extended much further down than in *Parus ater*, thus covering a much larger area. The underparts are tinged with buff, the flanks and under tail-coverts being much darker in tint.

This little *Parus* was far from plentiful, for I only shot four during my stay at the monastery, although I waited beneath the pines for them for the greater part of each morning. I never saw it at a lower elevation than this (4000 ft.), or any-

where except on or among the pines. On Troödos it was not uncommon, in small parties of five or six, which followed each other from tree to tree, and occasionally descended to the ground to feed. Its note is a feeble edition of that of *Parus ater*.

I expected to find *Cypselus melba* here, but did not see one.

The Martins (*Chelidon urbica*) built under the false arches on the eastern wall of the monastery, their nests clustered together in masses of ten or twelve. I noticed here a peculiarity about the Swallows' nests, which were placed in great numbers in the cloisters and corridors. The front was ornamented by three or four loose streamers of grass which hung down for six or eight inches or more. The difference in the colouring of the under surface of these birds is extraordinary. It is quite common in Cyprus to see it ranging from nearly white to a deep reddish buff, from *Hirundo rustica* to *H. savignii* in other words. Although one may often see these extremes in a paired couple, the differences in colouring do not appear to be sexual. In Cyprus, at any rate, it is impossible to allow that *H. savignii* is a good species. One more remark on these birds and I have done. It is, that though the Swallow is wonderfully common throughout the island, the Martin, on the other hand, is a very local bird.

I shaped my course westward on leaving Kikko, passing through country much like that in the neighbourhood of the monastery—deep valleys in all directions, only separated from one another by sharp ridges, along the brows of which the narrow trail for the most part led. The distant scenery was splendid, but our immediate surroundings were too bare for beauty. An hour or two after our start, however, we came to a part where the hills were sparsely clothed with pines, and here I saw several Jays *. I was fortunate in shooting a couple, for the slopes which we were passing must have been nearly 45°, ground where one cannot follow one's game with much facility. I also saw the Golden Oriole, for the first and only time during my visit to the island. My desti-

* From the feathers of these birds being in a much abraded condition, it is not possible to name them with any degree of certainty.

in doi was Limni, the site of old Phœnician copper-mines, Poli a company have just commenced to sink a shaft. It close to the sea, at the head of Chrysokkou Bay, and is a two days' journey from Kikko. The monastery of Chrysorogiatissa, whence there is a view of magnificent extent, formed my halfway house, and I was again detained here, though only for a day, one of my muleteers being down with fever.

I reached Limni June 1st. My road led for the greater part of the day over the white marl rocks that enter so largely into the geological composition of the island, and the heat and glare were intolerable. The summer in Cyprus is as trying, probably, as that in any other part of the world, but chiefly from the fact that there is no shade or verdure of any kind on which to rest the eye. Our ride was not rendered any more pleasant by the incessant attacks of an *Œstrus*, or some fly of that nature, upon the mules. This insect does not deposit the egg upon the coat of the animal, but seeks to enter the nostril for that purpose. So much are they feared by the mules that the very sight of them makes them restless, and they at once contract the nostril to the smallest possible size, and strive by plungings and shakings of the head to keep the insect off, a manœuvre which, if constantly kept up, will in time exhaust the patience of the most long-suffering rider. Almost the only birds that I saw worthy of mention were the Wood Pigeon and Linnet: the former, which appeared to be tolerably abundant in this district, I had only twice seen previously; the Linnets, a generally distributed species, were remarkable for the brightness of their colouring.

In Mr. Williamson (one of my hosts during my stay at Limni) I found a sportsman and Moufflon-hunter whose knowledge of the people, animals, and birds was probably more extensive than that of any other European in the island. It was at this time the close season for the Moufflon; and I was unable to go out after them as I had intended, but I was able to obtain some information about these animals which may, I think, be accepted as reliable. They are now almost entirely confined to the western side of the Troödos range, and although they are said to have been seen in the

neighbourhood of the military camp at the summit, as not occurrence must be regarded as very unusual. The ru each season is late in October or at the beginning of November, and at this time the rams fight fiercely. The clashing of their horns is audible at a considerable distance, and a favourite native method of getting a shot is to knock two stones together in imitation of this sound, at the top of some hill in their favourite haunts. This device is said to be so successful, that if any ram is near he is nearly certain to be attracted by it. They have generally one young one at a birth, but sometimes two, and the kid is said to be so active that even on the day of its birth it can only with difficulty be run down by a dog.

Mr. Williamson estimated the total number of Moufflon at present existing on the island to be between 100 and 150, and considered the former number would be probably nearer the mark than the latter. The natives think there are more, having a superstition that once a year the saint Agio Mama herds the animals, and that if he finds more than 700 he spirits away the surplus, if less, supplies the deficiency. Nothing would induce a Cypriote to go hunting on this day.

In the cliffs formed in past ages by the Phœnicians in their search for copper I found the Roller and Bee-eater breeding, and spent a day in digging out their nests. The latter birds seem to prefer to make their burrows near the top of the cliff, and the length of it (sometimes as much as ten or twelve feet) is surprising. The Roller bred here in a nest so exposed that I could see the eggs from the brow of a cliff opposite. It was within a day or two of hatching a second brood.

While at Limni I heard of a cliff, six or eight miles distant, in which Peregrines, or birds of that nature, were supposed to build; but the heat was so great (the minimum night temperature being 81° Fahr.) that I was glad to be able to get a sporting native to visit it for me. He returned two days later with a young Bonelli's Eagle (*Nisaetus fasciatus*); but though I sent him back again with a promise of good pay if he obtained the parents or any Falcons for me, he did not succeed

in doing so. My only excursion was to an ancient site near Poli tou Chrysochou, where recent excavations have brought to light a quantity of Greek pottery of a late period. In the dry heat-stricken fields there was little life, and I only shot a Wood Pigeon and saw two Stone Curlews. In Cyprus the summer is not the season for the ornithologist, although it may be said to be fairly good for the sportsman. Mr. Williamson told me that in the Acamas district (the extreme western promontory of the island) he had shot a very large quantity of Francolin, Partridge, and Hares in ten days at the beginning of July. Near Poli, the Francolin could be heard calling in all directions; but it is difficult to flush these birds without dogs, and as I merely needed specimens for preservation, I only once went after them. The only animal of interest that I obtained at Limni was *Cynonycteris collaris*, a large frugivorous Bat, which inhabits a cave in the neighbourhood in some numbers.

I had now made up my mind to proceed to the summit of Troödos without delay, and accordingly made for Limassol along the south coast, stopping at Papho, Pissouri, and Episkopi on my way. I hardly recognized the latter place, so changed was it from its former beauty of apricot blossom and bright green foliage. Now it was brown, dry, and dusty to a degree, and hardly a bird was to be seen. On reaching Limassol I despatched my heavy baggage in advance, and two days later rode up to Troödos enveloped in clouds of dust and with a blazing sun overhead. I had no occasion to complain of the heat that evening, however. We dined wrapped in our ulsters and with paraffin stoves at our feet, and the thermometer, which had registered 83° Fahr. as the minimum night temperature at Limassol, now sank to 39°.

The military camp at Troödos is placed within a very short distance of the summit, at an elevation of about 6600 feet, and the mountain is here, as elsewhere, scantily clothed with pines. They have a dried-up and stunted appearance, as of trees that have strayed beyond their proper latitude. During the three days I remained here I found less of interest than

I had expected. I had heard of Woodpeckers, Nuthatches, and Crossbills, but I saw nothing of them, and the only birds characteristic of the region were *Certhia familiaris* and the *Parus* before mentined, both of which are tolerably abundant. The other birds I noticed on the summit were some species of Eagle (possibly *Aquila heliaca*), *Gyps fulvus*, *Athene noctua*, the Hoopoe, Jay, Dipper, Partridge, Nightingale, *Hypolais elaica* and *Sylvia hortensis*, *Saxicola morio* and *Emberiza cæsia*, the two Shrikes, *Lanius nubicus* and *L. collurio*, and the Linnet, Chaffinch, and Raven. The last-named bird is very numerous and may be seen every afternoon flocking to the slaughter-house. It is worthy of note that the Grey Crow does not seem to come above Platraes.

With Troödos my work in Cyprus practically ceased. I returned to Nikosia, June 20th, after an absence of three months and a half, and found the Jubilee rejoicings at their height. I got together my collections and went down to Larnaka, only to find a similar series of fêtes just commencing. On the last day of June the mail-steamer came in, and getting my luggage on board I bade adieu to the island and to some of the many kind friends who had done their best to assist me in my wanderings on it.

IX.—*On the presence of Claws in the Wings of the Ratitæ.*

By W. K. Parker, F.R.S.

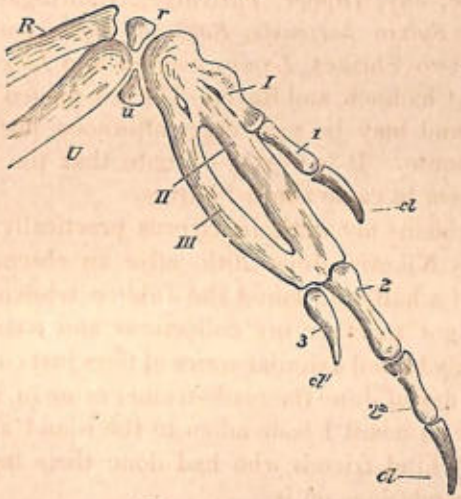
It has long been known that the Ostrich (*Struthio*) and the Nandu (*Rhea*) have a horny *unguis*—a nail or claw on their first and second wing-digits, those which correspond to our *thumb* and *index-finger*.

But in a paper sent by me to the Royal Society on the 13th of January, 1887 (only, as yet, published in abstract), I gave an account of the discovery of a small claw on the imperfect third digit of the wing in both the Rhea and the Ostrich—in the latter in a half-grown specimen, and in the

former in the adult. These specimens are to be found in their proper cases in the Hunterian Museum.

It has also been known, for some time past, that the abortively developed third digit in these birds has two phalanges beyond the metacarpal; and after my paper was read

Fig. 1.



Manus of *Struthio*.

R, radius; *U*, ulna; *r*, radial carpal bone; *u*, ulnar carpal; *I*, *II*, *III*, first, second, and third metacarpals; 1, 2, 2*a*, 3, phalanges of digits; *cl*, *cl'*, claws.

N.B.—The small claw on the third digit is not shown in this specimen.

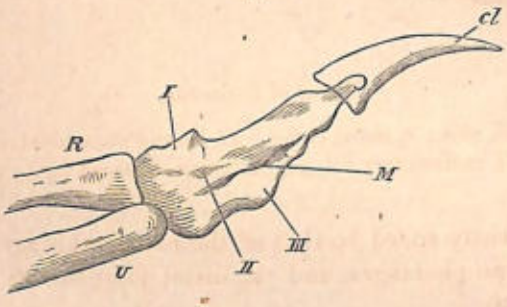
Mr. Wray brought before the Zoological Society of London a very important notice of the condition of this distal phalanx of the third digit (see Proc. Zool. Soc. 1887, pp. 283, 284). It was shown in that paper that a considerable tract of cartilage is developed beyond the *normally ornithic* proximal phalanx, and that this acquires an osseous centre of its own.

In these two types of the Ratitæ we have therefore the primary Reptilian (*Ornithoscelidan*) form of the bird's wing, even the abortively developed third digit having a small claw at its end. That digit *should* have *four*

phalanges to make it normal as a Reptilian "finger;" the proximal piece therefore answers to three, in an undivided state, for the distal phalanx must be that which carries the claw.

In the adult Indian Cassowary (*Casuarius galeatus*) there is only one carpal bone free; the "manus" is a solid single

Fig. 2.



Manus of *Casuarius*.

R, radius; *U*, ulna; *M*, elements of manus consolidated; *cl*, claw.

piece, with only one finger (the second or "index") developed, and this has only *two* phalanges—it ought to have *three*; and the distal phalanx is an inch long and carries a large claw.

In the ripe embryo of a specimen of the Mooruk (*C. bennetti*) I find *four* cartilaginous carpal nuclei and three metacarpal rays: the first is very small and feeble; the second very strong and with the normal number of phalanges (*i. e.*, *three* beside the metacarpal), and the distal or ungual joint is very long and carries a long claw; the third metacarpal is about one sixth the size of the second, and has no phalanges on it.

In the Emu (*Dromæus*) the second digit has two phalanges and a long curved claw. In a young bird six weeks old I find one finger, the index or second, well developed relatively to the small wing, with the normal number of phalanges, and with a curved claw on the distal joint. The "manus" is composed apparently of only two metacarpals.

In the adult *Apteryx oweni* the metacarpal piece ("manus") is certainly compound, the segment belonging to the pollex

Fig. 3.



Manus of *Dromæus*.

R, radius; *U*, ulna; *r*, radial carpal; *II*, second metacarpal; *III*, third metacarpal, rudimentary; 2, 2*a*, phalanges of second digit; *cl*, claw.

being evidently added to that of the index; this ray or digit has only two phalanges, and the distal joint carries a small curved claw.

Fig. 4.



Manus of *Apteryx*.

R, radius; *U*, ulna; *r*, radial carpal; *m*, fused metacarpals; *cl*, claw at end of second digit.

In *Apteryx australis* there appears to be only one finger, the index, with its terminal claw, and with only *two* phalanges; the "manus" is broad, proximally, and is evidently compound.

My son, Prof. T. J. Parker, who is now working out the development of the *Kiwi*, tells me that in the early embryo the outward and visible form of the *three* normal ornithic *fingers* can be seen, but that there are not three tracts of

cartilage developed within. I hope soon to receive this memoir for publication.

Thus we see that these *waifs* of an ancient and very Reptilian Avifauna have not only an arrested, but also an archaic condition of the wing. When *most* developed, as in *Rhea* and *Struthio*, in which the *carpus* comes very near that of the perfect modern bird, I have seen no signs as yet of those secondary digital rays that help to form the framework for the implantation of the "primaries" in the "manus" of a typical Carinate Bird. These additional parts, which will be described in the paper referred to above, will help us to understand the huge progress made by the bird since the time when the old Struthious types possessed the earth.

X.—*Descriptions of two new Species of Birds from Bogotá, Colombia.* By Hans von Berlepsch.

1. Buarremon simplex, sp. nov.

Diagn. *B. elæoproro*, Scl. et Salv., ex Antioquia, simillimus, sed speculo alari albo omnino caret. Al. 71–78, caud. 77½–80½, rostr. 13½, tars. 26 mm.

Hab. Bogotá, Colombia, duo specimina in Mus. H. v. Berlepsch.

About a year ago I got two skins of this new species from Mr. A. Boucard, of Paris, together with many other Bogotá skins, all of them being of the usual Indian make, by which they are easily known as having been collected in the vicinity of Bogotá.

In the olivaceous colour of its back *B. simplex* comes very close to *B. elæoprorus*, Scl. & Salv., P. Z. S. 1879, p. 504, ex Antioquia, but in the new species the large white alar speculum characteristic of that species is altogether absent. There are perhaps slight traces of white at the extreme base of the primaries, but it does not extend to the end of the coverts to form a speculum.

land-wise I cannot detect much difference between to the *simplex* and *B. elæoprorus*; but in one of my specimens of the former, which seems to be more adult than the other one, the back is of a much darker olivaceous, and the underparts are of a more intense yellow than in my specimens of *B. elæoprorus*.

2. Myrmeciza boucardi, sp. nov.

Syn. *Myrmeciza longipes*, Scl. (nec auct.), P. Z. S. 1855, p. 147 (Bogotá).

Diagn. *M.* ♂ dorso, cauda alisque extus læte rufo-brunneis, pileo et nucha necnon colli lateribus ardesiacis, pectore cum epigastrii lateribus pallidius cinereis. Macula in dorso celata inconspicua nivea. Capitis lateribus et gula cum collo inferiore nigerrimis. Abdomine medio albo, hypochondriis rufo-brunneis. Humeris albis nigro variegatis. Tectricibus alarum superioribus majoribus macula anteapicali rotunda nigra, minimis partim nigris, inferioribus albo-griseis. Tectricibus subcaudalibus læte rufo-cinnamomeis. Rostro nigro, pedibus brunneis.

♀ differt gula juguloque cum capitis lateribus intense rufis, pectoris et ventris lateribus pallide fulvis, pileo nuchaque sordidius cinerascentibus.

Obs. M. longipedi, auct., affinis, sed ♂ capite supra ardesiaco (nec rufo-brunneo), pectore late cinereo (nec albo), rostro validiore fere nigro et pedibus brunneis (nec flavis), ♀ gula juguloque intensius rufis, capite supra brunnescenti-cinereo (nec rufo-brunneo) constanter differunt.

♂ ♂ long. tot. 132–145, al. 71–73, caud. 64–67, rostr. 21¼, tars. 30 mm.; ♀ long. tot. 125, al. 68, caud. 58, rostr. 20½, tars. 30 mm.

Hab. Bogotá, Colombia (2 ♂ ♂, 1 ♀, in Mus. H. v. Berlepsch), et ♂ in Mus. A. Boucardi.

Of this new species I have examined three males and one female, proving that the characters expressed in the above diagnosis are well founded. I have dedicated this bird to Mr. Adolphe Boucard, of Paris, who kindly forwarded my specimens, together with a large and interesting collection received by him direct from Santa Fé de Bogotá. All these skins were of the usual Bogotá make.

It seems that Mr. Sclater was already acquainted with this species, but did not distinguish it from *M. longipes*, a very from which, to my mind, it differs in several striking points expressed in the above diagnosis.

M. longipes, auct., of which I have two males from Puerto Cabello, Venezuela, and Trinidad, has the top of the head always rufous brown, but of a darker shade than the back. The anterior portion of the front only in *M. longipes* is cinereous, and there is a well-defined broad postocular stripe of a clear whitish cinereous. In *M. boucardi*, on the contrary, all the upper parts of the head are of a uniform dark ashy grey. The breast and the belly in *M. longipes* are pure white, there being only a small greyish border to the black of the throat laterally. In *M. boucardi* all the upper breast beneath the black jugulum and the sides of the upper belly are pure grey, the white being restricted to a mesial line on the belly. The flanks in *M. longipes* are of a clear ochraceous, dark rufous brown or nearly olivaceous brown in *M. boucardi*. The tibiæ, in the former ochraceous, appear more or less greyish in *M. boucardi*. *M. boucardi* has a stronger longer bill, and both bill and feet are much darker than in *M. longipes*. The female *M. boucardi* in the same way differs from that of *M. longipes* in the darker colour of the bill and feet, and in possessing a longer and stronger bill; it further differs in having the upper parts of the head of a dark brownish cinereous (instead of rufous brown), and in presenting a much darker rufous on the throat and jugulum below. The yellowish rufous of the sides of the body is also more extended.

I may take this opportunity to call attention to the original description of the so-called *M. longipes*. I must confess that I cannot at all recognize the species usually so called in the description given by Vieillot, in the Nouv. Dict. xii. (1817) p. 113, of his *Myrmothera longipes*. Nevertheless our bird is well described afterwards under the same name by Swainson in Zool. Journ. ii. (1825) p. 152. As it appears that other synonyms are wanting, I propose to apply to it the new name, MYRMECIZA SWAINSONI, Berl.

Muenden, November 1887.

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I.—*Notices of Recent Ornithological Publications.*

1. *Anderson on the Birds of the Mergui Archipelago.*

[List of Birds, chiefly from the Mergui Archipelago, collected for the Trustees of the Indian Museum. By John Anderson, M.D., LL.D., F.R.S. Journ. Linn. Soc. (Zool.) vol. xxi. p. 136.]

Dr. Anderson gives us a list of the birds of which specimens were obtained during his expedition to the Mergui Archipelago. The islands in which the collections were mostly made are King Island, Elphinstone Island, and Sullivan Island. As might have been expected, the species are nearly wholly the same as those of the adjoining mainland, *Butreron cappelli* being the only one additional to the Fauna of Tenasserim. Major Wardlaw Ramsay has revised the identifications.

2. *Berlepsch on the Birds of Paraguay.*

[Systematisches Verzeichniss der von Herrn Ricardo Rohde in Paraguay gesammelten Vögel. Von Hans von Berlepsch. J. f. O. 1887, pp. 1, 113.]

This excellent memoir is based upon a collection of about 229 specimens of birds made by Mr. Rohde in Paraguay, which are referred to 116 species. Of these, *Thamnophilus rohdei* is described and figured as new, while many important critical notes are given upon the identification and nomenclature of the other species.

As shown in Graf v. Berlepsch's introductory remarks, the study of the birds of Paraguay is of special importance to ornithologists as necessary for the accurate identification of the birds of that country described by Azara at the beginning of the present century; for, although these birds were provided with Spanish names only by Azara, upon these Spanish names Latin terms were subsequently based by Temminck, Vieillot, Lichtenstein, Merrem, and others, which have in many cases been subsequently misapplied to the representative species of the surrounding countries. A ful examination of the Paraguay birds has therefore e of primary necessity for the correction of these errors.

As regards the 116 species represented in Mr. Rohde's collection, we need hardly say that this task has been performed by Graf v. Berlepsch in the most satisfactory way. Our author also gives us in an Appendix a complete systematic list of all the Birds hitherto ascertained to occur in Paraguay, which will be found most useful for the identification of the remainder of Azara's species.

3. *Blasius on the Birds of Celebes.*

[Beiträge zur Kenntniss der Vogelfauna von Celebes. III. Von Prof. Dr. Wilh. Blasius. Zeitschr. f. d. ges. Ornithol. Jahr. iii. p. 193.]

In his third contribution to the Bird-fauna of Celebes (*cf.* Ibis, 1887, p. 104), Dr. Blasius gives an account of 15 species, of which specimens were contained in several collections forwarded by Herr Riedel to the Zoological Museum of the Imperial Academy of Sciences of St. Petersburg. There were 78 species represented in the collections, but the rest of them have been mentioned in Dr. Blasius's previous paper on Riedel's birds. A complete list of these 78 species is added. Two of them, *Numenius cyanopus* and *Nettapus pulchellus*, are new to the Celebesian Avifauna.

4. *Bryant on the Ornithology of Guadalupe Island.*

[Additions to the Ornithology of Guadalupe Island. By Walter E. Bryant. Bull. Californ. Ac. Sci. ii. p. 269.]

Mr. Bryant has twice visited Guadalupe in pursuit of ornithological studies, and remained on the second occasion 112 days in this remote island, which lies in the Pacific Ocean off the Californian shores, some 220 miles S.W. of San Diego. Guadalupe is about 15 miles long, and 5 in width at its broadest part. It is of volcanic origin, and at its highest point attains a height of 4523 feet. Much of its surface is covered with sage-brush, but there are some scattered groves of pines, oaks, and other trees.

The Avifauna of Guadalupe Island was entirely unknown until Dr. E. Palmer visited it in 1875 and made the collection described by Mr. Ridgway, which contained examples

land-birds and 1 water-bird, all the former being peculiar to the island and new to science *.

Mr. Bryant's researches have added 27 more species to the list, so that the Avifauna of Guadalupe now includes 36 species. But these additional species are, it appears, all such as are already known from the adjacent continent, and most of them only occasional visitants.

The endemic birds of Guadalupe Island remain therefore 8 in number †, all of them representatives of nearly allied continental forms, from which they have evidently descended, and attained differential characters by isolation.

Mr. Bryant's notes are full and interesting, and include descriptions of the nesting and eggs of all the endemic species except the *Pipilo*, *Thryothorus*, and *Polyborus*. The last-named bird, it may be remarked, seems likely to become extinct, owing to the unrelenting persecution of it by the "Island Agent."

5. *Buller's 'Birds of New Zealand.'*

[A History of the Birds of New Zealand. By Sir Walter Lawry Buller. Part I. July 1887. Folio. London.]

Sir Walter Buller's first part of his new History of the Birds of New Zealand is now before us. There can be no question as to the completeness with which the author treats his familiar subject, nor as to the excellence of the illustrations prepared by the pencil of Mr. Keulemans. But we are not sure that we altogether like the colour-printing, although there is no doubt that greater uniformity is thereby attained. The following species are figured in Part I.:—*Glaucopis wilsoni*, *G. cinerea*, *Heteralocha acutirostris*, *Creadion carunculatus*, *C. cinereus*, *Turnagra hectori* and *T. crassirostris*.

* See Mr. Ridgway's article "Ornithology of Guadaloupe Island, based on notes and collections made by Dr. Edward Palmer." Bull. U.S. Geol. & Geogr. Surv. Terr. ii. no. 2.

† These are

1. Polyborus lutosus.
2. Colaptes rufipileus.
3. Carpodacus amplus.
4. Junco insularis.
5. Pipilo consobrinus.
6. Salpinctes guadalupensis.
7. Thryothorus brevicaudus.
8. Regulus obscurus.

6. *Carazzi on the Birds of Spezia.*

[Materiali per una Avifauna del Golfo di Spezia e della Val di Magra; del Dott. Davide Carazzi. 8vo. Spezia: 1887.]

The species observed along the Gulf of Spezia and in the Val di Magra are 312 in number; some of them of considerable rarity; and it is interesting to find *Euspiza melanocephala* recorded from the western side of Italy. This little treatise forms a useful addition to the larger works on Italian ornithology recently published by Count Salvadori and by Professor Giglioli.

7. *Hartert on the Birds of Prussia.*

[Vorläufiger Versuch einer Ornis Preussens. Von Ernst Hartert. Mittheil. Orn. Vereines Wien, 1887: Separatabdruck.]

The want of a good list containing full and recent information respecting the birds of North-eastern Germany was much felt, and is now supplied. The species noticed are 274 in number, and many interesting details are given as regards rarities, and also about the southward extension of the breeding-range of such northern birds as *Turdus pilaris* and *Carpodacus erythrinus*.

8. *'Indian Annals and Magazine of Natural Science.'*

[The Indian Annals and Magazine of Natural Science (an illustrated Monthly), conducted by James A. Murray. Vol. I. Nos. 1–3. 8vo. Bombay and London: 1887.]

As regards ornithology, the greater part of the contributions to these three numbers consists of two long chapters by the Editor in a narrative form on the "Zoology of Beloochistan and Southern Afghanistan," followed by a list of twenty-eight species of birds, to be continued. There are also several short communications of merely local interest.

9. *Lucas on the Osteology of* Nothura.

[Notes on the Osteology of the Spotted Tinamou (*Nothura maculosa*). By Frederick A. Lucas. Pr. U.S. N. M. 1887, p. 157.]

In *Nothura* the "chain of supraorbital ossicles" so re-

markable in the normal Tinamine skull is entirely lacking, and the interorbital portion of the cranium is much contracted. Also the first three dorsals are fused into one mass, and other peculiarities exist. It is unfortunate that Mr. Lucas has no skeletons of other forms of Tinamous to aid him in his comparisons.

10. *Meyer on the Capercaillie and Black Grouse.*

[Unser Auer-, Rackel- und Birkwild und seine Abarten; von Dr. A. B. Meyer. Text, folio; Atlas, Elephant folio (17 plates). Wien: 1887.]

Dr. Meyer has devoted a folio volume of 96 pages and an accompanying larger Atlas with 17 coloured plates to the consideration of *Tetrao urogallus* and *T. tetrix* and their various crosses: *inter se*, and with allied forms of Grouse. The number and variety of these forms is certainly worthy of careful study, and is here exhaustively treated of. The figures are drawn by Mützel, and well printed in colours.

11. *Milne-Edwards and Oustalet on the Birds of Grand Comoro Island.*

[Observations sur quelques espèces d'oiseaux récemment découvertes dans l'île de la Grande Comoro. Par MM. Alph. Milne-Edwards et E. Oustalet. Ann Sc. Nat. Zool. sér. vii. t. ii. pp. 213–238 (1887).]

In 1885 M. Humblot brought from the island of Grand Comoro an important collection of birds, of which a short account was published by the authors of the present paper in the 'Comptes Rendus' (Compt. Rend. Ac. Sc. 1885, i. Cl. p. 718). A more complete account is now given of this collection and of a second, still larger one, brought by this collector in the same island.

Fourteen specimens are treated of in the present communication, all of which were described as new by the authors in their first paper on this subject in the 'Comptes Rendus.' Two of these are now identified with other species, but twelve are regarded as well founded.

The total number of species of which examples were obtained by M. Humblot in Grand Comoro was 33.

12. *Nazarow on the Zoology of the Kirghiz Steppes.*

[Recherches zoologiques des Steppes des Kirguiz. Par P. S. Nazarow, avec préface du Dr. M. Menzbier. Bull. Soc. Imp. d. Nat. Moscou, 1887, pt. 2, p. 338.]

This interesting pamphlet treats of the zoology of the country lying to the east of the Ural Mountains, where, owing to the prolongation of that range southward, under the name of the Mougodschars, it is hardly an exaggeration to say that the reindeer looks down upon the tiger; while the winter climate is that of Novaya Zemlya, and the mean of summer heat exceeds that of Morocco. The remarks on the principal birds (identified by Dr. Menzbier, who writes a short preface) are of considerable value; but some of the names employed are rather puzzling. Many are unaware that *Cleptes* is a Magpie, and neither *Milvus glaucopus* nor *M. glaucopis* will be found in the Cat. Birds Brit. Mus. vol. i., or in Gray's Hand-list.

13. *Nicholson on the Birds of the Manchester District.*

[Notes on the Ornithology of the [Manchester] District. By Francis Nicholson. Published for the Meeting of the British Association at Manchester. Sm. 8vo. 1887.]

This unpretending little pamphlet is a model of its kind, conveying precisely the amount and the class of information that visitors to the British Association would require. The number of species of birds to be met with in and around that smoky manufacturing city is really surprising, and we know that the record is true.

14. *'Norfolk and Norwich Naturalists' Society's Transactions.'*

[Norfolk and Norwich Naturalists' Society's Transactions, vol. iv. pt. iii. Norwich: 1887.]

There are several original ornithological papers in this Part. Colonel H. W. Feilden gives an account of Commodore A. H. Markham's voyage to Hudson's Bay in the summer of 1886, with a list of the birds and other objects of

zoology obtained. The Rev. H. A. Macpherson writes on Hybrid Finches; and Mr. J. H. Gurney, jun., gives an account of the periodical movement of Gulls as observed on the Norfolk Coast. The most important contribution is undoubtedly the conclusion of the "List of Norfolk Birds" by Messrs. J. H. Gurney, jun., and T. Southwell, making the total of species recorded 288, with information up to the latest date possible.

15. *Pelzeln and Madarász on the Pipridæ.*

[Monographie der Pipridae oder Manakin-Vögel von August von Pelzeln und Dr. Julius von Madarász unter Mitwirkung von Dr. Ludwig von Lorenz. Lief. 1. 4to. Budapest: 1887.]

The first part of Herr v. Pelzeln and Dr. J. v. Madarász's Monograph of the Pipridæ has now been issued, and contains figures of the following species:—

Pipriles pileatus.	Pipriles griseiceps.
Pipriles chloris.	Masius chrysopterus.
Pipriles chlorion.	Masius coronulatus.
Pipriles tschudii.	

The authors seem to be rather doubtful about *Pipriles tschudii* of Cabanis, which appears to have been described from a specimen in spirit, and we are not sure that their identification of the sexes of *P. chlorion* is quite correct.

16. *Ridgway's Manual of North-American Birds.*

[A Manual of North American Birds. By Robert Ridgway. Illustrated by 464 outline drawings of the generic characters. Philadelphia (Lippincott): 1887. 1 vol. large 8vo, 632 pp.]

The object of the present volume, as we are told in the preface, "is to furnish a convenient manual of North American Ornithology, reduced to the smallest compass by the omission of everything that is not absolutely necessary for determining the character of any given specimen, and including, besides the correct nomenclature of each species, a statement of its natural habitat and other concomitant data."

In classification, nomenclature, and numeration Mr. Ridg-

way follows the 'Check-list of North American Birds' issued in 1886, already well known to all ornithologists, the additions to the North-American Avifauna made since the issue of that work being interpolated in their proper places. Certain extralimital species have been also introduced, but these are distinguished by a peculiar type.

The collections of North-American Birds and Eggs belonging to the National Museum, which are stated to embrace about 36,000 skins and 38,400 eggs, have naturally furnished the greater part of the material for this important work, which was originally projected by the late Prof. Baird, and has now been elaborated and completed by one of his favourite pupils, whom he had specially designated for the task. It is certain that these splendid collections could not have been utilized to a better purpose than for the preparation of such a summary of our knowledge of North-American ornithology as is now before us. With such antecedents, the work will, no doubt, be generally adopted in America as the authorized manual of Nearctic Ornithology; though we can hardly believe that the extensive changes which (following the Check-list) it proposes to effect in nomenclature will find ready acceptance in other parts of the world.

The total number of species credited to the Nearctic Avifauna in the present work is 768, besides numerous subspecies. The generic characters are illustrated in 124 plates of a diagrammatic character, which would have been of still greater value had it been possible to introduce them into the text.

Four new generic terms are proposed in this work, namely, *Neofalco* for *Falco albigularis*, Daud., and *F. deiroleucus*, Temm.; *Nuttallornis* for *Tyrannus borealis*, Sw.; *Burrica* for *Fringilla mexicana*, Müll.; and *Chamæthlypis* for *Geothlypis poliocephala*, Baird. Thirty-nine species and sub-species are described for the first time, namely, *Ortalis vetula pallidiventris* (Yucatan); *Oidemia* (*Melanetta*) *stejnegeri* (Kamtschatka to Japan); *Coccyzus americanus occidentalis*; *Coccyzus maynardi*; *Dryobates villosus maynardi* (Bahamas); *D. scalaris sinaloensis* (Western Mexico); *D. arizonæ frater-*

culus (South-western Mexico); *Iache lawrencei* (Tres Marias); *Platypsaris insularis* (Tres Marias); *Myiodynastes audax insolens* (South-eastern Mexico); *Myiarchus brachyurus* (Nicaragua); *Aphelocoma californica hypoleuca*; *A. cyanotis* (Mexico); *Corvus corax principalis*; *C. americanus hesperus*; *Agelaius phœniceus sonoriensis*; *A. phœniceus bryanti*; *Pinicola enucleator kadiaka*; *Carpodacus mexicanus ruberrimus*; *Plectrophenax nivalis townsendi*; *Cardinalis cardinalis yucatanicus* (Yucatan); *Passerina parellina indigotica* (South-western Mexico); *P. sumichrasti* (Tehuantepec); *P. versicolor pulchra*; *Piranga flammea* (Tres Marias); *Piranga leucoptera latifasciata* (Costa Rica and Veragua); *Ptilogonys cinereus molybdophanes* (Guatemala); *Lanius ludovicianus gambeli*; *Vireo crassirostris flavescens* (Bahamas); *Compsothlypis graysoni* (Socorro); *Geothlypis* (*Chamæthlypis*) *palpebralis* (South-eastern Mexico); *Thryothorus maculipectus umbrinus* (Guatemala); *T. maculipectus canobrunneus* (Yucatan); *Polioptila cærulea cæsiogaster* (Bahamas); *Columbigallina passerina socorroensis* (Socorro); *Megascops hastatus* (Western Mexico); *Phalænoptilus nuttalli californicus*; *Parus stoneyi* and *Regulus satrapa aztecus* (Mexico).

17. *Ridgway on a new* Cotinga.

[Description of a new Species of *Cotinga* from the Pacific coast of Costa Rica. By Robert Ridgway, P. U.S. N. M. 1887, p. 1.]

"*Cotinga ridgwayi*, Zeledon, MS.," is similar in colour to *C. amabilis*, but the scapulars and interscapulars are more extensively black centrally, a black line borders the base of the upper mandible, there is a black space in front of the eye, and the purple patch on the breast is smaller, besides other differences. The typical specimens are from Western Costa Rica, but the "Bogotá" skins in the National Museum of the U.S.A. agree in all essential particulars.

18. *Ridgway on a new* Spindalis.

[Description of a new form of *Spindalis* from the Bahamas. By Robert Ridgway. Pr. U.S. N. M. 1887, p. 3.]

The form (*Spindalis zena townsendi*) is from Abaco Island,

and has the back either entirely olive or much mixed with this colour instead of black as in *S. zena*.

19. *Ridgway on the female of* Carpodectes antoniæ.

[Description of the adult female of *Carpodectes antoniæ*, Zeledon, with critical remarks, notes on habits, &c., by José C. Zeledon. By Robert Ridgway. Pr. U.S. N. M. 1887, p. 20.]

The female, now first described, is different from the male. Mr. Zeledon, to whose researches this discovery is due, is of opinion that the same dissimilarity will be found to exist between the sexes of *C. nitidus*.

20. *Ridgway on a new* Porzana.

[Description of a new Species of *Porzana* from Costa Rica. By Robert Ridgway. Pr. U.S. N. M. 1887, p. 111.]

Porzana alfari is similar to *P. albigularis*, but has the black bars on the flanks much broader. A synopsis of the allied species of the group is added.

21. *Ridgway on* Ardea wuerdemanni.

[Notes on *Ardea wuerdemanni*, Baird. By Robert Ridgway. Pr. U.S. N. M. 1887, p. 112.]

Mr. Ridgway's notes are based on eight specimens of this rare Heron, obtained by Mr. Stuart in December 1886, on the Florida Keys. It seems to be "a permanent form, and if not a colour-phase of *A. occidentalis*, to be, probably, a distinct species."

22. *Ridgway on an Arizonan* Trogon.

[*Trogon ambiguus* breeding in Arizona. By Robert Ridgway. Pr. U.S. N. M. 1887, p. 147.]

A specimen of *Trogon ambiguus* in first plumage, received by the National Museum from the Huachuca mountains, Arizona, seems to prove that this *Trogon* breeds in that locality. The specimen is described.

23. *Ridgway on a new Dendrocolaptine Bird.*

[Description of a new Genus of Dendrocolaptine Bird from the Lower Amazon. By Robert Ridgway. Pr. U.S. N. M. 1887, p. 151.]

Picolaptes rikeri, Ridgw. (Pr. U.S. N. M. ix. 523), is elevated to generic rank under the title *Berlepschia*, Graf v. Berlepsch having pointed out its "radical differences" from *Picolaptes*, and its near alliance to *Pseudocolaptes*.

24. *Ridgway on a new* Phacellodomus.

[Description of a new Species of *Phacellodomus* from Venezuela. By Robert Ridgway. Pr. U.S. N. M. 1887, p. 152.]

Phacellodomus inornatus is a Venezuelan form of *Ph. frontalis*, distinguished by the want of any tinge of rufous on the forehead.

25. *Ridgway on two new Owls.*

[Description of two new Species of Kaup's genus *Megascops*. By Robert Ridgway. Pr. U.S. N. M. 1887, p. 267.]

The species characterized are *M. vermiculatus*, from Costa Rica (near to *Scops nudipes*), and *M. hastatus*, from Mazatlan (near to *S. brasilianus*).

26. *Scully on the Mammals and Birds of Northern Afghanistan.*

[On the Mammals and Birds collected by Captain C. E. Yate, on the Afghan Boundary Commission, in Northern Afghanistan. By J. Scully. J. A. S. B. vol. lvi. pt. 2, p. 68.]

The collection made by Capt. Yate consists of examples of 110 species: one of the most interesting is *Sylvia mystacea*, Ménétr., which was described and figured by Mr. Blanford, in his 'Zoology of Eastern Persia,' under the name of *Sylvia rubescens*, and its occurrence on the Murghab and at Maimanah considerably extends its previously known range northward and eastward.

27. *Shufeldt on the Skulls of Turkeys.*

[A Critical Comparison of a series of Skulls of the Wild and Domesticated Turkeys. By R. W. Shufeldt. Journ. Comp. Med. & Surg. July 1887.]

Dr. Shufeldt has compared a series of skulls of the Wild Turkey obtained in New Mexico, and referable to *Meleagris gallopavo mexicana*, with a series of skulls of the domestic bird procured at Chicago, and points out their differences. The memoir is illustrated by excellent woodcuts, prepared from drawings made by the well-known "cunning hand" of this naturalist.

28. *Sousa on Birds from Ilha do Principe.*

[Aves da Ilha do Principe colligidas pelo Sr. Francisco Newton. Por José Augusto de Sousa. Jorn. Sci. Math. Phys. e Nat. Lisboa, xii. p. 42.]

Our previous authorities on the Birds of Ilha do Principe, in the Bight of Benin, are Dohrn (P. Z. S. 1866, p. 324) and Keulemans (Ned. Tijdsch. v. d. Dierk. 1865, p. 374). Sr. F. Newton has lately sent collections from this island to the Lisbon Museum, amongst which are examples of five species not mentioned by the above-named authors. Of these an account is now given.

29. *Sousa on Birds from Mozambique.*

[Lista das Aves de Moçambique (Districto de Cabo Delgado) colligidas pelo Sr. Augusto Cardoso. Por José Augusto de Sousa. Jorn. Sci. Math. Phys. e Nat. Lisboa, xii. p. 45.]

M. de Sousa gives us a list of 12 species, of which specimens occur in a second collection of birds made by Sr. A. Cardoso in the district of Cabo Delgado, Mozambique. Of these, *Campethera cailliaudi*, *Sygmodus tricolor*, and *Fringillaria cabanisi* were new to the Lisbon Museum.

30. *Stejneger on Japanese Birds.*

[Review of Japanese Birds. By Leonhard Stejneger. IV. Synopsis of the Genus *Turdus*. V. Ibises, Storks, and Herons. P. U.S. N. M. 1887, pp. 4, 271.]

In Part IV. of his series on the Birds of Japan, Dr. Stejneger describes a new Thrush, allied to *T. chrysolaus*, as *Turdus jouyi*, and gives a synopsis of the Japanese species

of the genus. In Part V. he reviews the Ibises, Storks, and Herons of Japan. *Ibis propinqua* is held to be probably distinct from *I. melanocephala*. The *Platalæa* (*major* and *minor*) are discussed. A new Reef-Heron is described as *Demiegretta ringeri* (allied to *D. jugularis*). A new subgenus (*Phoyx*) is proposed for *Ardea purpurea*.

31. *Stejneger on Hawaiian Birds.*

[Birds of Kauai Island, Hawaiian Archipelago, collected by Mr. Valdemar Knudsen, with descriptions of new species. By Leonhard Stejneger. Pr. U.S. N. M. 1887, p. 75.]

We have here an account of the collection of birds formed by Mr. V. Knudsen on the island of Kauai, in the Hawaiian Archipelago, and sent to the U.S. National Museum. Kauai is the most northern of the Sandwich-Island group, and is separated from Oahu by a channel 70 miles wide. It is very mountainous and well wooded, so that a rich avifauna was to be expected. Mr. Knudsen's collections contain examples of 20 species, of which 5 are described as new, namely:—*Himantopus knudseni, Chasiempis dolei, Phæornis myiadestina, Himatione parva*, and *Oreomyza bairdi*. *Oreomyza* is a new genus of Dicæidæ. Dr. Stejneger also bases two more new species of *Chasiempis*, *C. ridgwayi* and *C. ibidis*, on Sclater's figures of *C. sandwichensis*, published in this Journal in 1885 (pl. i. figs. 1 and 2). It is quite possible, as Sclater has allowed in his article, that the two forms may belong to different species and not to sexes of the same species. But if such be the case, according to our views, both of them were provided with names in the last century by Gmelin*, and we see no justification for giving them new ones. In our opinion *C. ridgwayi*, Stejn. = *C. sandwichensis* (Gm.), and *C. ibidis*, Stejn. (if distinct) = *C. maculata* (Gm.). It is a pity that Dr. Stejneger, with so much good material before him, should think it necessary to manufacture "new species" out of other people's figures without seeing the specimens. At the same time we fully acknowledge the great value of the pre-

* See Sclater's remarks 'Ibis,' 1885, p. 18.

sent contribution towards our knowledge of the Hawaiian avifauna.

32. *Stejneger on Palæarctic Bullfinches.*

[Notes on the Northern Palæarctic Bullfinches. By Leonhard Stejneger, Pr. U.S. N. M. 1887, p. 103.]

Dr. Stejneger considers that it is now "fairly proven" that *Pyrrhula cassini*, Baird, is the female of the species subsequently named by Cabanis *P. cineracea*. He adds a synopsis of the other species of *Pyrrhula* inhabiting the northern Palæarctic Region, which he names as follows:—(1) *P. pyrrhula* (i. e. *P. major*, auct.); (2) *P. pyrrhula europæa*; (3) *P. pyrrhula kamtschatica*; (4) *P. griseiventris*; and (5) *P. kurilensis*. Dr. Stejneger's remarks on the vexed question of *P. rosacea* will be read with interest.

33. *Stejneger on the Birds of the Commander Islands.*

[Contributions to the Natural History of the Commander Islands. No. 7. Revised and Annotated Catalogue of the Birds inhabiting the Commander Islands. By Leonhard Stejneger. Pr. U.S. N. M. 1887, p. 117.]

This is a second edition of Dr. Stejneger's previous paper on the same subject (U.S. Nat. Mus. Bull. No. 29), which the considerable material lately accumulated has induced him to prepare. The present list contains the names of 143 species, and much additional information on many of them. *Larus schistisagus* is fully discussed, and all doubts as to its specific validity are considered to be removed. *Philacte canagica* is an interesting addition to the Avifauna of Bering Island. Under the head of *Falco rusticolus* will be found remarks on *Hierofalco grebnitzkii* of Severtzow.

34. *Stejneger on a new Fruit Pigeon.*

[Description of a new species of Fruit Pigeon (*Ianthœnas jouyi*) from the Liu Kiu Islands, Japan. By Leonhard Stejneger. 'American Naturalist,' 1887, p. 583.]

Ianthœnas jouyi is the representative of *I. ianthina* of Japan, in the Liu Kiu group.

35. *Townsend's Field-notes on Californian Zoology.*

[Field-notes on the Mammals, Birds, and Reptiles of Northern California. By Charles H. Townsend, Pr. U.S. N. M. 1887, p. 159.]

This paper contains a series of field-notes on the birds of Northern California by a well-known explorer. About 260 species are known from California north of the 40th parallel, of which more than 200 were met with by Mr. Townsend during his travels in 1883–5, in connexion with the U.S. Commission on Fish and Fisheries in California.

XII.—*Letters, Extracts, Notices, &c.*

We have received the following letters addressed to the Editors of 'The Ibis:'—

Northrepps Hall, Norwich,
Nov. 16, 1887.

Sirs,—The Norwich Museum has lately obtained through the good offices of Professor Menzbier a specimen of *Scops brucei* (Hume), collected in Turkestan by the late Dr. Severtzoff at Utch-Kurgan, a town near the river Syr-Daria.

Professor Menzbier informs me that the specimen sent by him is of the same species as that for which Dr. Cabanis proposed the specific name of "*obsoletus*" in the Journ. für Orn. for 1875, p. 126, founded on two specimens in the Berlin Museum, one from Bokhara, and the other from Syria.

Mr. Hume's specific name of "*brucei*" having been published in November 1872, has priority.

Mr. Charles Cross, who resides on the island of Negros, in the Philippine group, has lately presented me with some birds collected by him on that island, amongst which is an adult skin of *Polioaëtus ichthyaëtus* (Horsf.), a species which I believe has not been hitherto recorded from the Philippine Islands.

This specimen, which has been placed in the Norwich Museum, was killed near a river on the 6th January, and its crop contained fish.

I am &c.,

J. H. Gurney.

Ootacamund,
Oct. 29, 1887.

Sirs,—I had hoped to have been able to send you papers on the birds I collected on the Anamullai Hills and in Travancore, but a press of work has prevented my doing so; and as I have now to go to Singapore with as little delay as possible to take up my appointment as Curator and Librarian of the Raffles Museum, I may not have the time to finish the papers. I would wish, however, to put on record a few facts about the birds which I collected.

I have to add two species to Mr. Bourdillon's list of Travancore birds, viz., *Alseonax muthei*, Layard, of which I obtained four males, and *Zosterops ceylonensis*, Holdsworth, of which I obtained six specimens. I also got four specimens of *Callene albiventris*, Fairbank, and numerous specimens of *Trochalopteron meridionale*, Blanford, and *Alcippe bourdilloni*, Hume. All these birds were obtained late in December and early in January, on the Chimpani Hills dividing Travancore Territory from the Tinevelly District.

Mr. T. Fulton Bourdillon has lately sent me a specimen of *Batrachostomus moniliger*, Layard, and one of *Lyncornis bourdilloni*, Hume. Of this latter he says, writing from "Camp Konegur":—

"This bird seems to be local, but not uncommon where it does occur, for I have seen one or two every night for the last two or three weeks since I have been here. They come out, however, very late; just as the last tinge of colour is fading out of the sky, one may see one or two of these birds sailing over the fields, seldom flapping their wings, but quartering the ground like a Harrier. They do not remain in one place, but travel about a great deal, but seem to return to the same neighbourhood night after night, unless one is shot, when they all disappear for four or five days.

"As a rule they fly slow, at about the same pace as a Harrier, except when moving from one place to another, when they go at a great pace, striking the air with vigorous wings."

The only novelty as to locality that I have to record from the Anamullai Hills is *Pycnonotus xantholæmus*, Jerdon. I

obtained one specimen, the only one I saw during my stay of nearly two weeks on these hills; I was attracted to it by its peculiar note, and I was within five or six yards of it in dense bramble scrub before I saw it. I fortunately had my air-cane in my hand, and secured it. (I may remark *en passant* that a No. 1 air-cane made to carry shot is the finest collecting-gun in existence; with one tenth of an ounce of No. 12 shot it will bring down a Thrush at 20 yards, and at even 5 or 6 yards distance a small bird like a Wren Warbler may be killed that will make a perfect specimen.) I sent my collector on two occasions to the Anamullais specially to try and collect more specimens of this bird; but he failed to get any, so the bird must be rare so far south and west. Dr. Jerdon's specimens were collected in the Eastern Ghats near Nellore, a little to the north of 14° of N. latitude; my specimen was obtained about as far north of 10° of N. latitude, and considerably to the west—in fact nearer to the Western than the Eastern Ghats. My specimen was obtained at 4020 feet elevation.

Mr. Sharpe has catalogued one specimen of this *Pycnonotus* (Cat. of B. Brit. Mus. vol. vi. p. 146) from "Madras." This locality is as valuable as the locality "India," annexed to many specimens.

Mr. Sharpe's description is evidently taken from a very faded specimen, and hardly gives a fair idea of what the bird is really like.

In conclusion, I may say that I have complete lists of all the birds I have collected and certainly identified from the Anamullai Hills, Travancore, and the Nilgiri Hills, and if you think these would be of interest I shall be glad to send them to you; but they are only lists, with occasionally a few short remarks.

Yours truly,

W. Davison.

P.S.—I have forgotten to mention that I found *Phylloscopus magnirostris*, Blyth, very common on the Travancore Hills, quite the most common of the *Phylloscopi*, not except-

ing *P. viridanus*, which I have usually, in Southern India, found the most common species, except on the plateau of the Nilgiri Hills, where from the end of December to the end of March *P. affinis*, Tick., literally swarms about the fallow land and adjoining scrub. I obtained nineteen specimens of *P. magnirostris*, Blyth, on the Travancore Hills, and could easily have collected fifty specimens during the short time I was there.

Sirs,—I am interested and perplexed at the same time by Mr. Ridgway's letter on the breeding-plumage of *Podiceps occidentalis*, Lawr. Mr. Ridgway states truly that the breeding-plumage of *P. occidentalis* is described in the 'Water-Birds of North America' (ii. p. 422). But that description does not comprise the words printed in italics in his letter to you—"from *numerous specimens obtained on the breeding-grounds, together with their eggs and young.*" I had looked through the account in the 'Water-Birds' carefully. I had noticed that while the date of capture of the adult winter specimen described is given, there is no such note on the specimen described as being in breeding-plumage. Prof. Baird, in his 'Birds,' p. 894, states that at that time its breeding-plumage was unknown, and anticipates that in its nuptial attire it will make a grand display. This anticipation, it seems, has been disappointed. I believe, though I may be in error, that Mr. Donald Gunn visited Shoal Lake before Prof. Baird wrote. None of the dated specimens given in the 'Survey' were captured during the breeding-season. My specimen was obtained in Vancouver's Island by Mr. R. Brown, who worked then with Mr. Hepburn, and Mr. Brown simply gives the name without any note in his catalogue of Vancouver Island Birds (Ibis, 1862, p. 427). Under the circumstances, and especially considering that the publication in the 'Water-Birds' in 1884 seems to have been the first published description of the breeding-plumage of *P. occidentalis*, albeit, as Mr. Ridgway states, "long known to American ornithologists," I think it is to be regretted that the authors of the 'Water-Birds' did not more dis-

tinctly express the fact and give more details. The question now remains, What is my Vancouver Island bird, if not, as supposed by Mr. Brown, *P. occidentalis*? I shall be very glad, if it be wished, to send the specimen for inspection by our brothers across the Atlantic.

Yours truly,

H. B. Tristram.

29th Nov., 1887.

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3 Kensington Gardens Square,
London, W.

Sirs,—I have pleasure in stating that an example of the Isabelline Wheatear (*Saxicola isabellina*) was shot at Aigle Gill, near Allonby, Cumberland, on the 11th of November, 1887.

The bird was first observed on that day by Messrs. Thomas and Richard Mann, tenants of Aigle Gill farm. The weather was fine but dull, with a slight wind from the north. The bird made its appearance in a field which Messrs. Mann were sowing with corn, and was quite alone. It perched upon clods of earth after the habit of *S. œnanthe*, but appeared to be less lively in its movements than that species. It was unsuspicious of danger and was easily approached. Having had a visit from Mr. Senhouse and myself only six days earlier, when I begged my friends to continue to search for doubtful Wheatears, and struck by the light colour of this late bird, Messrs. Mann decided to shoot it for me. It was therefore shot by Mr. Thomas Mann, and posted to me the same day.

I received the bird the following day in fine condition, and took it to Mr. Howard Saunders, who kindly pointed out to me its identity with specimens of *S. isabellina* in his possession. The bird was also examined in the flesh by Mr. Sharpe, but especially by Mr. Seebohm, who compared it in my presence with his extensive series of Saxicolinæ. Mr. Harting saw the specimen before skinning, so did Mr. G. E. Lodge, who made a coloured sketch of it. The bird was also exhibited on my behalf by Mr. Howard Saunders, at a meeting of the Zoological Society of London on Dec. 6th.

It proved upon dissection to be a female, and the retention of some delicate bars upon the lower breast seems to indicate that it is a bird of the year. The irides were dark hazel, legs and bill black. Total length 6·5 in., wing 3¾ in. The stomach was empty.

The Isabelline Wheatear is most readily distinguished from *Saxicola œnanthe* by its white under wing-coverts and by the greater extent of the black upon the rectrices.

The Isabelline Wheatear is new to Western Europe. Its range eastward and southward is extensive, including Somaliland and Nubia, Palestine, Asia Minor, Greece, the Caucasus, Afghanistan, and the N.W. Provinces of India; in Russia, Mr. Seebohm received eggs of this Chat from Sarepta; he has also two skins from Krasnoyarsk, Siberia. It visits the region of Lake Baikal on migration, breeds commonly in Daüria, and was obtained by Père David in the neighbourhood of Pekin. It has been recorded from Madagascar.

Yours &c.,

H. A. Macpherson.

The Turati Collection.—The collection of birds formed by the late Count Ercole Turati is now in the Museo Civico of Milan, where it occupies the uppermost story, and is not very conveniently lodged. It contains 20,618 specimens, nearly the whole of which are mounted. Amongst them are the whole of the Malherbe collection of Picidæ and the Verreaux collection of Trochilidæ, also examples of such rarities as *Nestor productus*, *Serresius galeatus*, *Bourcieria traviesi*, and *Alca impennis*. Although the specimens are in excellent order, much more space is required for their proper exhibition, and we accordingly learn with pleasure that the Milanese authorities contemplate the erection of a new building for the Museo Civico in another part of the Public Garden.

The Breeding-habits of Flamingoes.—Mr. H. A. Blake, late Governor of the Bahamas, has contributed to the [illegible]ted December number of the 'Nineteenth Century' a very [illegible]re dis-

teresting account of his visit to a breeding-place of the North-American Flamingo (*Phœnicopterus ruber*) on the Island of Abaco, Bahamas. Mr. Blake is not aware that the vexed question of the mode in which the Flamingo sits upon its eggs has already been settled by Mr. A. Chapman (see Ibis, 1884, p. 88); but his observations are of none the less interest as confirming those made on our European species. Mr. Blake visited the Flamingo-colony on Abaco on the 7th of June, and after describing his preliminary adventures, continues as follows:—"At length, having crawled under the roots of the dwarf mangroves that cover the slob like a network of croquet-hoops, we found ourselves at the edge of the marl, and within one hundred and fifty yards of the birds, who were still undisturbed. Here, with my glasses, I could see every feather, note the colour of the eyes, and watch every movement. There were, we calculated, between seven hundred and a thousand birds, and a continuous low goose-like cackling was kept up. Never did I see a more beautiful mass of colour.

"The male birds had now all got together, standing about five feet high, and with necks extended and heads erect were evidently watching events, preserving in the meantime a masterly inactivity. Now and again one would stretch out his great black and scarlet wings, but the general effect was the most exquisite shade of pink, as the feathers of the breast and back are much lighter than those of the wings.

"The hens sat on the nests, and some were sitting down in the muddy lagoon. I watched them carefully for nearly an hour, and looked at every nest to see if the legs were extended along the side. In no case did I see a leg. I saw the birds go on to the nests and sit down. I saw them get up, and step down from the nests. In every instance the legs were folded under the bird in the usual manner. In my opinion my observation settles the point as to the mode of sitting; for even if, as I had been assured, the birds sit both ways, it is improbable that among the hundreds then sitting not one would have extended the legs. Remembering the great length of the Flamingo's legs, it is evident that on

a new nest, not more than eight inches high, the hen could not thus sit, nor would even the highest nest allow of the legs being extended while the bird sat upon it."

The B.M. Catalogue of Birds.—The 12th volume of the 'Catalogue of Birds in the British Museum' is now nearly ready for issue. It will contain the account of the Fringillidæ, and is by Mr. Sharpe, who will also prepare the next (13th) volume, which will be devoted to the Ploceidæ, Sturnidæ, Alaudidæ, and other smaller groups, and conclude the Oscines. Sclater has undertaken the 14th volume, which will contain the Tyrannidæ, Cotingidæ, and all the other Oligomyodian families, and has nearly finished his MS. on this subject. Sclater will also catalogue the Tracheophonæ, which will fill the 15th volume. We are glad to hear that Mr. Salvin has already commenced work on the Trochilidæ, of which our National Collection possesses the unrivalled series comprised in the Gould and Salvin-Godman collections. The Trochilidæ will make up the 16th volume.

Sale of a Great Auk's Egg.—At Mr. J. C. Stevens's Auction Rooms, in King Street, Covent Garden, on the 13th of December last, a large number of ornithologists assembled to witness the sale of an egg of the Great Auk. Before offering the lot, Mr. Stevens remarked that, in 1880, two eggs of this bird, both of which had been broken, were sold by him, and that they fetched 100 and 102 guineas respectively. Of the recorded eggs, he said, 25 were in eighteen public museums, and 41 in nineteen private collections—43 out of the 66 being in Great Britain. The first bid of 50 guineas was made by a well-known ornithologist, and this was followed by 60 guineas from Mr. L. Field, to whom the egg was eventually knocked down at 160 guineas. The egg is one of ten which were discovered by Professor Newton in a glass case in the upper gallery of the inmost room of the Museum of the College of Surgeons, in 1861; four of which were sold at Stevens's on July 11th, 1865, when this specimen (Lot 142) fetched thirty guineas.

THE IBIS.

FIFTH SERIES.

No. XXII. APRIL 1888.

XIII.—*Notes on Woodpeckers.*—No. XIV. *On the Genus* Gecinus. By Edward Hargitt, F.Z.S.

[Concluded from p. 42.]

8. Gecinus squamatus.

Picus squamatus, Vig. P. Z. S. 1830, p. 8; Gould, Cent. B. Himal. M. pl. xlviii. (1832); Jard. & Selby, Ill. Orn. iii. pl. cviii. ♂ (circa 1835); Blyth, J. A. S. B. xii. p. 998 (1843); Horsf. & Moore, Cat. B. Mus. E.I. Co. ii. p. 659 (1856–58); Leith Adams, P. Z. S. 1859, p. 173; Sundev. Consp. Av. Picin. p. 59 (1866); Giebel, Thes. Orn. iii. p. 180 (1876).

Picus dimidiatus (non Temm.), Gray, Hardw. Ill. Ind. Zool. i. pl. xxix. fig. 1 (1830–32).

Malacolophus squamatus, Swains. Classif. B. ii. p. 308 (1837).

Chrysoptilus squamatus, Vig. P. Z. S. 1841, p. 6.

Brachylophus squamatus v. *nepalensis*, Hodgs. Icon. ined. in Brit. Mus. no. 148 (♂ ♀).

Brachylophus squamatus, Hodgs. in Gray's Zool. Misc. p. 85 (1844).

Gecinus squamatus, Gray, Gen. B. ii. p. 438 (1846); Blyth,

Cat. B. Mus. As. Soc. p. 57, no. 260 (1849); Bp. Consp. Gen. Av. i. p. 127 (1850); id. Consp. Volucr. Zygod. p. 10 (1854); Reichenb. Handb. Scans. Picinæ, p. 350, no. 801, pl. dcxxvii. figs. 4174–75 (1854); Horsf. & Moore, Cat. B. Mus. E.I. Co. ii. p. 659, no. 959 (1856–58); Leith Adams, P. Z. S. 1858, p. 475; Jerd. B. Ind. i. p. 286 (1862); Beavan, Ibis, 1867, p. 138; Tytler, op. cit. 1868, p. 202; Pelz. tom. cit. p. 320; Gray, List Picid. Brit. Mus. p. 76 (1868); Beavan, Ibis, 1869, p. 414; Gray, Hand-l. B. ii. p. 192, no. 8684 (1870); Jerd. Ibis, 1872, p. 9; Cock & Marsh. Str. F. 1873, p. 350; Bidd. op. cit. 1880, p. 314; id. Ibis, 1881, p. 49; Scully, tom. cit. p. 430; id. Str. F. x. p. 102 (1881); Salv. Cat. Strickl. Coll. p. 391, no. 1912 (1882); Marshall, Ibis, 1884, p. 410.

Chloropicus squamatus, Malh. Monogr. Picid. ii. p. 131 pl. lxxviii. figs. 1–3 (1862).

Gecinus flavirostris, Menzbier (ex Zarudnoi, MS.), Bull. Nat. Mosc. 1886, pt. 1, p. 440.

Gecinus zarudnoi, Menzbier, Ibis, 1887, p. 301.

Adult male. Above, including scapulars, uniform vivid green; wing-coverts uniform green of a darker shade, brighter along the forearm; bastard-wing black, with whitish spots; primary-coverts similar, but having greyish spots; quills dusky, outer webs of the primaries margined at the base with green and barred with white; those of the secondaries partially or entirely green, and having indistinct greyish spots; inner webs spotted or partially barred with white; shafts brownish black; rump and upper tail-coverts bright green, the feathers margined and tipped with chrome-yellow; tail black, edged at the base with olive-yellow, and barred with buffy white, the central ones obliquely so, dwarf feather paler and greener; shafts black at the tip, dusky brown at the base; nasal plumes black; base of the forehead and outer edge of the crown black, slightly varied with grey; forehead, crown, and occiput crimson, bases of the feathers leaden grey varied with black, bases of the nuchal ones black; a spot in front of the eye, and a short streak behind it, black; a broad yellowish-white superciliary stripe, and another from

he takes base of the upper mandible, passing under the eye Herr ..e ear-coverts; sides of the face smoky green, varied I al: dull greenish white; malar stripe streaked intense black and white; sides of the neck and hind neck green; chin and throat smoky green; fore neck and chest dull yellowish green; underparts, including under tail-coverts, yellowish white, the feathers with an intermarginal line and occasional shaft-streak of black or olive-black, and having a scaly appearance; under wing-coverts yellowish white, barred with and having V-shaped markings of black; axillaries white, tipped with yellow and barred with black: "irides, a circle of dark pinkish red round the black pupil, surrounded by a second ring of light pink; upper mandible horn-coloured at the base, the tip and the whole of the lower mandible being of a brightish yellow" (*R. C. Beavan*). Total length 13·5 inches, culmen 1·85, wing 6·25, tail 4·65, tarsus 1·1; toes (without claws)—outer anterior 0·8, outer posterior 0·72, inner anterior 0·63, inner posterior 0·45.

Young male. Upper parts dusky brown, edged with green; wing-coverts similar, the greater series barred with greyish or dingy white; base of the forehead black varied with grey; the feathers of the remainder of the forehead, crown, and occiput tipped with scarlet (more orange on the occiput) on a black ground; the bases leaden grey; feathers of the rump and upper tail-coverts margined and tipped with pale chrome-yellow, and having faint dusky V-shaped markings; chin, throat, and fore neck dingy buffy white; sides of the neck ashy brown, the tips of the feathers greenish, and having a subterminal blackish spot; from the chest to the vent inclusive dull white, with a slight tinge of yellow, the chest being more ashy yellow, and the whole of the feathers having an intermarginal V-shaped blackish marking with a white centre; under tail-coverts greyish white, with similar markings and white centre; under wing-coverts white, spotted and varied with blackish.

A young male in the Hume collection, from Simla, July 20th (*A. O. Hume*), rather older than the one above described, has the whole of the upper parts uniform green, or nearly so,

the feathers having lost their dusky-black centres; more red on the top of the head, and above the white ciliary stripe there is a blackish-brown one bordering the crown; the spotting on the side of the neck is less marked, and this, as well as the chin, throat, and chest are of a richer buff-colour, the underparts being also more of a buffy yellowish; the soft parts are given as follows: "legs and feet greenish horny; irides brown; bill dusky yellow on upper mandible, yellow on lower mandible." Bp. Consp. p. 10 801,

Adult female. Differs from the male in the absence of red on the crown and occiput, these parts being black, the feathers of the former margined with smoky grey, and having a streaked appearance, the bases being leaden grey; chin and throat lighter: "irides, a circle of dark pinkish red round the black pupil, surrounded by a second ring of light pink" (*R. C. Beavan*): "bill dusky above at base, the rest yellowish; legs greenish plumbeous" (*Jerdon*). Total length 13·5 inches, culmen 1·9, wing 6·35, tail 4·5, tarsus 1·3.

Hodgson, in his series of unpublished coloured drawings of Nepalese birds, contained in the library of the Zoological Department of the British Museum, figures upon the second plate bearing the number 148 (there are two with the same number), under the title of *Brachylophus squamatus* v. *nepalensis*, two birds, which are certainly not the adult of *G. squamatus*, and resemble the young of that species except in one or two points. I may briefly describe the specimens figured. The female has the rump *brilliant yellow*; the throat and chest with varied and squamate markings of black; the upper mandible bluish, the under mandible yellow. The male is similarly marked on the throat, and has the bill blackish brown. These birds closely resemble an unmistakable young bird in my collection, except that in the latter the rump is not brilliant yellow, and they are also similar to a specimen from Murree in the British Museum, and which I take to be also a young bird, but in this the bill is yellow; this, however, may not have been so in life. Herr A. v. Pelzeln (Ibis, 1868, p. 320) records a male and a female bird collected by Stoliczka at Pangi, North-west Himalayas, which

he takes to be the young of *G. squamatus*. Judging from Herr Pelzeln's description, the specimens agree with what I also take to be the young of this species. One would think that Hodgson must have been well acquainted with the full-plumaged *G. squamatus*, and if so, it is a matter of surprise that he did not designate his figures as those of the young, and it is to be regretted that the specimens figured are not in the British Museum collection. I have not seen a single Nepalese example of the present species, and as it was not obtained by Dr. Scully, it is probably rare in that country. Under the title of *Gecinus flavirostris*, Dr. Menzbier (Bull. Nat. Mosc. 1886, pt. i. p. 440) has described a Woodpecker from the Murgab river, of which the following is the diagnosis:—"♂. *Gecino viridi* similis, sed rostro flavo; stria superciliari lata alba, supra nigro marginata; vitta mystacali nigra, albo-varia; abdomine virescenti, fusco striato. Habitat ad fl. Murgab." Judging from the above diagnosis of the bird, and from its having been compared, in the first instance, with *G. viridis*, and not with *G. squamatus*, its nearer ally, I fail to see in what respect it differs from the latter species. Dr. Menzbier makes no mention of the *pale* green colour of his bird, nor of the darker green barring on the wing-coverts possessed by *G. gorii*, and he distinctly states, in the German description of the species, that the feathers of the underparts have black central stripes, which do not occur in *G. gorii*. I therefore see no reason for concluding that our birds are identical. Since the publication of Dr. Menzbier's paper in 1886, this author has stated in 'The Ibis' for 1887, p. 301, that he has received the typical specimens of his *G. flavirostris*, and that he has seen my description of *G. gorii*, and has pronounced both birds to belong to the same species. In the latter paper in 'The Ibis,' Dr. Menzbier tells us that, while writing, he has before him a specimen of *G. squamatus* for comparison, and it is to be regretted that he has not pointed out the differences between it and his new species, which he says are nearly allied. Dr. Menzbier considers that my name of *G. gorii* must rank as a synonym of the species originally described by him as *G. flavirostris*, but

which title, he states, cannot stand, as the name has been previously given by Verreaux to a Woodpecker from Koko-nor, and he therefore renames his species *G. zarudnoi*. In the 'Nouvelles Archives du Muséum,' 1871 (Bull. vii. p. 4), there is certainly a Woodpecker named, but with a query, as follows:—"Picus? roux *à bec jaune* (*flavirostris*), n. sp.?" This is apparently the only description of the bird, which was only *seen* at Koko-nor, and was presumably written by Abbé David, and not by Verreaux, who could not have seen the bird in question. The above-named bird, however, is not a *Gecinus*, and is no doubt the well-known *Picus hyperythrus*. If (as Dr. Menzbier thinks) our birds are the same, and his original title, *G. flavirostris*, is preoccupied (two points which I, however, do not admit), I do not see how he can ignore my name of *G. gorii* and rename his species. I shall retain the latter title for the bird obtained by Dr. Aitchison at Paddá Sultan, on the Helmand, until it is clearly shown that Dr. Menzbier's species is the same, in which case I will adopt his name of *G. flavirostris*. It may be that both our birds are distinct from *G. squamatus* as well as from each other; but until Dr. Menzbier points out the differences between *G. flavirostris* and *G. squamatus*, it is quite impossible to give the correct synonymy. For the present I give *G. flavirostris* and *G. zarudnoi* as synonyms of *G. squamatus*, and I make *G. gorii* distinct.

The present species ranges from Gilgit in the north, into Cashmere and Afghanistan, and through the Himalayas to Kumaon and Nepal. Dr. Scully and Major Biddulph found it at Gilgit, and the former author (Ibis, 1881, p. 430) writes:—"A permanent resident in the district, found in the lower valleys from November to May, and during the rest of the year at an elevation of 9000 feet." Capt. G. F. L. Marshall (Ibis, 1881, p. 49) describes some examples obtained by Major Biddulph:—"Three specimens shot in December and January are identical with the Indian type, but three others obtained in March, at an elevation of 5000 feet, near Gilgit itself, are remarkable for having the neck, back, and outer margins of secondaries grey instead of green, while

the wing-coverts are mixed with green. All three are females, and in two out of the three some traces of green are visible among the grey on the lower back, so that it may be only a phase of plumage of *G. squamatus*." Dr. Scully (*t. c.* p. 430) observes that the specimens referred to by Capt. Marshall are birds about a year old, with the feathers worn and faded, and which, at the next moult, would assume their usual green colour. I have seen one of these birds, which is in the Hume collection, and I am of the same opinion as Dr. Scully. In the British Museum are specimens from Cashmere (Langworthy), and Jerdon also recorded it from that country. Dr. Leith Adams (P. Z. S. 1859, p. 173), in his notes on this species, states that it is found in the "woods and forests of Cashmere and the lesser ranges; pretty common; solitary in its habits." In the British Museum there is an example from Afghanistan (*Griffiths*). Tytler, in his "Notes on the Birds collected by Capt. Beavan" (Ibis, 1868, p. 202), observes, "Between Simla and Mussoorie, common at heights of from 5000 to 9000 feet." Jerdon found this Woodpecker in the valley of the Sutlej. Hodgson obtained the young birds in Nepal, and, according to Jerdon, it is common in Kumaon.

9. Gecinus gorii.

Gecinus squamatus (non Vigors), Swinhoe, Ibis, 1882, p. 102.

Gecinus gorii, Hargitt, Ibis, 1887, p. 74.

Adult male. Back pale green, with a few dusky V-shaped markings; rump and upper tail-coverts of the same colour as the back, but the feathers tipped with chrome-yellow; scapulars and wing-coverts pale green, barred with dusky green, the former having a few dusky V-shaped markings like the back; bastard-wing black, spotted with creamy white on both webs; primary-coverts dusky black and similarly spotted, but with a greyer shade of colour; quills dusky black, the outer webs of the primaries broadly barred with creamy white, and more or less washed with green on the inner feathers, the inner webs spotted with white on the

margin, these spots on the inner feathers extending along their whole length; the outer webs of the secondaries barred with drab-grey, tinged with green, the inner webs being transversely spotted with white on the margin along the whole length of the feather; shafts dusky brown; tail yellowish cream-colour, narrowly barred with blackish brown, the basal margin of the central feathers washed with yellowish olive, the lateral feathers yellow at the tip; dwarf feather barred dusky olive and whitish, slightly washed with green; shafts slaty black, those of the outer feathers browner. (The head is very much damaged, but it has every appearance of having been similar to *G. squamatus*; the top of the head is red and the malar stripe is black and white.) Throat and chest uniform dull yellowish, with a green tinge; the remainder of the under surface of the body and under tail-coverts yellowish white, the feathers of the underparts having a thread-like intermarginal line or squamate marking of blackish olive, these markings being paler on the abdomen; under wing-coverts yellowish white, transversely varied with black; underside of the tail washed with yellow, this colour being very brilliant on the tips of the feathers. Total length 13 inches, culmen 1·8, wing 6·5, tail 4·7, tarsus 1·2; toes (without claws)—outer anterior 0·82, outer posterior 0·82, inner anterior 0·7, inner posterior 0·42.

Adult female. Differs from the adult male in the absence of red on the head. As the head, neck, upper back, and wing-coverts are much damaged in the male, the following is a description of these parts taken from the female:—Nasal plumes black; forehead, crown, occiput, and nape intense black, the bases of the feathers leaden grey; the face creamy grey, with a narrow black line behind the eye, the lores creamy white; superciliary stripe, also a stripe under the ear-coverts, creamy white; cheeks white, striped with black; chin and throat creamy buff, shading into yellowish cream-colour on the chest, and greenish on the side of the neck; hind neck and upper back pale green, the feathers of the latter having a central V-shaped dusky marking; wing-coverts pale green, barred with a darker shade of green, as in the male.

This specimen has the outer webs of the secondaries strongly washed with green (these feathers in the male type being much worn); the tail-shafts are also browner. Total length 13·5 inches, culmen 1·8, wing 6·05, tail 4·6, tarsus 1·15.

G. gorii differs from *G. squamatus* in being of a very pale green above, the wing-coverts and scapulars barred with a darker shade of green; the squamate markings on the underparts reduced to a thread-like intermarginal line; the light bars on the quills as broad, or even broader, than the black interspaces; the tail creamy white, narrowly barred with brownish black, these bars showing but faintly on the under surface, which is strongly washed with golden yellow.

This bird is a desert form of the Himalayan *G. squamatus*, and the type specimen, which is in the British Museum, was brought to this country by Brigade-Surgeon Aitchison, Naturalist with the Afghan Delimitation Commission. It was shot by Captain Gore on the 26th of October 1884, at Paddá Sultan, on the Helmund. The nature of the country in which *G. gorii* was found appears to be quite different from that inhabited by its ally, *G. squamatus*. Dr. Aitchison informs me that the only indigenous trees are *Populus euphratica* and *Tamarix articulata*, which grow in the bed of the river, together with numerous small tamarisks and reeds, the high banks being extremely barren and devoid of anything in the way of vegetation except salsolaceous scrub.

The female specimen is in the Hume collection, now contained in the British Museum, and was obtained by Dr. Duke at Quetta, in December 1877, at an altitude of 5500 feet.

10. Gecinus vittatus.

Picus vittatus, Vieill. N. Dict. d'Hist. Nat. xxvi. p. 91 (1818); id. & Bonn. Enc. Méth. p. 1317 (1823); Drap. Dict. Class. xiii. p. 505 (1828); Less. Traité, p. 221 (1831); Sundev. Consp. Av. Picin. p. 59 (1866), pt.; Giebel, Thes. Orn. iii. p. 186 (1876), pt.

Picus affinis, Raffl. Trans. Linn. Soc. xiii. p. 288 (1821); Vig. Mem. Raffl. p. 668 (1830); Less. Compl. Buff. ix. p. 312 (1837).

Picus dimidiatus, Horsf. Gen. Cat. Jav. B. (1824); Valenc. Dict. Sc. Nat. xl. p. 174 (1826); Wagl. Syst. Av. *Picus*, sp. 88, add. sp. 5 (1827); Drap. Dict. Class. xiii. p. 507 (1828); Temm. Pl. Col. texte, 85e livr. (1830); Less. Compl. Buff. ix. p. 312 (1837).

Gecinus dimidiatus, Boie, Isis, 1831, p. 542; Gray, Gen. B. ii. p. 439 (1846); De Filippi, Cat. Mus. Mediol. p. 21, no. 794 (1847); Blyth (pt.), Cat. B. Mus. As. Soc. p. 58, no. 262 (1849); Bp. Consp. Gen. Av. i. p. 127 (1850); id. Consp. Volucr. Zygod. p. 10 (1854); Reichenb. Handb. Scans. Picinæ, p. 350, no. 799, pl. dcxxi. figs. 4141, 4142 (1854), pt.; Horsf. & Moore, Cat. B. Mus. E.I. Co. ii. p. 660, no. 960 (1856–58); Schomb. Ibis, 1864, p. 257; Vorderman, Batav. Vog. pt. 2, p. 19 (1882).

Malacolophus dimidiatus, Swains. Classif. B. ii. p. 308 (1837).

Gecinus affinis, Horsf. & Moore, Cat. B. Mus. E.I. Co. ii. p. 662, no. 964 (1856–58).

Chloropicus dimidiatus, Malh. Monogr. Picid. ii. p. 132, pl. lxxvi. figs. 4–6 (1862).

Gecinus vittatus, Gray, List Picid. Brit. Mus. p. 76 (1868), pt.; id. Hand-l. B. ii. p. 192, no. 8683 (1870), pt.; Salvad. Ucc. Born. p. 51 (1874); Tiraut, Ois. Basse-Cochinchine, p. 90 (1879); Salv. Cat. Strickl. Coll. p. 390, no. 1910 (1882).

Adult male. Above, including scapulars, bright yellowish olive; wing-coverts uniform golden olive; bastard-wing and primary-coverts brownish black, spotted with yellowish grey; quills blackish brown, the primaries partially or entirely margined on the outer webs with golden olive, and both webs spotted with white; the secondaries having their outer webs golden olive, the inner webs spotted with white; shafts brownish black; the feathers of the rump yellowish olive, broadly tipped with light chrome-yellow; tail and tail-shafts black; forehead, crown, and occiput scarlet, the concealed portion of the feathers black, with leaden-grey bases; a narrow band of black at the base of the forehead, the latter, as well as the crown, being edged with black; a white stripe

running backwards from above the hind part of the eye; lores, all round the eye, and sides of the face dingy white; ear-coverts mouse-grey; a broad black malar stripe; hind neck greenish yellow; chin, throat, fore neck, side of the neck, and chest ochreous yellow, the latter with, at most, only a tinge of green; under surface of the body whitish, with a tinge of yellow, the feathers having an intermarginal line of olive-green; under tail-coverts whitish, with an intermarginal line and shaft-streak of blackish olive; the lower series greenish grey, the underside of the large outer tail-feather spotted with greyish upon both webs; under wing-coverts white, tinged with yellow and spotted with black; axillaries white, with a slight yellow tinge, and barred with blackish. Total length 12 inches, culmen 1·4, wing 5·3, tail 3·8, tarsus 1·1; toes (without claws)—outer anterior 0·8, outer posterior 0·8, inner anterior 0·57, inner posterior 0·4.

Young male. In general coloration and markings like the adult male, but duller; the forehead, crown, and occiput orange-scarlet, the feathers of the outer edge of the crown and occiput black, without red tips, and forming a well-marked stripe; the chin and throat ochreous, and the sides of the neck and the chest less yellow; under surface of the body more of a buffy brown, the feathers having dusky striations and a whitish central stripe, these being fainter than in the adult.

Nestling, male. In general coloration like the older, but still immature bird, though slightly duller, the chin, throat, sides of the neck, and the chest uniform; the remainder of the underparts nearly uniform, the dark markings found in the adult being almost obsolete, except on the sides of the body, flanks, and thighs, the whitish centres to the feathers being only a shade lighter than the ground-colour; outer edge of the forehead and crown, as well as the occiput, and probably the nape (damaged in this specimen), black; the feathers of the forehead and greater part of the crown tipped with orange-scarlet, this colour forming a conspicuous patch; tail uniform black.

Adult female. Differs from the adult male in having the forehead, crown, and occiput black. Total length 10·5 inches, culmen 1·22, wing 5, tail 3·7, tarsus 1·1.

Young female. Less golden green on the sides of the neck and the chest, which are uniform; under surface of the body brownish white, more smoky brown on the thighs and under tail-coverts, the dark intermarginal line and shaft-streak on the feathers being more dusky, the centres of the feathers more or less white.

Malherbe, in his monograph, gives *Picus bengalensis* of Horsfield, in the 'Transactions' of the Linnean Society (xiii. p. 176), as a synonym of the present species; but Horsfield's description does not answer to *G. vittatus*, and, further, the latter author gives it to be understood that his *P. bengalensis* is the same as that of Linnæus. Malherbe also remarks that the male of the present species figured by Reichenbach (Handb. Scans. Picinæ, pl. dcxxi. fig. 4141) "is inexact, the striations on the underparts ascending too high," and he further adds, "In the figure of the female, No. 4142, the striations ascend as far as the throat, and one cannot doubt that it is the female of *G. striolatus*, of which the male is figured, No. 4143." In my opinion the figure of the male, fig. 4141, has been taken from *G. vittatus*, but carelessly done; where the mistake occurs is in having varied the side of the neck with the same markings as on the breast and abdomen, instead of having left it uniform; the figure of the female is evidently taken from *G. viridanus* of Blyth, and not from *G. striolatus*, as Malherbe says. The present species differs from *G. viridanus* in having the whole of the neck and the chest uniform ochreous yellow (sometimes with a green tinge) even in its first plumage. In *G. viridanus* the chest always has squamate markings, more or less distinct, similar to those on the under surface of the body, and the throat and sides of the neck are varied in a like manner, except in very old birds. Having examined Raffles's figures of the male and female of his *Picus affinis*, I think there can be little doubt that they must be referred to *G. vittatus*. The draughtsman has represented the birds as having the whole of the neck and the chest uniform, clearly showing that they are not *G. viridanus*; but unfortunately there is so little of the breast and abdomen shown, that the artist has not thought it necessary

to indicate the elongated squamate markings on these parts (if they existed), which would prove it to be *G. vittatus*; but Raffles, in the description of his *P. affinis*, says it is "cinereous or slightly ferruginous below, mixed with brown on the abdomen," and this latter character shows that the bird he had before him was not uniform on the abdomen, as figured, and the author's expression, "mixed with brown below," may apply to the squamate markings on the underparts of *G. vittatus*.

The present species was formerly supposed to be confined to the island of Java, but more recent researches have considerably increased its range, and from specimens which have come under my notice I am of opinion that a still more extended range can be proved. There can be no doubt that *G. vittatus* occurs in Siam, as there are in the British Museum several specimens collected in that country by M. H. Mouhot, also other examples procured at Bangkok by Captain Conrad. Schomburgk (Ibis, 1864, p. 257) also observed it in Siam, and I have in my own collection a specimen obtained in the western part of that country by Herr Carl Bock.

This species also occurs in Cochin China, and, according to Dr. Tiraut (Ois. Basse-Cochinchine, p. 90, 1879), is tolerably common in the wooded provinces. The species found by Dr. Tiraut is the true *G. vittatus*, but its habitat, as stated by that author, viz. "Burmah, Tenasserim, and Malayan Peninsula, North of Pakchan," would lead one to believe that either he is not acquainted with the species (*G. viridanus*) inhabiting those countries, or that he does not recognize it as distinct from *G. vittatus*. The latter occurs, however, in the southern part of the Malayan Peninsula, as will be shown by an examination of the specimens in the Hume collection. In this there are several adult examples of *G. vittatus*, obtained by Mr. Davison at Jurrum and near Klang, Salangore, in the months of December, January, and February. These birds resemble examples from Siam, Cochin China, and Java. I have never seen a single specimen of *G. vittatus* from the Malayan Peninsula except those above mentioned, and it will be interesting to know whether, in the peninsula, the

species is confined to the neighbourhood of Jurrum and Klang, Salangore, or whether it extends from Siam, down the whole eastern half of the peninsula, and ascends the western half as far as the places where Mr. Davison procured his specimens. If this be the case, it is very remarkable that it has not been obtained in the more southerly portions of the peninsula. That this species inhabits Sumatra, is, I think, proved by the description and figures of Raffles's *Picus affinis*, which is evidently *G. vittatus*. It is probably rare in that island, as it has not been recorded by any subsequent writer. The species appears to be fairly common in Java, in which island the type was obtained. Malherbe, in his monograph, states that it is found in Borneo, but he gives no authority, and I agree with Count Salvadori that the statement requires confirmation. If it exists in the island, it is surprising that none of our well-known collectors have ever procured a specimen.

11. Gecinus viridanus.

Picus squamatus (non Vig.), Blyth, J. A. S. B. x. p. 923 (1841), ♂ juv.

Picus viridanus, Blyth, J. A. S. B. xii. p. 1000 (1843); id. op. cit. 1844, app. p. 394.

Gecinus dimidiatus (non Temm.), Blyth, Cat. B. Mus. As. Soc. p. 58, no. 262 (1849), pt.; Reichenb. Handb. Scans. Picinæ, p. 350, no. 799, pl. dcxxi. figs. 4141, 4142 (1854), pt.; Gould, P. Z. S. 1859, p. 150.

Gecinus viridanus, Gray, Gen. B. ii. p. 438 (1846); id. op. cit. iii. app. p. 21 (1849); Horsf. & Moore, Cat. B. Mus. E.I. Co. ii. p. 660, no. 961 (1856–58); Wald. P. Z. S. 1866, p. 539; Blyth, Ibis, 1870, p. 163; id. & Wald. B. Burm. p. 76 (1875); Salv. Cat. Strickl. Coll. p. 390, no. 1909 (1882); Oates, B. Brit. Burm. ii. p. 48 (1883).

Picus vittatus (pt.), Sundev. Consp. Av. Picin. p. 59 (1866); Giebel, Thes. Orn. iii. p. 186 (1876).

Gecinus vittatus (non Vieill.), Gray, List Picid. Brit. Mus. p. 76 (1868), pt.; id. Hand-l. B. ii. p. 192, no. 8683 (1870), pt.; Hume, Str. F. 1874, p. 471; id. & Oates, op. cit. 1875,

pp. 14, 68; Armstr. op. cit. 1876, p. 310; Hume, op. cit. 1877, p. 113; id. & Davison, op. cit. 1878. p. 136; Hume, op. cit. 1879, pp. 52, 160; Bingh. op. cit. 1880, p. 163; Oates, op. cit. x. 191 (1882).

Gecinus weberi, Müll. Orn. Ins. Salanga, p. 69 (1882).

Adult male. Above, including scapulars, bright yellowish olive; wing-coverts slightly darker, the half-concealed portions of the median and greater series showing whitish bars; bastard-wing and primary-coverts brownish black, with a few small white spots; quills black, the outer webs of the primaries having angular spots or notches of white, those of the secondaries being more or less green, with indistinct lighter cross markings; the inner webs, of all, notched or spotted with white; a few of the inner quills having both webs yellowish olive; shafts black; rump chrome-yellow; upper tail-coverts yellowish olive; tail black, the feathers notched upon the base of both webs with pale brown or buffy white; the two outermost having minute brown spots along the whole margin of the outer webs, the tip of the inner web being notched with the same; shafts black, those of the outer feathers dark brown; nasal plumes black; forehead, crown, and occiput scarlet, the bases of the feathers dark leaden grey, nearly black on the occiput; a black line on the edge of the forehead and crown; lores whitish, minutely spotted with black; a superciliary stripe running as far the occiput, space under the eye, and another stripe passing under the ear-coverts, white; ear-coverts ashy grey; and above white, finely streaked with blackish; large malar patch black, the feathers edged with white; hind neck and sides of the neck bright yellowish olive; chin and upper throat very pale brown, shading into yellowish olive on the lower throat, fore neck, and chest, the feathers having a dusky or dusky olive intermarginal line and occasional shaft-streak, giving to the whole a striated appearance; underparts brownish white, washed with green, and having similar markings, these being more dusky brown on the abdomen; under tail-coverts whitish, with a broad deep olive intermarginal line and shaft-streak; tibial plumes pale dusky brown, with lighter spots; under wing-coverts and axillaries

white, tipped with yellow, the former barred with dusky brown, more olive at the tips, the latter barred with dusky brown without the olive tinge: "upper mandible and gonys of lower mandible blackish horny; rest of lower mandible pale yellow, the tip horn-black; eyelids slate-colour; irides dark red; feet dusky green; claws horny brown" (*E. W. Oates*). Total length 12 inches, culmen 1·6, wing 5·4, tail 3·9, tarsus 1·25; toes (without claws)—outer anterior 0·97, outer posterior 0·85, inner anterior 0·7, inner posterior 0·4.

Nestling, male. Differs from the adult male, which it resembles in general coloration and markings, in having the red on the head more of an orange-scarlet; the ear-coverts darker; the malar patch almost entirely black; the under surface of the body duller, and the white margins and central stripes to the feathers very much less distinct, and, except on the sides of the body, smoky in colour, the throat, chest, and breast having a more uniform appearance; the abdomen and thighs smoky brown, the latter having only a tinge of green.

Two young males from Kossoom, Malay Peninsula, May 14th and June 1st (*J. Darling, jun.*), in the Hume collection, are not of the same yellowish-olive colour as the nestlings described, but are of a rich golden olive above and on the wings, and the rump, instead of being pale chrome or lemon-yellow, is golden yellow, and in one specimen with a tinge of orange, the neck, chest, and breast are also of a rusty golden olive, thus showing that this rich coloration is not a characteristic of very old birds of this species. The specimen dated June 1st is the younger bird, and has the chin and throat nearly uniform, and the darker markings on the chest, breast, and abdomen are still very faint, the feathers on the sides of the body and the under tail-coverts being strongly marked. The other young male, dated May 14th, is evidently an older bird, and has the top of the head of a brighter and deeper vermilion-red; the chin is uniform, the throat lighter and more of a buffy white, covered with dusky spots, the white of the malar patch having a spotted character; the dark markings on the feathers of the underparts are of a different character from those of the adult; they are broader, more

rounded at the extremity, and the white central stripe is more expanded and drop-like at the tip. Another male from Kossoom, June 25th (*J. Darling, jun.*), also in the Hume collection, is evidently older than these two birds (although it is still young) and quite of a different character; the back and the wings are of the general olive-green colour; the throat is brownish white, with dusky stripe-like spots; sides of the neck brown; the fore neck and chest with only the faintest tinge of green, the feathers having light centres, forming an oval spot, with a dark shaft-streak; the red on the head of an orange-scarlet.

Adult female. Differs from the male in the absence of the red upon the crown and occiput, these parts being black, the feathers of the crown edged with ashy grey: "legs and feet dull green or dull brownish green; claws greenish horny or plumbeous; irides brown or reddish brown; eyelids plumbeous or dark grey; lower mandible greenish, or in some chrome-yellow, except a brown or greenish-brown streak from the angle of the gonys to the tip, and the tip; upper mandible blackish" (*Hume & Oates*). Total length 11·5 inches, culmen 1·45, wing 5·15, tail 4, tarsus 1·1.

Nestling, female (April 12th). Differs from the male nestling in having the forehead, crown, occiput, and nape black, the bases of the feathers grey and darker than in the adult female, the black on the tips of the feathers of the forehead and crown being somewhat rounded spots, and not stripe-like, as in older birds.

In the Hume collection there is a very curious variety of a female of the present species, from near Tavoy, May 29th (*W. Davison*). It is of a buff-colour, both above and below, with the usual markings; the rump and upper tail-coverts are bright olive-yellow, and a few of the feathers of the upper parts and the concealed portion of some of the secondaries are green; the feathers of the crown, occiput, and nape are brown, tipped with a paler brown; the quills and tail-feathers are brown, with the usual markings. It is quite clear that this is only an example of faded plumage, as is shown by the concealed portions of some of the secondary quills being

green. The entirely green feathers sparingly distributed over the upper parts are evidently new feathers. An adult male from Tavoy, March 16th (*W. Davison*), also in the same collection, has the feathers composing the malar stripe white, with very narrow black striations, and not, as is generally the case, black with narrow white striations. There is also in the Hume collection a very fine adult male of *G. viridanus* from Mergui, November 12th (*W. Davison*), which has the throat and chest more uniform than usual, but the feathers (those of the chest particularly) have faint dusky squamate markings and striations, and in this respect it differs from *G. vittatus*, in which species these parts are entirely uniform in both young and adult birds. In the last-mentioned example there are some red feathers crossing the side of the neck, and a trace of red upon a few of the upper wing-coverts, and likewise upon the feathers of the rump.

This species may be distinguished from *G. vittatus* by its striated chest and generally striated neck (in some specimens, however, the neck is more or less uniform), the latter species having the neck and chest always uniform and of an ochreous yellow instead of yellowish olive or golden olive. The Woodpecker now under notice differs much in its general coloration, some specimens having the upper parts vivid green, and the sides of the neck, the chest, and breast also green; in others the back is bright golden olive, this colour also extending on to the sides of the neck, and also on to the chest and breast. The habitat of this species is Pegu, Tenasserim, and, as far as is at present known, extends into the Malayan Peninsula as far as Salanga. Mr. Eugene Oates writes, "It is distributed over all parts of Pegu, and generally abundant." Mr. Armstrong considers it rare in Southern Pegu. It has been recorded from Schouay Goon, Salween River, by Lord Walden. Messrs. Hume and Davison inform us that this species is "extremely common throughout Tenasserim, except the hilly portions above 3500 feet elevation," and that "it does not ascend the hills north of Pahpoon, where it is replaced by *G. nigrigenis*" (*erythropygius*). Capt. Bingham says it is one of the commonest Woodpeckers

that it ? oungyeen valley. *Gecinus weberi* of Müller, from "Th: nd of Salanga, of which I possess several specimens, re: my mind, only the dark-green form of *G. viridanus*, and cannot be distinguished from some specimens from other localities. I cannot see why the Salanga bird has been separated from *G. viridanus*. I am inclined to think that Dr. Müller cannot have had a very large series of the latter species to compare with his Salanga specimens.

12. Gecinus striolatus.

Brachylophus squamatus (non Vig.), Jerd. Madr. Journ. 1840, p. 213.

Picus striolatus, Blyth, J. A. S. B. 1843, xii. p. 1000; Jerd. Madr. Journ. xiii. pt. 2, p. 138 (1844); Sundev. Consp. Av. Picin. p. 60 (1866); Giebel, Thes. Orn. iii. p. 181 (1876).

Brachylophus xanthopygæus, Hodgs. Icon. ined. in Brit. Mus. nos. 147, 148 (♂ ♀); id. in Gray's Zool. Misc. p. 85 (1844).

Gecinus striolatus, Gray, Gen. B. ii. p. 439; id. Cat. Mamm. &c. Nepal, pres. Hodgs. p. 117 (1846); Blyth, Cat. B. Mus. As. Soc. p. 57, no. 261 (1849); Reichenb. Handb. Scans. Picinæ, p. 350, no. 800, pl. dcxxi. fig. 4143 (1854); Horsf. & Moore, Cat. B. Mus. E.I. Co. ii. p. 660, no. 962 (1856–58); Jerd. B. Ind. i. p. 287 (1862); Gray, Cat. Mamm. &c. Nepal, pres. Hodgs. 2nd ed. p. 63 (1863); id. List Picid. Brit. Mus. p. 77 (1868); id. Hand-l. B. ii. p. 192, no. 8685 (1870); Blanf. Ibis, 1870, p. 464; Elwes, tom. cit. p. 527; Jerd. op. cit. 1872, p. 9; Legge, Str. F. 1873, p. 488; Ball, op. cit. 1874, p. 391; Legge, Ibis, 1875, p. 412; Blyth & Wald. B. Burm. p. 76 (1875); Hume & Oates, Str. F. 1875, p. 68; Butler, tom. cit. p. 458; Godwin-Austen, J. A. S. B. 1876, p. 70; Inglis, Str. F. 1877, p. 26; Fairbank, tom. cit. p. 396; Ball, tom. cit. p. 413; Anders. Yunnan Exped. i. p. 585 (1878), pt.; Hume & Davison, Str. F. 1878, vi. p. 136; Davids. & Wend. op. cit. vii. p. 78 (1878); Ball, tom. cit. p. 206; Cripps, tom. cit. p. 262; Godwin-Austen, J. A. S. B. 1878, p. 14; Hume, Str. F. 1879, p. 87;

Scully, tom. cit. pp. 247, 368; Butler, B. Sind &c. annted over Aboo, p. 19 (1879); id. B. S. Bomb. Pres. p. 24 (1880 male Str. F. 1880, p. 386; Legge, B. Ceyl. p. 194 (1880); Oacol- Str. F. x. p. 191 (1882); W. Davison, tom. cit. p. 355; Salv. Cat. Strickl. Coll. p. 390, no. 1911 (1882); Oates, B. Brit. Burm. ii. p. 49 (1883).

Gecinus xanthopygius, Bp. Consp. Gen. Av. i. p. 127 (1850); id. Consp. Volucr. Zygod. p. 10 (1854); Reichenb. Handb. Scans. Picinæ, p. 350, no. 802 (1854).

Chloropicus striolatus, Malh. Monogr. Picid. ii. p. 134, pl. lxxvii. figs. 1 & 2 (1862).

Adult male. Above bright yellowish olive, the feathers margined with brighter yellow; wing-coverts uniform and darker; bastard-wing and primary-coverts dusky brown, the former notched with white, the latter edged externally with green and spotted with dingy white; quills dusky brown, the primaries having irregular white markings or bars upon the outer webs, those of the secondaries being partially or entirely yellowish olive, spotted or narrowly barred with dingy whitish; the inner webs notched and spotted with white; a few of the inner quills entirely yellowish olive; shafts brownish black; rump and upper tail-coverts green, the feathers margined with deep chrome-yellow; tail blackish brown, the basal portion of the feathers margined with green and faintly notched with light dusky brown; penultimate feather barred to the tip, and the dwarf one tipped with green; shafts black at the tip, brown at the base; nasal plumes dull black; feathers on the base of the forehead dusky, edged with yellowish buff; crown and occiput scarlet, the bases of the feathers leaden grey, those on the edge of the crown being black; a white superciliary stripe running on to the nape, and becoming streaked with dusky; lores, and a stripe under the ear-coverts, white; ear-coverts dusky brown; cheeks whitish, striped with dark olive and yellowish; rest of the face whitish streaked with dusky brown; side of the neck and hind neck yellowish olive, striped with darker olive; chin, throat, and fore neck yellow, streaked with olive; the bases of the feathers white; entire under surface yellowish white, the

that it ; having an intermarginal line and, occasionally, a "Thin shaft-streak of deep-olive ; chest strongly washed with yellow ; tibial plumes pale brown ; under tail-coverts white, with a subterminal V-shaped brown marking, and lower down either a broad shaft-streak or a narrower V-shaped brown marking ; under wing-coverts white, washed with sulphur-yellow, and having dusky barring and V-shaped markings of deep olive ; axillaries white, tipped with yellow and having V-shaped dusky brown markings : "in December, bill plumbeous dusky, the basal three fourths of the lower mandible yellowish-green horny ; irides carmine-red ; feet dingy plumbeous" (*J. Scully*). Total length 11 inches, culmen 1·35, wing 4·9, tail 3·3, tarsus 1 ; toes (without claws) —outer anterior 0·77, outer posterior 0·68, inner anterior 0·55, inner posterior 0·4.

Young male. Differs from the adult male in being of a slightly darker shade of green above, and in having the red on the forehead, crown, and occiput more of an orange-scarlet, the occipital feathers having a patch or spot of black between the red tip and the grey base ; the outer edge of the forehead and crown being black, and forming a conspicuous stripe ; nape black, a few of the feathers assuming orange or scarlet tips ; the ear-coverts darker, and the cheeks striped with dusky black ; under surface of the body slightly duller in colour, the green being confined almost entirely to the throat and chest.

Adult female. Differs from the male in having the forehead, crown, and occiput black, the feathers of the forehead and crown edged with ashy brown, and having a striped appearance ; the upper parts greener ; rump and margins of the upper tail-coverts paler chrome-yellow ; the stripes on the cheeks more dusky, and the chin and throat more buffy brown ; the dark intermarginal lines on the feathers of the underparts fainter and the shaft-streaks broader and more constant : "iris dark red ; legs dusky blue ; upper mandible almost black, lower dusky horny ; June 15th" (*S. B. Fairbank*). Total length 11 inches, culmen 1·27, wing 4·9, tail 3·3, tarsus 1.

Under the title of *Gecinus xanthopygius*, Reic[illegible]nted over [illegible]lt male (Handb. Scans. Picinæ, p. 350, no. 802) describes a [illegible] col- said to be from Java, which he considers as distinct fr[illegible] *G. vittatus* of Vieillot, and referable to the species described by Hodgson as *Brachylophus xanthopygæus*. Now, it is certain that the latter name was bestowed by Hodgson upon a bird obtained in Nepal, and no one who has seen the unpublished coloured drawings by the latter author, now contained in the library of the Natural History Department of the British Museum, can have any doubt as to the identity of Hodgson's *B. xanthopygæus* with *G. striolatus* of Blyth. Reichenbach's description of his *G. xanthopygius* is evidently taken from the latter species, as the characters given are not at all such as would lead one to believe that they belonged to the Javan bird, *G. vittatus*. I should be more inclined to think that the habitat stated by Reichenbach is an error, than that *G. striolatus* ranges into Java.

G. striolatus bears a striking resemblance to *G. viridanus*, but may be distinguished from the latter by the malar patch being greyish white, narrowly striped with black or dusky olive, instead of intense black, more or less striped with pure white, as in *G. viridanus*, also by having a very conspicuous white superciliary stripe, and a second white stripe under the ear-coverts; by its brilliant yellow rump and upper tail-coverts, and its more barred tail, the penultimate feather being conspicuously barred along its whole length; and, further, by the soft silky character of its plumage. The same differences in coloration of plumage exist in this species as in *G. viridanus*, varying on the upper parts from vivid green to golden olive, the rump in some specimens being bright chrome-yellow, in others orange; this applies to both sexes. Burmese examples exceed in size those from India. In the former the average length of wing is 5·4 inches, Indian birds having the average length of wing 5 inches. Malabar specimens run smaller than those from the Himalayas. This Woodpecker has a very wide range, being found in the Himalayas, Central and Southern India, Ceylon, Assam, Cachar, and Burmah, and I have reason to believe

that it also occurs in Siam. Jerdon (Ibis, 1872, p. 9) writes, "This Woodpecker is very common in the sub-Himalayan region, from Kumaon to Kashmir, and also in all the low jungles of the north-west provinces and the Punjab." In the British Museum there are numerous examples collected by Hodgson in Nepal. Dr. Scully, in his Contributions to the Ornithology of that country (Str. F. 1879, p. 248), observes that he found it very common in the sâl forest from Bichiakoh to Semrabasa, in December. Mr. Cripps includes this species in his 'List of the Birds of Furreedpore, Eastern Bengal'; and, according to Mr. Ball, it is found in the hilly region which extends from the Rajmehal Hills to the Godaveri Valley. Colonel Butler, in his 'Catalogue of the Birds of Mount Aboo,' &c., 1879, p. 19, says it is not very common on Mount Aboo; and the same author (Str. F. 1875, p. 458) states that it is not uncommon in the jungles at the foot of the Aravalli range, to which Mr. Hume appends the following note:—"but occurs nowhere else, as far as we know, throughout the whole region." Messrs. Davidson and Wenden, in their "Avifauna of the Deccan" (Str. F. vii. p. 78, 1878), introduce the following note:—"A Green Woodpecker, probably this one (*G. striolatus*), observed near the top of the Bhore Ghât in September, *not thoroughly identified.*" Colonel Butler, in his 'Catalogue of the Birds of the Southern Portion of the Bombay Presidency,' as well as in 'Stray Feathers,' 1880, p. 386, adds the following information regarding the species:—"Rare, obtained by Mr. Laird in the jungles west of Belgaum, and is probably the bird referred to by Mr. Davidson as having been observed on the Bhore Ghât, Kolaba district, in which case it probably occurs sparingly along the whole of the Sahyadri range." Mr. Ball writes, "The small Green Woodpecker is rather rare in Chota Nagpur, and, so far as my collections go, confined to the western parts. In the Satpura hills it was, I think, more abundant." In his 'Birds of India,' Jerdon states, "I have seen it in Malabar, in low jungles close to the sea-coast, in bushy ground on the Neilgherries tolerably abundant, as also on the Eastern Ghâts." Mr. W.

Davison, in writing of this species, observes, "Sparingly spread through the Wynaad, Mysore, and the Nilghiris; a few pairs are always to be found in the forests about Ootacamund, but it is rarer at that elevation than lower down." Fairbank obtained it on the Palani Hills at Periur. Of the range of this species in Ceylon an interesting account is given by Col. Legge in his admirable work on the birds of that island. This species is, according to Mr. Inglis, "very common in North-eastern Cachar during the cold winter months, and also often seen in the rains." I am inclined to think that this species also ranges into Assam, as there is in the British Museum a specimen collected by McClelland in that country, which I take to be *G. striolatus*. Mr. Oates, in treating of this species (B. Brit. Burm. ii. p. 50), writes, "As far as I have observed it in British Burmah, seems confined to the Prome and Thayetmyo districts, where it is very abundant." Mr. Blanford, however, obtained it in the Irrawaddy delta, and Lord Tweeddale received it from Tonghoo. I have every reason to believe that this species also occurs in Siam, as the British Museum collection contains a specimen obtained at Pitchaburree by M. Pierre in August 1868, which, I think, must be referred to the present species. It is a young bird, but certainly neither *G. vittatus* nor *G. viridanus*, judging by its barred tail, and is unlike *G. occipitalis* in having the underparts striated, though faintly, and I hardly think I do wrong in considering it to be the young of *G. striolatus*.

13. Gecinus puniceus.

Picus puniceus, Horsf. Trans. Linn. Soc. xiii. pt. 1, p. 176 (1821); Raffl. tom. cit. pt. 2, p. 289 (1822); Lath. Hist. B. iii. p. 362 (1822); Temm. Pl. Col. ccccxxiii. (1827); Wagl. (pt.) Syst. Av. Picus, sp. 96 (1827); id. Isis, 1829, p. 518; Vig. Mem. Raffl. p. 668 (1830); Less. Traité, i. p. 222 (1831); Sundev. Consp. Av. Picin. p. 58 (1866); Giebel, Thes. Orn. iii. 175 (1876).

Picus gularis, Wagl. Syst. Av. Add. Picus, sp. no. 6 (nec no. 89), ♀ (1827).

Brachylophus puniceus, Strickl. P. Z. S. 1841, p. 31; Bp. Consp. Volucr. Zygod. p. 10 (1854).

Gecinus puniceus, Gray, Gen. B. ii. p. 439 (1846); Blyth, Cat. B. Mus. As. Soc. p. 59, no. 270 (1849); Wall. Ann. & Mag. Nat. Hist. xv. p. 96 (1855); Gray, List Picid. Brit. Mus. p. 77 (1868); id. Hand-l. B. ii. p. 192, no. 8687 (1870).

Venilia puniceus, Bp. Consp. Gen. Av. i. p. 128 (1850).

Venilia punicea, Reichenb. Handb. Scans. Picinæ, p. 358, no. 876, pl. dcxxviii. figs. 4176, 77, ♂ ♀ ad. (1854); Horsf. & Moore, Cat. B. Mus. E.I. Co. ii. p. 664, no. 968 (1856–58); Moore, P. Z. S. 1859, p. 456.

Chloropicus puniceus, Malh. Monogr. Picid. ii. p. 110, pl. lxxiv. figs. 5, 6, ♂ ♀ (1862).

Chrysophlegma puniceus, Jerd. B. Ind. i. p. 291 (1862); Blyth & Wald. B. Burm. p. 77 (1875); Oates, B. Brit. Burm. ii. p. 44 (1883).

Callolophus puniceus, Salvad. Ucc. Born. p. 49 (1874); Sharpe, P. Z. S. 1875, p. 103; id. Ibis, 1876, p. 36; Hume & Davison, Str. F. vi. p. 139 (1878); Hume, op. cit. 1879, p. 88; Sharpe, Ibis, 1879, p. 242; id. P. Z. S. 1881, p. 792; Guillemard, op. cit. 1885, p. 405; Büttikofer, Notes Leyd. Mus. ix. p. 23 (1887).

Chrysophlegma puniceum, Salvad. Ann. Mus. Civ. Stor. Nat. Genova, ser. 2, iv. pp. 519, 529 (1887).

Adult male. Above, including scapulars, yellowish olive, the feathers of the lower back tipped with chrome-yellow; rump and upper tail-coverts brighter than the back, especially the former, which is nearly uniform pale chrome-yellow; wing-coverts bright Indian-red, the margins of all, particularly the lesser series, being brilliant crimson; bastard-wing brownish black, the feathers tipped with red, and the edge of the wing spotted with buffy white; primary-coverts brownish black, externally margined with bright red; quills brownish black, the primaries having the outer webs red at the base, the remaining portion being washed with greenish, the inner webs spotted with white at the base, these spots becoming confluent and forming a white margin to the fea-

thers; the secondaries having the whole of the outer webs bright red, the inner webs spotted with white, some of the innermost feathers being tipped with green, shafts black; tail and shafts black; nasal plumes and stripe in front of the eye black; forehead, crown, and occipital crest bright crimson, the tips of the feathers being of this colour, the middle portion being dusky black and the bases grey; upon the side of the occiput a crimson patch uniting with the red occiput, but not running down below the ear-coverts; a bright pale golden yellow nuchal crest; sides of the face and neck dull green; a broad crimson malar patch, the bases of the feathers dusky black; chin and upper throat dull buffy white, washed with greenish; from the fore neck to the abdomen, inclusive, dull green, the flanks and thighs barred and spotted with yellow or yellowish white, the partly concealed portion of the feathers of the latter barred with dusky black and pure white; tibial plumes dingy buff; under tail-coverts dusky green, a few of the upper feathers spotted with white upon both webs, and having a barred appearance; under wing-coverts dusky, washed with olive on the edge of the wing, the whole spotted with white or yellowish; axillaries white, tipped with yellow and barred with dusky black: "iris crimson; orbital skin greenish grey; lower mandible and edges of upper mandible at gape dark greenish yellow; upper mandible black; legs and feet pale green, claws greenish horny" (*W. Davison*). Total length 10·75 inches, culmen 1·35, wing 5·1, tail 3·5, tarsus 0·87; toes (without claws)—outer anterior 0·7, outer posterior 0·62, inner anterior 0·55, inner posterior 0·27.

Young male. Differs from the adult male in having the chin and throat pale drab-brown; the sides of the face and neck pale dusky greenish; under surface of the body dusky brown, with a very slight green tinge, the breast sparingly crossed by pale brown and dusky lines; the flanks, thighs, and abdomen crossed by similar dusky lines, but also varied with rounded spots of white; under tail-coverts dusky brown, barred with white; the red on the wings duller.

Adult female. May be distinguished from the adult male by the absence of the red malar patch, the cheeks being of

the same colour as the rest of the face; chin and throat greener, some of the feathers between the occiput and the posterior part of the ear-coverts being tipped with red; under surface of the body rather darker, and the light markings on the flanks and thighs fewer; the under tail-coverts unspotted; the feathers of the entire back edged with yellow: "iris crimson; orbital skin bright plumbeous blue; legs and feet pale dirty green; lower mandible and base of upper mandible chrome-yellow; upper mandible black" (*W. Davison*). Total length 11 inches, culmen 1·15, wing 5·25, tail 3·65, tarsus 0·9.

Young female. A specimen in the British Museum differs from a young male in the same collection in having the underparts uniform, except the flanks, thighs, and under tail-coverts, which have a few brownish-white spots, the concealed feathers on the sides of the body being white. It also wants the red malar-stripe, the cheeks being of the same colour as the rest of the face; the top of the head and the occiput are dusky olive, only a few of the feathers being tipped with crimson.

Examples of this species from Malacca, Sumatra, and Borneo have the orbital region less dusky and the sides of the face and neck of a lighter green than specimens from Java, but they possess no specific distinction.

The present species has a wide range. In Tenasserim it is confined to the southern district of the province, where Mr. Davison procured it, and says it is not rare. It is also found in the Malayan peninsula, whence the Hume collection contains a fine series, obtained by Mr. Davison. Raffles includes it in his 'Birds of Sumatra,' and the collection recently made by Dr. C. Klaesi in the highlands of Padang, in the western part of the island, contains several examples. (*Cf.* Büttikofer, Notes Leyd. Mus. ix. p. 23 (1887).) This species has also been obtained at Siboga, as well as in the island of Nias, West Sumatra, by Signor Elio Modigliani (Salvad. Ann. Mus. Civ. Stor. Nat Genova, ser. 2, iv. pp. 519 & 529, 1887). It is likewise found in Java, in which island the type specimen was procured by Horsfield. In Borneo it appears to be generally distributed. Mr. Pryer has sent to this country

examples from Sandakan, and the (late) Hon. Hugh Low, as well as Mr. Treacher, obtained it in Lumbidan. This species has also been recorded from Sarawak by the Marquis Doria, Dr. Beccari, and Mr. Everett, and Dr. Platen found it at Jambusan. In the south of the island it has been obtained at Banjermassing by Schierbrand. Mr. Davison, in 'Stray Feathers' (vi. p. 139, 1878), gives some very interesting notes on the habits of the present species; he writes:—"This bird has some rather anomalous habits for a Woodpecker, and it has, besides, a very peculiar note, not in the least resembling any of the varied notes of other Woodpeckers. It inhabits the evergreen forests, occasionally coming into *tounyahs* or clearings. It has a habit of working its way to the very top of some high dry tree, and remaining there for half an hour or more sometimes, uttering, at short intervals, its peculiar note. In the dusk of the evening, when other Woodpeckers cease to be heard, it gets very noisy, and then may be heard calling in many directions, showing that it is not very uncommon; it is, however, more often heard than seen. It almost always, I may remark, goes about singly, and I have never yet seen it descend to, or feed upon, the ground, as *Gecinus* and *Chrysophlegma* so constantly do."

14. Gecinus chlorigaster.

Picus mentalis (non Temm.), Jerd. Madr. Journ. 1840, p. 214.

Picus chlorigaster, Jerd. Madr. Journ. 1844, p. 138.

Chloropicus xanthoderus, Malh. Rev. Zool. 1845, p. 402; id. Monogr. Picid. ii. p. 114, pl. lxxv. figs. 1, 2 (1862).

Gecinus chlorigaster, Blyth, J. A. S. B. 1846, p. 16.

Gecinus chlorophanes, Blyth, Cat. B. Mus. As. Soc. p. 59, no. 267 (1849).

Gecinus chlorophaus, Gray, Gen. B. iii. App. p. 21 (1849).

Chrysophlegma chlorolophus (non Vieill.), Bp. Consp. Gen. Av. i. p. 128 (1850).

Chrysophlegma xanthoderus, Bp. Consp. Volucr. Zygod. p. 10 (1854); Legge, B. Ceylon, p. 197 (1880); Salvin, Cat. Strickl. Coll. p. 391, no. 1915 (1882).

Venilia chlorophanes, Reichenb. Handb. Scans. Picinæ, p. 359, no. 829, pl. dcxxix. figs. 4182, 83, females (1854).

Chrysophlegma chlorophanes, Jerd. B. Ind. i. p. 290 (1862); Legge, Ibis, 1874, p. 15; id. op. cit. 1875, p. 283; Hume, Str. F. 1876, p. 390; Fairbank, op. cit. 1877, p. 396.

Picus xanthoderus, Sundev. Consp. Av. Picin. p. 58 (1866); Giebel, Thes. Orn. iii. p. 186 (1876).

Gecinus xanthoderus, Gray, List Picid. Brit. Mus. p. 75 (1868); id. Hand-l. B. ii. p. 191, no. 8681 (1870).

Chrysophlegma chlorigaster, Hume, Str. F. vii. p. 517 (1878); Butler, Cat. B. S. Bomb. Presid. p. 24 (1880); id. Str. F. 1880, p. 386; Davison, op. cit. 1882, p. 298; id. op. cit. x. p. 355 (1883).

Adult male. Above, including scapulars, yellowish olive; wing-coverts rich golden olive, the lesser series varied with reddish, the median and greater coverts having the inner portion of the outer webs Indian red; bastard-wing and primary-coverts dusky brown, the outer webs more or less golden olive; quills brown, the primaries having the basal portion of the outer webs Indian red, margined with yellowish olive, the remaining part with a few buffy-white lines down the margin; the outer webs of the secondaries red, slightly margined and tipped with duller yellowish olive; inner webs of all spotted with white, the inner quills having a large amount of bright golden olive upon both webs; shafts brown; rump and upper tail-coverts bright yellowish olive, a few of the latter margined at the tip with dull red; tail brownish black, the central pair of feathers rather darker, and margined at the base with dull yellowish olive; dwarf feather dusky brown, tipped with greenish; shafts black; nasal plumes black; forehead, crown, and occipital crest crimson, the tips of the feathers being of this colour, the remaining portion deep olive, and the bases grey; nuchal crest bright chrome-yellow; lores dull whitish, with a black line separating them from the forehead; sides of the face and neck dingy olive; cheek-patch crimson; a narrow white line from the gape to the back of the ear-coverts, and another (but less distinct) from above the posterior half of the eye, and run-

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Venilia chlorophanes, Reichenb. Handb. Scans. Picinæ, p. 359, no. 829, pl. dcxxix. figs. 4182, 83, females (1854).

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Picus xanthoderus, Sundev. Consp. Av. Picin. p. 58 (1866); Giebel, Thes. Orn. iii. p. 186 (1876).

Gecinus xanthoderus, Gray, List Picid. Brit. Mus. p. 75 (1868); id. Hand-l. B. ii. p. 191, no. 8681 (1870).

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ning above the ear-coverts; chin and throat dingy buffy white, the feathers tipped with dull greenish; chest and breast dull olive, the sides of the latter barred with whitish; the remainder of the underparts dull olive, barred and spotted with whitish, more uniform on the middle of the abdomen; flanks and thighs broadly barred with yellowish white; under tail-coverts dusky olive, tipped and barred with dull white; under wing-coverts yellowish white, margined and barred with olive, and varied with dusky brown; axillaries white, tipped with yellow and barred with dusky brown: "iris sombre red or brownish red; bill blackish, with the sides of the lower mandible and margin of the upper, next the gape, yellow; legs and feet olive-greenish or dusky sap-green" (*W. V. Legge*). Total length 9·5 inches, culmen 1·1, wing 4·65, tail 3·25, tarsus 0·85; toes (without claws)—outer anterior 0·68, outer posterior 0·63, inner anterior 0·55, inner posterior 0·28.

Young male (March 17th). Resembles the adult male in general coloration and markings, but has the face and neck more dusky, the chin and throat spotted with white, the underparts are spotted with white, even on the flanks and thighs, whereas in the adult bird these are barred with white, and the white on many of the feathers of the underparts has also a barred character rather than a spotted one. In this young male the red is appearing on the cheek-feathers. A young male from "between Goodalore and Nellacotta, Wynaad, March 28th" (*W. Davison*), also in the Hume collection, has the soft parts as follows:—"irides wood-brown; lower mandible from base to angle of gonys, and gape dull yellow; rest of bill dull black; legs and feet dirty dull green; claws plumbeous green."

Adult female. Differs from the adult male in the absence of crimson on the forehead and crown, these parts being blackish olive, also in being without the crimson cheek-patch; the back of a lighter green, and the upper tail-coverts without a trace of red. Total length 9 inches, culmen 0·95, wing 4·65, tail 3·15, tarsus 0·85.

The Hume collection contains two very interesting spe-

cimens from Cheerud, Shada, Kandeish, March 19th and 20th (*J. Davidson*), marked male and female, in which the upper parts have every appearance of being those of extremely old birds, the male having the wing-coverts, scapulars, and upper tail-coverts tipped with red, the scapulars being also spotted with yellowish white; the face and neck very dusky, and each cheek with only about one red feather; the underparts transversely varied with dusky, having more of a barred than a spotted appearance, and with the slightest possible greenish tinge; the forehead and fore part of the crown green, without a trace of red; but the skin being badly prepared, it is difficult to discover whether the hinder part of the crown is red, or whether this colour is confined to the occipital feathers. The female is like the male, the scapulars and even some of the wing-coverts being spotted; the face, neck, and underparts greener, the latter having more of a spotted than a barred appearance. The small amount of red on the cheeks of the male (if a male) would imply youth, while other characters are in favour of this specimen being adult. The reason I doubt its being a male is, that in every unmistakably young male which has come under my notice, the whole of the feathers of the forehead, crown, and occiput are tipped with red. If the specimen was not sexed, the appearance of red upon the cheeks may have misled the collector, as a red feather might appear on the cheeks even of a female. In my own collection are a male and female from the Nilghiris, in which the scapulars have a few white spots, and these specimens are certainly not very young.

Dr. Jerdon's title of *chlorigaster* for the present species claims priority over *xanthoderus* of Malherbe. The former name was bestowed upon it in the Madras Journal for December 1844, p. 138, although it did not appear until February 1845; *xanthoderus* of Malherbe being only a MS. name until published towards the end of 1845 in the 'Revue Zoologique,' p. 402. The present species has not an extended range, being found only in the southern portion of India (as high as Kandeish on the west) and in Ceylon. As already remarked, specimens were obtained by Mr.

Davidson at Cheerud, Shada, Kandeish. Captain Butler says it is not uncommon in the forests south-west of Belgaum. According to Dr. Jerdon, "It is found in the forests of Malabar, more especially far south. It frequents thick forest jungle." Mr. Davison (Str. F. x. p. 355, 1883) states:— "This species does not ascend the plateau of the Nilghiris, but occurs on the slopes as far up as 5000 feet. It is also spread through the Wynaad and Mysore, but is nowhere very common. It occasionally, like the *Gecini*, descends to the ground." The Rev. S. B. Fairbank obtained it near Periur, on the Palani Hills, and it has been observed by Mr. Bourdillon on the hills of Travancore. In Ceylon (according to Col. Legge) "the Ground Woodpecker is found throughout most of the low country, except the northern parts, where, as far as I am able to ascertain from report and my own observation, it has not yet been detected. As it is, however, nowhere very abundant, and is of a retiring nature, it may have been passed over in the north of the Vanni." It is remarkable that this species has not been observed in the northern part of the island, frequented by *Chrysocolaptes stricklandi*, a region apparently suited to Woodpeckers, and nearest to the peninsula of India, a habitat of the species. It is very probable, as Col. Legge suggests, that this bird has been overlooked in the north, and will eventually be found to have a more extended range.

15. Gecinus chlorolophus.

Picus chlorolophus, Vieill. N. Dict. Hist. Nat. xxvi. p. 78 (1818); Bonn. & Vieill. Enc. Méth. p. 1309 (1823); Sundev. Consp. Av. Picin. p. 58 (1866); Giebel, Thes. Orn. iii. p. 149 (1876).

Yellow-necked Woodpecker, Lath. Hist. B. iii. p. 365 (1822).

Picus chlorolophus, Wagl. Syst. Av. *Picus*, sp. 69 (1827).

Picus chloropus, Drap. Dict. Class. Hist. Nat. xiii. p. 500 (1828).

Picus nepalensis, Gray, Hardw. Ill. Ind. Zool. i. pl. xxxi. fig. 1 (1830–32); McClell. P. Z. S. 1839, p. 165; Blyth, J. A. S. B. xii. p. 1003 (1843); id. op. cit. xiv. p. 191 (1845).

Dryotomus sericeocollis, Hodgs. Icon. ined. in Brit. Mus. nos. 145, 146 (♂ ♀).

Brachylophus sericollis, Hodgs. in Gray's Zool. Misc. 1844, p. 85.

Gecinus nipalensis, Gray, Gen. B. ii. p. 438 (1846).

Gecinus xanthoderus, Gray, Cat. Mamm. &c. Nepal, pres. Hodgs. p. 116 (1846).

Chloropicos chlorolophus, Malh. N. Classif., Mém. Acad. Metz, 1848–49, p. 350.

Gecinus chloropus, Blyth, Cat. B. Mus. As. Soc. p. 58, no. 266 (1849); Tytler, Ann. Nat. Hist. xiii. p. 367 (1854); Blyth, J. A. S. B. 1863, p. 75.

Chrysophlegma chlorolophus, Bp. Consp. Gen. Av. i. p. 128 (1850); id. Consp. Volucr. Zygod. p. 10 (1854); Horsf. & Moore, Cat. B. Mus. E.I. Co. ii. p. 662, no. 966 (1856–58); Jerd. B. Ind. i. p. 289 (1862); Gray, Cat. Mamm. &c. Nepal, pres. Hodgs. 2nd ed. p. 63 (1863); Godwin-Austen, J. A. S. B. 1870, p. 97; Hume, Str. F. 1874, p. 472; Blyth & Wald. B. Burm. p. 76 (1875); Hume & Oates, Str. F. 1875, p. 71; Godwin-Austen, J. A. S. B. 1876, p. 70; Inglis, Str. F. 1877, p. 26; Hume & Davison, op. cit. vi. p. 138 (1878); Ball, op. cit. vii. p. 206 (1878); Scully, op. cit. 1879, pp. 249, 365; Bingham, op. cit. 1880, p. 164; Oates, op. cit. 1882, p. 191; Salvin, Cat. Strickl. Coll p. 391, no. 1914 (1882); Oates, B. Brit. Burm. ii. p. 45 (1883).

Chrysophlegma chlorolophum, Reichenb. Handb. Scans. Picinæ, p. 357, no. 825, pl. dcxxvii. figs. 4173, 74, ♂ ♀ ad. (1854).

Chloropicus chlorolophus, Malh. Monogr. Picid. ii. p. 108, pl. lxxiv. figs. 1, 2, 3 (1862).

Gecinus chlorolophus, Gray, List Picid. Brit. Mus. p. 74 (1868); id. Hand-l. B. ii. p. 191, no. 8680 (1870); Sharpe, P. Z. S. 1887, p. 443.

Adult male. Above, including scapulars, rump, upper tail-coverts, and wing-coverts, uniform vivid green; bastard-wing blackish brown, margined externally with vivid green, the edge of the wing more dusky olive varied with white; primary-coverts blackish brown, the outer webs yellowish

olive, redder near the shafts; quills brown, the outer webs of the outer primaries spotted with whitish, and having the basal portion dull red margined with olive golden, the innermost primaries having almost the whole of the outer webs red, tipped with golden green; outer webs of the secondaries vivid green, the inner portion of the webs more or less red; inner webs of all spotted with white, the tips of the innermost being bright green; shafts brown; tail brownish black, the two central feathers having both webs margined at the base with dull olive, the next feathers having only the outer webs so margined; dwarf feather blackish brown, tipped with greenish; shafts black; nasal plumes black; forehead, edge of the crown, and occipital crest crimson, the tips of the feathers being of this colour; crown and middle portion of the occipital feathers olive, margined with a yellower shade, the bases leaden grey; lores yellowish white; between the eye and nostril a black line; side of the face olive, streaked with a lighter shade; from behind the eye a narrow white line passing behind the ear-coverts, and joining another from the lores, running under the ear-coverts; cheek-patch crimson, with pinkish cross markings on a dusky ground; nuchal crest bright golden yellow; chin and throat dull buffy white, barred with dingy olive; side of the neck, chest, and breast uniform dull olive; remainder of the under-parts, including the flanks and thighs, dull yellowish white, barred with dingy olive, the barring less distinct on the abdomen; under tail-coverts dull white, barred with dingy olive, and tipped with a yellower shade; under wing-coverts yellowish white barred with olive; axillaries white with yellow tips, and barred with olive: "bill greenish yellow horny; culmen and tip dark plumbeous; irides carmine red" (*J. Scully*). Total length 10 inches, culmen 1·27, wing 5·25, tail 3·75, tarsus 0·9; toes (without claws)—outer anterior 0·73, outer posterior 0·65, inner anterior 0·53, inner posterior 0·35.

Young male. Resembles the adult male, but is altogether less brilliant in colour; the crown of a duller olive; the crimson on the forehead, occiput and cheeks less spread over

there, and parts; throat, chest and breast, more of a dusky "it occ" with an olive tinge; the underparts whiter, and the four barring more dusky, the whitish markings on the outer webs of the outermost primaries being larger; under wing-coverts without a trace of yellow. Dr. Scully gives the soft parts of the immature male, in August and September, as follows:—"Bill greenish horny, dusky above and at the tip; orbital skin slaty plumbeous; irides crimson; feet and claws plumbeous greenish."

Adult female. Differs from the adult male in the absence of the crimson on the forehead and edge of the crown, and in this colour not spreading over the entire occipital crest, the forehead, crown, and central feathers of the occiput being bright yellowish olive, only a few of the latter having crimson tips; the crimson malar stripe also wanting, the cheeks being olive varied with yellowish white; the yellow nuchal crest scarcely so brilliant: "bill yellowish green horny; culmen and tip dark plumbeous; irides carmine red; orbital skin bluish plumbeous; tarsi dingy green; toes greenish leaden; claws grey horny" (*J. Scully*). Total length 10·5 inches, culmen 1·15, wing 5·05, tail 3·55, tarsus 0·9.

The white spotting on the outer webs of the primaries is very inconstant, and cannot be regarded as a character. In adult examples from various localities these markings exist, while in equally adult birds from the same localities they are wanting. In a fully adult male and in a young male now before me the spots are almost equally developed. Burmese specimens have the outer webs of the primaries generally unspotted, but I have in my collection an example, obtained by Major Houghton, in which they are spotted along their whole length. I have recently examined a male specimen of the present species from the mountains near Perak (*L. Wray*), the most southerly locality whence it has been procured. It is a very dark bird, and has the whole of the underparts of a blackish olive, and all below the chest is covered by bar-like spots of pure white. The colour is much darker than in typical specimens, and, but for the distribu-

tion of red on the head, resembles rather *G. chlorigaster* webs have in my collection an example from Assam, very [illegible] the to the Perak bird.

This species is common in Nepal and the South-east Himalayas, ranging into Bengal and Orissa, and to the east extending into Cachar and Assam. To the south it is found throughout the Burmese Empire; in Tenasserim, and also in the Malayan peninsula as far as Perak. Dr. Scully (Str. F. 1879, p. 249), in writing on this species, observes, "It is tolerably common in the Nepal Valley, where it breeds. It is usually found in tree forests, about the lower parts of the surrounding hills, but occasionally visits the wooded knolls in the central part of the valley. It is not uncommon in the lower hills, Dun and Sâl forest in winter." Jerdon states that it is rare in Lower Bengal, and found as far as Cuttack, and that it may probably occur in the Midnapore jungles. Mr. Ball (Str. F. vii. p. 206, 1878), in his "List of Birds found in the region which extends from the Rajmehal Hills to the Godaveri Valley," gives as localities Orissa, south of Mahanadi and Lohardugga. I have in my collection specimens from north-eastern Cachar, procured by Mr. J. Inglis, who says it is rather rare. In the Hume collection there are examples from Assam, and I also possess specimens from the latter country. Mr. Hume obtained this species in the eastern Manipur Hills, and in his collection there is also an example from Tipperah. Blyth (J. A. S. B. 1863, p. 75) gives as a habitat, "Shan Hills, East of Ava;" and in Blyth and Walden's 'Birds of Burmah,' the species is said to be found in the Khasias and in Arakan. Mr. Oates states:—"In Upper Pegu it occurs from Thayetmyo to Tonghoo, but it is not very common anywhere." I have received from Capt. Bingham a female specimen obtained by him on the hills just north of Pegu Town. Major Wardlaw Ramsay records it from the Karen-nee Hills, at 3000 feet elevation. Messrs. Hume and Davison (Str. F. vi. p. 138, 1878) state:—"In Tenasserim this species is confined to the northern and central portions of the province, occurring alike in the lower and highest hills, and even in the plains, though rare

there, and not very common anywhere." Mr. Davison says "it occurs alike in moderately thin and dense forests, and is found right up to the top of Mooleyit." Mr. Hume's collection contains specimens from the following localities—"Pine forests, Salween; Kollidoo; Pahpoon; Wimpong; Myawadee; Kaukaryit; Houngthraw River; Mooleyit; and the Thounghyeen River." Captain Bingham observes that in the Thounghyeen Valley this species is even more abundant than *C. flavinucha*. It is beyond doubt that the present species is also found in the Malayan peninsula, as Mr. L. Wray has recently obtained a male specimen on the mountains near Perak, and he tells us that it is the only Woodpecker seen by him in the higher part of the hills (*cf.* Sharpe, P. Z. S. 1887, p. 443). This is the only Malayan example of *G. chlorolophus* that I have ever met with.

16. Gecinus erythropygius.

Gecinus erythropygius, Elliot, N. Arch. du Mus. Bull. i. p. 76, pl. iii. (1865); Wardl. Ramsay, P. Z. S. 1874, p. 212, pl. xxxv. (♂ ♀); Wald. Ibis, 1875, pp. 148 and 463; Tiraut, Ois. Basse-Cochinchine, p. 89 (1879); Oates, Str. F. x. p. 191 (1882); id. B. Brit. Burm. ii. p. 52 (1883).

Gecinus nigrigenis, Hume, Proc. A. S. B. 1874, p. 106; id. Str. F. 1874, pp. 444 and 471; id. & Davison, op. cit. vi. p. 136 (1878); Bingham, op. cit. 1880, p. 163.

Picus nigrogenis, Giebel, Thes. Orn. iii. p. 170 (1876).

Adult male. Above, including wing-coverts, uniform vivid green; bastard-wing and primary-coverts black; quills black, the primaries barred with white on the outer webs, the inner having deep notches or broad bars of the same, but not extending to the shaft; outer webs of the secondaries margined with, or entirely green, this colour spreading on to the tips of some of the inner webs, which have large spots of white; shafts black; rump bright scarlet; upper tail-coverts dull green; tail and shafts uniform black, except a few minute buffy-white spots on the outer web of the penultimate feather; dwarf feather dusky black, the apical portion greenish; crown bright scarlet; nasal plumes and the rest of the head

and occiput velvety black; a narrow white stripe from behind the eye, becoming tinged with yellow as it approaches the side of the neck; chin, throat, and upper part of the side of the neck bright gamboge-yellow, the rest of the neck becoming greenish, this colour spreading over the breast; underparts greyish, with small dusky V-shaped markings formed by an intermarginal line; the dark markings on the thighs more defined and barred; under tail-coverts deep dusky, lighter on the margins, and having large and well-defined V-shaped white markings; under wing-coverts white tinged with yellow near the edge of the wing, with irregular bars and V-shaped black markings; axillaries white, with a faint dusky bar near the tip: "legs and feet dirty brownish or plumbeous green; bill dark horny brown or blackish, yellowish at base of lower mandible; irides pale to bright gamboge-yellow" (*Hume & Davison*). Total length 13 inches, culmen 1·4, wing 6·15, tail 4·5, tarsus 1·15; toes (without claws)—outer anterior 0·8, outer posterior 0·75, inner anterior 0·65, inner posterior 0·45.

Young male. Less brilliant in colour than the adult male, but in other respects resembling it.

Adult female. Differs from the adult male in the absence of the scarlet crown, this being deep velvety black, like the rest of the head: "legs and feet dirty brownish green; bill horny brown, upper mandible from nostrils to base, and lower mandible from angle of gonys to base, with gape, greenish yellow; irides from pale to gamboge-yellow" (*Hume*). Total length 12·75 inches, culmen 1·4, wing 6·35, tail 4·7, tarsus 1·15.

This beautiful species was first described under the name of *Gecinus erythropygius* by Mr. D. G. Elliot (Nouv. Arch. du Mus., Bull. i. p. 76, pl. iii., 1865); the specimen was a female, and had been procured in Cochin China by M. Germain. Major Wardlaw Ramsay, during his stay in British Burman, procured both sexes of this species a few miles to the north of Tonghoo, and, believing the bird to be new, bestowed upon it, strange to say, the same title as Mr. Elliot had given to his Cochin-China bird, viz. *Gecinus erythro-*

pygius. Major Wardlaw Ramsay's description, together with figures of both species, will be found in the 'Proceedings of the Zoological Society,' 1874, p. 212, pl. xxxv. About the same time Mr. Hume described, under the name of *Gecinus nigrigenis*, a Woodpecker which had been obtained about 100 miles south of the locality whence Major Wardlaw Ramsay's specimens came, considering it to be distinct from *G. erythropygius* of Elliot. It is remarkable that the descriptions by Major Wardlaw Ramsay and Mr. Hume should have been published within a few days of each other, the former having the priority, but the name being preoccupied by Mr. Elliot. Believing that the Burmese and the Cochin-China birds are distinct, Mr. Hume is therefore of opinion that his name ought to stand for the Burmese bird; and in 'Stray Feathers,' 1874, p. 471, he gives the dimensions of the Cochin-China specimen, and also states the differences in coloration between it and his own species, adding that "only one in ten of his specimens has the stripe behind the eye, and that this stripe is *white*, whereas in Elliot's bird it is *yellow*." According to Mr. Hume's own showing, this difference cannot be regarded as of any value, because on a previous page, 446, in describing a specimen of a female of his *G. nigrigenis*, he states that "a pale yellow stripe runs backward over the ear-coverts." I have not seen Mr. Elliot's type specimen, but from his description I fail to see in what respect the Burmese bird differs from his species. In point of size the former has the advantage, but this is of little weight, as many species of Burmese Woodpeckers exceed in measurement similar species from other localities, without suggesting any specific difference. I am of opinion that there is only one red-rumped species, that the birds may or may not have the eye-stripe, and that this stripe may range from white to yellow. It is the only species of Woodpecker, known to me, in which a character is sometimes present and at other times absent in adult birds of either sex.

The habitat of this species may be said to be the northern and eastern part of Pegu, northern Tenasserim, Siam, and Cochin China, but how far it ranges through the latter

countries is not known. Major Wardlaw Ramsay found it at the foot of the Karen Hills to 6000 feet elevation, and at Tonghoo. Mr. Eugene Oates also procured it at Tonghoo.

In Tenasserim, according to Messrs. Hume and Davison (Str. F. vi. p. 136, 1878), this species is "confined to the drier and more thinly wooded hills of the outer Tenasserim range in its northern and central portions, and there not rare," to which Mr. Davison adds the following note:—"I only obtained this species on the hills to the north of Pahpoon, and again all about Myawadee and the country between this and Mooleyit. It is not a bird of the dense forests, and does not ascend Mooleyit. It does not, that I am aware, extend to the low flat country anywhere, nor do I know of its occurring anywhere south of Paraduba. I did not find it anywhere about Meetan."

Capt. Bingham informs us that "in all the Thoungyeen valley it is fairly common but local. In the laterite belt, covered with Eng (*Dipterocarpus*) forest, that runs parallel to the Thoungyeen river, north of Meeawuddy, I found it plentiful; its peculiar cry, and the rich contrast of the jet-black cheeks with the yellow of the chin and throat, once heard and seen, are not easily forgotten." I have in my collection a specimen obtained by Capt. Bingham in the Thoungyeen Valley, on the Siamese side of the river, so that it may reasonably be assumed that the species will range further into the latter country.

Dr. Tiraut (Ois. Basse-Cochinchine, p. 89 (1879), states that he obtained this species in Lower Cochin China, and it may be interesting to give his notes on it:—"I have killed at Srok-tranh two males of this splendid Green Woodpecker, which is distinguished from all the *Gecini* by its vermilion-red rump; also a female at Suõc nuóc. On both these occasions I found this bird inhabiting the jungles of large thorny bamboos, and my personal observation is in harmony with that of Davison, in Tenasserim, regarding the *G. nigrigenis* of Hume, which appears to be the same bird. The type specimen of Elliot's description came from Cochin China, whence it had been sent by the Commandant Bousigon, and

not from Siam, as erroneously stated by Hume." Mr. Hume (Str. F. 1874, p. 471) distinctly states that Mr. Elliot's bird was discovered by M. Germain in Cochin China, and I am not aware that Mr. Hume ever made mention of the type of *G. erythropygius* of Elliot having come from Siam.

XIV.—*On a Collection of Birds from the Island of Paláwan.*

By R. Bowdler Sharpe, F.L.S., F.Z.S., &c.

(Plates III., IV.)

My friend Mr. John Whitehead has sent a fine collection of birds as the result of his expedition to Paláwan. He was unsuccessful in getting far into the interior of the island, and was therefore obliged to collect in the neighbourhood of Puerto Princesa, which had been the scene of the labours of Professor Steere and of Mr. Everett. It is sufficient to state that Mr. Whitehead has obtained examples of every species but one met with in Paláwan by the before-mentioned naturalists, and Mr. Lempriere also; while he has added to the list 60 species previously unrecorded from Paláwan, thus nearly doubling the known avifauna of the island. Out of 129 species now enumerated from the island, no less than 35 are peculiar to Paláwan, and of the rest 14 are found in the Philippines, but not in Borneo; while 33 are known from Borneo, but have not been recorded from the Philippines. The presence in Mr. Whitehead's collection of a *Cryptolopha*, almost, if not quite identical with *C. montis* of Kina Balu, indicates that there may be an unexpected affinity between the mountain fauna of Paláwan and North Borneo, and it will be rash to generalize upon our present information as to the zoo-geographical relations of the island.

The following I believe to be a complete list of the birds now known to inhabit Paláwan. Those peculiar to the island are marked with a dagger (†), and the letter "[B.]" or "[P.]" indicates the Bornean or Philippine habitat of the species, so as to give some idea of the relations of the avifauna

to that of the neighbouring groups. I have also added an indication of the collector by the aid of initials—"[S.]" standing for Mr. J. B. Steere, "[E.]" for Mr. Alfred Everett, "[L.]" for Mr. Everard Lempriere, and "[W.]" for Mr. John Whitehead.

1. [P.] Cacatua hæmaturopygia. [L., W.]

2. [P.] Tanygnathus luzonensis. [E., L., W.]

3. † Prioniturus cyaneiceps, sp. n.

Similis *P. discuro*, sed pileo toto et cervice cum capitis lateribus viridi-cyaneis; gutture toto, pectore et abdomine viridi-cyaneo lavatis.

Adult male. General colour above grass-green, becoming clearer green on the lower back and rump, and decidedly brighter on the upper tail-coverts; curious dusky frecklings are seen on the feathers in a strong light; wing-coverts green, the median and greater coverts a little brighter; bastard-wing and primary-coverts green, with a bluish tinge internally; quills black, externally green, subterminally with a blue shade, and fringed with yellow, the first primary externally blue; two centre tail-feathers bright green, with a black shaft and racket at the end, which is black edged with green; remainder green, internally blue, and with a broad band of black at the ends; tail blue underneath; entire head and nape, as well as the sides of the face, ear-coverts, cheeks, throat and sides of neck verditer-blue, overspreading the under surface of the body, which is otherwise light green, but yellow towards the vent and under tail-coverts, the latter being yellow washed with green; under wing-coverts and axillaries bright green; lower primary-coverts and inner web of quills pale blue, blackish externally and at the tips of the primaries. Total length 12·4 inches, culmen 0·8, wing 6·1, tail 2·8, long feathers 5·6, tarsus 0·5.

Young birds differ from the adult in being entirely green, without any of the beautiful verditer-blue shade on the head and neck; the wing-coverts and secondaries edged with yellowish green; under surface of body pale green, yellower on the throat, and bright yellow on the under tail-coverts, washed with pale green.

Mr. Whitehead procured a large series of this new Parrakeet.

4. [B., P.] Astur trivirgatus. [W.]

5. [B.] Spizaetus limnaetus. [W.]

6. [B., P.] Butastur indicus. [E., W.]

7. [B., P.] Haliaetus leucogaster. [W.]

8. Spilornis, sp.

A wing only sent. It is too large for *S. pallidus*, and yet does not belong to *S. holospilus*; it may belong to a bird distinct from both.

9. [B., P.] Pernis ptilonorhynchus. [W.]

10. [B., P.] Falco peregrinus. [W.]

Mr. Whitehead states in a letter to me that he noticed a Peregrine on the island. He also saw a Harrier, which he believes to have been *Circus spilonotus*.

[B., P.] Pandion haliaetus. [W.]

Seen, but not obtained.

11. † Baza leucopias, sp. n.

Juv. Similis *B. sumatrensi*, jr., sed subtus alba; linea mediana gutturali nulla, abdomine minime transfasciato distinguenda.

Young female. General colour above brown, with whitish-brown margins to the feathers; lesser wing-coverts brown, the inner ones rufous, with brown centres; median and greater coverts pale rufous, white externally towards the ends and round the tips; bastard-wing dark brown, externally rufous; primary-coverts uniform dark brown; quills dark brown, fringed with white round the ends, and crossed with blackish-brown bars, four in number, one subterminal; secondaries paler brown, externally rufous; upper tail-coverts tawny rufous, edged with white and with dark brown centres; tail-feathers dark brown, narrowly fringed with white at the ends, and crossed with blackish bands, the subterminal one very broad, but not nearly so wide as the preceding interspace; a crest of white feathers, the long ones freckled with

brown; head, nape and hind neck, lores, sides of face, ear-coverts, cheeks, sides of neck, and entire under surface of body pure white, slightly washed with rufous on the head and hind neck; the breast, abdomen, and under tail-coverts washed with creamy buff; the sides of body and flanks with slight indications of spots of pale tawny buff; under wing-coverts and axillaries like the breast; quills below ashy grey, with blackish bars on the primaries. Total length 15·5 inches, culmen 1·15, wing 10·8, tail 7·0, tarsus 1·4.

The typical specimen, though manifestly immature, differs thoroughly from the young of *B. sumatrensis*, and I feel sure that the adult bird, when discovered, will be markedly distinct.

12. † Syrnium whiteheadi, sp. n. (Plate III.)

S. similis *S. sinensi*, sed subtus minime albo trasfasciatum.

Adult male. General colour above chocolate-brown, spotted with white, the spots arranged in pairs, the one on the inner web often fulvescent; scapulars forming a light patch of tawny buff, covered with narrow bars of chocolate-brown; lesser wing-coverts dark chocolate-brown, with scarcely any white spots; median and greater coverts more reddish chocolate-brown, transversely barred with white, slightly tinged with tawny buff; bastard-wing and primary-coverts uniform blackish brown; quills brown, crossed with lighter and more rufous-brown bars, whiter near the edge, especially of the secondaries, which are slightly freckled externally; the innermost secondaries spotted with white, like the back; upper tail-coverts like the back, but barred with tawny buff or whitish; tail-feathers dark chocolate-brown, barred with tawny buff or creamy white, with which the tail is conspicuously tipped, the light bars, seven in number, on the centre feathers, broader and coalescing on the remainder; crown of head like the back, thickly spotted with white, the spots arranged in pairs; feathers of the hind neck with concealed bases of tawny buff; the mantle somewhat more uniform brown; sides of face chestnut, deeper about the eyes and on the ear-coverts, which are whiter posteriorly; ruff dark

bases; ue
axillarie
alon
wi



J. G. Keulemans, del. et lith.

SYRNIUM WHITEHEADI.

Mintern Bros. imp.

bases; ue-brown, barred across with rufous; chin rufous, axillaried by a broad white patch, narrowly barred with black; alo[r]ainder of under surface of body tawny rufous, narrowly barred across with blackish brown, including the thighs and under tail-coverts; fore neck with broad bands of white and chocolate-brown; under wing-coverts and axillaries like the breast; quills below dusky brown, barred with yellowish buff, these bars broader towards the base of the inner web. Total length 17·5 inches, culmen 1·35, wing 13, tail 7·5, tarsus 2·3.

Of this fine Owl Mr. Whitehead obtained several specimens. Its nearest ally is *Syrnium sinense*, but it is easily distinguished from that species by its rufescent under surface, with the absence of white bars.

13. † Scops fuliginosa, sp. n.

S. similis *S. umbratili*, sed multo minor et omnino saturate brunnea, modo Scopino vermiculata et notata, sed regione auriculari rufo-brunnea concolore, et fasciis frontalibus et cervicalibus pallidis obsoletis.

The above diagnosis well expresses the relations of this dark-coloured Scops Owl, which is more dingy in colour than any species I know.

14. † Thriponax hargitti. [S., L., W.]

15. † Chrysocolaptes erythrocephalus. [S., E., L., W.]

16. † Tiga everetti. [S., E., L., W.]

17. [B.] Muelleripicus pulverulentus. [W.]

18. [B., P.] Eurystomus orientalis. [E., W.]

19. [B.] Alcedo bengalensis. [L., W.]

20. [B.] Alcedo asiatica. [W.]

21. [B.] Pelargopsis leucocephala. [S., L., W.]

22. [B.] Ceyx rufidorsa. [L., W.]

23. [B.] Halcyon pileata. [W.]

24. [B., P.] Halcyon coromanda. [W.]

25. [B., P.] Halcyon chloris. [W.]

26. † Anthracoceros lemprieri. [L., W.] ce, ear-
27. [B.] Chætura gigantea. [W.] ace of ead
28. [P.] Collocalia troglodytes. [W.]
29. [B., P.] Collocalia fuciphaga. [W.]
30. [B.] Batrachostomus cornutus. [W.]
31. [B.] Caprimulgus macrurus. [W.]
32. [B.] Cuculus sonneratii. [W.]
33. [B., P.] Cacomantis merulinus. [E.]
34. [B.] Chrysococcyx xanthorhynchus. [W.]
35. [B.] Surniculus lugubris. [E., W.]
36. [B.] Eudynamis malayana. [W.]
37. † Dryococcyx harringtoni. [S., E., L., W.]
38. [B.] Centrococcyx eurycercus. [E., W.]
39. [B.] Centrococcyx affinis. [W.]
40. [B., P.] Lanius luzionensis. [E., W.]
41. [B.] Graucalus sumatrensis. [S., E., L., W.]
42. [B.] Pericrocotus igneus. [S., L., W.]
43. [B., P.] Pericrocotus cinereus. [L., W.]

44. † Hyloterpe whiteheadi, sp. n.

H. affinis *H. grisolæ*, sed supra olivascenti-brunnea, pileo dorsoque concoloribus; tectricibus alarum cinerascenti-brunneis nec rufescenti-brunneis distinguenda.

Adult female. General colour above dingy mouse-brown, the head like the back; wing-coverts rather more ashy than the back; bastard-wing and primary-coverts brown; quills dark brown, edged with ashy brown, the secondaries margined with rufous towards the ends; upper tail-coverts and tail-feathers ashy brown; lores and feathers round the eye ashy grey; ear-coverts brown, like the head; cheeks ashy grey, as also the throat and breast, the latter slightly washed with brown; lower breast and abdomen white; sides of body and flanks somewhat washed with ashy; thighs white, with ashy

bases; under tail-coverts white; under wing-coverts and axillaries white, with ashy bases; quills below dusky, ashy along the inner edge. Total length 5·7 inches, culmen 0·65, wing 3·15, tail 2·3, tarsus 0·75.

45. † Chibia palawanensis. [E., L., W.]

46. [B.] Buchanga leucophæa. [S., E., L., W.]

47. [P.] Rhipidura nigritorquis. [S., W.]

48. † Siphia lemprieri. [E., L., W.]

49. † Siphia erithacus, sp. n. (Plate IV. fig. 2.)

Adult male. General colour above rufous brown, with a slight olivaceous tinge; lesser wing-coverts like the back; median coverts, greater coverts, bastard-wing, primary-coverts, and quills blackish brown, more or less broadly edged with the same colour as the back, a little more rufous on the latter; upper tail-coverts and tail-feathers bright chestnut; crown of head like the back, slightly washed with olive; lores ashy grey; feathers round the eye dusky; ear-coverts olive-brown, washed with tawny; cheeks, throat, and chest orange-rufous; breast and abdomen pure white, as well as the sides of body and flanks; thighs dusky brown; under tail-coverts pale tawny rufous; under wing-coverts and axillaries white; quills below dusky, whitish along their inner edge. Total length 4·2 inches, culmen 0·55, wing 2·35, tail 1·7, tarsus 0·8.

Adult female. Similar to the male, but with the lores more tawny. Total length 4·2 inches, culmen 0·5, wing 2·25, tail 1·5, tarsus 0·7.

50. [P.] Xantholestes panayensis. [W.]

Although I have not had a specimen of *X. panayensis* from Panay to compare, the type being in Prof. Steere's collection in America, I believe that the single specimen in Mr. Whitehead's consignment must belong to the Panay species, though of course direct comparison is desirable.

51. [P.] Cryptolopha montis. [W.]

Only a single specimen, which appears to be identical with the type of *C. montis* from Kina Balu.

52. [B.] Muscicapa manillensis. [W.]

The late Lord Tweeddale and Dr. Oustalet believed that *M. manillensis* (Bp.) is different from *M. griseisticta* of Swinhoe. I must say that the Philippine specimens that I have examined fail to confirm this supposition.

53. [B., P.] Hypothymis azurea. [E., W.]

54. † Zeocephus cyanescens. [S., L., W.]

55. [B., P.] Hirundo rustica. [W.]

56. [B., P.] Hirundo javanica. [E., L., W.]

57. † Oriolus palawanensis. [E., L., W.]

58. [B.] Oriolus xanthonotus. [E., W.]

59. [P.] Pitta sordida. [S., L., W.]

60. [P.] Pitta erythrogastra. [W.]

61. † Turdinus rufifrons. [E., W.]

62. † Mixornis woodi. [S., E., W.]

63. † Anuropsis cinereiceps. [E., L., W.]

64. † Ptilocichla falcata. [S., W.]

65. † Irena tweeddalii. [S., L., W.]

66. † Pycnonotus cinereifrons. [E., W.]

67. † Phyllornis palawanensis. [S., E., W.]

68. [B.] Ægithina viridis. [S., E., W.]

69. [B.] Micropus melanocephalus. [E., W.]

70. † Iole striaticeps, sp. n.

I. similis *I. viridescenti*, sed magis brunnea, cauda pallide rufescente, pileo brunnescente, anguste griseo lineato, et dorso vix striolato, facie laterali grisescenti-olivacea, angustissime albido striolata distinguenda.

Adult female. General colour above olive-brown, with narrow whitish shaft-streaks to the feathers of the mantle and back; the lower back and rump uniform, the feathers of the latter very loose and fluffy and with pale tips; lesser wing-coverts brown, with a wash of olive; bastard-wing and



J. G. Keulemans del. et lith.

Mintern Bros. imp.

1. PRIONOCHILUS JOHANNÆ
2. SIPHIA ERITHACUS

primary-coverts dusky brown, with a reddish tinge and washed with olive externally; quills dark brown, externally pale olive-brown, rather more rufous towards the base of the secondaries; upper tail-coverts and tail-feathers light reddish brown, with a slight edging of olive; crown of head brown, slightly contrasting with the back, all the feathers with narrow ashy white shaft-streaks; lores white, with a yellowish tinge; feathers below the eye and ear-coverts light brown, washed with yellow and having narrow whitish shaft-streaks; cheeks and under surface of body ashy white, with a strong tinge of yellow, the breast, abdomen, and under tail-coverts clearer yellow; sides of body and flanks washed with olive-brown; thighs pale yellow; under wing-coverts and axillaries pale yellow; quills below dusky brown, yellowish along the edge of the inner web. Total length 6·6 inches, culmen 0·7, wing 3·2, tail 2·75, tarsus 0·75.

71. † Criniger frater. [S., E., W.]

72. † Criniger palawanensis. [E., W.]

73. [B., P.] Monticola solitaria. [E., W.]

74. † Cittocincla nigra. [S., E., W.]

75. [B., P.] Phylloscopus borealis. [W.]

76. [B., P.] Cisticola cisticola. [W.]

77. [B.] Orthotomus ruficeps. [S., E., W.]

78. [B., P.] Motacilla flava. [W.]

79. [B., P.] Anthus gustavi. [W.]

80. [B., P.] Anthus maculatus. [E.]

81. [P.] Parus elegans. [S., W.]

82. [B.] Dendrophila frontalis. [S., W.]

83. [P.] Myzanthe pygmæa. [E., W.]

84. † Prionochilus johannæ, sp. n. (Plate IV., fig. 1.)

P. similis *P. xanthopygio*, sed mento et fascia supragenali albis distinguendus.

Adult male. General colour above dark slaty blue, with a

broad band of yellow across the rump; wing-coverts like the back; bastard-wing, primary-coverts, and quills blackish, edged with slate-blue; upper tail-coverts slate-blue; tail-feathers black, with slate-blue margins; crown of head dark slaty blue, with a large patch of scarlet in the centre of the hinder crown; sides of face, ear-coverts, sides of neck, and des of upper breast slate-blue, with a distinct white cheek-stripe, followed by a line of slate-blue along the sides of the throat, and joined to the hinder cheeks and ear-coverts; chin whitish; remainder of under surface bright yellow, the chest with a scarlet patch in the centre; abdomen and sides of vent and under tail-coverts yellowish white; sides of body and flanks yellow, with a greenish tinge; thighs slate-grey; under wing-coverts and axillaries white; quills below black, white along the inner edge. Total length 3·4 inches, culmen 0·45, wing 2, tail 1·05, tarsus 0·55.

85. [P.] Cinnyris sperata. [E. W.]

86. † Cinnyris aurora. [E., L., W.]

87. [B.] Chalcostetha insignis. [E., W.]

88. † Æthopyga shelleyi. [S., E., W.]

89. [B.] Anthreptes malaccensis. [S., E., W.]

90. † Arachnothera dilutior. [S., E., W.]

91. † Corone pusilla. [E., L., W.]

92. [P.] Calornis panayensis. [S., E., L., W.]

93. [B.] Eulabes javanensis. [S., E., L., W.]

94. † Oxycerca everetti. [S., E., W.]

95. [B.] Munia atricapilla. [W.]

96. [B., P.] Osmotreron vernans. [E., W.]

97. [B.] Treron nasica. [S., E., W.]

98. [B., P.] Carpophaga ænea. [S., E., L., W.*]

99. [B., P.] Ptilopus melanocephalus. [L., W.]

* Mr. Whitehead also saw a white Pigeon, doubtless *Carpophaga bicolor*.

100. [B., P.] CHALCOPHAPS INDICA. [S., W.]
101. [B.] TURTUR TIGRINA. [W.]
102. [P.] MACROPYGIA TENUIROSTRIS. [W.]
103. † POLYPLECTRUM NAPOLEONIS. [E., W.]
104. [B.] MEGAPODIUS CUMINGI. [E., L., W.]
105. [P.] TURNIX NIGRESCENS. [W.]

Mr. Ogilvie Grant, who has paid some attention to the small Game Birds, says that the Paláwan birds are identical with the typical examples of *T. nigrescens* of Tweeddale, but he is inclined to doubt whether they ought not all to be united to *T. fasciata*.

106. [B., P.] ÆGIALITIS GEOFFROYI. [E., L., W.]
107. [B., P.] ÆGIALITIS CANTIANUS. [E., W.]
108. [B., P.] ÆGIALITIS PERONI. [L.]
109. [B., P.] ÆGIALITIS DUBIA. [W.]
110. [B., P.] STREPSILAS INTERPRES. [W.]
111. [B.] ESACUS MAGNIROSTRIS. [W.]
112. [B., P.] GLAREOLA ORIENTALIS. [W.]
113. NUMENIUS LINEATUS. [W.]*
114. [B., P.] TRINGOIDES HYPOLEUCUS. [E., W.]
115. [B., P.] TOTANUS CALIDRIS. [W.]
116. [B., P.] TOTANUS BREVIPES. [W.]
117. [B., P.] TOTANUS GLAREOLA. [W.]
118. [B., P.] TEREKIA CINEREA. [W.]
119. [B., P.] TRINGA RUFICOLLIS. [W.]
120. [B., P.] GALLINAGO AUSTRALIS. [W.]
121. [B., P.] GALLINAGO FASCIATA. [W.]
122. [B., P.] HERODIAS INTERMEDIA. [W.]
123. [B.] ARDEA SUMATRANA. [W.]

* Whimbrels were also seen by Mr. Whitehead.

124. [B., P.] Butorides javanica. [E., W.]

125. [B., P.] Gorsachius melanolophus. [W.]

126. [B., P.] Sterna bergii. [W.]

127. Sterna sinensis. [W.]

128. [B., P.] Hydrochelidon hybrida. [W.]

129. Fregata minor. [W.]

XV.—*The Polar Origin of Life considered in its bearing on the Distribution and Migration of Birds.*—Part II. By H. B. Tristram, D.D., F.R.S.

[Continued from 'The Ibis,' 1887, p. 242.]

In suggesting the theory that the Polar origin of life affords a key to the various problems connected with the distribution and migration of birds, I do not think it necessary to go further than I have already done into the question of past changes in the eccentricity of the earth's orbit, since no such change is required to account for the existing conditions of life; and in this, as in every other unsolved problem, the simplest explanation generally proves the best. Nor does it seem to me that we need speculate on the question of various recurring glacial epochs in order to explain the phenomena we encounter. I do not deny the existence of such alternating periods of heat and cold; I merely mean that their introduction as postulates is not required for our present purpose.

I may refer to the summary in my first paper (Ibis, 1887, p. 236), for which I am indebted to Mr. Scribner and Col. Feilden, of the propositions as to the origin of life at the Poles—the first portions of our cooling globe capable of maintaining life. It is, moreover, important to divest our minds of the popular notion that identical or similar forms of life in geologic periods were synchronous. There is abundant evidence, for example, that the Miocene flora of Germany, though in many, or perhaps all, its species is

tical with the Miocene flora of Spitsbergen, Novaya Zemlya, Grinnel Land, Melville Island, the Parry Islands, Bering's Straits, and Greenland, was in time incalculably posterior to it. By still greater intervals must the strata nearer the equator be separated from similar Polar deposits.

Geologists are agreed that in the Miocene period the North Polar region was a continental area, supporting throughout its extent the same or similar forms of life, as evidenced by the remains found in the districts named above, which may be looked on as the relics of that submerged continent. Here life was generally diffused, and, judging from the fossil plants—the *Magnolias, Sequoias,* and the like—the temperature was that of the present equatorial zone. During the secular refrigeration of the earth the temperature of this continent gradually decreased till it became wholly incapable of supporting such life as we now find in the torrid and temperate zones. There were only two routes of exit for the retreating aquatic and littoral forms: the openings of the North Atlantic and North Pacific Oceans, between Greenland and Scandinavia, and between Kamschatka and the Rocky Mountains. Down these four lines the fauna and flora of every kind steadily, but reluctantly, retired in slow succession, progressing no faster than the modification of the climate demanded. The further they proceeded southwards, the more isolated they became from those which had taken a different route. The law of isolation produced its invariable result, unchecked by that interbreeding which might have arrested departure from the original type. The more sedentary the species, the more marked became the divergence. Those species which were the first to leave—the ancestors of the present tropical inhabitants—became the most differentiated. Those which were the last to leave, and which most persistently revisited their ancestral homes, there associated with their kinsfolk from east and west, and thus preserved the original type throughout the world; as we see in the case of the Knot, the Sanderling, the Turnstone, and many other Waders, which breed generally throughout the Arctic circle. The Gulls, on the

contrary, never going far from the open sea to breed, commingled very little, if at all, with their congeners from the other oceans, and their conditions of life being identical, whether in the Atlantic or Pacific, the changes were but slight in corresponding species of either ocean, notwithstanding their segregation in their breeding haunts.

Meanwhile, as the Polar continent continued to cool, the accumulation of snow and ice over its whole surface became so enormous from the precipitation of frozen vapour, as to equal the present deposits on the Southern Polar continent. The continuous land area prevented the circulation of the equatorial currents round the Pole. This was going on throughout the Pliocene era. The glaciers pushed down across the Atlantic in the latitude of the British Isles, and formed a complete barrier from America to Europe. At length the superincumbent mass on the Polar continent pressed down that area below the sea-level, with the exception of the higher lands, which became islands. The glaciers sank to the edge of the ocean. The equatorial current did its work; the ice-blocks became detached, the ancient land behind them was now submerged. The warm Atlantic stream burst in towards the Pole, and the glacial epoch gradually melted away. But with this influx of warmer water, the submerged land, relieved of its superincumbent weight, gradually began to rise again wherever touched by the equatorial current. This process we see going on before our eyes in the elevation of Scandinavia, and the still more rapid upheaval of Spitsbergen, Grinnel Land, the Parry Archipelago, and Novaya Zemlya which has risen 100 feet in less than 300 years. Meanwhile Greenland, struck by the Polar instead of the equatorial current, and overpowered by the weight of its glaciers and ice-deposits, is as steadily sinking. But this process of the glacial epoch, with the phenomena and results of which we are so familiar, appears to have been confined to the region between Hudson's Bay and the White Sea. There does not seem to be any clear evidence that there was any synchronous period of gelation, either in Northern Asia or in America west of Hudson's Bay. Geikie

limits the extension of the ice-age in Europe to the north and central portions as far as Saxony, the Alps, and Pyrenees; and in America to Canada and the eastern States as far as the 39th parallel of north latitude. Nordenskiöld, in the "Voyage of the 'Vega'," repeatedly remarks upon the evidence which Siberia affords that it has not been subject to any great geographical changes since the Jurassic period (vol. ii. p. 209, &c.), and he writes of the shores of the Arctic Ocean:—"It is certain that the ice-cap did not extend over the plains of Siberia, where it can be proved that no ice-age, in a Scandinavian sense, ever existed, and where the state of the land from the Jurassic period onwards was indeed subjected to some changes, but to none of the thoroughgoing mundane revolutions which in former times geologists loved to depict in so bright colours. At least the direction of the rivers appear to have been unchanged since then. Perhaps even the difference between the Siberia where Chikanovski's *Ginko* woods grew and the mammoth roamed about, and that where now, at a limited depth under the surface, constantly frozen ground is to be met with, depends merely on the isothermal lines having sunk slightly towards the equator" (vol. ii. p. 246). All the evidence tending to show the limited area of the glacial epoch proves,—first, that we have no need to invoke changes connected with the eccentricity of the earth's orbit, for then the extension of the ice-clad region would have been circumpolar, instead of being grouped round the North Atlantic; secondly, that we need not invoke the glacial epoch at all, still less an indefinite number of glacial epochs, to account for the present phenomena of distribution and migration, for then the solution would apply only to the Atlantic distribution; while, dismissing these disorderly interruptions, the secular refrigeration of the globe suffices for all.

Confining myself, as in the pages of 'The Ibis' I am bound to do, to the avifauna exclusively, and abstaining from the attractive illustrations of the subject afforded by the Mollusca, and still more by the Flora, I would venture to sugest that the gradual refrigeration is sufficient of itself to

explain the distribution of species, and to account for the phenomena of migration. We have assumed that there were but three principal lines of migration southward. Why, it may be asked, should we assume these special lines? Why may not the exiles have departed over land in any direction? That the fourth coast-line, down the east of North America, was unimportant—if followed at all—appears from the fact that the central area of North America was at that period the basin of a vast shallow sea, with, perhaps, a few islets; and that south of New England the land continuity must have been broken. And as to the departing overland in any direction, our hypothesis assumes the heredity of habits, and we know that for the most part migrants, where possible, hug the coast-line or follow the bases of mountain-ranges. Assuming, too, the reluctance of the first exiles to move, this being also founded on the heredity we now observe, they would be shut out by the frost from the interior lands, and would congregate on the river-banks and along the shores for food, as many of our native non-migrants do now—*e. g.*, the Rook—before they finally took flight for the south. On all these questions connected with distribution and migration the various papers of Mr. Seebohm in 'The Ibis' and elsewhere have been most instructive, and he has dealt with the subject at much greater length in his new work on the Waders, of which he has kindly allowed me to see the advanced sheets. I am aware that Mr. Seebohm invokes glacial epochs and alternations of climate extending over enormous eras uniformly in the circumpolar area to explain the present distribution of bird-life, and that he would also attribute to some—as to the *Hirundinidæ*—a South Polar origin. I am not prepared to contest his theory of past geologic history, but only to submit that they are not necessary for our solution.

I have in my former paper taken the distribution of the *Picidæ* and of *Pica* as illustrations. Before adducing other groups, I may, perhaps, be allowed to lay down certain generalized deductions on migration and distribution:—

1. That all birds breed at the northernmost limit of their range.
2. That those which penetrate furthest north for nidification, whether species or individuals, usually retire furthest south.
3. That all northward migration is for the purpose of nidification; the southward being for food or warmth.
4. That the lines of migration are very different in the case of different species, and often intersect each other.
5. That birds which breed in the tropics do not migrate, unless in the case of birds which ascend the mountains for nidification, and descend to the plains in winter, as various Thrushes in the Andes, and numberless species in the Himalayas.

If it be asked, why, on the doctrine of heredity, should not all birds migrate for nidification? I would reply that these tropical *genera* are the descendants of those which left the Poles at a much earlier period than others, before their structure or habits had become in any degree adapted to the decreasing temperature, and therefore steadily retreated as the cold increased. Take, for example, the great family of the Humming-birds, one of the most differentiated in our avifauna. The ancestors must have left the Pole by the western shore-line of N. America. They may have been confined originally to the portion of the old Arctic continent nearest Bering's Straits, or the parties which took the other routes have perished and left no trace behind. Working southwards they threw out colonies, especially to the eastward, and peopled the Antilles, where, as further south, the sedentary parties soon became differentiated. Still following the retreating warmth, they settled in tropical South America, and being a forest- and mountain-loving race, they clung especially to either side of the Andes. The vast eastern plain-region of the Amazons was then probably too hot for them. Some remained at different altitudes of the mountain-ranges, segregated in little groups, venturing neither to face the heat of the

plains nor the increasing cold of their northern cradle. But the southern plains were then much hotter than at present. Some therefore daringly pushed towards the extremity of the continent. Those which struggled as far as Juan Fernandez remained isolated, having reached it after the instinct of migration had been weakened by desuetude, and so became distinct and sedentary species, accommodating themselves to the reduction of temperature. Those which kept to the line of the continent and reached Tierra del Fuego, like *Eustephanus galeritus*, retreated again as the temperature fell in winter, and became one of the few exceptions to the rule of northward migration for nidification. A similar modification was induced in the sedentary species of the Andes as the climate cooled; till now some may be found near the snow-line, while others are almost confined to a single crater. But while species multiplied by segregation, whether in islands or on mountain-sides, there were those which never lost their hereditary attachment to the north; and so we find on the one side *Trochilus colubris* pushing its adventurous journey as far as Labrador, and on the other *Selasphorus rufus* up to Nootka Sound. We can scarcely account for the prodigious annual expeditions by these tiniest specimens of bird-kind on any other principle than that of heredity. It cannot be climate nor the search for suitable food which impels them; for both suitable food and temperature are to be found thousands of miles nearer their winter-quarters. I think, too, that the case of these two Humming-birds disposes of the hypothesis of an acquired habit. No such habit could be acquired unless it were for the benefit of the species, and the loss of life from storm and enemies during this expedition of over 3000 miles must be prodigious. The fact of these two species taking such divergent routes on either side of the continent seems to indicate a very early dispersal of the family over the neotropical area.

The Thrush tribe is, perhaps, the most universally distributed of the Passerine family. Taking what we may call the true Thrushes—*i. e.* Mr. Seebohm's genera of *Geocichl Turdus, Merula, Mimocichla, Catharus,* and *Monticola*—

find the group represented in every region and in every district of every region of the world, excepting in New Zealand. In habits the species vary from the widest limits of migration to the most limited localization. It would seem as though the progenitors had pursued every available route as they retired from the Pole. But the most southern and sedentary species have indisputably a northern origin. Take, for instance, the Blackbird. We find, to mention only a few species out of many, in Western Europe, in Eastern Asia, in the mountains of Ecuador, in the Samoa Islands, *Turdus merula*, *T. mandarinus*, *T. serranus*, and *T. samoensis*, all Blackbirds, differing only in size and in some slight peculiarities, such as the colour of the legs. These must have had a common ancestry, whose progenitors, we may suppose, had become differentiated from any other type of *Turdidæ* before they left the Polar continent. It is impossible to conceive that *T. serranus* and *T. merula* were derived the one from the other, or that the two have ever been in contact since their progenitors left their ancestral home. But if there were a Blackbird generally spread over the Arctic continent, and dispersed, partly down the East Atlantic line, and partly down the east and west coasts of the Pacific, the progenitors of *T. serranus* and its neotropical congeners must have travelled down by the Rocky-Mountain range, till, reaching the higher Andes, they found on the mountain-slopes the changes they required, and substituted a vertical for a latitudinal migration, according to the season. Similarly, the progenitors of *T. merula* spread over Europe and became migratory to a very limited extent; while a third party, skirting Eastern Asia, followed the mountain-ranges from China westward; and became slightly differentiated, as they settled in various districts, into the numerous species of Blackbirds of Eastern Asia. Some of this party, more adventurous than their fellows, appear to have crossed into Formosa, and there slightly dwindling in size, partially acquired that white plumage so often characteristic of insular forms, and became the White-headed Blackbird, *T. albiceps*, of Formosa. From this adventurous race seem to have sprung the many

species inhabiting the Pacific Islands, of which some thirteen have been already described, varying from black to brown, some with grey, ashen, or buff heads; but all small of stature, and all having an unmistakable family resemblance, and all sedentary in their respective islands. But the Blackbirds were among the last of the *Turdidæ* to leave the far north. They had become comparatively acclimatized, as well as differentiated; and in this way we may account for the absence of this group of *Turdidæ* from the Ethiopian fauna, the Blackbird finding the temperate climate of Europe adapted to its needs, and being therefore not tempted to push further south than the Mediterranean coasts. At the time of the emigration of the Blackbirds the accumulation of ice may have commenced in the glacial epoch on the West Atlantic coast, and consequently no species of this group occur in North America.

But there were probably two previous principal epochs of emigration of the Turdidæ from the north. The first and earliest would seem to have been that of the genus *Oreocincla*, the least differentiated of the family. These earliest emigrants only made a partial exodus, and that down the line of Eastern Asia. They seem to have emigrated before the family had become sufficiently differentiated to lose in maturity the spotted plumage of the young. As is well known, all the *Oreocinclæ*, alone of this family, retain the same markings through life. Some of the emigrants soon halted, penetrating no further than Japan and China. These retained their attachment to the place of their origin; and to this day *Oreocincla varia*, while retiring even as far as the Philippines in winter, returns to Siberia for nidification. From China one party penetrated to the Himalayas and sent colonies along the central mountain-ranges down to Ceylon. All these soon learned to content themselves with a seasonal vertical migration, like the subsequent settlements of Blackbirds. Others reached Formosa and there remained, while others, finding the plains and valleys too hot, pushed further south, even to Australia and Tasmania, leaving a few settlers on each island on their route, which have gradually become

specifically or subspecifically distinct from long isolation: Java, New Guinea, Timor Laut, N. Australia, S. Australia, Tasmania, and probably other islands, possessing their recognized sedentary varieties, but all mountaineers in the breeding-season.

Next, but long after, when the family within the Arctic continent had learned in some degree to adapt itself to the diminishing temperature, and had, at the same time, modified its adult plumage, the great mass of the Thrushes were driven southward on the second or great migration. The retreating parties would seem to have followed all the possible lines of retreat, and many of them to have boldly crossed the ocean north of Siberia and followed up the course of its mighty rivers. Many remained in the north, some of whom, represented by our Fieldfares and Redwings, clung most pertinaciously to their homes, and went no further than compelled by dire necessity. Others, among them the ancestors of our Song Thrush and Missel Thrush, adopted various routes, but principally the East Atlantic and the Siberian rivers, and returning north each year, have, by mutual intercourse, maintained across Europe and the greater part of Asia the ancestral type unchanged. Again, a considerable portion of these migrants, following down the west of Africa, spread eastward over that continent, and, their return being barred by the Saharan desert, became strictly sedentary in their various localities, where they have become differentiated into some dozen species. A straggler or two of this adventurous flight reached even Tristan d'Acunha, where his wings were so clipped that he abandoned all thought of foreign travel; until now some of his friends refuse to recognize him, and would have us believe that he is no Thrush, but a Timaline.

The small size, the spotted breast, the strong generic affinities of the Nearctic Thrushes, and their marked distinction from all the South-American species, would lead me to believe that they are descendants of ancestors which peopled America by way of Greenland and Labrador: probably at a period when the central area was submerged. They have

all retained their hereditary attachment to the north, and the extent of their migration from their winter in the tropics to the shores of the Arctic Ocean is not surpassed by any land-bird.

A far more important body of colonists was that which worked down Western America to Panama and then divided eastward and southward. From these spring the bulk of the neotropical Thrushes, which, with the exception of *T. migratorius*, seem to have lost, from isolation, the habit of any save vertical migration; while others, as *T. falklandicus*, are, from circumstances, strictly sedentary. But those which followed the eastward route from Panama afford a remarkable instance of the effects of isolation. We have first the continental group of Mexico and Central America, forming the recognized genus *Catharus*; all the species of which are, so far as we know, sedentary. For this exception I can suggest no explanation, unless that their ancestors, baffled by the submerged area of the now Mississippi valley, abandoned the effort to revisit the north. In the case of the colonists of South America, we must remember that, travelling south by the lofty Andean ranges, they would escape the then intolerable heat of the lower equatorial regions, and that when once settled on the side of the mountains or in the temperate southern regions, the heat of the equatorial belt might repel their efforts to revisit the north. Perhaps the most interesting development of all in this family is that of the *Mimocichlæ* in the Antilles. These certainly have a common origin, and seem to come most naturally as among the results of this great migration. Each species is confined to a single island, and they certainly must have been differentiated where they now are. I am not at all certain that we ought not also to include among these results the *Cichlherminia* group of the Lesser Antilles. It is certainly remarkable that, whether in the Pacific or West Indies, a species which has once bred in an island, even the smallest, seems always to lose its migratory instinct, however strongly that habit may be impressed on the family generally.

A large party of emigrants must have chosen the [illegible]ers [illegible]le

Pacific route, by Kamschatka and Japan. All the East-Asiatic species, some thirteen in number, with the doubtful exception of *T. javanicus*, appear to be strongly migratory in their habits; all reverting to N.E. Asia for nidification, and thus indicating the route by which their ancestors first set forth. It is very possible that these species, as well as many of those which adopted other routes, had become segregated before their final departure from the Arctic continent. Mr. Seebohm would explain this by the theory of successive emigrations during successive glacial epochs, the species being developed in different southerly regions during isolation from kinsfolk, and then returning with the retrocession of the ice. The species now having become perfectly distinct, set forth again at the next glacial epoch, each of those species being the generic progenitor from which many existing species have evolved. Without denying the possibility of this hypothesis, I think that one partial glacial epoch may explain approximately the existing conditions of the Thrush family.

I have taken the Thrushes as one illustration, and I think a similar method might be applied in the treatment of all the principal families. I do not think that there is any evidence of a South-Polar origin for any of our land-birds, any more than for any of our Flora above the lowest cryptogams. I have already, in my last paper, admitted the probability of the southern origin of the Penguins—a conjecture strengthened by the recent demonstration of the structural difference between the wing-feathers of this and any other known family. Perhaps the Petrels might be added as of probable southern origin; by far the larger proportion of species being inhabitants of the Southern Ocean, while the curious habit of nesting in burrows near the tops of mountains, away from their ordinary haunts, may have been derived from the absence of any low-lying land in the Antarctic continent.

A southern origin has also been suggested for the Swallows. I fail to see the force of the arguments in support of the hypothesis. All Swallows, like all other birds, breed at the northern limit of their range,—a fact,

the origin of which I propose to explain by the heredity of attachment to their place of origin. It is true that there are many more species of Swallows which breed in the southern than in the northern regions. But these are simply, like the Ethiopian and Neotropical Thrushes, races which have become sedentary, and thus been specialized into local species. In the countries in which these local species are found, the individuals of the migratory sorts, spending our winter in South Africa, exceed ten-fold or fifty-fold the number of all the sedentary species. Why should this be, but because the continued habit of reversion to the north, and the intercourse with their fellows from other southern regions whom they there meet, have secured permanence of type and checked the tendency to variation by segregation which marks the permanent dwellers in Southern Africa? If the Hirundinidæ had had a southern origin, how could the habit of northward migration have originated? Not certainly by imitation, for their flight is more rapid than that of most other travellers. Not from absence of food in the south, for where the sedentary species can find support so could the migratory. Besides, as we know, in the case of *Hirundo savignii* and *Cotile rupestris*, there are sedentary species in the north as well as in the south.

If the Swallow tribe had a southern origin, there has been no theory yet advanced on migration which could possibly be reconciled with the facts of its life-history. Genera are but arbitrary divisions, and the fact that of the eleven genera of Hirundinidæ, most of which are very unsubstantial and shadowy abstractions, only one is cosmopolitan, and that now *confined* to the Palæarctic Region, rather goes to illustrate the enormous powers of flight of the family, and the ease with which so great a change as that from a roving to a sedentary life has modified the specific characters of the group. The one fact that none of the migratory Hirundinidæ breed in the southern hemisphere, though visiting it at the times of the nidification of the local species, seems to be of itself proof enough of a northern origin.

XVI.—*Note on Long-faced Birds.*

By W. K. Parker, F.R.S.

In the skull of the Curlew (*Numenius arquata*) there is a structural advance upon that of the typical Plovers, besides the special elongation of the face for the purposes of exploration or probing. Now this elongation of the face, which is relatively much less than in certain Humming-birds, takes place much earlier than in them; for as Dr. Shufeldt has shown*, in Humming-birds, the face at the time of hatching is but little more elongated than in the ripe embryo of an ordinary singing-bird. In the embryo of *Numenius arquata*, one third ripe, the skull is longer than the rostrum; but in embryos three fourths ripe the skull and rostrum are equal in length; they are each 20 millim. long. The rostrum has not yet begun to be arcuate†. So that in ripe embryos the rostrum is far advanced in growth. The same thing takes place in the Kiwi (*Apteryx australis*), as the observations of my son show. These facts, added to what I have found in the Guillemot, namely, that its endo-cranium undergoes an actual shortening in the egg, seem to me to prove that long-faced birds are not a new thing on the earth. Nevertheless, I do think that relatively to these terrestrial, wading, and water-birds, the long-faced forms of the Humming-birds are *new*; and that in their case the elongation has taken place correlatively with the remarkable development of the flowers of certain neotropical plants. Mud-banks, the home of innumerable Annelids and other invertebrate creatures, the feeding-grounds of wading and water-birds, are not things of yesterday; flowers with their nectary at the bottom of a very long tubular corolla must be a relatively modern modification.

* In an unpublished paper.

† These embryos were the gift of Prof. A. Newton, F.R.S.

XVII.—*Notes on the Birds of Cashmere and the Dras District.*

By Lieut. W. Wilfrid Cordeaux (Queen's Bays).

In forwarding these rough notes to 'The Ibis,' I must apologize for their many shortcomings, pleading, as some extenuation, that I am only a young beginner in ornithology, and that previous to my visit to Cashmere, in the summer of 1887, I had but little acquaintance with the avifauna of the country, except such information as I had been able to gather from Jerdon's 'Birds of India' and the 'Wanderings of a Naturalist' by Leith-Adams. It is therefore more than probable that many of my facts have already been recorded by the able ornithologists who have visited these districts. My journal was originally sent to my father, Mr. John Cordeaux, along with a small collection of about sixty skins and eggs, representing the majority of the species which are mentioned by me.

During the latter part of April to the second week in July 1887, I spent my leave in the valley of Cashmere and the Dras district. After a rapid journey up the Jhelum valley, I arrived at Baramoula, where the Jhelum leaves the valley and rushes down the rocky gorge to Rampur. The road is carried along the hill-side, while the river roars and thunders hundreds of feet below, and you look down upon it over the tree-tops and across dense thickets of flowering shrubs, azaleas and rhododendrons. Far above tower the great snow-peaks, dazzling white in the tropic sun; so calm and unchanging that I do not wonder the old Hindoos and Greeks made them the home of the gods. In some places we passed through masses of hawthorn, now in full bloom; and the sweet scent of the may-blossom recalled thoughts of the old country, and those great hawthorns, all covered with grey lichen, which I had last seen in the east-coast districts of Lincolnshire.

At Rampur I took a boat for Srinagar, and in coasting up the Woolar lake I noticed large flocks of Starlings (*Sturnus unicolor* = *S. nitens*, Hume.—J. C.), together with Rooks and Daws, feeding in the meadows near the lake, but did not see

any of the Common Starling, as mentioned by Leith-Adams. On the water were several flocks of the White-eyed Duck (*Fuligula nyroca*), also some Teal, but most of the Ducks have now flown northward to breed. The lake is very shallow and dotted with green islands, on which are small homesteads with lean cattle and sorry-looking horses grazing about. Tall poplars stud the landscape, and many pear-trees, now in bloom. The scenery reminded me of Holland and Denmark; only that huge snow-clad mountains bound the view, to which the shores of the lake gradually slope up. During the passage on the lake I saw a solitary Brown-headed Gull; and a Wagtail with a brilliant yellow breast, which I made out to be *Motacilla melanope*. I also noticed a Bald-headed Eagle, and that very beautiful Magpie, *Urocissa flavirostris*.

On the 22nd of April I began the march up the Scind valley, seeing very few birds on the way. At Sonamurg, two marches from the Zogila pass, I saw several White-capped Redstarts (*Ruticilla leucocephala*), also flocks of the Cinnamon-headed Sparrow (*Passer cinnamomeus*). At the foot of the pass were some Choughs (*Fregilus himalayanus*); also several pair of *Corvus culminatus*, which flew down and settled on the stones round the camp, on the look-out for any thing they could get.

April 25th. Crossed the pass in a heavy snow-storm; at the summit my servant caught a Quail (*Coturnix communis*) quite exhausted. Flocks of the Snow Pigeon (*Columba leuconota*) were feeding on the patches of vegetation from which the snow had melted. Camped at Mataiun, a group of filthy hovels on the Dras river. Amongst the birds seen were the Himalayan Chough, Snow Pigeon, Rock Thrush, and several Partridges (*Caccabis chukar*), a brace of which I shot.

April 26th. Marched from Mataiun to Dras, where there is a small fort with a Sikh garrison. It is a wild-looking land: a great pass, with a river, half-choked with big boulders, rushing through it; around are lofty snow-clad mountains, and here and there on the lower hills in the foreground some flat-roofed Tartar houses, with a few half-starved cattle and

ragged ponies. Shot a pair of Rock Pigeons (*Columba intermedia*); did not, however, see any *C. rupestris*, mentioned by Leith-Adams as occurring here. Saw a Magpie just before arriving at the small fort of Dras, and after this saw several; they are very tame and bold, and would allow a person to approach within a few yards. I failed to see any difference between them and our English Magpies.

Halted two days at Dras, and then marched forward to Jashgaur. On the road were a pair of Ravens; I got quite close to them, and from their large high-ridged beak and size should say they were the Thibet Raven (*Corvus tibetanus**); they were certainly larger than the Ravens we see in the Punjab, two or three pairs of which nest in the wood at the bottom of the cavalry "maidan" at Umballah, where I have taken their eggs.

May 1*st*. Arrived at a nullah about three miles from Jashgaur, where I had the camp pitched on a flat piece of ground among the rocks just above the river. The banks of the Dras river are here covered in places with stunted willows and a few juniper. While exploring the hills above the camp saw several Snow Pheasants (*Tetraogallus himalayensis*). Their flight is very strong and fast, like that of an old cock Grouse. The native name is "Ram Chicore."

In the vicinity of the camp I noticed a pair of the Blue-throated Warblers (*Cyanecula leucocyanea*), with a white spot on the centre of the throat; while sitting in the tent I had a very close view of one, as the bird came within a few yards. I often saw them, and no doubt they were going to breed there†.

* [*Corvus tibetanus*, Hodgs., is regarded as scarcely separable from *C. corax*, L. (Ibis, 1870, p. 141).—J. C.]

† [In a subsequent letter my son says he is quite certain as to the species. Five examples, all males, shot in April and May at Yarkand by Mr. Scully, all belonged to the red-throated race ('Stray Feathers,' vol. iv. 1876, p. 105), and Mr. Seebohm, in his 'British Birds,' p. 274, remarks, "I have never seen an Asiatic skin, and doubt its occurrence in Asia."—J. C.]

[Mr. Seebohm has a specimen of a male of *C. suecica*, obtained at Moscow on May 2nd; and unless carefully examined, in the hand, any-

I frequently saw Dippers [probably *Cinclus cashmiriensis*, Gould.—J. C.] of a very dark grey, almost black, which were constantly dashing into the water, remaining beneath several seconds. They usually chose some back eddy behind a large stone. Several pairs of Choughs (*Pyrrhocorax alpinus*) were to be seen with the glass amongst the hills; and I once watched a pair for about an hour busily employed in picking ticks from a large ibex which was lying stretched out on a rock in the sun. During the first fortnight in May I was generally out each day on the mountains at a great elevation, and clambering over the most precipitous ground after ibex. On one day, after a most fatiguing stalk, my shikary at last gave me an awkward shot down hill at 300 yards. The ball went between the creature's legs, and the beast shuffled off up hill, like a huge shambling goat.

On one occasion I saw a musk-deer, which jumped up close to me, and might easily have been shot, had it not been for the risk of alarming any ibex within hearing on the mountain.

On the 12th I left Jashgaur for Cashmere and the lower country, being at that time completely prostrated with "height sickness," induced by the extreme rarity of the air of those high altitudes. During the march back I was far too ill to observe anything, and, when not on the march, I was obliged to remain inside the tent. When in the Zogila pass I noticed a Cuckoo seated on a boulder, but was not able to get a very near view.

May 19th. During the last march through the Scind valley noticed large flocks of the European Bee-eater (*Merops apiaster*), one of which I procured.

May 20th. When crossing the lake again, the reed-beds

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one would say that it was an example of the White-spotted Bluethroat. Nevertheless, on inspecting the white gorget, and especially on raising the feathers, chestnut-coloured streaks down the shafts are plainly visible, and that colour is evidently being assumed, although at a distance of two feet the keenest eye could not detect it.—H. Saunders.]

swarmed with *Acrocephalus brunnescens*, their loud harsh note being heard everywhere. I found the nest attached to reeds and constructed of dry grasses, but without eggs.

May 29th. Shot a young male Paradise Flycatcher (*Tchitrea paradisea*) in chestnut plumage, having the long tail. I am encamped in an old park of gigantic plane trees, from 250 to 300 years old, said to have been planted by Akbar Khan. The place swarms with Daws and *Sturnus unicolor*. The Golden Oriole is common, but it is hard to see him, as he is a very wary and shy bird.

June 1st. Shot a pair of *Lanius erythronotus*; also a female of *Oriolus kundoo*, and took the nest of the latter, containing one egg, of a pale rosy-white colour, with a few black spots. The nest was built of dry grass, and hung suspended from a willow-bough over the water.

June 3rd. Shot *Geocichla unicolor*, a male. This bird is found all over the valley, and has a very pleasing note, not unlike that of the English Thrush; also obtained *Budytes calcaratus*, Hodgs., a fine male, and a young *Tchitrea paradisea*, in what appears the first year's plumage.

June 5th. Got a male Pheasant-tailed Jacana (*Hydrophasianus chirurgus*); later on I took the eggs, pyriform in shape and of a fine dark bronze-colour; the nest was made on one of the large beds of floating weed with which the lake is more or less covered.

June 6th. Saw a pair of Wrynecks, one of which, the male, was procured; also three White-cheeked Bulbuls (*Otocompsa leucogenys*) and two Grebes, both males (*Podiceps philippensis**). I found the nest of the latter, with one egg, of a dirty green colour. The nest was a mere mass of decaying weeds, resting on a large lily-leaf and attached to some rushes. There was a great deal of heat in the nest from the decaying weeds, the egg itself being completely hidden by weeds and almost under water.

June 7th. Procured an example of the Grey Tit (*Parus cinereus*), and also took a nest of *Turtur meena*, Sykes [*T. rupicola*, Pallas.—J. C.], from a low willow tree. Found several

* [Probably not separable from *P. minor*, L.—J. C.]

nests of *Lanius erythronotus*; near one I perceived the old bird eating a young Sparrow, which had been well able to fly. Jerdon, on the authority of Mr. Phillips, says this Shrike never attacks birds, only preying on insects. I also found a nest of *Otocompsa leucogenys*, built, as described by Mr. Hutton (Jerdon's 'Birds of India,' vol. ii. pt. 1, p. 90), of grass, and lined with very fine grasses; it contained five eggs, nearly hatched out, of a pale rosy ground, covered with purple and claret-coloured blotches. On an island near Nusseem Bagh were several nests of *Corvus splendens*, built in pollards and low mulberry-trees not more than twelve or fifteen feet in height; some contained young birds, in others the eggs were nearly hatched, and in one only were they fresh laid.

June 8*th*. Left for Islamabad. The journey from Srinagar takes two days up the Jhelum in boats. Noticed at evening large flocks of *Merops apiaster* flying down from the hills to roost in the chunor trees. Saw also a pair of White-tailed Eagles (*Polioaetus ichthyaetus*).

June 10*th*. Arrived at Bowun, near Islamabad. Pitched the camp in what has been an old garden, as there are stone channels for irrigation. The tents are shaded by huge planes; above the garden are two large tanks, lined with masonry, and with steps leading to the water; these are full of tame fishes, some of which are very big; when you throw food on the water the surface becomes immediately packed by a dense jostling crowd, as close as if enclosed in a net. Found the nest of *Tchitrea paradisea* in an apple-tree, and disturbed the old bird from it, in chestnut plumage with long tail. This nest contained four eggs, of a very pale rosy colour, with burnt-sienna spots; it was constructed of grass, bound together with cobwebs and a small cocoon; the lining was of hair and fine roots; a number of crows' feathers were worked into the outside. Numbers of Bee-eaters were hawking round the low hills. In the afternoon I walked to the ruins of the temple sacred to the sun; the architecture is Indo-Grecian, and dates from about 250 B.C. The central shrine is surmounted by a cloistered court, with Ionic pillars and spaces for windows between; the walls have niches filled

with sculptured figures of Hindoo gods. In the locality saw several pairs of *Pratincola ferrea* haunting the low shrubs.

June 10*th*. Saw several pairs of the Drongo Shrike (*Buchanga longicaudata*), also *Sylvia curruca*.

June 11*th*. Noticed *Lobivanellus goensis* up the Lidur valley.

June 12*th*. Marched to Atsibul; here is a nice old garden, with a series of tanks and watercourses placed one above the other in terraces, the water falling in cascades from one terrace to another; beyond these is a hill covered with hazels and deodars, and at the foot a great body of water rushes up out of the earth. This is the source of the Jhelum. There are some very fine planes in the garden, and my bearers say the reason they are so big is that Akbar Shah had them irrigated with milk. During the day saw large numbers of the Indian Titlark (*Anthus rufulus*), also several pairs of *Ceryle rudis*. In the garden I shot an example of the pretty Himalayan Goldfinch (*Carduelis caniceps*); they are fairly common in the valley. In the pines were flocks of the small *Zosterops palpebrosa*. The Stonechat (*Pratincola indica*) is very common, usually sitting on the low bushes or on the top of a tree, from which it makes short roving flights. *Emberiza cia* is common all over the valley, and ranges quite into Thibet.

June 14*th*. Marched to Verenag; on the road I noticed several Alpine Swifts hawking along the hill-sides in company with the Common Swift.

June 15*th*. Obtained an example of *Coccystes melanoleucus*. I had not seen this bird before in the valley, although roun a Umballah it is very common in the hot weather. I also g·y the Large Minivet (*Pericrocotus speciosus*). The woods heme swarm with the Black Bulbul (*Hypsipetes psaroides*); these fly from tree to tree, chattering and screaming like Jays. *Phylloscopus superciliosus* is common all over the North-west Himalayas, and I saw it beyond Dras; it is very like a Willow Wren in its habits, but not so large. I used frequently to see it in the willow scrub along the river-bank.

June 16*th*. Went up the hill behind the camp, where I

shot *Erithacus brunneus*. Saw also a pair of *Picus himalayanus*; the female is a much smaller bird than the male, and with a considerably less powerful bill.

June 18*th*. Marched back to Islamabad; on the way passed a large heronry, built on elm trees; there must have been seventy or eighty nests, and the trees were covered with birds.

June 25*th*. Came by boat to Sopur; on the way I again took the eggs of the Pheasant-tailed Jacana, and also those of *Hydrochelidon indica*.

June 28*th*. Shot a Streaked Laughing Thrush (*Trochalopterum lineatum*).

June 29*th*. On the march from Baramoula to Rampur down the Jhelum valley, noticed several Jays (*Garrulus lanceolatus*); shot one male bird.

June 30*th*. Obtained an example of the Blue-headed Chat Thrush (*Oræcetes cinclorhynchus*), the skin of which was unfortunately carried off by a dog. I found the Whistling Thrush (*Myiophoneus temmincki*) common in the Jhelum valley, also the Blue Magpie (*Urocissa flavirostris*).

July 1*st*. Got a bird, which I failed to identify at the time, but subsequently found it was *Henicurus maculatus**. Noticed several Green Hill Pigeons (*Sphenocercus sphenurus*).

July 2*nd*. Saw to-day, for the first time in the valley, a pair of the White-breasted Kingfisher (*Halcyon fusca*).

July 4*th*. At Domel noticed several Black Buntings (*Melophus melanicterus*), also a pair of Cormorants (*Graculus carbo*) fishing in the Jhelum. I am stopping at a pretty dak bungalow, built of pine wood and stone—a very superior place, as good as you could get at home—situated just below where the Krishna-gunga runs into the Jhelum; "Domel" meaning "the meeting of the waters." The thermometer here to-day was 90° in the shade.

July 6*th*. Shot a White-breasted Blue Woodchat (*Ianthia cyanura*), which I unfortunately spoilt in skinning. Noticed

* [Kindly named for me by Mr. R. Bowdler Sharpe, of the British Museum, to whom I am also indebted for the determination of some other species named in this paper.—J. C.]

several Lesser Kestrels (*Falco cenchris*), but the skin of a female which I procured was destroyed by ants.

July 7th. At Kohala; obtained a female *Metoponia pusilla*, of which I only saw a pair, and this was the only time I came across these birds; also *Munia undulata*.

July 8th. Diwal. Saw to-day several Bay-backed Shrikes (*Lanius hardwicki*); this species is very common round Umballah. The night I came down from Rawal-Pindi by rail was one of the hottest known for many years. My companion, an old Indian colonel, and I sat at the carriage-windows in our night-clothing, not breathing, but gasping for air. The ironwork in the carriage was hot at midnight, and the water in the lavatory quite warm. The wind swept down from the desert hills like the blast from a furnace, the country for miles around looking as if covered with snow from the salt efflorescence on the surface.

XVIII.—*On the occasional Assumption of the Male Plumage by Female Birds.* By J. H. Gurney, Jun.

John Hunter, the eminent surgeon and anatomist, seems to have been the first to bring the subject of female birds occasionally assuming male plumage before scientific men in this country (Phil. Trans. lxx. p. 527*), though something was known about it from the time of Aristotle†. To such birds Hunter applied the epithet "*monstrous*," and this, inasmuch as it awakened the indignation of Mr. John Butter, was the means of giving us the researches of the latter in the form of a "Supplement," or reply, to Hunter's paper ('Memoirs of the Wernerian Soc.' iii. p. 188). But each of them, while clearing up much that was obscure, fell into an error; and their errors were what might be expected, when so much yet remained to be learnt. Hunter, who had but two species to guide him, supposed that the change of plumage only took place at an advanced age; and Butter thought that a Domestic

* Reprinted, with additions, in the 'Animal Economy,' p. 63.

† *Cf.* Hist. Anim. lib. ix. c. 36.

hen (*Gallus*) or a female Pheasant (*Phasianus*) would, if it lived long enough, always assume the plumage of the cock—a statement which he afterwards modified into "almost always."

i Yarrell corrected their mistakes in an elaborate paper read before the Royal Society on the 10th May, 1827; but, much as he had studied the subject, even he laid himself open to criticism on two points. It will be seen that he did not consider that a hen Pheasant (*Phasianus colchicus*) could ever assume really perfect male plumage (*l. c.* pp. 1 & 7); but if domestic Fowls occasionally do so, why not a Pheasant? Indeed, what may fairly be called an instance in point is given in the 'Norwich N. Trans.' (iv. p. 184, note), of a Pheasant, a female, small in size, but in complete male attire, except that it had no spurs. As a rule, however, the masculine garb assumed by these hen Pheasants is but an approximation to the real livery of the male; and is seldom quite the same plumage in which a *bonâ fide* immature male Pheasant may be found, being less spotted with black on the breast. Sometimes the first metamorphosis may be discovered in a mere wash of red on the breast of a hen Pheasant, which is otherwise in the normal plumage.

Yarrell gives a figure of the internal organs of a normal female Pheasant and of one, for comparison, assuming male plumage (*l. c.* pl. xii.). In common with other observers, he seems to have thought that a diseased state of the ovaries always accompanied the change; but it is hardly possible that this can be so in cases where fertile eggs are known to have been produced; and though we cannot give an instance of this fertility in the Pheasant, cases are recorded in the domestic Fowl*; indeed, in Passerine birds, it is possible that the change may never be accompanied by an atrophied or other diseased state of the reproductive organs, resulting in barrenness. A hen Pheasant in my father's aviary, which had partially assumed male plumage, lost it again in confinement, as did a domestic Fowl in his chicken-yard, which was in three parts cock's plumage in August

* 'Norwich Nat. Tr.' iv. p. 391.

1887, and has now (Jan. 18th, 1888) almost lost it. There is little doubt that female wild Pheasants, and those brought up by hand which have become wild, frequently approximate to the male plumage, and revert to their normal female plumage, without anyone observing it. Of course there is no ground for thinking that such birds as these would not then breed, if the transformation had not taken place at too great an age. The rule seems to be that Gallinaceous female birds generally become barren when they assume and while they wear male plumage, but that Passerine birds generally do not, as will appear hereafter.

Ducks—in most cases domesticated Wild Ducks—have been several times known to assume, or nearly assume, the plumage of the drake, generally when very old, and it has been assumed that they were not fertile; but we have no tangible evidence to prove that such was the case. A female Merganser (*Mergus serrator*) assuming male plumage, examined by my father (Zool. 1854, p. 4252), showed no signs of disease in the ovary, and there is no reason for assuming that she had not bred, or that she would not do so. On the other hand, Mr. Cecil Smith has a female Wigeon (*Mareca penelope*) on his ponds near Taunton, which assumed the male plumage some years ago, and which, so far as he knows, has not had young nor laid eggs.

On May 16th, 1887, a Chaffinch (*Fringilla cælebs*) in full male plumage was shot at Chapel Town, near Leeds, in Yorkshire, by the son of Mr. W. L. Jackson, M.P.; it was skinned by G. R. Grassham, assistant to Mr. W. E. Clarke at the Museum, who, much to his surprise, found that it was a female, and contained an egg, ready for laying, of a pale blue, without markings, and another egg in a less forward state. This Chaffinch is in every way in perfect male plumage, and I am indebted to Mr. Clarke for his kindness in sending these particulars with the specimen, which he received from Grassham a few hours after the latter had dissected the bird.

In the 'Norwich Nat. Trans.' an enumeration was given of female Redstarts (*Ruticilla phœnicurus*) assuming male plumage

(*l.c.*), to which the following may be added :—A hen *R. phœnicurus* assuming male plumage, and very like Mr. Millais' described in the 'Norwich Nat. Trans.' iv. p. 182, was caught by Mr. W. E. Clarke sitting upon her eggs, at Wike, near Leeds, in June 1886; at the same time Mr. Clarke saw the cock close by, which appeared to be in the ordinary adult plumage. The late Mr. Henry Doubleday's collection contained a hen Redstart (*R. phœnicurus*) in male plumage, which had the ovaries "quite perfect and full of eggs" (*cf.* B. of Norf. i. p. 370, note), probably one of those alluded to by Yarrell (Brit. B. 1st ed., i. p. 240) in the remarks made by him on the plumage of this species. I have some recollection of this Redstart at the dispersal of Mr. Doubleday's collection, but do not know who was the purchaser of it. There can be no doubt that more would soon turn up if looked for; and now that attention has been drawn to the subject, and the practice of dissection is getting more general among birdstuffers, it is certain to be the case, not only in *Ruticilla*, but in other genera besides. Why it should happen in *Ruticilla phœnicurus* oftener than in other Passerine birds is hard to explain, but such is evidently the case.

The same is recorded to have happened five or six times with the female Red-backed Shrike (*Lanius collurio*); see 'The Field,' June 17, 1871, and April 25, 1885; Mag. N. H. iv. p. 344; 'B. of Suffolk,' p. 45; 'Ibis,' 1863, p. 292; but the number of hen Redstarts which have donned masculine attire is greater.

The following is a list of the species in which one or more instances of females assuming male plumage are ascertained to have occurred :—

*Falco æsalon**, fide Scully.

Tinnunculus alaudarius, fide Sharpe; col. fig. P. Z. S. 1874, p. 580.

Lanius collurio, fide Hoy.

Lanius vittatus, fide Blyth.

Ruticilla phœnicurus, fide Millais, Clarke, and others.

Fringilla cœlebs, fide Clarke.

* *Cf.* Sharpe, 'Cat. Birds Brit. Mus.' i. p. 407.

Linota cannabina, fide Blyth.

Linota rufescens, fide Blyth.

Nectarinia asiatica, fide Blyth.

Gallus (Domestic Fowl), fide Yarrell and others; col. fig. 'B. of Sherwood,' p. 183.

Pavo (Peahen), fide Latham; fig. 'Synopsis,' ii. pl. 60.

Meleagris (Turkey), fide Bechstein.

Phasianus colchicus, fide Edwards and others. Of common occurrence in a semidomesticated state.

Thaumalea picta, fide Edwards.

Euplocamus nycthemerus, fide Yarrell.

Pucrasia nipalensis, fide Blyth.

Tetrao tetrix, fide Bond; col. fig. Dresser, 'B. of Eur.' vi. 205.

Tetrao urogallus, fide Nilsson; col. fig. 'Unser Auer-, Rackel- und Birkwild und seine Abarten,' by A. B. Meyer.

Otis tarda, fide Tiedemann.

Anas (Domestic Duck), fide Rowley; col. fig. 'Orn. Misc.' i. p. 118.

Anas boschas, fide Hancock; fig. col. 'Scandinavisk Fauna,' pl. 163.

Fuligula marila, fide Blyth: see also P. Z. S. 1885, p. 248.

Mergus serrator, fide Gurney.

Mareca penelope, fide Cecil Smith.

Perhaps the Kestrel (*Tinnunculus alaudarius*) ought not to be included in this catalogue, for so many have been seen with the lower part of the back blue or bluish, as to leave little doubt that the female generally becomes so if she lives long enough.

It is said that the females in *Oriolus* generally become as bright as males in time (*vide* 'Ibis,' 1864, p. 412; 'Field,' June 24th and July 8th, 1871).

P.S.—Mr. W. Tegetmeier tells me he has known a barn-yard cock moult into hen's plumage, which is the converse of the instances narrated in this paper, and rather resembles the annual change which takes place in *Anas boschas* and others of that tribe.



J. G. Keulemans, del. et lith.

CALYPTOMENA WHITEHEADI.

Mintern Bros. imp.

XIX.—*Further Notes on* Calyptomena whiteheadi.

By R. Bowdler Sharpe, F.L.S., F.Z.S., &c.

(Plate V.)

The brief description which I gave last year (P. Z. S. 1887, p. 558) of this beautiful species was founded on a pair of birds sent by Mr. John Whitehead in advance of the bulk of his collection from Kina Balu. When the whole of the latter arrived last autumn, I described merely the new species (Ibis, 1887, p. 435), leaving Mr. Whitehead to give a complete account of his collection on his return to Europe, which, it is hoped, will take place next August. As many of my readers are aware, he is at present engaged on a second exploration of the mountain of Kina Balu, which I trust may be as successful as the first.

Among the skins sent home by Mr. Whitehead from this locality were two additional specimens of the *Calyptomena*, one of which is a young female, in a stage of plumage which has not yet been described. It is of a much duller green than the old birds, and is much less mottled with the black bases to the feathers, which give the latter such a distinguished appearance. The head is very little crested, and the black patch on the throat is duller and much smaller. The green of the underparts is also much duller than in the adults, and, as in the case of the back, the black bases to the feathers are not seen. Mr. Whitehead states that in the adults the "bill is horny green, the upper mandible darker; feet horny green; iris black."

The Plate accompanying the present article has been presented to this Journal by Mr. Jeffrey Whitehead, who wished to have an early representation given in 'The Ibis' of this bird, the finest of his son's ornithological discoveries.

XX.—*Further Notes on the Birds of the Loo-choo Islands.*

By Henry Seebohm.

Since my paper on this subject appeared (Ibis, 1887, p 173), a second collection of birds from these islands has passed through my hands, and a valuable contribution from the able pen of Dr. Leonard Stejneger describes apparently (Pr. U. S. Nat. Mus. 1886, pp. 634–651 *) the collection made by Mr. M. Namiye, which formed the bases of the list furnished to me by Mr. Pryer.

An examination of this second collection enables me to correct some of the determinations of Mr. Pryer, and to confirm some of the new species described by Dr. Stejneger, so that my previous list requires both additions and alterations.

Haliaetus pelagicus.

Mr. Pryer has sent a fine example of this noble Eagle, a species remarkable for its wedge-shaped tail, consisting of fourteen rectrices.

Scops elegans.

Megascops elegans (Cassin), Stejneger, Pr. U. S. Nat. Mus. 1886, p. 639.

Scops semitorques, Seebohm, Ibis, 1887, p. 174.

Dr. Stejneger has compared an example of this bird from the Loo-choo Islands with Cassin's type in the Philadelphia Museum, and pronounces them to be identical; but he regards the species as fairly distinct from *Scops japonicus* and widely removed from *Scops glabripes*.

Ninox scutulatus.

Ninox japonicus, Seebohm, Ibis, 1887, p. 174.

Mr. Pryer has sent examples of this species from the Loo-choo Islands which agree with others from Japan and China, and are regarded by Mr. Sharpe as identical with the Indian species.

Hypsipetes amaurotis squamiceps.

Oriolus squamiceps, Kittlitz, Mém. Ac. St. Pétersbourg, Sav. Etrang., i. p. 241, pl. xvi. (1831).

* [Dated Feb. 14, 1887.—Edd.]

Hypsipetes preyeri, Stejneger, Pr. U. S. Nat. Mus. 1886, p. 642.

* *Hypsipetes amaurotis,* Seebohm, Ibis, 1887, p. 174.

Mr. Pryer has sent an interesting series of this bird from the Loo-choo Islands. They resemble the Bonin-Island form in having the breast and flanks chestnut-brown, instead of dark grey, as in the typical race from Japan, but they agree with the latter in size. The length of wing from the carpal joint varies from 4½ to 5 inches. I have an example from Bonin Island (the only one I have seen), which is slightly larger; but until a larger series from that island has been measured, it is premature to regard the Loo-choo form as even subspecifically distinct from it. My example from Bonin Island measures 135 millimetres, and is exceeded by an example from Hakodadi, the measurement of which is given by Dr. Stejneger as 136 millimetres.

ERITHACUS NAMIYEI.

Icoturus namiyei, Stejneger, Pr. U. S. Nat. Mus. 1886, p. 645.

It is very difficult to say whether the bird described by Dr. Stejneger is a stage of plumage of *E. komadori,* or a local race of that curious bird. I only know of three examples of *E. komadori* in Europe—the male and female in the Leyden Museum, and a male (a cage-bird from Japan) in my own collection, which agrees with the type and not with Dr. Stejneger's description. I entirely disagree with this writer's conclusions that this bird is not congeneric with *E. akahige* and *E. rubecula.* The wing is not more concave, nor are the nostrils removed from the frontal covering. When Dr. Stejneger lays stress upon the strong superficial resemblance between his *Icoturi* and some of the Formicariidæ, remarking that "should colour count for more than structure, then *Icoturus* would come very close to *Myrmeciza longipes* from Panama," he must surely forget that the Formicariidæ are known to have a different form of larynx and a different arrangement of its muscles. The Loo-choo *E. namiyei* is said to differ from its Corean ally in three points: the flanks

are uniform ash-grey instead of black, margined with white on the upper flanks; the under wing-coverts are ash-grey, margined on the outer web with rufous orange, instead of black margined with white; and the axillaries are uniform ash-grey, instead of white with dark centres.

PERICROCOTUS TEGIMÆ.

Pericrocotus tegimæ, Stejneger, Pr. U. S. Nat. Mus. 1886, p. 648.

Pericrocotus cantonensis?, Seebohm, Ibis, 1887, p. 176.

This appears to be a very good species, differing from *P. cinereus* in having the white on the forehead confined to a narrow streak from each eye, meeting along the base of the upper mandible, in being much darker on the upper parts, in having a broad grey band across the breast, and in being smaller in size.

Dr. Stejneger separates the Japanese bird as *P. japonicus* from the South-Siberian *P. cinereus*, on the ground that in the former the back is darker, and the black of the head extends to the mantle. I have both forms from Hongkong, and regard the variations as individual (not as geographical), and as probably dependent upon age.

HIRUNDO NAMIYEI.

Chelidon namiyei, Stejneger, Pr. U. S. Nat. Mus. 1886, p. 646.

Hirundo javanica?, Seebohm, Ibis, 1887, p. 176.

It is scarcely probable that this Swallow is more than subspecifically distinct from *H. javanica*, from which it appears only to differ in size—the length of wing from carpal joint being 4·6 inches, instead of 4 to 4·4 inches. It is said to be green instead of blue on the upper parts; but this is also the case with examples from Ceylon, Borneo, and Lombock.

ZOSTEROPS SIMPLEX.

Zosterops japonica, Seebohm, Ibis, 1887, p. 176.

A series of examples sent by Mr. Pryer agree exactly with the type of the species described by Swinhoe from South China, except that they very slightly exceed it in dimensions. *Z. subrosea*, from Sechuen, of which the type is also in my

Russia ter appears to me to be absolutely identical with it. irregu other hand, *Z. japonica*, with its pale chestnut-brown th sks and sides of breast, and *Z. palpebrosa*, with its much yellower-green upper parts, appear to me to be quite distinct.

It is interesting to know that the Loo-choo species is identical with that from South China, Hainan, and Formosa, but differs from both its Japanese and its Philippine-Island representatives.

PASSER MONTANUS.

Passer saturatus, Stejneger, Pr. U. S. Nat. Mus. 1886, p. 19.

Mr. Pryer has sent a number of examples of the Loo-choo Tree Sparrow, which does not differ from the European bird in any respect.

CARPOPHAGA JOUYI.

Ianthœnas jouyi, Stejneger, American Naturalist, 1887, p. 583.

Mr. Pryer has sent several examples of this fine Pigeon. It is nearly allied to *C. ianthina*, but differs from it in having the plumage bronzed with green instead of reddish purple, and in having a white collar across the upper mantle.

TRERON FORMOSA.

Treron permagna, Stejneger, Pr. U. S. Nat. Mus. 1886, p. 637.

Treron sieboldi, Seebohm, Ibis, 1887, p. 179.

An example sent by Mr. Pryer agrees exactly with females from Formosa in the Swinhoe collection. Dr. Stejneger is quite right in supposing that Swinhoe described his species incorrectly: *primary-coverts* should read *greater wing-coverts*, as he suggests; the only other feathers with pale margins being the secondaries. There still remains the difference in the tail. In Pryer's bird the tail measures $4\frac{3}{4}$ inches, and is not graduated to the extent of $\frac{1}{4}$ inch; Swinhoe's bird has a tail $4\frac{1}{8}$ inches, graduated to the extent of $\frac{1}{2}$ inch; whilst Dr. Stejneger's bird has a tail 6 inches long, graduated to the extent of $\frac{7}{8}$ inch. This looks like individual variation rather than

specific or subspecific difference. *T. sororius* is much whiter on the upper surface than *T. sieboldi*, and can scarcely be regarded as allied to *T. sieboldi*, and can scarcely be regarded as specifically distinct from it, if, indeed, a large series of each would not prove them to be absolutely identical. The nearly terminal black band across the outer tail-feathers is very obscure in the Japanese form, and nearly obsolete in the Formosan race.

XXI.—*On the Arctic Form of the Nutcracker*, Nucifraga caryocatactes. By Henry Seebohm.

Many birds the range of which extends across the Palæarctic Region vary in size, form, or colour in different parts of their distribution, but the extreme forms being connected in the intervening districts by intermediate examples, can only be regarded as subspecifically distinct. The subspecific groups, being only partially isolated, are consequently only partially differentiated. The geographical distribution of these subspecies varies in a rather curious manner, according to the migratory habits of the birds. If the range of migration extends beyond the Himalayas, the tendency is to form an Eastern and a Western race, the individuals comprising the former breeding in the East Palæarctic Region and wintering in the Oriental or Australian Region; whilst those of the latter breed in the West Palæarctic Region and winter in the Ethiopian Region or in the basin of the Mediterranean. The Eastern and Western races of the Curlew, *Numenius arquata* and *N. arquata lineata*; of the Whimbrel, *Numenius phæopus* and *N. phæopus variegatus*; of the Bar-tailed Godwit, *Limosa rufa* and *L. rufa uropygialis*; and of the Black-tailed Godwit, *Limosa melanura* and *L. melanura melanuroides*, are excellent examples of this kind of subspecific form. On the other hand, if the range of migration be very local, extending longitudinally only to the adjoining valleys and restricted latitudinally to the Palæarctic Region, a quite different result is produced. Instead of an Eastern and a Western form, we find a Northern and a Southern race,

Russia ter presenting the curious anomaly of having an inter-irregu̇d area of distribution. For this anomaly there is, tḧwever, obvious and sufficient cause. The Northern forms range from Scandinavia to Kamtschatka, but the range of the Southern forms is interrupted by the plateau of the Himalayas and the desert of Mongolia, half lying in temperate Europe and the British Islands, and the other half in North China and Japan. The Northern and the Southern races of the Nuthatch, *Sitta cæsia* and *S. cæsia uralensis*; of the Marsh Tit, *Parus palustris* and *P. palustris baicalensis*; of the Magpie, *Pica caudata* and *P. caudata leucoptera*; and of the Hazel Grouse, *Tetrao bonasia* and *T. bonasia septentrionalis*, are examples of the second kind of subspecific form. In some of these cases the West European form is not absolutely identical with the North Chinese race, and there are cases in which the former intergrades with the Siberian race, whilst the latter is not known to do so, as, for example, the Great Spotted Woodpecker. *Picus major* is connected by a series of intermediate forms with *P. major cissa*, but the intermediate forms between the latter and its Chinese representative *P. cabanisi*, and its Japanese ally *P. japonicus*, have died out or have not yet been discovered. The Northern and Southern races appear to be climatic, the Siberian forms of widely distinct genera being uniformly whiter than the more southern races; but how the climate affects the colour, or what peculiarity of the climate is prepotent—the duration of sunshine, the degree of cold, or the amount of rainfall—is a mystery. One fact, however, appears to be without exception: the maximum of whiteness is not reached, as it apparently ought to be, in the extreme north of Siberia, but in Kamtschatka, twenty degrees further south. The Kamtschatkan forms of the Nuthatch, *Sitta albifrons*; of the Marsh Tit, *Parus kamtschatkensis*; of the Bullfinch, *Pyrrhula kamtschatica*; and of the Magpie, *Pica kamtschatica*, have all been described as distinct, on the ground of their extreme whiteness

There are many other species of birds which may be regarded as residents in the Palæarctic Region, and of which

Arctic forms are recognized; but one of these, at least, has been undeservedly neglected.

There can be little doubt that the Nutcrackers of the Arctic Regions are subspecifically distinct from those of Western Europe and Japan. The Siberian birds have thicker bills; the upper mandible more than projects beyond the lower; and on an average they have more white on the outer tail-feathers. The Nutcracker is a typical example of a gipsy migrant; his winter home is wherever he can find food. When the crew of the 'Thames' wintered on the Arctic Circle in the valley of the Yenesay, the Nutcracker was seen every day; but in some winters stray birds, and occasionally large flocks, wander far and wide—on the one side to England and the south of France, and on the other to Manchuria and North China. It consequently happens that both forms occur in temperate Europe in winter. So long ago as 1750 the occurrence of two forms of the Nutcracker in Europe was recorded (Klein, Histor. Av. Prod. p. 61); one is described as "rostro valido anguloso," and the other as "rostro teretiusculo." In 1823 the Nutcracker fell into the hands of the great German species-maker, C. L. Brehm, and the two forms became species (Lehrb. eur. Vög. p. 102), named respectively *N. brachyrhynchus* and *N. macrorhynchus*. In 1845 the attention of continental naturalists was again called to this fact (Selys-Longchamps, Bull. Acad. Bruxelles, xi. p. 298), and in the same year English ornithologists were advised of this paper and presented with excellent figures of the two forms (Fischer, Zoologist, iii. p. 1073); but in spite of this reiterated information it was not until 1886 that the subject was properly investigated.

Dr. Rudolf Blasius, in an admirable pamphlet, "Der Wanderzug der Tannenheher durch Europa im Herbste 1885 und Winter 1885–86," records the result of an examination of 155 skins of the Nutcracker, and arrives at the conclusion that there is an Eastern and a Western form of this species, which he names *Nucifraga caryocatactes leptorhynchus* and *N. caryocatactes pachyrhynchus* respectively. The Eastern form is represented as breeding from Eas-

Russia to Kamtschatka and Japan, appearing more or less irregularly in winter in Western and Southern Europe, as is the wont of gipsy migrants. The Western form is a resident in various forests of Western Europe, the Alps, Black Forest, the Carpathians, the Hartz Mountains, northwards to the Baltic Provinces and Scandinavia south of the Arctic Circle.

Dr. Blasius says that the two forms differ in the height of the bill (which he measures halfway between the base and tip), and in the amount of white at the tips of the outer tail-feathers (which he measures on the inner web). The measurements translated into decimals of an inch are as follows :—

	Height of bill.	White on tail.
	in. in.	in. in.
Eastern Form	·35 to ·44	1·3 to ·9
Western „	·47 to ·61	·9 to ·6

Whilst I agree with the general result at which Dr. Blasius has arrived, I differ from him in several important details. The series which I have examined contains not much more than half his total number of skins, but of examples from Asia I have been able to examine more than four times as many. The length of the bill varies from 1½ to 2 inches, so that it is scarcely fair to measure the height exactly in the middle. I have therefore taken the height from the angle of the gonys to the nearest point on the ridge of the upper mandible. My results are as follows :—

	Height of bill.	White on tail.
	in. in.	in. in.
Siberia and China	·46 to ·52	1·25 to ·8
Europe { presumed migrant	·47 to ·5	1·2 to ·8
Europe { presumed resident	·5 to ·6	·95 to ·75
Japan	·5 to ·6	1·1 to ·9

It therefore seems that there is not an Eastern and a Western form, as there is of the Bar-tailed and Black-tailed Godwits, but an Arctic and a Temperate form, as there is of the Hazel Grouse, the Nuthatch, and the Marsh Tit. The Siberian form appears sometimes to winter in North China, as well as in Southern and Western Europe, but the Japanese

form appears to be a resident, and to be, to all intents and purposes, identical with the resident form of Europe. The white spots, both on the upper and underparts, and on the ends of the tail-feathers, are rather more developed in the Japanese birds than in the resident European ones, but not so much so as in examples from Siberia.

This constant multiplication of subspecific forms becomes rather alarming; but where a difference of form or colour is correlated with a difference of geographical distribution, it is impossible for ornithologists to ignore the fact. In future no monograph of a species can be regarded as complete without a sentence referring to the amount of local variation to which it is subject.

There are three other Nutcrackers belonging to the genus *Nucifraga*, and they all vary nearly as much as their Palæarctic ally :—

	Height of bill.	White on tail.
	in. in.	in. in.
N. multistriata	·41 to ·5	2·4 to 1·9
N. hemispila	·49 to ·6	3·0 to 2·2
N. columbiana	·4 to ·48	entirely white.

It is not known that any of these variations have a geographical significance, and therefore the extreme forms are not regarded as subspecifically distinct. The subject of the nomenclature of subspecies is a very difficult one, and it is not at all impossible that it will hereafter be found that the pre-Linnean practice of discriminating them by a sentence, instead of a word, is the only scientific method of dealing with them.

The introduction of a trinomial nomenclature has been an inestimable boon to ornithology, preventing subspecies from being on the one hand erroneously elevated to specific rank, or on the other hand ignored altogether; but there seems reason to fear that the use of trinomials is being abused. Dr. Stejneger, to whom we are greatly indebted for much new and important information respecting Palæarctic birds, described a Nuthatch from Yesso (the north island of Japan) under the name *Sitta amurensis clara* (Proc. U. States Na-

15. Museum, 1886, p. 392). In the first place, *Sitta Helænsis* is only a subspecific form of *S. cæsia*, with which Cercompletely intergrades; and in the second place, *Sitta clara* is only one of an infinite number of intermediate forms between *Sitta cæsia* and *Sitta albifrons*. All these and other subspecific forms of *Sitta cæsia* have, Dr. Stejneger's assertion to the contrary notwithstanding, a distinct chestnut patch on the flanks; and the only difference between examples of the Nuthatch from Yesso and the valley of the Yenesay is that the latter, when adult, are without the slight creamy buff on the flanks. They can only be described as *Sitta cæsia albifrons*, merely differing from the extreme binomial form in having the forehead without white, and a slight shade of buff on the flanks. It seems to me that the only way to keep trinomials within bounds is to restrict them to the extreme forms.

XXII.—*A List of the Birds of the Islands of the Coast of Yucatan and of the Bay of Honduras.* By Osbert Salvin, M.A., F.R.S., &c.

During the last two years Mr. G. F. Gaumer, a gentleman well known for his zoological labours in Northern Yucatan, at the instigation of Mr. Godman and myself, has made several short visits to the islands off the coast of Yucatan, and spent a longer period on the Bay Islands, for the purpose of collecting, chiefly, the birds of those somewhat remote places. The islands visited were Meco and Holbox, off the northern coast of Yucatan, Mugeres Island, on the eastern coast near Cape Catoche; Cozumel Island, further south; and Ruatan Island and Bonacca Island, of the Bay-Island group, off the northern coast of the Republic of Honduras.

The birds obtained during these expeditions I propose to enumerate in the following paper, and to give at the end a summary bearing on the distribution of the birds of this portion of the American fauna.

It will be seen from what follows that a large number of ecies mentioned belong to the migratory birds which pass

and repass in spring and autumn between North A[illegible] and and their winter-quarters; and it is evident, from thei[illegible] The bers, that this line of coast, stretching, as much of it do[illegible] the north and south, forms one of the lines of migration of such birds, and that the islands serve as so many resting-places in their journey. This part of the subject I propose to treat in more detail at the end of this paper, and also to examine the more difficult question involved in the relationship of the resident birds to those of the mainland and the Antilles.

Mr. Gaumer has now returned to his old quarters in Yucatan, where we hope that he will still find time to carry on the investigations he has hitherto pursued so successfully.

Of the islands visited, Cozumel alone had previously been examined, and the following papers refer to its bird-fauna:—

1. Description of some new Species of Birds from Cozumel Island, Yucatan. By Robert Ridgway. "Author's edition." Extracted from the Proc. Biol. Soc. Washington, iii., and distributed by Mr. Ridgway, 2nd March, 1885.

2. On a Collection of Birds from the Island of Cozumel. By Osbert Salvin. Ibis, April, 1885, pp. 185 *et seqq.*

3. Catalogue of a Collection of Birds made on the Island of Cozumel, Yucatan, by the Naturalists of the U.S. Fish-Commission Steamer 'Albatross,' Capt. Z. L. Tanner, Commander. By Robert Ridgway. Proc. U.S. Nat. Mus. viii. pp. 560 *et seq.* (Sept. & Oct. 1885).

As the first of these papers only contains short preliminary descriptions, which are all given at greater length in the third, I have not thought it necessary to quote it; but to make the present paper complete as far as it goes, the others are referred to where required.

1. Turdus mustelinus.

Turdus mustelinus, Gm.; Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 9.

Mugeres I.; Cozumel I.

A migratory species from the north, and common in Cozumel Island. It has not been noticed in Northern Yucat[illegible]

15. occurs in Cuba, though rarely. It is abundant in Helminter months in Southern Mexico and Eastern Guatemala, the southern limit of its range being Northern Honduras.

2. Turdus fuscescens.

Turdus fuscescens, Steph.; Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 10; Salv. Ibis, 1885, p. 196.

Cozumel I.; Ruatan I.; Bonacca I. (September).

A migrant from the north, which has been recorded from Panama, but not elsewhere in Central America, though in South America it has been observed in Guiana and the Amazons valley, and in Matto Grosso. In Cuba it is common.

3. Turdus aliciæ.

Turdus aliciæ, Baird; Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 12; Salv. Ibis, 1885, p. 197.

Cozumel I.; Ruatan I.

A migrant from the north, which has, as yet, only been noticed in Central America in Costa Rica and the State of Panama, though in South America it spreads from Guiana in the east to Peru and Colombia in the west. It has been observed in Cuba and San Domingo.

4. Turdus grayi.

Turdus grayi, Bp.; Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 18.

Meco I.; Mugeres I.; Cozumel I.

All these specimens are paler than the typical form from Guatemala, but in this respect agree fairly with examples from Northern Yucatan, and the passage between the two seems to be complete. The Mugeres Island bird is a trifle darker than that from Cozumel Island.

T. grayi is very common throughout Southern Mexico and Central America.

5. Galeoscoptes carolinensis.

Galeoscoptes carolinensis (Linn.); Salv. & Godm. Biol.

Centr.-Am., Aves, i. p. 26; Ridgw. Proc. U.S. Nat. and viii. p. 562.

Meco I.; Holbox I.; Mugeres I.; Cozumel I; Ruatan. The

A common migratory species from the north, being found in winter in Eastern Mexico and Eastern Central America. It is hardly known to occur on the mountain-slopes towards the Pacific, and but some few wander as far as Panama.

In these islands it appears to be very abundant, as well as on the adjoining mainland and in Cuba.

6. Melanoptila glabrirostris.

Melanoptila glabrirostris, Scl.; Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 27; Boucard, P. Z. S. 1883, p. 439; Ridgw. Proc. U.S. Nat. Mus. viii. p. 562.

Holbox I.; Mugeres I.; Cozumel I.; Lighthouse and Glover's Reefs (May).

Mr. Gaumer has sent us a large series of this interesting bird, which appears to be very common on the island of Cozumel, and is probably found on most of the islands of this part of the coast, as well as on the mainland. Mr. Ridgway, in his table of distribution of Cozumel birds, states that *M. glabrirostris* had not then been recorded from Yucatan, but he has overlooked the statement in M. Boucard's list of its occurrence there.

7. Harporhynchus guttatus.

Harporhynchus guttatus, Ridgw. Proc. U.S. Nat. Mus. viii. p. 561.

Harporhynchus melanostoma, Salv. Ibis, 1885, p. 167.

Cozumel I.

Mr. Gaumer has sent us a good series of specimens of this species, all bearing the characters whereby it may be distinguished from *H. longirostris*. There is some variation in the density of the spots on the under surface, but otherwise there is great uniformity in their plumage between specimens of the series.

8. Mimus gilvus.

Mimus gilvus (Vieill.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 36.

15. *Is gilvus gracilis*, Ridgw. Proc. U.S. Nat. Mus. viii. p. 561.

Cenoteco I.; Holbox I.; Mugeres I.; Cozumel I.

These island specimens do not materially differ from those from the mainland, the species being rather variable.

9. TROGLODYTES BEANI.

Troglodytes beani, Ridgw. Proc. U.S. Nat. Mus. viii. p. 563.

Cozumel I.

Many examples of this distinct species. Some of these have the jugulum tinged with brown, as described by Mr. Ridgway, but in the majority the underside is nearly uniform white, the flanks and crissum alone being brown, and the latter barred with black.

10. POLIOPTILA CÆSIOGASTER?

*Polioptila cærulea cæsiogaster**, Ridgw. Man. N. Am. Birds, p. 569?

Cozumel I.; Ruatan I.

Mr. Ridgway has recently described a bird from the Bahamas under the above name, adding to his localities Cozumel, with doubt. As he has birds from both localities before him, and I only the Cozumel one, I cannot speak positively as to their specific identity. The Cozumel bird has a darker greyer breast than the true *P. cærulea*, and in most cases the bill is wholly black. The latter character I take to be a seasonal one. In Northern Yucatan the true *P. cærulea* occurs.

Mr. Ridgway (Pr. U.S. Nat. Mus. viii. p. 561) includes *P. cærulea* in his list of Cozumel birds without further remark. We have some specimens from Mr. Gaumer's collection made in January that agree well with typical *P. cærulea*, but I am not sure that they are not winter-plumaged birds of the resident species.

Concerning *Polioptila* much has been written of late years, but I doubt if the right clue to the reason of the many complicated points of variation exhibited by many of the species has yet been discovered.

* Vox hybrida!

11. Polioptila bilineata.

Polioptila bilineata, Bp.; Salv. & Godm. Biol. Centr.-Am. Aves, i. p. 52.

Cozumel I.

Mr. Gaumer's collection contains two male specimens of this *Polioptila*. They are whiter beneath than the majority of our examples from other parts of Central America, but not more so than we find in birds from Western Ecuador. The white lores are very conspicuous, and are extended so as almost to form a white band across the base of the bill.

12. Mniotilta varia.

Mniotilta varia (Linn.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 110; Ridgw. Proc. U.S. Nat. Mus. viii. p. 563.

Holbox I. (December); Mugeres I. (December); Cozumel I. (January, April); Ruatan I.

This species reaches Colombia and Venezuela in its southern migration, being very common through the winter months in Mexico and Central America generally. It is also found in Cuba and other islands of the Antilles, as well as in Northern Yucatan.

13. Protonotaria citrea.

Protonotaria citrea (Bodd.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 111.

Cozumel I. (January); Ruatan I.

This species has occurred on the mainland of Northern Yucatan, but not further to the westward. It is known from Western Costa Rica, Panama, and the north coast of South America and is found in Cuba.

The Ruatan bird is an adult male, those from Cozumel females.

14. Helminthotherus vermivorus.

Helminthotherus vermivorus (Gm.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 112.

Cozumel I.; Bonacca I. (September).

A migratory species, well known and common in winter in Southern Mexico and Central America, and also found in Cuba and Jamaica.

15. Helminthophaga peregrina.

Helminthophaga peregrina (Wils.); Salv. & Godm., Biol. Centr.-Am., Aves, i. p. 117.

Cozumel I. (January); Ruatan I.; Bonacca I. (September).

A migratory species, specially abundant in the highlands of Guatemala in winter. It is hardly known in Cuba, but reaches Northern Colombia in its winter migration.

16. Parula americana.

Parula americana (Linn.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 110.

Compsothlypis americana, Ridgw. Proc. U.S. Nat. Mus. viii. p. 563.

Holbox I. (December); Mugeres I. (December); Cozumel I. (January and April); Ruatan I.; Bonacca I. (September).

A common migratory species in Southern Mexico and Eastern Guatemala, being also found in Cuba and several of the more northern islands of the Antilles.

17. Dendræca æstiva.

Dendræca æstiva (Gm.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 124.

Holbox I. (December); Mugeres I. (December); Ruatan I.

Many specimens in all stages of plumage, the birds from Ruatan Island being perhaps the more heavily spotted beneath.

In Ruatan Island this appears to be the only species of this section of *Dendræca*. In the adjoining island of Bonacca we find *D. bryanti*, to the exclusion of *D. æstiva*.

18. Dendræca petechia.

Dendræca petechia rufivertex, Ridgw. Proc. U.S. Nat. Mus. viii. pp. 348, 563.

Cozumel I. (January, April).

Many specimens in various stages of plumage.

We do not possess a good series of the Jamaica bird, the true *D. petechia*, but, so far as I can see, there is nothing to

separate the Cozumel and Jamaica birds; the former is, perhaps, on an average a little smaller.

D. petechia is found in Cozumel Island, to the exclusion of *D. bryanti* and the migratory *D. æstiva*.

19. Dendrœca bryanti.

Dendrœca vieilloti, var. *bryanti*, Ridgw. Am. Nat. viii. p. 606.

Dendrœca bryanti, Ridgw. Proc. U.S. Nat. Mus. viii. p. 350.

Holbox I. (December); Bonacca I. (September).

These birds, of which I have a large series of examples before me in all stages of plumage, no doubt belong to Mr. Ridgway's *D. bryanti*, which I trace certainly to Western Costa Rica. The birds from Panama and Northern Colombia before me, which I take to be the true *D. vieilloti*, have the chestnut throat less sharply defined and blended with the streaks of the breast. *D. bryanti* is apparently the only *Dendrœca* of this group found on Bonacca Island, but on Holbox *D. æstiva* is found along with it.

It seems to be quite exceptional to find more than one species of this group of *Dendrœca* on any one island, and at present Holbox Island is the only one with two. The same rule applies to the West-Indian Islands, where *D. æstiva* is, I believe, unknown, even as a migrant.

20. Dendrœca cærulescens.

Dendrœca cærulescens (Gm.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 126; Ridgw. Proc. U.S. Nat. Mus. viii. p. 564.

Cozumel I. (January).

An adult specimen of each sex.

The species is unknown in Mexico, and very rare in Guatemala, but is found in several of the West-Indian Islands.

21. Dendrœca coronata.

Dendrœca coronata (Linn.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 127.

Meco I. (December); Holbox I. (December); Cozumel I. (January); Ruatan I.

Many specimens, all in winter or immature plumage, several being birds of the year.

D. coronata reaches the State of Panama in its southern migration, being very abundant during the winter months throughout Mexico and Central America. It is also found in several of the West-Indian Islands.

22. Dendrœca maculosa.

Dendrœca maculosa (Gm.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 129; Ridgw. Proc. U.S. Nat. Mus. viii. p. 564.

Cozumel I. (January); Ruatan I.

A bird of the eastern parts of North America, but occurring in Eastern Mexico and Guatemala in winter and as far south as the State of Panama; also in Cuba and the Bahama Isles.

Several of the Ruatan examples are in full spring plumage.

23. Dendrœca pennsylvanica.

Dendrœca pennsylvanica (Linn.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 131.

Ruatan I.; Bonacca I. (September).

Specimens in all states of plumage.

A bird of the Eastern States, migrating southwards to the State of Panama. It has been noticed in the Bahama Islands, but not in any of the larger Antilles.

24. Dendrœca castanea.

Dendrœca castanea (Wils.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 132.

Ruatan I.

A bird of very rare occurrence in Mexico and Guatemala, but more common in the State of Panama. Not recorded from any of the West-Indian Islands.

25. Dendrœca blackburniæ.

Dendrœca blackburniæ (Gm.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 133.

Ruatan I.; Bonacca I.

One of the most widely ranging of the migratory Mnio-

ltidæ, extending in winter to Peru, but to the Bahamas only of the West-Indian Islands.

26. Dendrœca dominica.

Dendrœca dominica (Linn.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 134.

Dendrœca dominica albilora, Ridgw. Proc. U.S. Nat. Mus. viii. p. 564.

Holbox I. (December); Mugeres I. (December); Cozumel I. (April); Ruatan I.; Bonacca I. (September).

Hardly any of the specimens from these islands have the lores pure white, a certain amount of yellow being visible in nearly all of them. Nor can I discover any differences of dimensions by which they can be distinguished from Jamaican examples, the true *D. dominica* (Linn.). In fact, I quite fail to appreciate *D. albilora* even as a race.

27. Dendrœca virens.

Dendrœca virens (Gm.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 137; Ridgw. Proc. U.S. Nat. Mus. viii. p. 564.

Holbox I.; Cozumel I.

Specimens in all stages of plumage.

A widely spread migratory species, very common in Guatemala in the winter months, and spreading as far as the State of Panama. It also occurs in Cuba, Jamaica, and Dominica.

28. Dendrœca discolor.

Dendrœca discolor (Vieill.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 142; Ridgw. Proc. U.S. Nat. Mus. viii. p. 564.

Mugeres I. (December); Cozumel I. (January, *Benedict*); Bonacca I. (September).

This species, a winter visitor to the West-Indian Islands, is now known from several islands off the coast of the mainland. As I have already remarked, it can hardly fail to be found on the north coast of Honduras and the North-eastern portion of Yucatan.

The specimen from Mugeres Island is in adult plumage. Two from Bonacca are young.

29. Dendrœca palmarum.

Dendrœca palmarum (Gm.); Sharpe, Cat. B. Brit. Mus. x. p. 317; Ridgw. Proc. U.S. Nat. Mus. viii. p. 564.

Holbox I. (December); Mugeres I. (December); Cozumel I. (January); Ruatan I.

Several specimens in various states of plumage.

One of those from Cozumel has the under plumage strongly tinged with yellow, somewhat as in the race *D. p. hypochrysea*. The rest conformed to the more typical *D. palmarum*. The species has not yet been noticed on the mainland, but is common in several of the West-Indian Islands in the winter season.

30. Perissoglossa tigrina.

Perissoglossa tigrina (Gm.); Sharpe, Cat. B. Brit. Mus. x. p. 335.

Ruatan I.

Mr. Gaumer obtained a single specimen of this species in immature plumage. We also have, through M. Boucard's kindness, another from the north coast of Yucatan (*Gaumer*), so that the species must now be included amongst the migratory visitors to Central America. Its recognized winter domicile has hitherto been the West-Indian Islands.

31. Siurus auricapillus.

Siurus auricapillus (Linn.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 144; Ridgw. Proc. U.S. Nat. Mus. viii. p. 564.

Meco I. (November); Holbox I. (December); Cozumel I. (January); Ruatan I.; Bonacca I. (September).

Found in winter throughout Mexico, Central America, and many of the West-Indian Islands and Bermuda.

32. Siurus motacilla.

Siurus motacilla (Vieill.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 147.

Ruatan I.; Bonacca I. (September).

Generally distributed throughout Mexico and Central America in the winter season, being also found in several of the West-Indian Islands.

33. Siurus noveboracensis.

Siurus noveboracensis (Gm.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 145.

Seiurus noveboracensis notabilis, Ridgw. Proc. U.S. Nat. Mus. viii. p. 564.

Holbox I. (December); Cozumel I. (January); Ruatan I.; Bonacca I. (September).

A very abundant species in winter throughout Mexico and Central America, the West Indies, and northern portions of South America.

34 Oporornis formosa.

Oporornis formosa (Wils.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 148.

Bonacca I. (September).

A single specimen in fully adult plumage.

A winter visitor to Mexico and Central America, and also found in Cuba.

35. Geothlypis trichas.

Geothlypis trichas (Linn.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 150.

Geothlypis trichas occidentalis, Ridgw. Proc. U.S. Nat. Mus. viii. p. 564.

Holbox I. (December); Mugeres I. (December); Cozumel I. (January); Ruatan I.

Many specimens in all stages of plumage.

Mr. Ridgway states that the Cozumel bird is of the western race of *G. trichas*. We have only a female from that island, but all the adults from the other islands mentioned above seem to belong to the eastern form.

G. trichas is very common all through Mexico and Central America in winter, and is also found in many of the West-Indian Islands.

36. Icteria viridis.

Icteria viridis (Gm.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 157.

Cozumel I. (January, April).

Two of these specimens have the bill almost as black as

northern examples, a character not seen in birds from Guatemala.

The species occurs commonly in Mexico and Guatemala, but more rarely further south, and has not been noticed in the West-Indian Islands.

37. Myiodioctes mitratus.

Myiodioctes mitratus (Gm.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 167.

Sylvania mitrata, Ridgw. Proc. U.S. Nat. Mus. viii. p. 564.

Holbox I. (December); Mugeres I. (December); Cozumel I. (January); Ruatan I.; Bonacca I. (September).

Also a common winter visitor to Mexico and the whole of Central America, and found in Cuba and Jamaica.

38. Setophaga ruticilla.

Setophaga ruticilla (Linn.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 178; Ridgw. Proc. U.S. Nat. Mus. viii. p. 564.

Holbox I. (December); Mugeres I. (December); Cozumel I. (January, May); Ruatan I.

Abundant throughout Mexico, Central America, the West-Indian Islands, and Northern South America in winter.

39. Vireo calidris.

Vireo calidris (Linn.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 186.

Cozumel I. (May).

A single specimen of this West-Indian *Vireo*, whose winter migration extends to the northern parts of South America.

40. Vireo olivaceus.

Vireo olivaceus (Linn.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 188.

Ruatan I.; Bonacca I. (September).

A migrant from the north, of very rare occurrence in Mexico and Cuba, but more common in Guatemala, and thence southwards to Colombia.

41. Vireo magister.

Vireo magister, Baird; Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 191.

Vireo cinereus, Ridgw. Proc. U.S. Nat. Mus. viii. p. 565.

Holbox I. (December); Mugeres I. (December); Ruatan I.; Bonacca I. (September).

We have now a large series of specimens of this species. These show a considerable amount of variation, due, we believe, wholly to the age of the plumage of different individuals. These variations, as shown by birds from Cozumel Island alone, cover all the differences said to exist between *V. cinereus* and *V. magister*, and we do not see how the former can be maintained as distinct.

42. Vireo philadelphicus.

Vireo philadelphicus (Cassin); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 191.

Cozumel I. (January).

A common winter visitor to Guatemala, and thence southwards to Panama. It is not known from any of the West-Indian Islands.

43. Vireo flavifrons.

Vireo flavifrons, Vieill.; Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 194; Ridgw. Proc. U.S. Nat. Mus. viii. p. 565.

Cozumel I. (January, April).

A common winter visitor to Mexico and Central America, and also found at that season in Cuba and Colombia.

44. Vireo bairdi.

Vireo bairdi, Ridgw. Proc. U.S. Nat. Mus. viii. p. 565.

Cozumel I. (January, April).

Many specimens of this pretty and very distinct species.

45. Vireo noveboracensis.

Vireo noveboracensis (Gm.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 200; Ridgw. Proc. U.S. Nat. Mus. viii. p. 565.

Cozumel I (January, April).

Apparently a common species on Cozumel Island during

the winter months. The species is very rare in Guatemala, but more common in Southern Mexico.

46. Vireo ochraceus.

Vireo ochraceus, Salv.; Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 201.

Holbox I. (December); Mugeres I. (December); Ruatan I.

Many specimens, covering the variation between *V. ochraceus* and *V. semiflavus*. This species is widely, but sparingly, distributed in Yucatan and Guatemala.

Its absence from Cozumel Island is noteworthy; perhaps *V. bairdi* there takes its place.

47. Cyclorhis flaviventris.

Cyclorhis flaviventris, Lafr.; Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 211.

Meco I. (November).

These specimens agree with others from Northern Yucatan, the *C. f. yucatanensis*, Ridgw. (Proc. U.S. Nat. Mus. 1886, p. 519), a race we are not yet prepared to separate from *C. flaviventris*.

48. Cyclorhis insularis.

Cyclorhis insularis, Ridgw. Proc. U.S. Nat. Mus. viii. p. 566.

Cozumel I. (January, April).

A very distinct species, fully described by Mr. Ridgway.

49. Ampelis cedrorum.

Ampelis cedrorum (Vieill.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 215.

Cozumel I. (May).

Several specimens of this migratory species, which reaches Honduras in its southern migration, and visits the islands of Cuba and Jamaica.

50. Progne purpurea.

Progne purpurea (Linn.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 223.

Cozumel I. (May).

Several young males and females of this species, which has already been recorded from Belize.

51. Petrochelidon pyrrhonota.

Petrochelidon pyrrhonota (Vieill.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 226.

Cozumel I.

A single specimen. The migrations of this species are not well known, for though it breeds in Western Mexico, its passage southwards has been very imperfectly traced. We have no previous record of it anywhere on this coast or in Guatemala.

52. Hirundo erythrogaster × swainsoni.

A single specimen, shot in May 1885 by Mr. Gaumer on Cozumel Island, we have little doubt is a hybrid between *Hirundo erythrogaster* and *Petrochelidon swainsoni*, as it curiously combines the characters of both birds. The forehead is the same in both species, but the ear-coverts and the collar are steel-blue, as in *H. erythrogaster*; the tail is also furcate, though to a less extent, and the lateral feathers have the characteristic white spots; the wings, too, are as long as those of *H. erythrogaster*, and the under tail-coverts are tinged with rufous. The characters it has with *P. swainsoni* are the colouring of the under surface, including the black gular patch; it also has the rump rufous grey.

Instances of hybrids between *H. erythrogaster* and *P. pyrrhonota* have been recorded, but this is the first we have met with in which *P. swainsoni* appears to have been one of the parents.

53. Hirundo erythrogaster.

Hirundo erythrogaster, Bodd.; Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 232.

Cozumel I. (April); Ruatan I.

Abundant in winter or during passage throughout Mexico, Central America, and the greater part of South America, as well as the West-Indian Islands.

54. Tachycineta albilinea.

Tachycineta albilinea (Lawr.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 235.

Meco I. (November); Holbox I. (December).

Already recorded from the islands off this coast, where it is doubtless a resident species.

55. Cotile riparia.

Cotile riparia (Linn.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 240.

Cozumel I. (May).

A single specimen of this widely ranging species. It has been recorded from a little further south at Yzabal, in Guatemala, and from South America.

56. Cœreba cyanea.

Cœreba cyanea (Linn.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 248.

Cozumel I. (January, April).

Several immature males and females. The species is common on the mainland, and occurs in Cuba.

57. Certhiola caboti.

Certhiola caboti, Baird; Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 251; Salv. Ibis, 1885, p. 189; Ridgw. Proc. U.S. Nat. Mus. viii. p. 564.

Holbox I. (December); Cozumel I. (January, April).

Many specimens of both sexes. The Holbox Island birds are both females, and agree with typical females from Cozumel Island.

58. Euphonia affinis.

Euphonia affinis (Less.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 257.

Cozumel I. (January).

A pair of this species, agreeing with examples from Northern Yucatan and British Honduras, which are rather smaller than the birds of Nicaragua (typical), Guatemala, and Mexico, and the male of slightly deeper purple on the back.

59. Pyranga rubra.

Pyranga rubra (Linn.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 287.

Cozumel I. (April); Ruatan I.; Bonacca I. (September).

A migratory species, common in Northern Yucatan, but rare in the interior of Guatemala; more abundant again from Nicaragua to the State of Panama, and extending its migration as far south as Bolivia. It also occurs in Cuba and Jamaica.

60. Pyranga æstiva.

Pyranga æstiva (Gm.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 289.

Cozumel I. (January, April); Ruatan I.

A common migratory species throughout the greater part of Mexico, the whole of Central America, and of Eastern Southern America as far as Peru. It also occurs during passage in Cuba and the Bahamas.

61. Pyranga roseigularis.

Pyranga roseigularis, Cabot; Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 293; Ridgw. Proc. U.S. Nat. Mus. 1885, p. 568.

Meco I. (November); Mugeres I. (December); Cozumel I. (January, April).

These island specimens do not differ materially from those from the mainland of Northern Yucatan; but we notice that, as a rule, the red of the throat is more restricted, and that the rosy colour is hardly traceable on the abdomen and back. The Meco Island bird is somewhat intermediate, being nearer that from the mainland. That from Mugeres Island agrees with the Cozumel bird. In the island of Cozumel *P. roseigularis* appears to be common, so that this bird, once so rare, is now represented in our collection by a good series.

62. Spindalis benedicti.

Spindalis benedicti, Ridgw. Proc. U.S. Nat. Mus. viii. p. 567.

Spindalis exsul, Salv. Ibis, 1885, p. 189, pl. 5.

Cozumel I. (January, April).

Mr. Gaumer has sent us a good series of both sexes of this pretty species, which at present has only been found on the island of Cozumel. There is a good deal of variation in the amount of white on the wing in both sexes.

63. Phœnicothraupis insularis, sp. n.

Supra griseo-rubescens, alis et cauda fuscescentioribus, illis olivaceo vix limbatis, crista verticali ruberrima nigro haud marginata; subtus pallide rubra, gutture clariore, pectore et hypochondriis griseo tinctis; rostro corneo, pedibus corylinis. Long. tota 7·8, alæ 4·0, caudæ 3·6, rostri a rictu 0·85, tarsi 1·0. ♀ supra cinnamomeo-brunnea fere unicolor, subtus sordide cinnamomea, gula et abdomine medio cervinis.

Hab. Meco I. (November); Mugeres I. (December) (*G. F. Gaumer*).

Obs. P. salvini proxima, sed colore maris supra multo pallidiore et magis griseo, subtus valdè dilutiore facile distinguenda. Femina quoque coloribus multo pallidioribus differt.

Mr. Gaumer's collection contains a male and two females from Meco Island, and several females from Mugeres Island. These differ so obviously from mainland specimens of *P. salvini* that it becomes necessary to separate them under another name. The male is paler than the males of any other species of the genus.

On the mainland the true *P. salvini* occurs, both in Northern Yucatan and in British Honduras, and though the males from the former country are rather pale, the difference is very slight.

64. Eucometis spodocephala.

Eucometis spodocephala (Bp.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 307, pl. 20. fig. 2.

Meco I.

Already noticed in Northern Yucatan and in British Honduras.

65. Hedymeles ludovicianus.

Hedymeles ludovicianus (Linn.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 336.

Holbox I.; Cozumel I.; Ruatan I.

A common migratory species, well known in Mexico and Central America, and in South America as far south as Ecuador. It also occurs in Cuba and Jamaica.

66. Cardinalis coccineus.

Cardinalis saturatus, Ridgw. Descr. New Cozumel Birds, p. 4.

Cardinalis cardinalis saturatus, Ridgw. Proc. U.S. Nat. Mus. viii. p. 568.

Cardinalis virginianus, var. *coccineus*, Ridgw. Am. Journ. Sc. v. p. 39.

Cardinalis virginianus, Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 340.

Meco I. (November); Holbox I. (December); Mugeres I. (December); Cozumel I. (January, April).

We have now a large series of Cardinal Grosbeaks from these islands, besides several from the opposite mainland, and we altogether fail to see how they can be separated into the races proposed by Mr. Ridgway, viz. *C. v. coccineus*, *C. v. yucatanicus*, and *C. v. saturatus* (Man. N. Am. Birds, p. 442). The females appear to be always separable from those of the true *C. virginianus* by their blackish faces; and chiefly on this ground we admit the distinctness of *C. coccineus*, a name based upon South-Mexican birds. Mr. Ridgway makes some remarks on the supposed migrations of this bird in Mexico with reference to our quotation of Sumichrast on the subject. Our statement was made on the authority of that excellent observer, as we have never seen *Cardinalis* in a wild state.

Is it not just possible that a bird so sedentary as Mr. Ridgway says *Cardinalis* is in the United States may be migratory in other parts of its range? Otherwise Sumichrast has led us astray.

67. Guiraca cærulea.

Guiraca cærulea (Linn.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 344.

Cozumel I.

A common migratory species, well known throughout Mexico and Central America as far south as Costa Rica. It is also found in Cuba, though rarely, during passage.

68. Guiraca parellina.

Guiraca parellina (Bp.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 347.

Meco I.; Mugeres I.

Already noticed from the adjoining coast of Yucatan.

69. Spermophila moreleti.

Spermophila moreleti, Bp.; Salv. & Godm. Biol. Centr.-Am., i. p. 352.

Meco I.; Mugeres I.

Immature birds of this species, which has already been [no]ced on the mainland of Yucatan.

[D]. Phonipara intermedia.

Am. *[Ph]oniparia olivacea intermedia,* Ridgw. Proc. U.S. Nat. Mus. viii. p. 568.

Phonipara intermedia, Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 360.

Holbox I.; Cozumel I.

Many specimens, those from Holbox Island agreeing with typical Cozumel specimens.

71. Cyanospiza cyanea.

Cyanospiza cyanea (Linn.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 364.

Passerina cyanea, Ridgw. Proc. U.S. Nat. Mus. viii. p. 568.

Cozumel I.; Ruatan I.

Many specimens in all stages of plumage. A common migratory species throughout Eastern Mexico and the whole of Central America to the State of Panama, and also occurring in Cuba and at the Bahamas.

72. Cyanospiza ciris.

Cyanospiza ciris (Linn.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 365.

Meco I.; Holbox I.; Mugeres I.; Cozumel I.; Ruatan I.

Apparently a very common bird during its migration on this coast, as well as on the mainland from Mexico to the State of Panama. It also occurs in Cuba and the Bahamas.

The series sent includes birds in all stages of plumage.

73. Spizella pinetorum.

Spizella pinetorum, Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 378, pl. 27. f. 3.

Ruatan I.

The wings and tail of this specimen are rather shorter than in the type from the mainland, but otherwise it does not differ. The bill is, however, nearly black, a characteristic of breeding-dress.

74. Passerculus sandwichensis.

Passerculus sandwichensis (Gm.); Salv. & Godm. I Centr.-Am., Aves, i. p. 380. from

Holbox I. (December); Mugeres I. (December); Cozumel I. (January).

Several specimens, agreeing with others from the mainland of Guatemala.

75. Coturniculus passerinus.

Coturniculus passerinus (Wils.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 384; Salv. Ibis, 1885, p. 190.

Coturniculus savannarum passerinus, Ridgw. Proc. U.S. Nat. Mus. 1885, p. 568.

Cozumel I. (January).

A species of wide range in Mexico and Central America as far south as Costa Rica, occurring also in the larger Antilles.

76. Embernagra verticalis.

Embernagra verticalis, Ridgw.; Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 414.

Meco I. (November).

Two specimens, one of which agrees with *E. verticalis* from the mainland, the other seems closer to *E. chloronota*! This seems to raise the question as to the relationship of these birds, and to suggest that there may be differences of sex not hitherto suspected.

77. Spiza americana.

Spiza americana (Gm.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 416.

Cozumel I.; Ruatan I.

Apparently a very common bird on these islands, probably during migration. In its southern range it reaches Colombia and Venezuela, but is not known in the Antilles.

78. Chrysomitris mexicana.

Chrysomitris mexicana (Sw.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 431.

Mugeres I.

An adult male and a female of this species.

79. Dolichonyx oryzivora.

Dolichonyx oryzivora (Linn.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 448; Salv. Ibis, 1885, p. 191.

Cozumel I. (April).

It is the eastern typical bird which occurs on the islands of this coast. Its southern migration extends to Paraguay, and includes several of the West-Indian Islands.

80. Agelæus phœniceus.

Agelæus phœniceus (Linn.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 453.

Cozumel I. (May).

A common resident species in suitable places in Mexico and Guatemala, its range extending southwards to Western Costa Rica.

81. Icterus spurius.

Icterus spurius (Linn.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 464.

Holbox I. (December); Cozumel I. (April); Ruatan I.

Many specimens, including adult birds of both sexes. The

72. Cyanospiza ciris.

Cyanospiza ciris (Linn.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 365.

Meco I.; Holbox I.; Mugeres I.; Cozumel I.; Ruatan I.

Apparently a very common bird during its migration on this coast, as well as on the mainland from Mexico to the State of Panama. It also occurs in Cuba and the Bahamas.

The series sent includes birds in all stages of plumage.

73. Spizella pinetorum.

Spizella pinetorum, Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 378, pl. 27. f. 3.

Ruatan I.

The wings and tail of this specimen are rather shorter than in the type from the mainland, but otherwise it does not differ. The bill is, however, nearly black, a characteristic of breeding-dress.

74. Passerculus sandwichensis.

Passerculus sandwichensis (Gm.); Salv. & Godm. I Centr.-Am., Aves, i. p. 380. from

Holbox I. (December); Mugeres I. (December); Cozumel I. (January).

Several specimens, agreeing with others from the mainland of Guatemala.

75. Coturniculus passerinus.

Coturniculus passerinus (Wils.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 384; Salv. Ibis, 1885, p. 190.

Coturniculus savannarum passerinus, Ridgw. Proc. U.S. Nat. Mus. 1885, p. 568.

Cozumel I. (January).

A species of wide range in Mexico and Central America as far south as Costa Rica, occurring also in the larger Antilles.

76. Embernagra verticalis.

Embernagra verticalis, Ridgw.; Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 414.

Meco I. (November).

Two specimens, one of which agrees with *E. verticalis* from the mainland, the other seems closer to *E. chloronota*! This seems to raise the question as to the relationship of these birds, and to suggest that there may be differences of sex not hitherto suspected.

77. Spiza americana.

Spiza americana (Gm.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 416.

Cozumel I.; Ruatan I.

Apparently a very common bird on these islands, probably during migration. In its southern range it reaches Colombia and Venezuela, but is not known in the Antilles.

78. Chrysomitris mexicana.

Chrysomitris mexicana (Sw.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 431.

Mugeres I.

An adult male and a female of this species.

79. Dolichonyx oryzivora.

Dolichonyx oryzivora (Linn.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 448; Salv. Ibis, 1885, p. 191.

Cozumel I. (April).

It is the eastern typical bird which occurs on the islands of this coast. Its southern migration extends to Paraguay, and includes several of the West-Indian Islands.

80. Agelæus phœniceus.

Agelæus phœniceus (Linn.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 453.

Cozumel I. (May).

A common resident species in suitable places in Mexico and Guatemala, its range extending southwards to Western Costa Rica.

81. Icterus spurius.

Icterus spurius (Linn.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 464.

Holbox I. (December); Cozumel I. (April); Ruatan I.

Many specimens, including adult birds of both sexes. The

species is widely distributed in winter over the whole of Mexico and Central America to the Isthmus of Darien, and occurs sparingly in Cuba.

82. Icterus giraudi.

Icterus giraudi, Cass.; Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 469.

Meco I. (November); Ruatan I.

This species does not appear to occur in the Island of Cozumel, but Mr. Gaumer has sent us specimens from Tuloom, on the mainland immediately opposite.

I. giraudi spreads southwards to Colombia and Venezuela.

83. Icterus cucullatus.

Icterus cucullatus, Sw.; Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 471; Ridgw. Proc. U.S. Nat. Mus. viii. p. 570.

Meco I. (November); Holbox I. (December); Mugeres I. (December); Cozumel I. (May, June).

Many examples, the males showing every stage of plumage from the blood-stained tint, the *I. c. igneus* of Ridgway, to the ordinary yellow type of *S. cucullatus*.

British Honduras seems to be the extreme southern limit of the range of this bird. It has been recorded from Cuba.

84. Icterus auratus.

Icterus auratus, Bp.; Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 473.

Meco I. (November).

Two specimens, one of them an adult male, which has a little more black on the forehead than *I. auratus* from the mainland; but as it has the characteristic yellow back, I place it here.

85. Icterus gularis.

Icterus gularis (Wagl.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 475.

Cozumel I. (January, May).

Many examples agreeing with mainland birds.

86. QUISCALUS MACRURUS.

Quiscalus macrurus, Sw.; Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 482; Ridgw. Proc. U.S. Nat. Mus. viii. p. 570.

Mugeres I. (December); Cozumel I. (April); Ruatan I.

Many examples. The females are rather darker, and the males somewhat smaller, than mainland examples.

Mr. Gaumer informs us that *Q. macrurus*, though very common on Ruatan Island, is not found on the neighbouring island of Bonacca.

87. CYANOLYCA YUCATANICA.

Cyanolyca yucatanica (Dubois); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 498, pl. 35.

Meco I. (November); Mugeres I. (December).

A species peculiar to Yucatan and the adjoining portions of British Honduras.

88. XANTHURA LUXUOSA.

Xanthura luxuosa (Less.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 502.

Cozumel I. (January).

Two specimens with the abdomen clear yellow, as in the bird of the opposite mainland.

[To be continued.]

XXIII.—*Notes on a small Collection of Birds from Newala, East Africa.* By H. B. TRISTRAM, D.D., F.R.S.

I HAVE just received a small collection of skins, made last year by the Rev. Spencer Weigall, B.A., of the Universities' Mission to Central Africa, at Newala, a station between the coast and Lake Nyassa, lat. 11° S., 15 miles north of the Rovuma River.

Though the collection contains nothing new, yet it throws some light on the distribution of South-African birds, and this fact must be my apology for asking to occupy a few lines of 'The Ibis.'

Falco eleonoræ, Gené.

Mr. Weigall states that this is the common small Hawk of the district. The specimen is adult.

Spizaetus coronatus (L.).

The adult specimen sent is the only one Mr. Weigall ever saw in the country, and it was quite unknown to the natives.

Helotarsus ecaudatus (Daud.).

This is the commonest Eagle in the country. Mr. Weigall sends home both the ordinary type and the light-backed variety named by Rüppell *H. leuconotus*. It is evident that the lighter-backed one is only an older bird or in faded plumage, and it is impossible to separate the two.

The Passerine birds sent are, for the most part, of the ordinary Zanzibar species, as *Oriolus larvatus*, *Tchitrea perspicillata*; but I was surprised to find *Batis pririt* (V.), the western form, and not *B. molitor*, which we should naturally expect to occur west of Lake Nyassa. *Pyromelæna flammiceps* (Swains.) also seems to take the place of *P. oryx*.

There is a fine specimen of *Coracias spatulata*, Trimen, the common Roller of the district, and most distinct, in its coloration as well as in the form of its rectrices, from *C. caudata*. *Eurystomus afer* (Lath.) is also common. The Cuckoos sent are *Zanclostomus aëneus* (Vieill.), and *Coccystes jacobinus*. *Plectropterus gambensis*, L., is common, but my friend never saw but one specimen of *Chenalopex ægyptiacus*, which was obtained on the Rovuma River, and the bird was quite unknown to the natives. So also was *Tantalus ibis* (L.), of which one solitary specimen, shot on the banks of the Rovuma, and the only one seen, was sent. The upper waters of the Shire River appear to be the headquarters of the rare *Parra capensis*, Smith, which Mr. Weigall states he saw there in great numbers, but which he never noticed on the Rovuma.

XXIV.—*Notices of Recent Ornithological Publications.*

[Continued from p. 145.]

36. *Adamson's 'Illustrations of Birds.'*

[Some more Illustrations of Wild Birds, showing their Natural Habits, by C. M. Adamson. 4to. London: Gurney & Jackson: 1887.]

This is, if we rightly remember, the third of the series of sketches made by the author to illustrate his recollections and experiences of the wild birds among which so much of his time has been spent. Of course they are unequal in merit, but many of them are very spirited, and we admire the way in which, like another amateur artist and mutual friend in the north country, Mr. Adamson never shrinks from attempting to reproduce upon paper attitudes which are always difficult and sometimes almost impossible to be rendered. To the critic who might say that the actions themselves are unnatural and impossible, we would reply that we have ourselves seen so many of them, that we believe in the substantial accuracy of the rest.

37. *'The Auk.'*

['The Auk,' A Quarterly Journal of Ornithology. Vol. IV. No. 4, October 1887; Vol. V. No. 1, January 1888.]

In the October Part, Mr. W. E. D. Scott has a third and concluding paper on the bird-rookeries of Southern Florida and their destruction by the dealers in plumes. We observe that our previous remarks on the subject (Ibis, 1887, p. 457) have attracted favourable notice in the ladies' newspaper, 'The Queen'; but, for the reasons then expressed, we have small hope of any beneficial result. Mr. W. Lloyd's notes on 253 species of birds found in Western Texas are concluded. Mr. E. W. Blake, jun., gives an account of 27 species observed in summer on the island of Santa Cruz, the second in size of the Santa Barbara group, off Lower California. Mr. H. K. Coale describes *Junco hyemalis shufeldti*, subsp. n., as distinguished from *J. h. oregonus*, under the "inestimable blessing"—according to Mr. Seebohm—of

trinomialism; he has also a paper, with illustrations, on a Bobolink (*Dolichonyx oryzivorus*), with a horny spur growing from the "thumb-tip" of each wing; and on an example of *Buteo latissimus*, described as a "Hawk with nine toes," or, in other words, with *one extra* toe just above the ankle-joint. Mr. Kumlein states that he has received from Dr. C. F. Wiepken, of the Museum of Oldenburg, Germany, a young male *Falco æsalon*, shot at Cape Farewell, Greenland, May 3, 1875.

Mr. Cory continues his list of the 'Birds of the West Indies' in this Part, while his contribution to the same subject in Part 1 for 1888 includes the Petrels, which shows that the end is near. On p. 53 he mentions a new species, *Rallus coryi*, Maynard, from Andros Island, Bahamas, originally described in the 'American Exchange and Mart' of January 15, 1887. Mr. Cory describes (p. 47) *Margarops montanus rufus*, subsp. n., from Dominica, and *Elainea barbadensis*, sp. n., from Barbadoes. Dr. Elliott Coues announces the discovery that there are four subspecies of *Chordiles* [sic: it is *Chordeiles* in the authoritative 'Check-List'] *popetue* in the United States. We suppose that the *C. popetue* of Dr. Coues, here and in his "Key," but of which no mention is made in the said 'Check-List,' is the same as *C. virginianus* of the 'Check-List,' in which *C. popetue* is equally ignored. According to Dr. Coues, the four forms are:—*C. popetue*, of Eastern North America; *C. sennetti*, subsp. n., Dakota to Texas; *C. henryi*, of Western North America; and *C. chapmani*, subsp. n., Florida to Texas. Mr. G. B. Sennett contributes notes on the *Peucæa ruficeps* group, with a description of *Peucæa scottii* [sic], subsp. nov., from Arizona. He also describes *Psaltriparus lloydi*, sp. n., from the mountains of Western Texas; *Nyctidromus albicollis merrilli*, subsp. n., from Southern Texas; and *Parus carolinensis agilis*, subsp. n., from Texas. Mr. W. Brewster, who has lately received some important collections, describes the following:—*Ardea virescens frazari*, subsp. n., Lower California; *Ardea bahamensis*, sp. n., Bahamas; *Hæmatopus frazari*, sp. n., Lower California; *Columba fasciata vioscæ*,

subsp. n., Lower California; *Megascops aspersus* and *M. vinaceus*, spp. nn., Province of Chihuahua, Mexico; *Otophanes mcleodii* [sic], gen. et sp. n., Chihuahua, Mexico; *Empidonax cineritius*, sp. n., Lower California; *Icterus wagleri castaneopectus*, subsp. n., Mountains of Sonora and Chihuahua; *Aimophila mcleodii* and *A. cahooni*, spp. nn., Northern Mexico; and *Troglodytes cahooni*, sp. n., Sonora. Mr. R. Ridgway contributes an interesting notice of the life and labours of the much regretted Professor S. F. Baird. Some other papers we leave unnoticed, as more especially interesting to American ornithologists; but it is satisfactory to see that our countryman and fellow-member of the B. O. U., Mr. John Swinburne, is probably the first ornithologist who has discovered the nest and eggs of the Evening Grosbeak (*Coccothraustes vespertinus*) in the White Mountains of Arizona. A female example of *Falco tinnunculus* was shot near Nantucket, Massachusetts, on Sept. 29, 1887, and examined in the flesh by Mr. C. B. Cory; the first record of the occurrence of our Kestrel in the United States.

38. *Büchner on the Birds of the St. Petersburg District.*

[Die Vögel des St. Petersburger Gouvernements. Von Eug. Büchner. Beitr. z. Kenntn. d. Russ. Reiches, Folg. 3, Band ii.]

In 1881 Messrs. Büchner and Pleske published a sketch of the ornithology of the St. Petersburg Government, with notes on 211 species of birds. Since that date so much new information has been obtained that, without swelling the list by the insertion of any species of doubtful occurrence within the prescribed limits, the number now found therein has been increased to 251. An Appendix contains a list of the species which have been erroneously attributed to the district, accompanied by some remarks upon the introducers. A feature of this excellent treatise is the evident care with which the geographical distribution has been worked out. Those ornithologists who base the segregation of the White-spotted and the Red-spotted Bluethroats upon the supposed complete distinctness of their breeding-area, may be surprised to learn that the White-spotted form does not stop short at the Vistula,

as was previously supposed, but breeds, although sparingly, full 20° of longitude further east, in the St. Petersburg Government, where, however, the Red-spotted form undoubtedly prevails. The next question is, do they interbreed?

39. *Emerson on the Birds of Southern California.*

[Ornithological Observations in San Diego County. By W. Otto Emerson. Bull. California Acad. Sci. vol. ii. p. 419.]

The present paper is intended to show the relative abundance of the birds found on the Volcano Mountains, where the author was storm-bound from January to March 1884, and those of the Poway Valley in winter and spring. The Volcano Mountains, rising about 5000 feet above sea-level, are about seventy-five miles north-east of San Diego, in Southern California, and 46 species were noticed there. From Poway Valley, twenty-two miles north of San Diego, 63 species are recorded.

40. *Ernst on the Birds of the Caracas Museum.*

[Catálogo de las Aves en el Museo Nacional de Caracas. Por A. Ernst, Director del Museo. Revista Cientifica de la Universidad Central de Venezuela, vol. i. p. 25.]

Dr. Ernst gives us a catalogue of the species of birds represented in the National Museum of Venezuela at Caracas. These are 339 in number, mostly native, but some extraneous. The Spanish vernacular names are usually mentioned, but the series of Venezuelan species is by no means complete. We observe that the Condor (*Sarcorhamphus gryphus*) is stated to occur in the Andes of Merida. The *Chauna* of Venezuela is not *C. chavaria*, as here stated, but *C. derbiana*. A complete list of Venezuelan birds is still a desideratum.

41. *Godman and Salvin's 'Biologia Centrali-Americana.'*

[Biologia Centrali-Americana; or, Contributions to the Knowledge of the Fauna and Flora of Mexico and Central America. Edited by F.

DuCane Godman and Osbert Salvin. (Zoology.) Parts LII.–LXVI. 4to. London: 1886–88. Published for the Editors by R. H. Porter, 10 Chandos Street, Cavendish Square, W.]

Since our last notice (Ibis, 1887, p. 107) the energetic Editors of the 'Biologia Centrali-Americana' have issued no less than sixteen numbers of this important work, in the course of which the Birds are completed up to the end of the Oscines. The families treated of are the Icteridæ, Corvidæ, and Alaudidæ. Of the first of these, 42 species are recognized as coming within the limits of the Central American avifauna; while of the Corvidæ, 24 species are noticed. Amongst them is our old friend *Corvus corax*, which descends the high lands of the New World as far south as Guatemala and, perhaps, Honduras. A single species of Shore Lark represents the family Alaudidæ in Central America, for which the authors cautiously employ the name *Otocorys chrysolæma*, *Alauda chrysolæma* of Wagler having been based on Mexican specimens. They do not, however, pronounce an opinion upon the difficult question of the specific differences of the American Shore Larks, which Mr. Henshaw has recently divided ('Auk,' i. p. 260) into nine subspecies!

The following species are figured:—*Icterus sclateri*, *Icterus auratus*, *Cyanocitta argentigula*, and *Cyanolyca yucatanica*.

42. *Gould's 'Birds of New Guinea.'*

[The Birds of New Guinea and the adjacent Papuan Islands, including any new Species that may be discovered in Australia. By [the late] John Gould, F.R.S. &c. Parts XXIII., XXIV. Folio. London: 1887–88.]

Two numbers of the 'Birds of New Guinea' have been issued since our last notice of this work (Ibis, 1887, p. 108), and contain representations of the following species:—

Part XXIII. (1887).

Parotia lawesi.
Geoffroyius timorlaoensis.
Cyclopsitta coccineifrons.
Calliechthrus leucolophus.
Criniger chloris.
Lamprocorax minor.
Myzomela nigrita.
Melilestes iliolophus.
Zosterops rendovæ.
Phonygama purpureoviolacea.
Pachycephala christophori.
Rallicula forbesi.
Cracticus rufescens.

PART XXIV. (1888).

Lophorhina minor.
Podargus ocellatus.
Tanysiptera microrhyncha.
Charmosyna stellæ.
Lorius flavo-palliatus.
Microdynamis parva.
Lycocorax obiensis.
Ephthianura crocea.
Donacicola hunsteini.
Melidectes emilii.
Geocichla schistacea.
Gymnocrex plumbeiventris.
Ælurœdus melanocephalus.

Many of the species figured in these parts are from the south-eastern peninsula of New Guinea, to which several energetic explorers have lately devoted their attention. Amongst these are two Paradise Birds, *Parotia lawesi* and *Lophorhina minor*, both of which are closely allied to their northern representatives. Two new and interesting discoveries in Australian ornithology are likewise introduced in the present numbers. These are *Cracticus rufescens*, a most distinct species, from Queensland, resembling an immature bird of one of the pied species of this genus; and *Ephthianura crocea*, from North-western Australia, easily known by its yellow under-plumage and black collar.

43. *Gurney on the House-Sparrow.*

[On the Misdeeds of the House-Sparrow (*Passer domesticus*). By J. H. Gurney, Jun. 8vo. London: Gurney & Jackson, 1887.]

This little pamphlet is a rejoinder to a small book entitled 'The Sparrow-Shooter,' by the Rev. F. O. Morris, in which that writer (who has, we see, been recently awarded a pension of £100 a year for his "efforts on behalf of humanity towards animals") befriends the "poor Sparrows" through thick and thin, regardless of the poor farmers. Mr. Gurney adduces evidence of the preponderance of mischief wrought by this bird, and in common with other practical land-owners, whose names are given, advocates its diminution (see our remarks under Merriam, *infra*, No. 47).

44. *Harvie-Brown and Buckley on the Birds of Sutherland and Caithness.*

[A Vertebrate Fauna of Sutherland, Caithness, and West Cromarty. By J. A. Harvie-Brown and T. E. Buckley. 8vo. Edinburgh: Douglas, 1887.]

This is a handsome, well-printed work, with a striking title-page from a sketch by Mr. J. G. Millais, and several other excellent illustrations. A map is appended, based upon the comparatively new plan of showing the faunal areas of the district as marked out by such natural boundaries as water-sheds, rather than by the old-fashioned political limits—a scheme which will, we think, commend itself favourably to most naturalists. This book is intended to be the first of a series, and we believe that the issue of a similar work on the Hebrides is close at hand. The records of distribution and migration are based upon observations, made for the last twenty years, over the greater part of the district included; and it would be difficult to find authors who were better qualified for the task of obtaining accurate information, especially as regards Sutherlandshire. Of Caithness their knowledge is less extensive, and they have therefore deemed it advisable to separate, under each species, the details referring to that district; while they further divide the results of their own experiences from the statements derived from the journal of the late Mr. Osborne and other sources.

In the cover the field the authors are more at home than in the library. A large portion of the notes relating to the birds was published in 1884 as an Appendix to the 2nd edition of the late Charles St. John's 'Tour in Sutherland'; in which form it had the advantage of being compact, and referring *only* to the birds of Sutherland. Now, the eye is confused by the insertion of all the species in the British List, printed in the same type, and numbered right through, so that if anyone wishes to see, at a glance, the number of species in Sutherland and Caithness, he will find 380 as the last numeral! The reason for this is, presumably, to show the reader the species which have been obtained in other parts of the British Islands; but even so, it is unnecessary to give him the totally erroneous information that the Black-*eared* Chat has been obtained in the United Kingdom. The fact that Mr. W. E. Clarke made this mistake in his 'Vertebrate Fauna of Yorkshire,' in 1881, was no excuse for copying it in 1887. We would like to know the names of the English ornithologists,

of any repute, who have recently stated that the Redstart is "rare in Scotland;" and although Mr. Seebohm has, by his characteristic style of writing, given occasion for the regrettable remarks on pp. 57, 58, we can nowhere find that he employs anything like the words placed between quotation marks. Even if such were the case, authors who make the astounding statement that the Goldfinch is "considered by us one of the very rarest and most local of British—not to say Caithness—birds," should be lenient to their southern friends. The dwellers on "the Thames" might retort that they were capable of grasping the idea that "something should be done" to stop "the senseless slaughter" of that "interesting species," the Grey-lag Goose, without having the fact rubbed into them, in hardly varied phrase no less than four times in little more than a page! And the statement that a "Rosey [sic] Pastor" had been shot and sent for preservation, reads like a shocking allusion to some ruddy-gilled minister.

A feature of the work is a description of the nesting of the Snow Bunting in Sutherlandshire; while many other interesting and novel facts are to be found in the book. If we have called attention to some of its apparent shortcomings, it is because we do not belong to the society of the "log-rollers," and are anxious that the 'Birds of the Hebrides' should receive more careful revision than its predecessor. The Index is very full; unfortunately it contains a good many errors; and we have looked in vain for a much-needed list of "Errata et Corrigenda."

45. *Linnean Society of New South Wales* (*Proceedings of*).

[The Proceedings of the Linnean Society of New South Wales. Second Series. Vol. II. Pts. 1–3. 1887. Sydney.]

The three Parts now before us contain several papers on ornithology. Mr. K. H. Bennett contributes a note on the nesting of a *Pachycephala*, supposed to be *P. gilberti*. Dr. E. P. Ramsay gives a list of 152 species of birds collected at Derby, North Australia, by the late T. H. Bowyer Bower (*cf.* Ibis, 1887, p. 479); and he also describes (p. 239) *Epimachs*,

macleayanæ, sp. n., from the Astrolabe range, South-east New Guinea, allied to *E. major*, but differing from the latter in length of tail, colour of underparts, and rosy tint of flanks. Mr. A. J. North has three papers on the eggs of birds found in the Australian, Austro-Malayan, and Pacific Regions. Dr. W. A. Haswell gives a paper, with eight plates, on the early stages in the development of the Emu, *Dromæus novæ-hollandiæ*.

46. *Menzbier on the Osteology of the Penguins.*

[Vergleichende Osteologie der Penguine in Anwendung zur Haupteintheilung der Vögel. Von Dr. M. v. Menzbier. Bull. Soc. Imp. d. Nat. Moscou, 1887, no. 3, p. 483.]

The memoir commences with an account of the osteology of Penguins, followed by a special description of a young *Eudyptes chrysocoma*. The principal parts of this specimen are illustrated in the plate, which is coloured in the usual way, to indicate the ossified cartilaginous regions. Before discussing the relationship of Penguins to other birds, the author gives a useful summary of all that has been discovered with regard to fossil Penguins. Our knowledge, however, is limited to a fairly complete description of a large form *Palæeudyptes antarcticus* which existed in New Zealand in late Eocene or early Miocene times. In this Penguin the wings were a little longer, and the tarso-metatarsal bones rather more separate than in existing genera. From this the author concludes that we may safely regard the characteristic shortness and separateness of the metatarsal bones as an hereditary structure, and not as one that has been brought about recently by adaptation. The views of Huxley, Marsh, and others as to the main subdivisions of Birds are then discussed at length; it is suggested that, while all birds have been derived from the Dinosauria, their origin is not, in the strict sense of the word, monophylitic, inasmuch as the different groups have probably descended from different genera of Dinosauria. The principal conclusions to which the author has been led are, that Penguins form a group of birds near to extinction, characterized by structural peculi-

arities partly embryonic and partly typically avian; that their adaptation to an aquatic life and the fact that they do not come into competition with other birds have allowed of their survival; and that as regards their systematic position it is necessary to place them in a group (Eupodornithes) equivalent to that of the remaining groups of birds, viz. Saururæ, Ratitæ, Odontotormæ, and Carinatæ.

47. *Merriam on the Misdeeds of the British House-Sparrow.*

[Report of the Ornithologist, C. Hart Merriam, M.D., for the year 1886. Annual Rept. of the Dept. of Agriculture, Washington, D.C., for 1886, p. 227.]

The heading which we have selected virtually expresses the gist of the present Report; and if, as it has been cynically remarked, the misfortunes and mistakes of our neighbours and relations are to be contemplated with a certain amount of satisfaction, the perusal of these pages will afford a grim pleasure to those who believe in the desirability of non-interference with the workings of Nature. Our foolish Australian and New-Zealand offspring, and our far 'cuter American cousins, are alike paying the penalty for neglecting what the Duke of Argyll has felicitously taught us to recognize as "A Great Lesson." Sentimentality was, we believe, the reason for the transportation of the Sparrow to Australia; while a mistaken belief that the bird would rid the Transatlantic cities of the caterpillars which destroyed the foliage of the trees in the streets and parks was the utilitarian motive for the introduction of this pest to the United States. In 1850 the Hon. Nicolas Pike and other Directors of the Brooklyn Institute commenced the importation; in 1852 larger numbers were brought over; in 1858, and at subsequent dates, colonies were imported in Maine, Rhode Island, New York, Pennsylvania, &c.; and by 1870 the species was so firmly established in the Eastern States, that it began the western march which, as shown by the coloured map attached to this Report, extends to Kansas and southward to Georgia. The evidence as to its destructiveness to grain, and the injury which it inflicts by driving away harmless

insectivorous birds, is overwhelming, but on this we need not enter. The American verdict is that "the English Sparrow is a curse of such virulence, that it ought to be systematically attacked and destroyed"; while "recommendations to the people" are issued showing how this desirable end may be attained.

48. *Montlezun on Bernicle Geese.*

[Note sur les Palmipèdes Lamellirostres. Par M. le comte A. de Montlezun. Bull. Soc. Nat. d'Acclimat. France, 1886, p. 132.]

This is a continuation of a series of notes upon the Anatidæ, with reference to their habits and treatment in captivity. The present paper relates to the species of Bernicle Geese (*Bernicla*), as recognized by Gray in his 'Hand-list.'

49. *'Ornis.'*

[Ornis: Internationale Zeitschrift für die gesammte Ornithologie. Herausgegeben von Dr. R. Blasius und Dr. G. v. Hayek. III. Jahrgang, (1887), Hefte 2, 3.]

The greater portion of these Hefte (pp. 161–360) contains the concluding part of the Report for 1884 on the birds of the Austro-Hungarian Empire, by V. v. Tschusi and K. v. Dalla-Torre. Drs. O. Finsch and R. Blasius have a paper on the Terns of Diego Garcia, with two coloured plates of the eggs of *Sterna fuliginosa* and *Anous stolidus*; the letterpress being based upon Dr. Finsch's short visit to the above island, already described by him in the 'Deutsche geographische Blätter.' Mr. Gätke contributes his Heligoland Migration-report for 1886; and Dr. A. Stahl gives a short account of the birds of Porto Rico.

50. *Palmén on Siberian Birds.*

[Bidrag till Kännedomen om Sibiriska Ishafskustens Fogelfauna enligt Vega-Expeditionens iakttagelser och samlingar bearbetade af J. A. Palmén. "Ur. Vega-Expedit. Vetenskap. iakttagelser," Bd. v. pp. 242–511. Stockholm: 1887.]

This is the official account of the birds obtained during

the celebrated expedition of the 'Vega' round the northern coast of Siberia in 1878–79. The specimens, some of which we have had the pleasure of seeing in this country, are finally deposited in the Natural-History Museum of Stockholm. About 300 examples obtained are referred to 80 species, on which many valuable notes are given. The "plum" of the collection was *Eurynorhynchus pygmæus*, of which about 20 specimens were procured near the 'Vega's' winter-quarters near the extreme north-eastern point of Siberia. Specimens of two American Mniotiltidæ, *Henicocichla noveboracensis* and *Dendræca coronata*, were obtained on the Tschuktschi coast. A very full and useful list of the ornithological literature of the Polar area is added to this excellent piece of work.

51. *Salvadori on Birds from Upper Burmah.*

[Uccelli raccolti nella Birmania Superiore (1885–1886). Per T. Salvadori. Ann. Mus. Civ. Stor. Nat. Genova, ser. 2, vol. iv. p. 568.]

The author gives an account of the collection of birds made by Sign. L. Fea, Assistant in the Museo Civico of Genoa, in 1885 and 1886, at Bhamo and other places in its neighbourhood. The 306 specimens obtained are referred to 111 species, all of which but 3 are enumerated in Mr. Oates's 'Handbook to the Birds of British Burmah.' Dr. Anderson had previously collected birds in the Bhamo district during the Yunnan Expedition, but 44 of Sign. Fea's species are not in Dr. Anderson's list. Count Salvadori is disposed to distinguish the Asiatic form of *Ceryle rudis* as *C. varia*, Strickl., and gives many useful notes on this and other species.

52. *Salvadori on Birds from Tenasserim.*

[Uccelli raccolti nel Tenasserim (1887). Per Tommaso Salvadori. Ann. Mus. Civ. Stor. Nat. Genova, ser. 2, vol. v. p. 554 (1888).]

Sign. L. Fea, whose collection from Upper Burmah has been mentioned above, proceeded to Tenasserim in 1887 and explored the district of Moulmein, where he ascended Mount

Mooleyit to its summit. He obtained 454 birdskins, which are referred by Count Salvadori to 160 species. Five of them were new, and were described in a previous paper in the same journal*. Many interesting notes are given upon other species.

53. *Sclater and Hudson's 'Argentine Ornithology.'*

[Argentine Ornithology. A descriptive Catalogue of the Birds of the Argentine Republic. By P. L. Sclater, M.A., Ph.D., F.R.S., &c. With Notes on their Habits by W. H. Hudson, C.M.Z.S., late of Buenos Ayres. Vol. I. Royal 8vo. London: 1888.]

The present volume contains an account of the Passeres of the Argentine Republic, which, as at present known, number some 229 species. The second volume, which it is hoped will be ready in the course of the year, is to be devoted to the history of the remaining Orders of Birds, and will also contain the Introduction and Index, and complete the work.

All the personal observations recorded in these pages are due to Mr. Hudson, while Sclater is responsible for the arrangement, nomenclature, and scientific portions of the work.

The number of Passeres recognized by the authors as belonging to the Argentine avifauna is 229. Figures, drawn by Keulemans, are given of the following species:—*Mimus triurus, Cinclus schulzi, Cyclorhis ochrocephala, C. altirostris, Stephanophorus leucocephalus, Saltatricula multicolor, Molothrus badius, M. rufo-axillaris, Tænioptera rubetra, Phytotoma rutila, Homorus lophotes,* and *Drymornis bridgesi.*

54. *Sharpe on the* Fringillidæ.

[Catalogue of the Passeriformes, or Perching Birds, in the Collection of the British Museum. Fringilliformes: Part III., containing the family Fringillidæ. By R. Bowdler Sharpe. London: 1888. 872 pp., 16 coloured plates.]

The twelfth volume of the 'Catalogue of the Birds in the

* *Merula fœa, Niltava oatesi, Pericrocotus pulcherrimus, P. rubro-limbatus,* and *Aceros leucostigma* (Ann. Mus. Civ. Genova, ser. 2, vol. iv. pp. 514–516; 1887).

British Museum' was not published, as we are informed on authority, until February 25th, 1888, although its issue had been previously alluded to in some journals. It is a bulky work of 872 pages, illustrated by 16 plates, and is devoted entirely to the Fringillidæ, of which family Mr. Sharpe recognizes 559 species, represented in the National Collection by 9443 specimens. Only 30 of the recognized species are unrepresented in this enormous series.

The following new species and subspecies appear to be described or named for the first time in this volume:—*Geospiza difficilis, Guiraca cyanea argentina, Amaurospiza æquatorialis, A. axillaris, Fringilla maderensis, Chrysomitris sclateri, C. stejnegeri, C. icterica capitalis, C. icterica boliviana, C. icterica longirostris, Passer domesticus griseigularis, Sycalis flaveola jamaicæ, S. taczanowskii, Carpodacus roseipectus, Pyrrhospiza punicea humii, Zonotrichia whitii, Poospiza boliviana, Peucæa ruficeps homochlamys, Phrygilus caniceps bolivianus,* and *Coryphospingus mentalis.*

Three new genera are instituted, namely, *Pseudochloris,* for *Sycalis lutea* (d'Orb. et Lafr. and others); *Schistospiza,* for *Coryphospingus griseocristatus* (d'Orb. et Lafr.); and *Rhodospingus,* for *Coryphospingus cruentus* (Less.).

The following species are figured:—*Coccothraustes humii, Spermophila palustris, Chrysomitris thibetana, Montifringilla, blanfordi, Passer pyrrhonotus, Poliospiza rufibrunnea, Serinus burtoni, S. crocopygius, S. leucopterus, Carpodacus ambiguus, Pyrrhula kurilensis, Emberiza godlewskii, Zonotrichia whitii, Poospiza boliviana, Rhodospingus cruentus,* and *R. mentalis*; also heads of the different species of *Paroaria,* namely, *Paroaria cucullata, dominicana, nigrigenis, gularis, capitata,* and *cervicalis.*

Our American friends will be surprised to find their species of *Leucosticte* united to the genus *Montifringilla*; and our home ornithologists will learn with mingled feelings that the Common Bunting is henceforth to be called *Miliaria miliaria*! We do not say that these changes are wrong, but we think that the author might have told us in a few lines why he had thought it necessary to make these and similar altera-

tions in established nomenclature. It is a golden rule, in our opinion, never to change a scientific name when it can possibly be avoided. These, however, are but trifling criticisms on the excellent piece of work turned out by the energetic author of the present volume, which, looking to the multifarious duties involved in the custody and arrangement of the great National Collection of Birds, it is truly wonderful that he should have found time to accomplish.

55. *Shufeldt on Birds' Muscles useful in Classification.*

[A Review of the Muscles used in the Classification of Birds. By R. W. Shufeldt. Journ. Comp. Med. and Surg., Oct. 1887.]

This seems to be a good general paper on the subject in question, and, like all Dr. Shufeldt's writings, is excellently illustrated. Whether the author is correct in his views of the "dermo-tensor patagii" is, however, open to question. See Dr. Stejneger's remarks on this point (Science, x. p. 71), noticed below.

56. *Stejneger on a Muscle of the Bird's Wing.*

[Pars propatagialis musculi cucullaris. By Leonhard Stejneger. Science, vol. x. p. 70.]

Dr. Stejneger maintains that Dr. Shufeldt's "*dermo-tensor patagii*" of the bird's wing, which he considers of "taxonomic value" (Science, ix. p. 623), and to have been "overlooked by Garrod," is by no means a new discovery, and not likely to be useful in classification. See also 'The Auk,' v. p. 120.

57. *Stejeneger on a new Thrush.*

[Diagnosis of a new Species of Thrush (*Turdus celænops*, sp. nov.) from Japan. By Leonhard Stejneger. Science, vol. x. p. 108.]

The American journal 'Science' for August 26th, 1887, contains a description by Dr. Stejneger of a new Thrush, *Turdus celænops*, allied to *T. chrysolaus*, from the "Seven Islands," south of the Bay of Tokio.

58. *Winge on Fossil Birds from Brazil.*

[Fugel fra Knoglehuler i Brasilien. Af Oluf Winge. 4to. Kjöbenhavn: 1887.]

Herr Winge has completed the working out of the birds' bones found by Lund in the caverns of Lagoa Santa, Minas, Brazil, which was begun by Lund himself and continued by Reinhardt. The species enumerated are 126 in number, many of which are still living in the same district. Some remains of a Goose of the genus *Chenalopax* are referred to a new species as *Ch. pugil*.

XXV.—*Letters, Extracts, Notices, &c.*

We have received the following letters addressed to the Editors of 'The Ibis:'—

Labuan, Borneo,
Dec. 19, 1887.

Sirs,—In 'The Ibis' for October 1886 I recorded the occurrence of *Ptilopus melanocephalus* on Banguey Island, and mentioned that it was reported by natives that Parrots similar to those found in the Philippines were to be met with on the Mantanani Islands, a group of recent coral islets situated about 18 miles off Abai harbour, in North Borneo. A few days ago I visited Abai in order to land Mr. J. Whitehead, who has started on his second journey to Kina Balu; and I took the opportunity of running out to the Mantanani group, where I was successful in verifying the native report, finding that the islands abounded with a species of *Tanygnathus*, which is identical with, or very closely allied to, *T. luzoniensis*. I also found abundance of a large Pigeon, which I think will prove to be *Carpophaga pickeringi*. Whether these two species are migrants or are permanently settled on the islands remains to be proved, as is also the case with *Ptilopus melanocephalus*. The Mantanani Isles are Bornean geographically, but they are well situated for receiving migrants and stragglers from the Palawan group of the Philippines, and some of these may have become perma-

nent residents. These islands positively swarm with *Calœnas nicobarica*. These birds nest here in trees, to which they readily take when disturbed on the ground. There are no monkeys nor wild pigs on the islands.

The locality printed "Falassan" in my previous note should be "Palawan."

Yours &c.,
A. Everett.

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52 Stanhope Gardens, Queen's Gate,
Feb. 17, 1888.

Sirs,—Your issue of January last contains an interesting contribution "On the Birds of New Zealand," by Mr. T. W. Kirk, of the Geological Survey Department, Wellington, N.Z. Among other things he mentions (at p. 46) the occurrence of an Australian Masked Plover at Kai-Iwi in the North Island; but he is wrong in his identification of the species. Instead of being *Lobivanellus personatus*, as he supposes, it is undoubtedly *L. lobatus*. The colours and markings of the two species are very similar, but the character of the "mask" is entirely different in the two birds. Mr. Drew, in whose little museum at Wanganui the specimen is preserved, has sent me a sketch of the head, which places its determination beyond question. In the description which he gives of the plumage he mentions that the "crown, nape, *hind neck*, and ear-coverts are jet-black," and that the back is "reddish grey." The description given by Mr. Kirk is avowedly taken from Gould's account of *L. personatus*, and does not exactly accord with Mr. Drew's.

Yours &c.,
W. L. Buller.

Seggieden, Perth,
Feb. 28, 1888.

Sirs,—As the following notice of what I believe to be the second occurrence of *Saxicola deserti* in Scotland may be interesting to some of the readers of 'The Ibis,' and as the bird came into my hands in a somewhat chance way, I

do not hesitate to send you the full particulars. On the 9th of last month, in writing on certain matters to an ornithological friend in Arbroath, Mr. A. Nicol Simpson, who is ever observant of the birds reaching our coasts and has already formed a considerable collection, I casually asked him if any rarities had lately been seen in his neighbourhood. On the 13th I received a note in reply to say that he had heard, among other things, that a Wheatear had been shot by Mr. Alexander Marshall, birdstuffer in that town. Thinking it curious that a Wheatear should appear on the coast in midwinter, and believing it might turn out to be only a Stonechat, a bird which not unfrequently remains with us all winter, I wrote to Mr. Simpson to ask if he could kindly get the bird for my inspection. On questioning Mr. Marshall on the subject, Mr. Simpson found that, considering the bird to be only a Common Wheatear, though a very highly coloured specimen, Mr. Marshall had not preserved it, owing to part of the head having been shot away, and had left it lying ever since outside his shop, where, most fortunately, it still remained, though some two or three weeks had elapsed. My friend, being in a great hurry at the time, did not examine it, and thinking it of no use for preservation in the state it was, enclosed it to me in a common envelope, without any protection, so that, on its arrival, owing to the effects of having been well stamped in the various post-offices through which it had passed, the chances of its preservation, as may be imagined, had not increased. On hastily tearing open the very unpresentable envelope, guess the astonishment of the recipient to find, instead of the anticipated Stonechat, an example of *Saxicola deserti*! Fearing the specimen might be lost to science, I sent it off at once to Mr. Harvie-Brown, of Dunipace (but a little more carefully packed), to confirm the discovery for me, with the request that he would kindly forward it on immediately to Mr. Robert Small, birdstuffer, Edinburgh, to see if he could possibly do anything with it. Under Mr. Small's able manipulation, I am happy to say it was most successfully carbolized, it being impossible to skin it;

nor could the sex be ascertained, but it is believed to be a young male of the season. It was shot about half a mile east of Arbroath, as it was flying inland across the road leading along the top of the cliffs, on the 28th December, 1887, at about 2.30 P.M., the wind blowing a slight gale from the south at the time; there had been severe frost previous to this.

Yours &c.,
H. W. DRUMMOND HAY.

Note on Zapornia spilonota.—In 'The Ibis' for 1877 (p. 194) the late Mr. H. Durnford gave a figure and description of an Argentine Rail, of which he obtained a specimen near Buenos Ayres, as *Porzana spiloptera* (=*Zaponia spiloptera*, Burm. MS.). Prof. Burmeister now informs us that this bird is identical with *Rallus salinasi* of Philippi (Wiegm. Arch. 1857, pt. i. p. 262), described from Chilian specimens. Prof. Burmeister has lately received a female example of this Rail killed near Buenos Ayres, off the nest, along with the nest and eggs.

Ornithological Travellers.—Prof. J. B. Steere, C.M.Z.S., who made good collections in the Philippine Islands in 1874 (see Trans. Linn. Soc. London, ser. 2, vol. i. p. 307, 1877), has obtained a year's leave of absence from the University of Ann Arbor, and, in company with three students interested in zoology, has returned to that interesting group of islands to study and collect. His principal work is with the Birds, although he is also making large collections in Mammals, Reptiles, Mollusca, and Radiates.

Mr. F. D. Godman, F.R.S., has been passing the winter in Mexico, and has taken with him from the United States an excellent assistant, Mr. H. H. Smith, who was lately in Central Brazil, where he made an extensive collection of birds. Mr. Godman's head-quarters are the City of Mexico, whence he is making frequent excursions into the less-explored districts of the Republic.

Mr. L. Wray, jun., of the Perak Government Museum, writes from there, on January 7th last, that he has just re-

turned from another five months' expedition into the central mountain-range of that portion of the Malay Peninsula. Mr. Wray's collection, as in former cases (see P. Z. S. 1886, p. 350, and 1887, p. 431), will probably be worked out by Mr. Sharpe.

Dr. Guillemard is again in Cyprus for the spring months. Our readers will join us in hoping that on his return he may give us as interesting an account of his ornithological adventures as he did of his similar tour in 1887.

New Monograph of the Weaver-birds and Finches.—Mr. Edward Bartlett, of the Museum, Maidstone, announces the 1st Part of a Monograph of the *Ploceidæ* and *Fringillidæ*. Each Part is to contain six hand-coloured Plates drawn by Mr. F. W. Frohawk, and letterpress, at the price, to Subscribers only, of 10*s*. 6*d*. each Part.

Sale of another Great Auk's Egg.—In our January No. we recorded the sale of an egg of the Great Auk for the then unprecedented price of 160 guineas; but on the 12th March a much finer specimen realized the sum of £225 at Stevens' Auction Rooms. It had been inherited by Mrs. Wise from her father, the late Mr. Holland, who purchased it in 1851 from Williams, of Vere Street, for £18.

Obituary.—Mr. Edward Lear, who died at San Remo on 29th January last, at the age of seventy-four, had achieved a wide celebrity as the clever artist who delineated the wild scenery of Corsica, Calabria, and Albania, and also as the originator of some delightful "nonsense verses." In addition to these accomplishments, he was, however, a true ornithologist, and the author of an important folio, published in 1831, entitled 'Illustrations of the Family of the *Psittacidæ*'; he also supplied the plates for the late Dr. J. E. Gray's 'Gleanings from the Menagerie at Knowsley Hall,' and for other works on natural history.

We regret to have to record the death of one of our Members, Mr. J. C. Hele, at Norwich, Ontario, Canada, on the 27th May, 1887.

THE IBIS.

FIFTH SERIES.

No. XXIII. JULY 1888.

XXVI.—*List of Birds collected in Eastern Africa by Mr. Frederick J. Jackson, F.Z.S.* By Capt. G. E. Shelley, F.Z.S. *With Notes and an Introduction by the Collector.*

(Plates VI. & VII.)

I. *Introduction.* By F. J. Jackson.

On Nov. 17, 1884, I left London in the British Indian s.s. 'Henyada' to join my friend Mr. J. G. Haggard, H.B.M.'s Vice-Consul in Lamu, for some big-game shooting and to collect natural-history specimens. On Dec. 25 I arrived at Lamu, a port on the east coast of Africa, some 300 miles north of Zanzibar. For the first two and a half months I did not do much, either shooting or collecting, but after two or three short trips to the mainland, in which I shot a few Waterbucks and Hartebeests, I made preparations for a trip up the river Lana, intending to proceed into the Galla country, making my dhow my head-quarters.

On March 22, accordingly, I started in a fair-sized dhow, having my own boat (a Dundee whale-boat, with air-tight compartments) in tow, and with 22 men, including the dhow's crew. As the south-west monsoon had set in, we had to time our-

selves to arrive at the river early in the morning, so as to get over the bar whilst the wind was off shore and the sea calm. Immediately on getting into the river I was seized with a very bad attack of fever. For a week I could not move without help, and, as we were surrounded on all sides by swamps, and as there was little prospect of getting well in such a place, and, moreover, as the captain of the dhow told me we should take a fortnight or three weeks to work up to the game-country, owing to the river being in flood, I decided to leave the river and to run some 15 miles down the coast to a place called Merereni. Here game was fairly plentiful, and here I bagged my first lioness and buffalo, also specimens of *Gazella walleri*, *G. granti*, and the Lesser Kudu. As I found big-game shooting and bird-collecting almost impossible to combine, I collected chiefly butterflies, beetles, and moths. This I was able to do by making a man carry a net and a bag full of boxes, bottles, &c., and after a successful stalk, whilst the men were trimming and cutting up the meat, I managed to make a very fair collection. On my return I had the misfortune to get upset in my dhow, and to lose everything I possessed, including guns and rifles, besides ten of my men. Here my own boat came in very handy. To make matters worse, I found, on getting back to Lamu, that my small collections of birds and butterflies had been completely destroyed; the former by a small beetle, the latter by a minute red ant, in spite of camphor. After a few days in Lamu, I went down to Zanzibar in July, 1885, to buy a few things to keep me going until I could get more rifles, guns, and other gear, from England. Sir John Kirk very kindly lent me a gun, with which I made my collection of birds at Tangani, Jipi, and Mashundwani. In December I was joined by my friend Mr. G. H. Johnston, who brought out new guns and rifles.

As there is but little game near Lamu, excepting from April till the end of July, we went, in February 1886, for a short trip up the river Wani, opposite Zanzibar. Here we shot some Leichenstein's Hartebeests and Impalas, and one Sable Antelope—three species I never saw or heard of near Lamu. In May 1886, after a series of misfortunes, my friend

Johnston had to return home, owing to a bad attack of sunstroke. I then decided to make a short trip back to Merereni to get a few Grant's and Waller's Gazelles and Lesser Kudus; but as the Masai who had murdered the Rev. Mr. Houghton and his wife were still reported to be in the country, I was advised to wait till they cleared out. In the meantime I went over to Manda Island, opposite Lamu, and collected birds there, from May 17th until June 15th, 1886. The whole island is covered with dense bush, with the exception of a ridge of sand-hills running parallel with the coast, and where the bush has been cut down in a few places for "shambas" (cultivated fields).

On June 15 I returned to Lamu, and after stopping a week I set out for Merereni, travelling overland, and on my arrival found a large colony had been formed there by some Swahili pickers of Mereri (*i. e.* orchella-weed). The game in consequence was very scarce and wild, but I managed to get some very fine specimens of Grant's Gazelle and a good Waller's Gazelle, also an indifferent Lesser Kudu, besides three Ostriches. Neither elephants nor buffaloes had come down owing to the want of rain.

Rather disappointed with this trip, I decided to go for a three months' excursion to Kilima-njaro, and after putting my things straight in Lamu, I went down to Zanzibar to get my caravan together. Instead of proceeding by the usual route, *viâ* Mombasa, I tried a new route *viâ* Vanga, which, though longer, was said to be better watered. I started from Vanga on Sept. 13, and was accompanied by the Rev. A. W. Shaw, of the Church Missionary Society, who thought that the mission-men were better porters than the Zanzibaris, but I think I disillusioned him of this idea. As game was plentiful, and the demand for meat was great amongst the Wataveita, I was enabled to buy flour, corn, bananas, beans, &c. with meat, and thus to make my three months' provisions last for ten months. Here again I found the combination of bird-collecting and big-game shooting almost an impossibility; but I managed to make a small collection, which, as Capt. Shelley reports, contains examples of 31 species, of which one is new to science.

II. *Report on the Birds.* By Capt. G. E. Shelley. *With Field-notes* by F. J. Jackson.

Mr. Jackson's collection of birds contains about 220 specimens, referable to 126 species. It is, as might have been expected, very characteristic of the Masai-land avifauna, which has been so well investigated by the late Dr. Fischer. It contains many additions to our National Museum. Amongst these may specially be remarked *Ploceus jacksoni*, a new species from Kilima-njaro (which I have named after its discoverer), *Philetærus cabanisi*, *Vidua fischeri*, *Pyromelana diadematа*, and *Trachyphonus erythrocephalus*, Cab., a much larger species and very distinct from the *T. shelleyi*, Hartl., with which I once confounded it. There are also examples of two rare Somali forms, *Telephonus jamesi* and *Cinnyris albiventris*. The Kilima-njaro collection does not contain any of the Alpine species first made known to us by Mr. H. H. Johnston, but this may be accounted for by Mr. Jackson's expedition never having ascended above the level of the happy hunting-ground of the sportsman.

As the avifauna of the Kilima-njaro district possesses certain well-marked peculiarities, I have thought it best to prepare two distinct lists; one devoted to the birds procured in the above-mentioned locality, the other to those obtained in Manda Island and in other places near Lamu. It will be understood that the field-notes are taken entirely from Mr. Jackson's journals.

A. *Species from the district of Kilima-njaro.*

1. Circus macrurus (Gm.).

♀. Lamu (21. 1. 87). Shot in the open plain between Kaké and Taveita.

2. Melierax poliopterus, Cab.

Shot while eating a lizard in the open plain between Taveita and Lake Chala. This bird was fairly plentiful in the plains, where, early in the morning, it was to be seen beating up and down, flying very low, looking out for mice and lizards.

ACCIPITER MINULLUS (Daud.).

♀. Kilima-njaro (17. 1. 87). Shot in the dense forest between Kaké and Taveita.

4. ASTURINULA MONOGRAMMICA (Temm.).

Irides reddish brown; beak black; cere red; legs coral-red; claws black. Very common near Taveita.

5. ASIO CAPENSIS (Smith).

♂. Irides bright yellow. Stomach contained the remains of a large beetle, and also a large scorpion, the large claw being perfect. Shot in a deep gorge in the middle of the open plain near Rombo.

6. POGONORHYNCHUS MELANOPTERUS (Peters).

♂. Taveita.

Very abundant in Taveita in September and October, when the fruit of the sycamore fig-tree is ripe.

7. TRACHYPHONUS ERYTHROCEPHALUS (Cab.).

Shot outside Taveita. I saw a pair, but only obtained one of them.

[The characters which distinguish this species from *T. shelleyi* are, as Dr. Hartlaub has pointed out (Ibis, 1886, p. 106), very striking on a comparison with the Somali bird, which I formerly thought to be the same (Ibis, 1885, p. 394). The blood-red colouring extends over the whole sides of the head and round the nape, with only a slight shade of yellow near the nostrils and front of the cheeks. The skin is bare and dark in front and round the eyes, and there is a large white mark at the end of the ear-coverts, common to the three closely allied species. The present bird is at once distinguished from *T. versicolor*, Hartl., by having the under tail-coverts red.—G. E. S.]

8. CERYLE MAXIMA (Pall.).

Taveita, June 1887.

Fairly plentiful on the rivers Lumi and Habari.

9. ALCEDO SEMITORQUATUS, Sw.

Shot on the river Lumi at Rombo.

10. Lophoceros melanoleucus (Licht.).

♂. Lamu. Irides light brown; legs black.

Very common in Taveita.

11. Coccystes jacobinus (Bodd.).

♀ (24. 1. 87). Plentiful. Shot between Taveita and Kaké.

12. Tersiphone cristata (Gm.).

♂. Taveita. Irides brown; eyelids and legs light slaty blue.

13. Erithacus gutturalis (Guér.).

♂. Irides brown; bill and legs black. Stomach contained insects. Shot between Taveita and Kaké.

14. Erythropygia leucoptera (Rüpp.).

♂. Langora.

Irides brown. Stomach contained small beetles. The only one I saw. Shot in thick bush.

15. Dryoscopus cubla (Shaw).

♂. Taveita (26. 1. 87).

Common in Taveita.

16. Motacilla vidua, Sund.

Shot inside the camp compound at Taveita.

17. Philetærus cabanisi. (Plate VI.)

Nigrita cabanisi, Fisch. et Reichen. J. f. O. 1884, p. 54.

Philetærus cabanisi, Shelley, Ibis, 1886, p. 308.

♂ ♀. Bill white, base of lower mandible tinged with yellowish green; legs brownish flesh-colour; irides crimson. Only seen in one place in the bush on the slopes of the Sogouvi Mountains. Here I found a small colony building their nests in a table-topped mimosa tree in March 1887.

[Of this fine species, which is new to the collection of the British Museum, Mr. Jackson has brought a male and two females, obtained in the Kilima-njaro district in March 1887. —G. E. S.]

18. Vidua fischeri, Reichen.

♂. Shot in the Arusha-wa-chini country, in February 1887. I saw another specimen, but being after big game at the time, I could not shoot it.



J. G. Keulemans del. et lith.

Mintern Bros. imp.

PHILETÆRUS CABANISI.



J. G. Keulemans del. et lith.

Mintern Bros. imp.

PLOCEUS JACKSONI.

19. Coliuspasser laticauda (Licht.).

♂. Kilima-njaro, May 1887.

Only seen in one place on the S.W. slopes of the mountain, where they were fairly plentiful and evidently breeding.

20. Coliuspasser eques (Hartl.).

♂. Langora, eight miles from Taveita, April 1887.

This species is new to the British Museum.

21. Coliuspasser xanthomelas (Rüpp.).

♂. Shot between Taveita and Moshi, April 1887.

Fairly plentiful.

22. Ploceus jacksoni, sp. n. (Plate VII.)

Adult male. Entire head and neck jet-black; back uniform bright yellow, with an olive shade on a portion of the upper tail-coverts; wings brownish black, the least series of coverts browner and narrowly edged with yellowish olive, the other feathers edged with bright yellow, broadest at the ends of the median coverts and the inner half of the greater coverts and quills; tail yellowish olive, the feathers broadly edged with yellow on their inner webs; under surface of the body chestnut, passing into bright yellow down the centre of the abdomen and on the thighs; under tail-coverts rufous yellow; axillaries, under wing-coverts, and broad inner margins to the quills bright yellow; bill black; legs pale fleshy brown. Total length 5·3 inches, culmen 0·55, wing 2·8, tail 1·9, tarsus 0·85.

The type specimen; although no sex nor date is recorded, it is evidently an adult male in full plumage.

[This species belongs to the stout-billed, black-headed group of Weavers, and its affinities appear to be mostly with *P. dimidiatus*, *P. badius*, and *P. capitalis*, from all of which it differs in the black of the head extending over the whole of the throat, and from *P. capitalis*, moreover, in its deep chestnut chest; from *P. badius* in the absence of chestnut on the upper parts, and from *P. dimidiatus*, possibly its nearest ally, in the chestnut of the breast extending over the flanks and shading the under tail-coverts.—G. E. S.]

Little credit is due to me for having brought this new species to light, as the specimen was brought to me by a little Taveita boy, tied by the legs along with several others of the common yellow species, and was the only one that I kept, as all the rest had had their tails pulled out.

23. Amblyospiza unicolor (Fisch. et Reichen.).

♂ ♀. Both shot on the banks of the Habari river in thick bush. The only ones I saw.

24. Corvultur albicollis.

This large Raven is common in the Kilima-njaro mountain-district. When I was at Kidudwi, on the river Wami, some of them came to my camp every day to feed on the scraps and offal.

25. Œna capensis (Linn.).

Very common between Taveita and Kaké. About 10.30 A.M. immense numbers used to come to drink close to my camp on the Habari river. They sat so close together on the low bushes that at one shot I obtained ten specimens.

26. Pterocles exustus, Temm.

♂ ♀. Only seen in one place, at a camp on the U river in June 1887. Here the plains were very sandy and stony. Although there was plenty of water about, these birds appeared to have one favourite drinking-place, where, about 9 A.M., they, together with the other two species, came in hundreds. This species I did not notice in such large flocks as *P. gutturalis*, but generally in companies of from 6 to 20 individuals.

27. Pterocles gutturalis, Smith.

I only saw this species in the dry sandy and stony plains near the Useri river. At their drinking-hour, about 9 A.M., they assembled in large flocks of from 40 to 50, but when flushed in the open plains were generally found in small flocks of from 8 to 10.

28. Pterocles decoratus, Cab.

More plentiful than either of the other species. I saw it in great numbers in three places—Langora, Rombo (Simba

11.), and on the Useri river. At all three places, about 7 a.m. was their usual drinking-hour. I found three nests of this species in the open plains on the Useri river in June 1887.

29. Numida pucherani, Hartl.

Obained in the forest outside Kaké, where it was fairly plentiful, but difficult to shoot on account of the dense underwood. I also heard it in Taveita, but never saw it.

30. Pternistes clappertoni (Children).

Very common at Taveita. Also common on the coast at Merereni. This bird affords capital sport, but is difficult to flush.

31. Balearica chrysopelargus (Licht.).

My specimen was shot in a lagoon (ziwa) below Rombo. I always observed this Crane in pairs.

B. *Species from the district of Lamu.*

1. Accipiter minullus (Daud.).

♂. Manda Island.

Cere and bare skin in front of the eyes greenish yellow. Eyelids bright yellow; beak black, fading into horn-blue at base; legs yellow.

Shot in the act of carrying off a small Quail.

2. Milvus migrans (Bodd.).

Taka, opposite the island of Patta, north of Manda Bay.

Irides brown. Common in and round about every village on the coast, with the exception of Zanzibar, where I never remember having seen one.

3. Tinnunculus alaudarius (Gm.).

Common, especially near shambas, *i. e.* cultivated patches.

4. Dendropicus cardinalis (Gm.).

Jipi and Manda Island.

♂ ♀. May 21, 1886. Manda Island.

♂ jr. Jipi, 18. 8. 85.

Irides crimson; legs olive-green. Stomachs contained larvæ.

5. Campothera nubica (Gm.). 3 new
♂. Mashundwani, 10. 9. 85. little
♀. Mashundwani, 9. 9. 85.

Irides crimson. Stomachs contained maggots and ants. Very common in the branching palm plantations.

6. Barbatula affinis, Reichen.

Two females. Manda Island, November.

Irides brown. Stomach contained red berries.

[As it is seldom that one has a chance of examining good specimens of this species, I may remark that it is very close to *B. uropygialis*, but differs in the pale marking of the back of the head and mantle, and in the margins to a few of the innermost quills being purer white with no shade of yellow. There is also an absence of the reddish-yellow rump. Total length 3·7 inches, culmen 0·4, wing 2, tail 1·3, tarsus 0·55.—G. E. S.]

7. Merops nubicus, Gm.

♂. Tangani, 24. 8. 85.

♂. Manda Island, 11. 6. 86.

Irides crimson. Stomachs contained grasshoppers, bees and wasps. Found in fairly large flocks, but not so plentifully as the next species.

8. Merops superciliosus, Linn.

♂. Tangani, January 1885.

Irides crimson. Very common; found in large flocks. Hundreds of these birds may be attracted to the gun almost at any time by setting fire to the dry grass, when the air becomes thick with the escaping grasshoppers and other insects.

9. Melittophagus cyanostictus (Cab.).

♂ ♂ ♀. Mpecatoni, January 1885.

Irides crimson. Seen also at Kilima-njaro.

10. Ceryle rudis (Linn.).

♂. Mashundwani, 9. 9. 85.

Irides brown. Very common in the creeks in the dry weather (November to April), but found chiefly on the lagoons during the rains. Very common at Jipi.

11. Alcedo cyanostigmus, Rüpp.

Very common wherever there is water. Seen also at Taveita.

12. Halcyon semicærulea (Forsk.).

January 1885. Fungarthrombo.

Rare.

13. Halcyon chelicutensis (Stanley).

♂. Tangani, 31. 8. 85.

♀. Tangani, 24. 8. 85.

Irides brown. Very common. Stomachs contained grasshoppers. The female had two fully formed eggs inside her. The call of this bird is very plaintive, and is the first note to be heard in the morning and the last at night.

14. Halcyon senegalensis (Linn.).

♂ ♀. Manda Island, 17. 5. 86.

Irides brown. Stomachs contained large grasshoppers. These birds I generally noticed sitting in the shade of some bush or tree commanding an open space where grasshoppers &c. abound.

15. Irrisor cyanomelas (Vieill.).

♂. 12. 11. 85.

♂. 30. 5. 86.

Irides brown. Stomachs contained several large spiders. Found a pair breeding in a hole of a tree in the Arusha country, Kilima-njaro.

16. Lophoceros deckeni (Cab.).

♂. Merereni, July 24, 1886.

Stomach contained some good-sized fruit-stones. Very common amongst the acacia trees.

17. Corythaix fischeri, Reichen.

♂ ♀. Kipungoni Creek, 13. 1. 86.

Irides brown; bill blood-red; eyelids coral-red; legs olive-black. These are the only two specimens I saw or heard of in the Lamu district, although this bird is plentiful between Mombasa and Vanga further south, and quite common up the river Wami opposite Zanzibar. Their call reminded me much of that of the common Pheasant.

18. Schizorhis leucogaster, Rüpp.
Three males, Merereni, July 24, 1886.
Very common amongst the acacia trees. Stomachs of all contained yellow vegetable matter, I think the blossoms of the acacia tree. This bird was also plentiful in the Kiliman-jaro district.

19. Chrysococcyx cupreus (Bodd.).
♂. Tangani, August 22, 1885.

20. Chrysococcyx klaasi (Steph.).
♂. Tangani, 24. 8. 85.
Irides crimson; eyelids coral-red. Plentiful in the shambas.

21. Eurystomus afer (Lath.).
♂. Tangani.
Irides brown; eyelids blue-grey.

22. Caprimulgus mosambicus, Peters.
♀. Mashundwani, 9. 9. 85.
♂ ♀. Manda Island, 1. 6. 86.
Very common everywhere. I found it breeding near all the year round.

23. Cypselus parvus, Licht.
♂ ♀. Tangani, 25. 8. 85.
Irides brown; stomachs contained small beetles, chiefly weevils. This is the common Swift of the country. Both these specimens were shot whilst clinging to the underside of a cocoa-nut-tree leaf, apparently asleep.

24. Pachyprora orientalis (Heugl.).
♂ ♀ ♀. Manda Island, 27. 5. 86.
Irides bright yellow; bill black; legs olive-black. Until the 27th of May I found this bird decidedly scarce, but came across a small flock of about fifteen on the edge of a shamba in some acacia trees.

25. Muscicapa grisola, Linn.
♂. Manda Island. Irides brown.

26. Terpsiphone cristata (Gm.).
♂. Tangani, 28. 8. 85.
Eyelids blue-grey. Fairly plentiful in the mango trees.

27. Andropadus flavescens, Hartl.
♂. Manda Island, 1. 6. 86.

28. Turdus tephronotus, Cab.
♂. Tangani.
Irides brown; bare skin round the eyes dull yellow. In habits and song this Thrush is exactly like our Blackbird (*T. merula*).

29. Saxicola isabellina (Pall.).
♂. Manda Island, 15. 11. 85. Irides brown; legs black. Found on the low cliffs. Scarce.

30. Bradyornis pallidus (Müll.).
Two young males, Manda Island, 25. 6. 85.
Fungarthormbo, January 1885.

31. Cichladusa guttata (Heugl.).
♂. Jipi.
Irides light brown.

32. Sylviella micrura (Rüpp.).
♂. Manda Island.
Irides light brown; legs flesh-colour. Generally found in pairs in the acacia trees.

33. Camaroptera brevicaudata (Rüpp.).
Manda Island.
Irides light brown; legs flesh-colour. Call very much like that of our Gold-crest. Very partial to the acacia trees.

34. Prinia mystacea, Rüpp.
♀. Manda Island, 22. 6. 86.
Irides light brown; legs flesh-colour. Stomach contained a good-sized beetle.

35. Cisticola marginalis (Heugl.).
Manda Island and Tangani.
Irides light brown; legs flesh-colour. Stomachs contained beetles, &c.

Very common in the long grass. In August 1885 they were very plentiful at Tangani, but in either immature or worn breeding-plumage.

36. Zosterops kirki, Shelley.

♂. Manda Island, 1. 6. 86.

Irides light brown; legs light horn-blue. Stomach contained a caterpillar 1½ inch long.

37. Cinnyris albiventris (Strickl.).

Manda Island, May 1886.

Very common all over the island, especially in the dense low bush on the sides of the sand-hills along the shore. I found several nests with eggs in May. The song is very much like the first few notes of our Common Wren.

38. Cinnyris kirki, Shelley.

Several specimens from Manda Island (May 1886), and nest from Merereni.

Common, especially among the mango trees at Tangani. The nest was found suspended on the extreme end of a small branch of a mangrove bush, along the edge of a creek, in July 1886.

39. Cinnyris verreauxi, Smith.

Two males, Manda Island, May 1886.

Fairly plentiful in the acacia trees.

40. Anthreptes hypodila (Jard.).

♂. Manda Island, 17. 11. 85.

Not nearly so plentiful as *Cinnyris albiventris* and *C. kirki*.

41. Telephonus jamesi, Shelley.

Two females, Manda Island, November 1835.

Very common in the thick bush. Irides brown, with ten white spots or specks round the edge of the pupil. Legs light horn-blue.

This species is new to the British Museum.

42. Dryoscopus salinæ (Finsch & Hartl.).

♂. Tangani, 1. 9. 85.

♀. Manda Island, 9. 6. 86.

Very common. Irides crimson ; legs horn-blue. This bird has a peculiar habit of snapping its wings together when taking a short flight.

43. Laniarius poliocephalus (Licht.).
Fungarthrombo, January 1885.
I saw only two specimens, both of which I shot, but one was not preserved.

44. Laniarius sulphureipectus (Less.).
♂. Manda Island, 11. 11. 85.
Irides brown ; legs light slaty blue. In November these birds were very plentiful, but in the following May I only saw two specimens.

45. Lanius caudatus, Cab.
Mashundwani, 9. 9. 85. Three specimens.
Very common everywhere. Found a nest with young birds in it in a thorn bush in September 1885. Feeds chiefly on grasshoppers. Generally three or four together. Common also at Kilima-njaro.

46. Sigmodus tricolor (Gray).
♂. Mashundwani, 11. 9. 85.
Shot out of a small flock in a mangrove swamp. This bird was only wounded, and made a sharp snapping noise with its bill when I went to pick it up.

47. Motacilla vidua, Sund.
Manda Island, 13. 11. 85.

48. Anthus rufulus, Vieill.
Two males, Manda Island (14. 11. 85 and 18. 5. 86).
Common. Found it breeding in May.

49. Pyrrhulauda leucotis (Stanley).
Manda Island, May 1886.
Very common. Found in large flocks along the top of the low cliffs.

50. Crithagra icterа (Cuv.).
♂. Tangani, 31. 8. 85.
♀. Manda Island, 29. 5. 86.

Irides brown. Stomach contained small seeds. Common in the shambas.

51. Pytilia melba (Linn.).

♂. Manda Island, 14. 11. 85.

♀. Manda Island, 24. 5. 86.

Irides pinky red; bill of ♂ blood-red. Plentiful near the shambas.

52. Vidua hypocherina, Verr.

♂. Jipi, 27. 9. 85.

Rare. Shot out of a large flock of *Vidua principalis*. Saw one specimen at Kilima-njaro.

New to British Museum collection.

53. Vidua principalis (Linn.).

Tangani and Manda Island.

Bill vermilion; legs black. Scarce on Manda Island, but plentiful in the marshy ground on the mainland. This bird is very pugnacious and will drive any other small birds away from its haunts.

54. Vidua paradisea (Linn.).

♂. Manda Island, 9. 5. 86.

Saw several specimens in May on Manda Island, but none in November. I also saw it at Kilima-njaro.

55. Pyromelana nigriventris (Cass.).

Manda Island.

56. Pyromelana diademata (Fisch. et Reichen.).

♂. Jipi.

Common in the rice-fields in September 1885.

57. Ploceus melanoxanthus (Cab.).

Manda Island.

The male has the irides crimson, the legs pinky flesh-colour.

58. Ploceus nigriceps (Layard).

♂. Tangani, 21. 8. 85.

Irides orange-red. Fairly plentiful.

59. Oriolus auratus, Vieill.
♂. Manda Island, 10. 6. 86.
Irides crimson. Fairly plentiful also on the mainland at Tangani.

60. Pholidauges leucogaster (Gm.).
Manda Island.
Shot out of a large flock.

61. Dilophus carunculatus (Gm.).
♂. Jipi, 22. 8. 85.
Shot out of an immense flock of several thousands.

62. Corvus scapulatus, Daud.
♂. Manda Island, 10. 6. 86.
Rare near Lamu, but very common up the river Wami opposite Zanzibar.

63. Treron wakefieldi, Sharpe.
♂. Tangani, 22. 8. 85.
Very common, both on the coast and at Taveita.

64. Turtur semitorquatus, Rüpp.
♂. Manda Island, 21. 5. 86.
Irides brown, with a narrow gold ring; eyelids dull crimson. Very common in the shambas.

65. Chalcopelia afra (Linn.).
♀. Manda Island, 29. 5. 86.
Bill dull carmine; legs purple-carmine. Very common on the coast and at Kilima-njaro.
[This specimen belongs to the form *C. chalcospilos* (Wagl.). —G. E. S.]

66. Francolinus granti, Hartl.
♂. Taka, 13. 12. 85.
♀. Manda Island, 24. 5. 86.
This bird was very plentiful in November, in coveys of from eight to ten, but very scarce in May.

67. Coturnix delegorgei (Del.).
♂. Jipi, 21. 9. 85.
Plentiful. Very common at Kilima-njaro in January.

68. Limnocòrax niger (Gm.).
♂ ♀. Jipi, September 1885.
Irides crimson; bill pale green.
Very common.

69. Porphyrio alleni (Thomps.).
♂. Jipi, 15. 9. 85.
Irides brown.
The only specimen seen.

70. Parra africana (Gm.).
♂. Jipi.
Irides brown; shield on head pale grey; bill the same. Very common on every lagoon.

71. Ardetta atricapilla (Afzel.).
♂. Tangani, 28. 8. 85.
Irides bright yellow; upper mandible black; lower greenish yellow. Stomach contained grasshoppers.
I saw only two specimens of this Heron.

72. Ardetta sturmi (Wagl.).
♂. Jipi, 26. 9. 85.
♀. Tangani, 21. 8. 85.
Irides of male brownish crimson, of female yellow. Stomachs contained frogs.

73. Ardetta minuta (Linn.).
♀. Jipi.
Irides yellow. The only specimen seen.

74. Glareola ocularis, Verr.
♂. Mashundwani, 11. 9. 85.
Shot out of an immense flock which flew over my camp every night just at dusk.
Irides brown. Stomach and crop crammed almost to bursting with beetles and tree-bugs.

75. Dromas ardeola, Payk.
Kipungani Creek, 8. 1. 86.
Very common in large flocks.

76. Cursorius senegalensis (Licht.).
Kipungani, 10. 1. 86.
Generally found in twos and threes. I also shot one at Kilima-njaro.

77. Hoplopterus spinosus (Linn.).
♀. Jipi, 20. 8. 85.
Plentiful.

78. Ægialitis geoffroyi (Wagl.).
Two ♂. Manda Island, 13. 11. 85.
Common along the beach in November, but I saw none in May.

79. Ægialitis asiaticus (Pall.).
Manda Island, 13. 11. 86.
The only one I saw.

80. Ægialitis monogolicus (Pall.).
Two females, Manda Island, November 1885.
Very common in small flocks in November. I saw none in May.

81. Ægialitis hiaticula (Linn.).
Very common on Manda Island.

82. Ægialitis tenellus (Hartl.).
♂. Manda Island, 18. 5. 86.
Always seen in pairs. I think they were undoubtedly breeding.

83. Ægialitis pecuaria (Temm.).
Several specimens from Manda Island and Jipi.
Irides dark brown; legs pale horn-blue.
These birds were undoubtedly breeding in May, as they were always in pairs, and haunted the same spots on the shore.

84. Ægialitis tricollaris (Vieill.).
♂ ♀. Jipi.
Irides pale brown; eyelids orange; base of bill orange. Decidedly rare. Generally found in pairs on the banks of the large lagoons.

85. Tringa minuta, Leisler.
Jipi, Sept. 1885.
These birds, together with the Ringed Plover and Curlew Sandpiper, congregated in large flocks on the sandy shores of the lagoons at Jipi.

86. Tringa subarquata (Güld.).
♀. Jipi, September 1885.
Plentiful on the shores of the lagoons.

87. Helodromas ochropus (Linn.).
♂. Jipi, September 1886.
Shot on the edge of a small pool in the bush. The only one I saw.

88. Gallinago major (Gm.).
Jipi, September 1885.
Very plentiful in the swampy rice-fields on the shores of the lagoons.

89. Rhynchæa capensis (Linn.).
Jipi, September.
Very common. I found several nests with eggs on the shores of the lagoons.

90. Numenius phæopus (Linn.).
Common in the creeks and along the shore in November. Saw none in May.
The Curlew (*N. arquata*) was also very common in November, but I saw none in May. It was quite as shy and difficult to approach as in England.

91. Hydrochelidon nigra (Linn.).
Jipi, September 1885.
Shot on a lagoon.

92. Larus hemprichi (Bp.).
Two males, Manda Island.
The commonest Gull along the coast.

93. Chenalopex ægyptiaca (Linn.).
Occasionally seen in small flocks at Jipi.

94. Nettapus auritus (Bodd.).
♂. Tangani, 19. 8. 85.
♂. Jipi, 16. 9. 85.

Irides brown; bill yellow, tip black. I always came across these birds in small family parties of from six to eight in number, but I never succeeded in bagging an adult female.

95. Dendrocygna viduata (Linn.).
♀. Tangani, 18. 8. 85.

Very common at both Tangani and Jipi in large flocks. On September 17 I killed 18 of these Ducks at one discharge of a 10-bore gun, as they sat huddled together on a small promontory in the lagoon at Jipi.

96. Pœcilonetta erythrorhyncha (Gm.).
♂. Tangani, 20. 8. 85.

I shot only a few specimens of this Duck.

97. Podiceps capensis (Bp.).

Common on the lagoons at Jipi. I found several nests with eggs in September.

98. Phalocrocorax africanus (Gm.).
♂. Mashundwani, 9. 9. 85.

This bird was also very common at Jipi.

99. Plotus levaillanti, Licht.
♂. Tangani, 28. 8. 85.

Irides yellowish brown. Stomach contained eight small fishes, of the size and shape of small Crucian carp.

The Darter was common at Jipi.

XXVII.—*On the Birds of the Snares Islands, New Zealand.*

By Dr. O. Finsch, Ph.D., H.M.B.O.U., &c.

Through the kindness of Herr A. Reischek, an Austrian taxidermist, well known for the last twelve years in New Zealand as a zealous naturalist, I have received specimens of two birds obtained by him on the Snares Islands during a trip on board the Government steamer 'Stella.' As I believe

that these remote islands have not previously been visited by any ornithologist, the following notes upon these birds may be of interest.

Snares Islands consist of two small islands and several rocks, which extend over a distance of one mile and a half in a direction N.E. by E. and S.W. by W., about 62 miles S.S.W. of Stewart's Island, New Zealand. The north-eastern, which is the larger island, is about one mile long and half a mile wide, and is covered nearly all over with trees. The 'Stella' arrived here on Jan. 23, 1888, and found a difficult anchorage on the east side in 52 fathoms, the only locality where anchoring was possible at all. The visit made on shore was very short, as the sea was high and the wind was blowing hard. So Herr Reischek obtained only the two following birds :—

1. Sphenœacus fulvus, Gray.

One male, agreeing pretty well with the descriptions of G. R. Gray and Sir W. Buller, but the light eye-streak is very indistinct, and the specimen is somewhat larger, as shown in the following measurements :—

	Long. tot. in. lin.	Al. in. lin.	Caud. in. lin.	Rostr. lin.	Tars. in. lin.
♂. Snares Island	7 0	2 9	3 1	6	1 0
Four specimens from South Island	—	2 4–2 5	3 2–3 7	5	0 9–10
S. fulvus, from South Island (*Buller*)	7 5	2 5	4 0	4	·75

"The 'Utiks' of New Zealand (*S. punctatus* and *S. fulvus*) I have always observed in or near swamps, whereas this Utik lives in trees," writes Herr Reischek, but "on the Snares there is no swamp"! "I did not see any Utiks on Auckland, Campbell, Antipodes, or Bounty Islands." (*Reischek.*)

2. Myiomoira traversi, Bull.

One male of this uniform black species, hitherto known only from the Chatham Islands, and agreeing in every respect with specimens from that locality.

	Long. tot. in.	Al. in. lin.	Caud. in. lin.	Rostr. lin.	Tars. in.
♂. Snares Islands	5½	3 2	2 4	4	1
♂. Chatham Islands..	0	3 1	2 4	5	1
♀. Ditto.....	0	3 0	2 4	5	1

"Several specimens of 'Tomtit' observed by me on the Snares were of this black form. In manners they resemble *Petroica toitoi*." (*Reischek.*)

"On the Auckland Islands I observed *Petroica macrocephala*, the species of the North Island of New Zealand." (*Reischek.*)

Besides the two species above mentioned, Herr Reischek observed on the Snares Islands the following birds, according to his determinations :—

3. Stercorarius parasiticus.

On the rocks, feeding on young Penguins.

4. Diomedea chlororhyncha.

5. Puffinus tristis.

"Lives in holes." (*Reischek.*)

6. [illegible]daption capense.

7. [illegible]alodroma urinatrix.

"These two species are very common in the sea round the islands." (*Reischek.*)

8. Eudyptes pachyrhynchus.

I saw thousands of this species, jumping over the rocks, and fishing in the sea to feed their young ones, which were nearly full-grown.

XXVIII.—*On* Merula torquata *and its Geographical Races.*

By Henry Seebohm.

Christian Ludwig Brehm, commonly known as Pastor Brehm, in contradistinction to his son Alfred Ernest Brehm, described so many supposed new species and subspecies of European birds that recent ornithologists have very justly refused to take any notice of his writings, or to encumber the literature with his useless synonyms. In nine cases out of

ten the variation from the normal type was only an example of *individual* variation; but here and there he accidentally described an example belonging to a new species, or an unrecognized geographical race. Not that the slightest credit attaches to Brehm for these happy accidents; and so far from "the fashion to sneer at the species and subspecies" of this writer being an "unfortunate" one, and the "ignoring of his names without further investigation" being an "injustice," one can only congratulate ornithologists that most of them, his compatriots included, have fortunately taken so just a view of his merit. There is no merit in describing even a good species. Darwin was perfectly right when he wrote ('Life and Letters,' i. p. 371), "I think a very wrong spirit runs through all natural history, as if some merit was due to a man for merely naming and defining a species; I think scarcely any or none is due; if he works out *minutely* and anatomically any one species, or systematically a whole group, credit is due, but I must think the mere defining a species is nothing." It is not very easy to estimate the amount of discredit which attaches to a man who described perhaps five hundred bad species. He described no fewer than six species and subspecies of the Ring Ouzel, *Merula torquata*, to which he gave the names *Merula alpestris*, *M. vociferans*, *M. maculata*, *M. insignis*, *M. montana*, and *M. collaris*; and of these Dr. Stejneger expresses the opinion (Proc. United States Nat. Mus. 1886, p. 365) that two must be regarded as distinct species.

For the last year or more I have been accumulating evidence on this interesting question, and I have arrived at the following results:—

The Ring Ouzel may be subdivided into at least three local races; but intermediate forms between them occur so often that none of the three can be regarded as more than subspecifically distinct. The British, Vosges, and Scandinavian form may be regarded as the typical one. In Central Europe, in the pine regions of the Carpathians and their outlying ranges in Bohemia &c., in the Alps, the Apennines, the Pyrenees, and the Spanish Sierras, *M. torquata alpestris*

more ruf
P. vlan- which differs from the typical form in having the white on the margin of the wing-coverts much more developed, in having broad white margins and white centres to the feathers of the underparts, and in having nearly white axillaries. Intermediate forms occur both in Norway and Sweden. An example from the former locality in the British Museum, and one from the latter locality in Dresser's collection, have white centres to many of the flank-feathers. In examples from the Caucasus and Persia the white on the axillaries and on the wing-coverts is still more pronounced, whilst on the underparts that on the margins of the feathers is less pronounced, and that in the centre altogether absent. This form might be called *M. torquata orientalis*.

It is rather remarkable that these facts should have been unrecorded for so long a time; but the extreme rarity of specimens from continental Europe in the collections of British ornithologists is not the only explanation. The Blackbird, *Merula merula*, has a black bill for the first winter of its life, but ever afterwards its bill is more or less yellow. It has been foolishly taken for granted that corresponding changes
It place in the Ring Ouzel.
This does not seem to be the case. Of thirty-six skins of male Ring Ouzels, no British-killed autumn example has a yellow bill, and only one continental example with white centres to the feathers has a black, or almost black, one. The only conclusion I can draw is that *M. torquata alpestris*, like our Blackbird, having once acquired its yellow bill, never loses it, whilst the typical form acquires a black bill every autumn. It can hardly be supposed that twelve skins of birds with yellow bills and white centres to the feathers (which are all the male winter-killed examples of the continental form that I have been able to collect) should happen to be all, but one, adult birds, whilst eleven skins with black bills and no white centres to the feathers (which are all the winter-killed examples of the typical form that I have been able to collect) should all happen to be young birds.

Dr. Stejneger is to be congratulated upon the rediscovery *

* *Cf.* Stejneger, Proc. U.S. N. M. 1886, p. 365.

of *Merula torquata alpestris*. Professor Newton will example less plead that a 'History of British Birds' is not the place in which to expect a notice of a continental species; but this plea will not avail Messrs. Sharpe and Dresser, or myself. I must confess that, had not my blunder been pointed out, I should have redescribed the continental form as the winter plumage of the bird which breeds in our islands.

XXIX.—*On* Phasianus torquatus *and its Allies.*

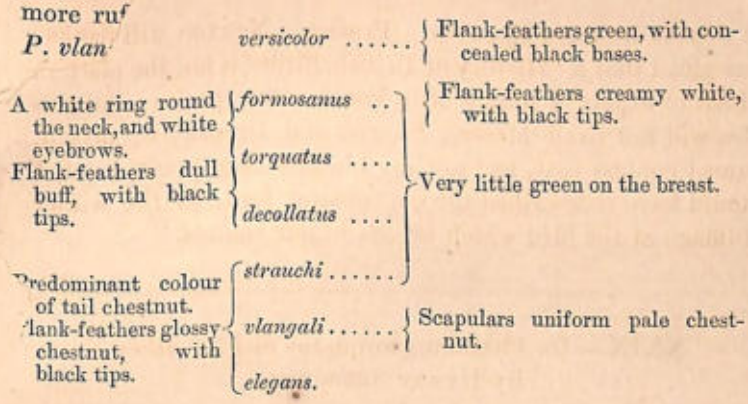
By Henry Seebohm.

Rather more than a year ago I succeeded in completing my series of specimens of the six races of which the Common Pheasant, *Phasianus colchicus*, may be regarded as the type, and I wrote a short paper (Ibis, 1887, pp. 168–173) describing their characters, affinities, and geographical distribution.

I have now been fortunate enough to secure examples of six out of the seven races of which the Siberian Pheasant, *Phasianus torquatus*, may be regarded as the type. Of *P. elegans* I have not even seen an example, and rely from diagnosis of its characters upon Elliot's plate and description.

The Siberian Pheasant and its allied races are only found east of the meridian of Calcutta. They differ from the Common Pheasant and its allied races, which are only found west of that line, in the following particulars:—The predominant colour of the rump and upper tail-coverts is green instead of red, and the wing-coverts are lavender-grey instead of white or red. In my former paper I added four other characters, founded upon the colour of the mantle and crown, the width of the cross bars on the tail-feathers, and the predominant colour of the latter. Now that I have had an opportunity of examining examples of the two new species of Pheasant obtained by Prjevalsky, I find that the last-mentioned characters do not apply to them.

Typical examples of the seven races of *Phasianus torquatus* may be distinguished as follows:—



PHASIANUS VERSICOLOR.

This Pheasant is found in all the Japanese islands, with the exception of Yezo, the most northerly one.

It is easily diagnosed by its *green flanks*.

Of the seven races this is much the most distinct, and it is impossible to say to which of the others it is nearest allied.

PHASIANUS FORMOSANUS.

This Pheasant is confined to the island of Formosa.

It requires two characters to diagnose it—*neck with a white ring round it*, and *flank-feathers creamy white*, with the usual dark tips.

It is somewhat doubtfully distinct from *P. torquatus*, but it has broader dark margins to the breast-feathers than any example of *P. torquatus* which I have seen, a peculiarity found also in *P. decollatus* and *P. strauchi*.

PHASIANUS TORQUATUS.

This Pheasant has the widest range of any of its allies, extending from the Lower Amoor, through Manchuria, to Eastern China, where it is found as far south as Chang-shi and Canton.

It is easily diagnosed by two characters—*neck with a white ring round it*, and *flank-feathers buff*, with the usual black tips.

As might be expected from its wide range, it varies somewhat in colour in different localities. Examples from the

Corea have the ground-colour of the mantle and example paler buff than usual, but they do not approach *P. formosanus* in having any wider dark margins than is usual on the breast-feathers. The feathers of the upper mantle also differ very considerably; the centres are white in an example from the Amoor, and black with a narrow white shaft-streak in examples from Northern and Central China; but other examples are intermediate in this respect. This form is unquestionably most nearly allied to *P. formosanus*, and of those races which have no white collar it appears to be most nearly allied to *P. decollatus*.

PHASIANUS DECOLLATUS.

The type of this Pheasant in my collection was obtained by Swinhoe in Eastern Setchuen, and there is an example in the Paris Museum from Mekong, in South-eastern Tibet.

It may be distinguished from its near allies by the possession of two characters—*flank-feathers buff*, with the usual nearly black tips, but with little or no metallic gloss, and *no white ring round the neck*.

It appears to be an intermediate form between *P. torquatus* and *P. strauchi*. From the former it not only differs in having no ring round the neck, but in having a paler mantle, somewhat paler flanks, and broader dark margins to the breast-feathers.

PHASIANUS STRAUCHI.

This Pheasant was originally described from examples obtained by Gen. Prjevalsky in Kansu, in the extreme north-west of China; but the three examples in the Paris Museum, obtained by l'Abbé David in Moupin, in Eastern Tibet, must, I think, also be referred to this race.

It may be recognized by its combination of the two characters,—*flanks chestnut-red*, with the usual dark tips, and with a high degree of metallic gloss, but *breast with very little green on it*. Its dark glossy flanks make it a very handsome bird, though it has no white ring round the neck.

It appears to be nearest allied to *P. decollatus*, but the

more rufous tail and flanks apparently denote affinity with *P. vlangali* and *P. elegans*.

PHASIANUS VLANGALI.

This Pheasant is only known from examples obtained by Prjevalsky in Zaidam, west of Koko Nor, in North-eastern Tibet.

It may at once be recognized by its *uniform pale chestnut scapulars*.

It is nearest allied to *P. strauchi* and *P. elegans*, having the preponderance of green on the breast so characteristic of the latter, but its absence on the mantle so conspicuous in the former.

PHASIANUS ELEGANS.

This Pheasant inhabits Yun-nan, whence it was described by Anderson under the name of *P. sladeni*. According to Elliot it ranges northwards into South Setchuen.

Its *metallic golden chestnut flanks*, spotted with glossy black (with purple or green reflexions), and its chestnut tail (barred with black), distinguish it from all its allies, except from *P. strauchi* and *P. vlangali*. From the former it is easily distinguished by its *green breast*, and from the latter by the *black, white, and green on its scapulars*.

It is nearest related to *P. vlangali*, and more distantly to *P. strauchi*. Some ornithologists have regarded it as a cross between *P. versicolor* (presumably imported into Setchuen from Japan for the purpose) and *P. decollatus*; but it is scarcely possible that the "deep chestnut-red" of the tail of *P. elegans* could have been produced by a cross between the olive-grey of that of *P. versicolor* and the dark ochre of that of *P. decollatus*.

Many of these races are known to interbreed freely, and there can be no doubt that all of them would do so, and produce fertile offspring, whenever they had the opportunity.

There is in the gallery of the British Museum a Pheasant which was presented to the National Collection by the late J. R. Reeves, and which was brought alive from China and died in the gardens of the Zoological Society in 1839. It

appears to be an intermediate form between *P. vlangali* and *P. sladeni*, differing from the former in having the scapulars dark chestnut and the inner flanks between the golden chestnut of the outer flanks and the green of the abdomen purple. In the latter character it agrees with Anderson's description of *P. sladeni*, but it has no dark margins to the scapulars or interscapulars, which are said to be black in *P. sladeni* and green in *P. elegans*. Without seeing an example of the latter it is difficult to determine whether the British-Museum example belongs to a distinct race from *P. sladeni* or *P. elegans*, or whether it and *P. elegans* are two quadroons between *P. olangali* and *P. sladeni*, or whether it, *P. elegans*, and *P. sladeni* merely represent individual variations unconnected with geographical distribution.

XXX.—*On* Hirundo rustica *and* Motacilla melanope *in Ceylon*. By Samuel Bligh. (Communicated by John Henry Gurney.)

On 24th November, 1887, I was detained for the night, in consequence of a ford being impassable, at a rest-house about ten miles from Coslanda; the day was wet, but I kept on the look-out for birds, and towards evening was attracted by seeing several Wagtails (*Motacilla melanope*) on the top of a low bazaar-building (a native shop); in a few minutes the number was doubled, and by this time small troops of them kept passing the rest-house, and other flocks were gathering from all sides, till thousands had collected; Swallows (*Hirundo rustica*) then began to arrive in flocks, and all commenced sweeping round over a small garden of native coffee of an acre or two in extent.

As the garden partly belonged to the rest-house keeper, I called him and asked him about the birds; he told me that they came there all the last cold season, for the first time, to roost in the coffee.

By this time a vast swarm of the two species had arrived and it was getting dusky. The rest-house keeper sent a boy to frighten up those that had settled; they went up in a



J. G. Keulemans del. et lith.

Mintern Bros. imp.

EMBERIZA JANKOWSKII

cloud, and the rustling of their tiny wings was distinctly heard by me a hundred yards off; they rose in a cupola-shaped mass, and were as thick as bees in a swarm; there must have been 30,000 or 40,000 birds on the wing at that moment, the Wagtails forming, as I estimated, about a third or fourth of the number.

The boy was called away, and soon all the birds descended before it was quite dark; when settled, the Swallows kept up an incessant simmering chirping for some time, but I could not hear a Wagtail's note at all.

The sight was a wonderful one; at daylight the birds all departed very quickly and quietly.

XXXI.—*Description d'une nouvelle Espèce du Genre* Emberiza. Par L. Taczanowski.

(Plate VIII.)

Emberiza jankowskii, sp. nov. (Plate VIII.)

E. supra rufa, interscapulio maculis nigris latissimis vario; superciliis latis, fascia genali, gula colloque antico supero albis; loris mystacibusque malaribus fusco-castaneis; area magna auriculari grisea; lateribus colli cinereis; regione jugulari pectoreque toto pallide cinerascentibus; abdomine medio albicante, area mediana magna obscure castanea; lateribus pectoris rufis, hypochondriis ochraceo-fulvis, subcaudalibus pallidioribus; alis nigricantibus, tectricibus minoribus cinereo late limbatis, mediis et majoribus pogonio externo rufo, apice albo; remigibus primariis albido, secundariis et tertiariis rufo marginatis; cauda nigra, pogonio externo rectricum dimidio basali vivide rufo, rectricibus lateralibus binis partim albis.

♂ ad. Couleur générale des parties supérieures du corps est rousse, tirant un peu au rougeâtre brique, à sommet de la tête distinctement plus obscur et varié d'un certain nombre de stries noirâtres, très petites, terminales dans les plumes, les plus distinctes sur le cervix; le gris est dominant sur le devant même du front, les autres plumes du sommet de la tête très peu bordées d'une nuance pale; les plumes de la nuque et du

devant même du dos terminées largement par une bordure fauve roussâtre pale, les plumes du dos inférieur et du croupion sans bordures pareilles, qui ne se manifestent de nouveau que sur les tectrices supérieures de la queue et sur les scapulaires ; la région interscapulaire est traversée par une bande large au milieu, atténuée sur les deux côtés, composée de grosses stries noires médiaires dans les plumes, dont les bords latéraux sont largement d'un fauve rougeâtre et sur quelques unes des plumes d'un fauve jaunâtre. Sur les côtés de la tête la mode de la coloration est semblable à celui de l'*E. cioides*, Brandt, mais représenté par les couleurs différentes ; le blanc occupe une large raie sourcilière commençant finement sur les côtés du front et élargie fortement en arrière de l'œil, et par une large bande génale commençant au dessous des lores et descendant sur la partie antérieure des côtés du cou ; le marron obscur occupe les lores et une moustache malaire assez large, dont la base des plumes est noirâtre ; l'œil même entouré d'une fine bordure d'un marron foncé ; la grosse tache auriculaire est grise, de la même forme que la tache marron de l'*E. cioides*. La gorge et le haut du devant du cou sont d'un blanc pur, région jugulaire et la poitrine d'une nuancé cendré grisâtre très légère ; milieu de l'abdomen blanchâtre avec une grosse tache médiane oblongue d'un marron foncé (longue de $2\frac{1}{2}$, large d'1 centim.) ; côtés mêmes de la poitrine sont d'un roux un peu plus pale que celui du dos, côtés de l'abdomen d'un fauve roussâtre pale, les souscaudales un peu plus pales. Ailes noirâtres, les petites tectrices alaires bordées largement de cendré ; les bordures externes des tectrices moyennes et des grandes rousses, avec un liseré externe fauve ; la bordure terminale de ces tectrices largement blanche sur les deux barbes ; bordures externes des rémiges primaires fines blanchâtres passant au roussâtre vers la base des pennes, celles des secondaires rousses passant au blanchâtre vers l'extrémité ; dans les rémiges tertiaires les bordures sont plus larges, rousses bordées à l'extérieur de fauve pale ; barbes internes des rémiges bordées de blanc dans les trois quarts basals ; sousalaires et axillaires blanches, les premières à disque gris. Queue d'un noir brunâtre à barbe externe des rectrices longuement rousse

dans leur moitié basilaire, puis passant en une fine bordure blanchâtre ; dans la rectrice externe toute la barbe externe est blanche, et ce n'est qu'auprès de la base même que le blanc passe au roux ; la première et la deuxième rectrices latérales sont largement blanches dans leur partie terminale ; les deux rectrices médianes sont d'un gris brunâtre à barbe externe longuement rousse bordée de blanchâtre à ligne médiane, longuement noire le long de la baguette. Bec brun à mandibule inférieure plombée, l'extrémité noirâtre ; pieds d'un carné jaunâtre, à doigts d'une couleur sale ; ongles noirs ; iris brun foncé.

Longueur totale 168, aile 75, queue 70, bec 12, tarse 19, doigt médian 15, ongle 6·5 millimètres.

Unique exemplaire tué par M. Jankowski le 9 mars 1886, aux environs de Sidemi, dans le voisinage de la frontière de la Corée et de la Mantchourie Chinoise. Je profite de cette occasion pour dédier l'espèce à M. Michel Jankowski, qui depuis vingt ans continue avec ardeur l'exploration de la faune dans le pays Oussourien, d'où il nous a fourni un grand nombre de matériaux très précieux, et surtout pour l'ornithologie et l'entomologie.

Observations. Il est étonnant qu'un oiseau aussi remarquable ne fut trouvé pour la première fois qu'au bout de vingt ans de l'exploration continuelle de ce pays, tant plus qu'il n'a pas été trouvé dans tous les pays environnants dont la faune est assez bien connue. On sait parfaitement que les oiseaux de ce genre se trouvent partout en nombre plus ou moins considérable et ne se dérobent pas devant l'œil des explorateurs. On ne peut pas même supposer qu'on puisse prendre cette espèce au premier coup d'œil pour l'*Emberiza cioides*, semblable et très commun dans la contrée, car elle présente des caractères qui sont visibles à une distance assez éloignée. Où peut donc se trouver la région principale de l'habitat de ce bruant ?

XXXII.—*On the Dates of Publication of Bonaparte's* 'Iconografia della Fauna Italica.' By T. Salvadori, C.M.Z.S.

It appears that the exact dates of publication of the different species of vertebrated animals described and figured in Bonaparte's 'Iconografia della Fauna Italica' are not generally known. For this reason I have thought that it might be useful to ornithologists to give, in the pages of 'The Ibis,' a chronological list of the birds described and figured by Bonaparte in that work*.

* Even in the most recent works, such as those of Dresser, Seebohm, and Sharpe, as also in 'The Code of Nomenclature and Check-list of North-American Birds,' the dates accompanying the quotations from Bonaparte's work are constantly wrong or uncertain. Thus, in the American work mentioned above, the genus *Otocorys*, Bp., is quoted as established in the 'Introduzione alla Fauna Italica,' with the date 1839. Leaving aside for the present that the genus *Otocoris* (sic) was established in another work of Bonaparte's, I must state that the "Introduzione" to the Birds of Bonaparte's work was certainly not published in 1839, as I shall show further on. Mr. Sharpe, in the quite recent 12th volume of the 'Catalogue of Birds,' quotes the plate 34, representing *Emberiza palustris*, with the date 1832, instead of 1834; the plate 38, representing *Chlorospiza incerta*, with the date 1832, instead of 1839; the plates 35, 36, 37, representing respectively *Erythrospiza githaginea*, *Emberiza durazzi*, and *Fringilla serinus*, with the indeterminate dates 1832–1841. With the same indeterminate dates is quoted by Mr. Sharpe the genus *Erythrospiza*, Bp., which, by the way, was established by Bonaparte in a much earlier work ('Sulla seconda edizione del Regno Animale del Barone Cuvier, Osservazioni,' p. 80, 1830). Moreover it is equivalent to *Carpodacus*, Kaup (1829); so that *Erythrospiza*, Bp., cannot be used, as it has been done by Mr. Sharpe, as equivalent and in preference to *Bucanetes*, Cab.

Again, Mr. Seebohm, both in vol. v. of the 'Catalogue of Birds' and in the very recent 'Geographical Distribution of the *Charadriidæ*,' is not very particular in the dates in quoting Bonaparte's work. In fact, in his last book, in the synonymy of *Vanellus gregarius*, p. 212, Mr. Seebohm quotes *Chettusia gregaria*, Bp., Faun. Ital. Ucc., Introd. p. 12, with the date 1832, which is certainly wrong, as that is six years earlier than the first capture of that species in Italy, which happened in 1838; in which year also Bonaparte's article concerning that species was published. In Mr. Seebohm's work the date of Bonaparte's quotation ought to have been 1841, as is rightly stated in the synonymy of the genus *Vanellus*, given in the same work, p. 205.

Bonaparte's work, as we learn from what he says at the end of the preface, was begun in 1832, and finished 21st December, 1841. It is divided into three volumes, the first of which contains the Mammals and the Birds, but the whole work was published in 30 Parts or "Fascicoli." The dates of each of these have been given by Bonaparte in the "Specchio generale dell' Opera," printed after the List of the Subscribers, and the contents of the Parts can be gathered from the "Indice distributivo" of each volume.

The Parts or "Fascicoli" containing descriptions of Birds were published in the following sequence :—

Fasc. I. (1832).

Sylvia icterina (tom. i.)†, punt. 2, tav. 28‡, f. 2.

Sylvia hippolais (tom. i.), punt. 2*, tav. 28, f. 1.

Fasc. II. (1833).

Numenius tenuirostris (tom. i.), punt. 8, tav. 42.

Fasc. III. (1833).

Fringilla cisalpina§ (tom. i.), punt. 14, 14*, tav. 36, f. 1, 2, 3.

Fasc. IV. (1833).

Fringilla serinus (tom. i.), punt. 20, 20*, tav. 37, f. 1, 2§.

Fasc. VI. (1834).

Perdix graeca (tom. i.), punt. 29, 29*, tav. 39.

Fasc. VII. (1834).

Motacilla flava (tom. i.), punt. 36, 36*, tav. 31, f. 1.

Motacilla cinereocapilla (tom. i.), punt. (36*)‖, tav. 31, f. 2.

† To complete the quotation I have added the indication of the volume.

‡ The plates are not numbered in Bonaparte's work, but in the 'Conspectus' and other works he has attributed to them numbers, according to the sequence indicated by him, for the binding, in the "Indice distributivo del Tomo Primo."

§ Bonaparte, as I will explain under *Chlorospiza incerta*, has wrongly stated, in the "Indice distributivo del Tomo Primo," that *Fringilla cisalpina* was contained in Fasc. xxiv. Also the statement that *Fringilla serinus* was published in Fasc. iii., instead of iv., is most likely wrong, but it has no consequence as to the date.

‖ I have enclosed between brackets the numbers which are not printed at the bottom of the pages.

Motacilla melanocephala (tom. i.), punt. (36), tav. 31, f. 3.

Fasc. VIII. (1834).

Emberiza palustris (tom. i.), punt. 41, 41*, tav. 34, f. 1, 2, 3.

Emberiza schœnicola (tom. i.), tav. 34 (fig. capitis).

Fasc. IX. (1834).

Sylvia turdoides (tom. i.), punt. 46, 46*, tav. 29, f. 1.

Sylvia arundinacea (tom. i.), punt. (46), tav. 29, f. 2.

Sylvia cetti (tom. i.), punt. (46), tav. 29, f. 3.

Fasc. X. (1834).

Sylvia sibilatrix (tom. i.), punt. 50, tav. 27, f. 1.

Sylvia trochilus (tom. i.), punt. 50*, tav. 27, f. 2.

Sylvia rufa (tom. i.), punt. (50), tav. 27, f. 3.

Sylvia bonellii (tom. i.), punt. (50), tav. 27, f. 4.

Fasc. XI. (1834).

Sylvia palustris (tom. i.), punt. 53, tav. 30, f. 1.

Sylvia luscinioides (tom. i.), punt. 53*, tav. 30, f. 2.

Fasc. XV., XVI. (1836).

Porphyrio antiquorum (tom. i.), punt. 72, 72*, tav. *ris, rospiza* -epre-

Fasc. XVIII. (1836).

Acridotheres roseus (tom. i.), punt. 83, tav. 32, f. 1, 2, 3.

Fasc. XXII. (1838).

Sitta europæa (tom. i.), punt. 111, 111*, tav. 26, f. 1.

Sitta syriaca (tom. i.), punt. (111), tav. 26, f. 2.

Merops ægyptius (tom. i.), punt. 115 (lege 114), tav. 25, f. 1.

Merops apiaster (tom. i.), tav. 25, f. 2.

Fasc. XXIII. (1838).

Sturnus unicolor (tom. i.), punt. 113, tav. 23, f. 1.

Sturnus vulgaris albo-varius (tom. i.), tav. 23, f. 2.

Vanellus gregarius (tom. i.), punt. 115, tav. 41.

Fasc. XXIV. (1839).

Chlorospiza incerta (tom. i.), punt. 122, tav. 38, f. 1, 2†.

† This species, in the "Indice distributivo del Tomo Primo," is indicated

Fasc. XXV. (1839).

Gallinago brehmi (tom. i.), punt. 127, tav. 43.

Fasc. XXVI. (1839).

Emberiza durazzi (tom. i.), punt. 132, tav. 35, f. 1, 2.

Erythrospiza githaginea (tom. i.), punt. (132), tav. 35, f. 3.

Fasc. XXVII. (1840).

Xema lambruschinii (tom. i.), punt. 135, 135* (lege 136, 136*). tav. 45.

Xema ridibundum (tom. i.), tav. 45, f. *a*.

Xema melanocephalum (tom. i.), tav. 45, f. *b*.

Fasc. XXVIII. (1840).

Xema capistratum (tom. i.), punt. 142, tav. 46, f. 1.

Xema minutum (tom. i.), tav. 46, f. 2.

Pterocles alchata (tom. i.), punt. 143, tav. 40.

Fasc. XXIX. (1840).

Falco eleonoræ (tom. i.), punt. 150, tav. 24.

Fasc. XXX. (1841).

Querquedula angustirostris (tom. i.), punt. 151, tav. 47, f. 1, 2.

Callichen rufinus (tom i.), tav. 47, f. 3 (fig. capitis).

Besides the descriptions of the species contained in the "fascicoli," Bonaparte published an "Introduzione" to the Birds of his work; in this "Introduzione" all the Italian birds then known to Bonaparte were mentioned, and at least one genus, *Chettusia*, was proposed, apparently for the first time†. It is not without interest to fix the exact date of publication of the "Introduzione."

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as contained in "fascicolo" iv., published in 1833, while *Fringilla cisalpina* is given as contained in "fascicolo" xxiv.; but from internal evidence it is clear that a mistake has occurred. In fact, in the synonymy of *Chlorospiza incerta*, Bonaparte quotes the third volume of Temminck's 'Manuel d'Ornithologie,' which is dated 1835, so that it is evident that *Chlorospiza incerta* could not have been contained in the 4th "fascicolo," which was published in 1833. Also from the sequence of the "puntate" we come to the same conclusion.

† It is worth while noticing that the name *Chettusia gregaria* was first

It is generally stated that it was published in 1839*; but this date is certainly wrong. Bonaparte's "Introduzione" bears no date of any sort, but from internal evidence, as Prof. Newton has rightly noted (Yarrell's Brit. B. i. p. 613, note), it is quite certain that it was not published before 1840, as in it mention is made of some generic and specific names, published for the first time by Keyserling and Blasius in the 'Wirbelthiere Europa's'†, a work published in 1840, not before the month of May, as the Prospectus I have to that work bears the date May 1840. From this it is quite evident that Bonaparte's "Introduzione" must have been published some time after that date, and I feel pretty sure that it did not appear till 1841. In fact, in the last paragraph of the "Introduzione" all the birds figured in the work are mentioned, and as the last one described and figured, as shown by the table ("Indice distributivo del Tomo Primo"), was *Querquedula angustirostris*‡, which was contained in the 30th or last part or "fascicolo," published, according to the author's statement ('Specchio generale dell' Opera'), in 1841, it follows that the "Introduzione" must have been published after the completion of the 30th or last part or "fascicolo" of the work, and it is very natural that it should have been so.

But, then, how is it that in Gray's 2nd edition of the 'List of Genera of Birds,' published in 1841, the genus *Chettusia*, Bp., is already mentioned? There is not much difficulty, I think, in explaining this. Gray's 'List,' which, as I hear from

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used by Bonaparte as the *Italian* name of *Vanellus gregarius*, when he published the description and plate of this bird, in "fascicolo" xxiii., in 1838.

* 'List of Brit. Birds, B. O. U.,' p. 73; 'Check-List of N. Am. B.' p. 238, &c.

† Bonaparte, besides mentioning the genus *Sinorhynchus*, K. et Blas., and *Larus leucocephalus*, Boiss., as a synonym of *L. lambruschinii* (the first established, and the second identified in Keyserling and Blasius's work), alludes to Durazzo's 'Uccelli Liguri,' which was published in 1840.

‡ The figure of the head of *Callichen rufinus* is only additional to the plate.

Prof. Newton, was reviewed by Strickland in the January number of the 'Annals of Natural History' for 1842 (vol. viii. p. 362), was most likely published in the later months of 1841; and if Bonaparte's "Introduzione" to the Birds was published in the earlier months of the same year, Gray may have had time to see it before the publication of his 'List.'

But, again, how was it that Gray in his 'List' gave to the genus *Chettusia*, Bp., the date 1839? Unless Bonaparte has published that generic name in some other work, which we do not know*, the only explanation I can give is this:—The Dedication of Bonaparte's 'Iconografia' to the Grand Duke of Tuscany, Leopold II., which is placed after the frontispiece of the first volume of the work, is dated 1839†, and most likely Gray took that date for that of the "Introduzione" also.

I think that after all this we may be satisfied that the "Introduzione" to the Birds of Bonaparte's 'Iconografia della Fauna Italica' was published in the same year in which the work was completed, namely in 1841.

Turin, Zoological Museum, April 1888.

1889.

XXXIII.—*Notes on the Emperor Penguin* (Aptenodytes forsteri). By P. L. Sclater, M.A., Ph.D., F.R.S.

The interest which I have taken in the proposal to send out another exploring expedition to the Antarctic Seas has induced me to look up what is known of the history of the Emperor Penguin, the giant of the group to which it belongs, and a characteristic form of the little-known Antarctic continent. So far as I can make out, this bird has only been met with on three occasions,—(1) by Cook, in

* Also as regards the genus *Otocorys*, Bp., it is generally stated to have been established in the "Introduzione;" but I have found out quite lately (*Cf.* 'Elenco degli Uccelli Italiani,' p. 303) that it was proposed in the 'Nuovi Annali delle Sc. Nat.' (Bologna), ii. p. 407 (1839).

† It seems that Bonaparte published the Dedication of his work to the Grand Duke of Tuscany, Leopold II., on the occasion of the Meeting of the Italian Savants held at Pisa, in 1839.

1774–75, during his second voyage, (2) by our Antarctic Expedition in 1840–43, and (3) by the U.S. Exploring Expedition under Commodore Wilkes, in 1840.

Whether any specimens of the Emperor Penguin were brought home from Cook's second voyage I have not been able to ascertain; but a coloured drawing was made, which is now in the unpublished volume commonly called "Forster's Icones inditæ," in the British Museum. This drawing was reproduced by J. F. Miller in his 'Various Subjects of Natural History' (London, 1778), in the second edition of the same work, in which the letterpress was written by Shaw (Miller's 'Cimelia Physica,' London, 1796), and by J. R. Forster, in his well-known article, "Historia Aptenodytæ," published in the 'Comment. Soc. Reg. Gottingensis,' in 1781.

Unfortunately, Forster united this Penguin to the "King Penguin," which had been previously described by Pennant as the "Patagonian Penguin" (Phil. Trans. lviii. p. 91), and called it *Aptenodytes patachonica*. It remained thus confounded with its allied form until 1844, when the examination of the specimens brought home by our Antarctic Expedition enabled G. R. Gray to point out conclusively the differences between them (Ann. Nat. Hist. xii. p. 315). Gray very sensibly remarked that the name "*patachonica*," having been applied to two species, had become no longer of any value as a specific term, and proposed to call the present bird *Aptenodytes forsteri*, and the smaller species (commonly called the "King Penguin") *Aptenodytes pennanti*. Several modern authors, however, under the influence of the craze for "priority," have chosen rather to call the Emperor Penguin *Aptenodytes patachonica**, which, as the bird has never been found in or near Patagonia, is not maintainable, even under the most stringent view of the laws of the Stricklandian code.

The principal synonymy of this Penguin is as follows, so far as I am acquainted with it:—

* Coues, Pr. Acad. Nat. Sc. Phil. 1872, p. 192; Schlegel, Mus. d. P.-B., *Urinatores*, p. 3; and Sharpe, Zool. Erebus & Terror, Suppl., Birds, p. 38.

APTENODYTES FORSTERI.

1778. *Aptenodytes patagonica,* Miller, Various Subjects of Nat. Hist. pl. xxiii.

1781. *Patagonian Pinguin,* Pennant, Gen. of B. p. 66, t. xiv. (not of Phil. Trans.).

1781. *Aptenodytes patachonica,* J. R. Forster, Comm. Soc. R. Sc. Gotting. iii. p. 139, t. ii.

1788. *Aptenodytes patachonica,* Gm. S. N. i. p. 556 (part.).

1790. *Aptenodytes patachonica,* Lath. Ind. Orn. ii. p. 878 (part.).

1796. *Pinguinaria patagonica,* Shaw, in Miller's Cim. Phys. t. xxiii.

1844. *Aptenodytes forsteri,* G. R. Gray, Ann. N. H. xiii. p. 315.

1844. *Aptenodytes patagonica,* Licht. in Forst. Descr. An. p. 347 (part.).

1844. *Aptenodytes forsteri,* G. R. Gray, List of Gall.,Grall. & Anseres, p. 156.

1856. *Aptenodytes imperator,* Bp. C. R. Acad. Sc. Paris, xlii. p. 775.

1858. *Aptenodytes patachonica,* Cassin, U.S. Explor. Exp., Birds, p. 349.

1847. *Aptenodytes forsteri,* Ross, Narr. Arct. Exp. ii. p. 159.

1867. *Spheniscus patagonicus,* Schlegel, Mus. d. P.-B. *Urinatores,* p. 3.

1872. *Aptenodytes patagonica,* Coues, Pr. Ac. Nat. Sc. Phil. 1872, p. 192.

1875. *Aptenodytes patachonica,* Sharpe, Zool. Erebus & Terror, Birds, Suppl. p. 38, pl. 31.

1879. *Aptenodyte de Forster,* A. Milne-Edwards, Ann. Sc. Nat. sér. 6, Zool. ix., "Recherches sur la Faune d. Rég. Austr." p. 39.

The specimens of this bird existing in museums and collections are, so far as I know, only nine or ten, namely:—

(1) Six examples in the British Museum, as enumerated in Gray's 'Catalogue of the Gallinæ, Grallæ, and Anseres,' published in 1844 (p. 156). Four of these specimens (three adults and one young) are now mounted in the gallery. The

others are said to be among the skins. There is also a skeleton, of which I shall say something further on. All these specimens were received from the Antarctic Expedition.

(2) A fine mounted specimen in Sir Joseph Hooker's private collection, also procured during the Antarctic Expedition, which, as is well known, he accompanied as Naturalist and Assistant-Surgeon. Sir Joseph informs me, in reply to my inquiries, that this specimen was taken on the Southern Ice-pack in January 1842, in about lat. 65° 48′ S., long. 157° 36′ W., and is one of those referred to in Ross's 'Narrative,' vol. ii. p. 158.

(3) Two stuffed specimens in the Leyden Museum,—one in imperfect plumage, and one young in down (see Schlegel, Mus. d. P.-B. *Urinatores*, p. 3). The origin of these specimens is not stated.

(4) One example in the U.S. National Museum, Washington, obtained during the United States Exploring Expedition. (See Cassin, U.S. Expl. Exp., Mamm. & Orn. p. 349, and Coues, Proc. Acad. Nat. Sci. Philad. 1872, p. 192).

As regards the exact range of the Emperor Penguin, much remains to be learned, but it appears to be now only found on the shores of the Antarctic continent, and probably breeds in the adjacent islands*.

In the time of Cook's voyage it seems to have been met with in South Georgia Island. Forster's drawing (Icon. ined. 81), to which I have referred above, is marked in pencil (probably in his own handwriting) "Jan. 17th, 1775." On reference to George Forster's 'Narrative of Cook's Second Voyage' (vol. ii. p. 528), we find that Tuesday, Jan. 17th, 1775, was the day on which Cook's Expedition landed in South Georgia, and the subjoined account of this Penguin is there given :—

"Here we likewise found a flock of about twenty Penguins, of a much greater size than any we had hitherto seen : they were 39 inches long, and weighed 40 pounds. Their

* In Possession Island (lat. 71° 56′, long. 171° 7′ E.) "inconceivable myriads of Penguins completely and densely covered the whole surface" (Ross's Narr. Ant. Exp. i. p. 189).

belly was of a most enormous size, and covered with a quantity of fat. An oval spot of bright yellow or lemon-colour appears on each side of the head, and is edged with black, the rest of the body being of a blackish-grey colour on the whole back and upper side, and white on the belly, under the fins, and all the fore part. These birds were so dull as hardly to waddle from us: we easily overtook them by running, and knocked them down with sticks. When we returned on board we found they were mentioned by that great zoologist, Mr. Pennant, in the 'Phil. Trans.,' by the name of the Patagonian Penguins, and we likewise supposed them to be the same species which the English at the Falkland Islands have named Yellow or King."

It is singular, however, that the Great Penguin found in South Georgia at the present day is said to be not the "Emperor," but the allied "King" Penguin (*A. pennanti**).

In Gray's list of the specimens of *A. forsteri* received by the British Museum from the Antarctic Expedition, localities are attached only in two cases—"*d.* Female, lat. 77° S., long. 180° E.," and "*f.* Very young, lat. 64° S." The first of these localities is to the east of Victoria Land, under the great perpendicular ice-barrier; the second cannot be ascertained exactly without the longitude. But in Ross's 'Narrative of the Expedition' (vol. ii. p. 158), we find the following paragraph under date Jan. 11th, 1842, when the Expedition was in 156° W., 66° 65′ S., to the east of Victoria Land:—

"During the last few days we saw many of the Great Penguins, and several of them were caught and brought on board alive; indeed it was a very difficult matter to kill them, and a most cruel operation, until we resorted to hydrocyanic acid, of which a tablespoonful effectually accomplished the purpose in less than a minute. These enormous birds varied in weight from sixty to seventy-five pounds. The largest was killed by the 'Terror's' people, and weighed seventy-eight

* *Cf.* Pagenstecher's "Report on the Birds of South Georgia obtained by the German Polar Commission of 1882–83," in Bericht nat. Mus. Hamburg, 1885, p. 16.

pounds. They are remarkably stupid, and allow you to approach them as near as to strike them on the head with a bludgeon, and sometimes, if knocked off the ice into the water, they will almost immediately leap upon it again, as if to attack you, but without the smallest means either of offence or defence. They were first discovered during Captain Cook's voyage to these regions, and the beautiful unpublished drawing of Forster, the naturalist, has supplied the only figures and accounts which have been given to the public, both by British and foreign writers on natural history. Mr. Gray has, therefore, named it in the 'Zoology' of our voyage, *Aptenodytes forsteri*, of which we were fortunate in bringing the first perfect specimens to England. Some of these were preserved entire in casks of strong pickle, that the physiologist and comparative anatomist might have an opportunity of thoroughly examining the structure of this wonderful creature. Its principal food consists of various species of cancri and other crustaceous animals; and in its stomach we frequently found from two to ten pounds' weight of pebbles, consisting of granite, quartz, and trappean rocks. Its capture afforded great amusement to our people, for when alarmed and endeavouring to escape, it makes its way over deep snow faster than they could follow it; by lying down on its belly and impelling itself by its powerful feet, it slides along upon the surface of the snow at a great pace, steadying itself by extending its fin-like wings, which alternately touch the ground on the side opposite to the propelling leg. The most successful of our hunters were Mr. Oakley and Mr. Abernethy, as they were also in the capture of the seals, which we met with in no great numbers."

Again, on Feb. 5th, 1841, in lat. 77° 18′ S. and long. 193° E., when the expedition was not far from the South Polar Ice-barrier, we read (Ross's Voy. i. p. 234) :—"We saw several of the large Penguins, and three were brought on board; they were very powerful birds, and we had some difficulty in killing them: each of the two larger weighed sixty-six pounds, and the smallest fifty-seven pounds: their flesh is very dark, and of a rank fishy flavour."

The specimen brought back by the U.S. Exploring Expedition was obtained in lat. 65° 52′ S., long. 150° 25′ E., that is, to the west of the spot above mentioned, but not very far away.

On the whole, Victoria Land and adjacent seas may be given as the only present ascertained locality of this bird.

M. A. Milne-Edwards, in his recent article on the Fauna of the Antarctic Regions (Ann. Sc. Nat. sér. 6, Zool. vol. ix.), seems inclined to minimize the specific differences between this species and *A. pennanti*. But I think there can be no doubt that the two birds are quite distinct, as species are usually considered. Besides the size, the external structural differences have been well pointed out by Gray and Coues (*ll. ss. cc.*). The most obvious of them are—(1) The extension of the feathering over the rami of the lower mandible in *A. forsteri*, whereas in *A. pennanti* the sides of the lower mandible are entirely naked. This is at once noticeable in specimens of all ages. (2) The tarsi are feathered in *A. forsteri*, in *A. pennanti* they are naked. (3) The bill in *A. forsteri* is relatively much shorter than in *A. pennanti*.

The differences in coloration of the two species are well shown in the coloured plates in the Zoology of the 'Erebus' and 'Terror.' They are also correctly described by G. R. Gray, as follows :—

A. forsteri.	*A. pennanti.*
Yellow of the sides of head passing insensibly into white on the sides of neck, where it is divided by a projecting point of the same colour as the back.	Yellow of the sides of head deep, and passing at once into deep orange on the chest, gradually becoming white on the breast.
Black under the throat short, and divided in front in the middle by a point of the white feathers of the chest.	Black under the throat ending in a blunt point on the chest.

In the British Museum I have had an opportunity of making a comparison of examples of the skeletons of these two Penguins which fully substantiate the external differences. As will be seen by the figures (1 and 2, p. 332),

the bill of *A. forsteri* (fig. 2) is much shorter and broader than that of *A. pennanti* (fig. 1).

Fig. 1. Fig. 2.

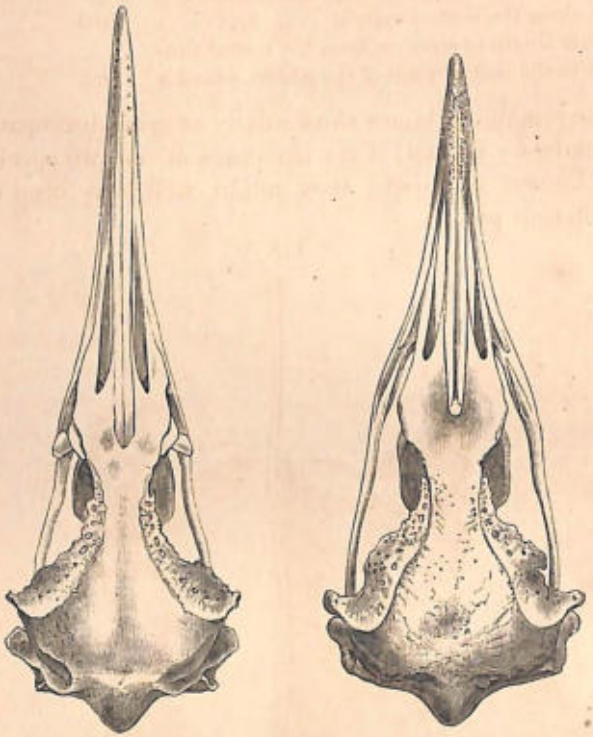


Fig. 1.—Upper surface of skull of *A. pennanti*, reduced $\frac{1}{3}$.
Fig. 2.—Corresponding view of skull of *A. forsteri*, reduced $\frac{1}{3}$.

On comparing the two sterna together great differences are at once observable. That of *A. forsteri* (fig. 4, p. 334) is very much longer and broader, and generally larger.

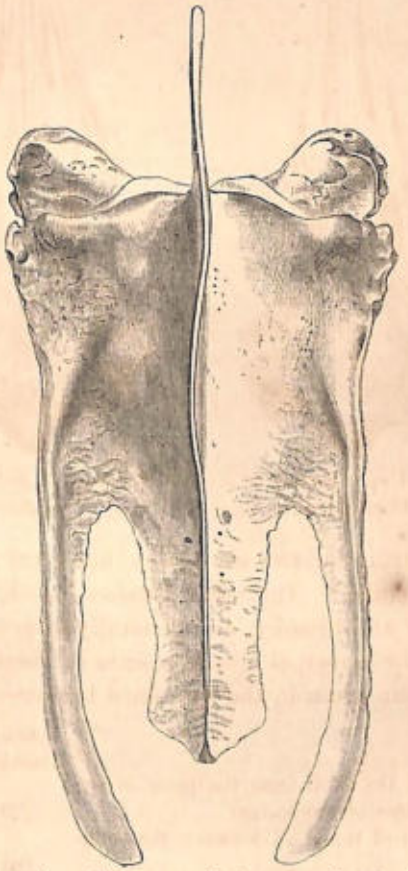
Some of the principal measurements of these bones of the two species are given in the subjoined table:—

	A. forsteri. inches.	*A. pennanti.* inches.
Total length of the skull from the point of the beak to the base of the occiput	7·0	7·5
Extreme width of the skull between the squamosals	2·6	2·4

	A. fosteri. inches.	*A. pennanti.* inches.
Distance from the point of the bill to the proximal end of the nasal bones	3·7	4·5
Extreme length of the *carina sterni* in a straight line along the ventral margin	10·9	8·2
Extreme length of sternum from the rostral process to the middle point of the posterior border	8·5	6·1

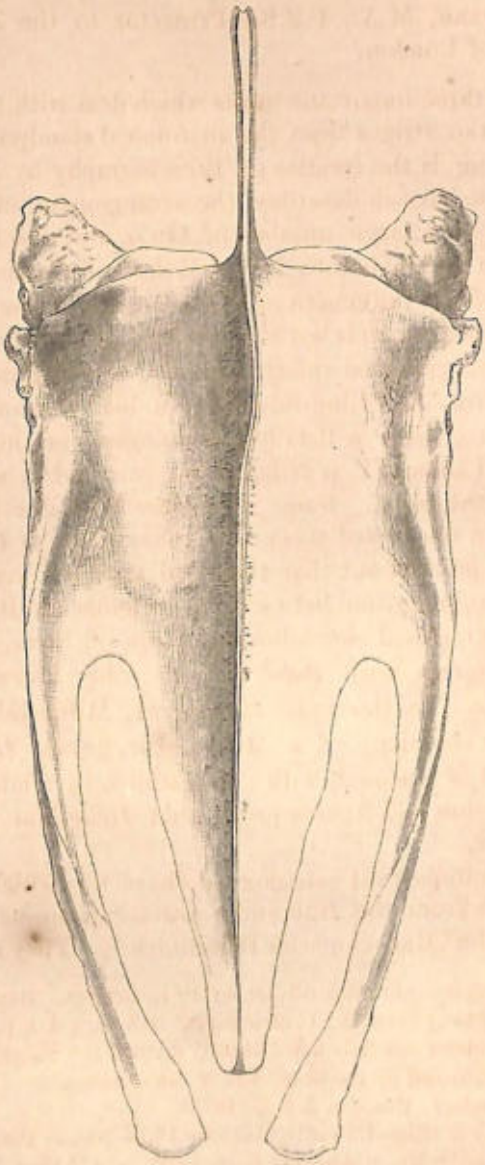
The remaining bones show nearly as great discrepancies on comparison; in fact, if the skeletons of the two species were only known as fossils, they might well have been referred to different genera.

Fig. 3.



Upper view of sternum of *A. pennanti*, reduced ½.

Fig. 4.



Upper view of sternum of *A. forsteri*, reduced $\frac{1}{2}$.

XXXIV.—*On the Classification of the* Striges. By Frank E. Beddard, M.A., F.Z.S., Prosector to the Zoological Society of London.

There are three important works which deal with the classification of the Striges from the anatomical standpoint. The first of these is the treatise on Pterylography by Nitzsch*. In this work Nitzsch describes the arrangement of the feather-tracts in a large number of Owls, and concludes that the group is separable into two well-marked divisions. One of these includes the genera *Strix* (termed by Nitzsch *Hybris*) and *Photodilus*, which is not separated generically from *Strix*; to the other group he referred all the remaining genera of Striges. Prof. A. Milne-Edwards, in his 'Oiseaux fossiles de la France,' gave a detailed osteological account of the Striges, and showed that Nitzsch was justified in separating *Strix* from the rest†. Some years later M. Milne-Edwards‡ published an illustrated account of the skeleton of *Photodilus badius*, and pointed out that this Owl must be regarded as intermediate in position between the Strigidæ and Bubonidæ; the pterylographical characters are those of *Strix*, while the osteology agrees with *Bubo* and all other known genera except *Strix*. In the same memoir M. Milne-Edwards described the osteology of a Madagascar genus, *Heliodilus*; this account is repeated, with illustrations, in a later work §. The description and figures prove that *Heliodilus* is a near ally of *Strix*.

The more important osteological characters which separate the Strigidæ from the Bubonidæ are recapitulated by Prof. Newton in the 'Encyclopædia Britannica' ‖. They are briefly

* Pterylography. English edition, by P. L. Sclater. Ray Soc.

† Prof. Newton (Yarrell's 'British Birds,' 4th ed. vol. i. p. 148) states that Messrs. Sclater and Salvin had already divided the Strigidæ into two families distinguished by the characters of the sternum.

‡ Nouv. Arch. d. Mus. sér. 3, t. i. (1878).

§ Grandidier & Milne-Edwards, 'Histoire Phys. Nat. et Polit. de Madagascar, Oiseaux.' Mr. Sharpe (P. Z. S. 1879, p. 175) has pointed out that in the serration of the middle claw *Heliodilus* agrees with *Strix*.

‖ Article "Owl," vol. xviii. p. 88.

stated at the end of this paper (p. 340), with the addition of others, of which I can find no particular description in the memoirs cited.

1. *Skull.*—The most obvious characters which distinguish the skull of *Strix* from that of the remaining genera have been pointed out by Milne-Edwards*; they are, *firstly*, the greatly elongated and narrow form of the skull in *Strix* contrasted with the wide short skull of other types; *secondly*, the relatively great thickness of the bones which make up the interorbital septum in *Strix* as compared with the extremely thin interorbital septum of other Owls.

I find by a series of measurements of the skulls of the following types:—

Strix flammea,	Bubo bengalensis,
Strix sp.,	Syrnium indranee,
Asio mexicanus,	Syrnium woodfordi,
Speotyto cunicularia,	Ketupa javanica,
Athene noctua,	Sceloglaux albifacies,
Bubo maximus,	Nyctea nivea,

that while *Strix* has the narrowest skull (the proportion of greatest breadth to length being in *Strix* sp. inc. as 37 : 52, in *Strix flammea* 36 : 56), the other genera show a progressive widening of the skull; this culminates in *Speotyto cunicularia*, where the breadth is to the length as 37 : 38. I do not give the exact measurements in the other species mentioned in the present list for the reason that such a table of measurements would only be of value if it embraced the results of a study of a larger number of species and of individuals. I may state, however, that I have examined a large number of Owls' skulls in the British-Museum collection, including those of two other species of *Strix* (viz. *S. perlata* and *S. delicatula*), and in no case do I find so long and narrow a skull as in the genus *Strix*. It may be worth while mentioning that *Sceloglaux albifacies* has a skull which comes nearer to that of *Strix* in its relative proportions than do the skulls of many other genera. The reason which leads me to

* Nouv. Arch. &c. p. 189.

Mainly some stress upon this fact is the opinion of Prof. Newton* that this curious Owl may prove to be intermediate between the Strigidæ and other Owls. I hope, however, to be able, at some future time, to compare the skeleton of *Sceloglaux* with that of *Strix*.

Prof. Milne-Edwards, in his memoir upon *Photodilus*, shows plainly that this genus belongs to the Bubonine and not to the Strigine group in the proportions of the skull and in the possession of a flattened interorbital septum.

There is one feature in the skull of the Striges, serving to distinguish the Strigidæ from the Bubonidæ, which has apparently escaped the attention of Prof. Milne-Edwards.

Fig. 1.

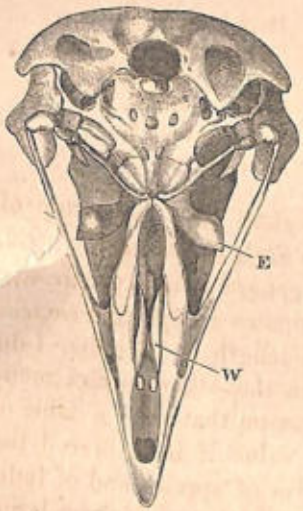


Fig. 2.

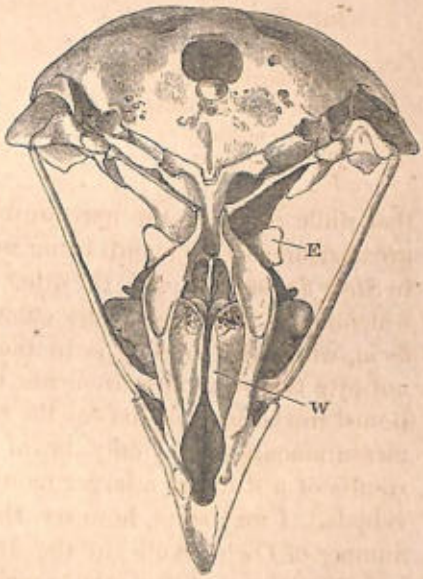


Fig. 1.—Under surface of the skull of *Strix flammea*. E. Prefrontal processes of the ethmoid; W. Maxillo-palatines.

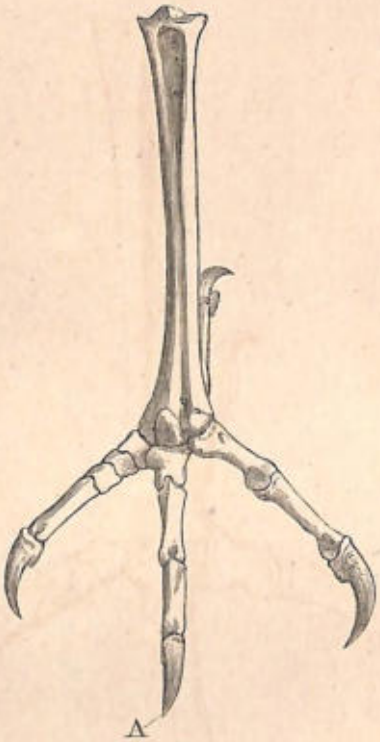
Fig. 2.—Under surface of the skull of *Bubo bengalensis*. (Lettering as in fig. 1.)

In *Strix* (woodcut, fig. 1) the prefrontal processes of the ethmoid are rounded and much swollen. In *Bubo* (fig. 2),

* Encycl. Brit., art. "Owl."

and in all other genera of Owls which I have had the opportunity of studying, the same processes are thin, leaf-like expansions*, as they are in the Accipitres Diurnæ. With regard to the other points of difference in the skull, I must refer the reader to Prof. Milne-Edwards's memoir; the principal points are indicated in the table on p. 340 of this paper.

Fig. 3.



Right foot of *Strix flammea* (nat. size).

2. *Sternum.* The characters of the sternum and of the other parts of the skeleton have been so fully described by

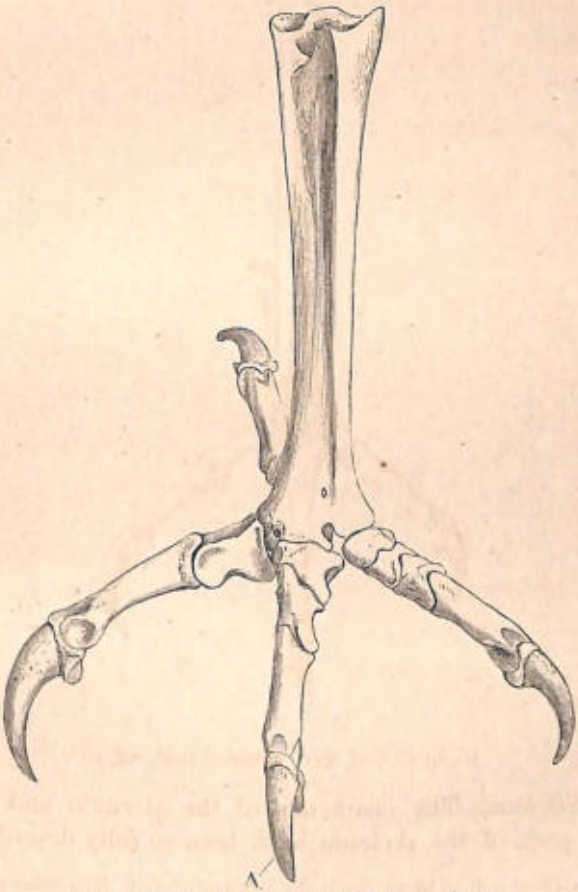
* I am disposed to think, from the illustrations of *Heliodilus* given by Milne-Edwards ('Histoire Phys. Nat. et Polit. de Madagascar, Oiseaux,' Atlas i. pl. 36*c*. fig. 1), that the ethmoid processes of this Owl resemble those of *Bubo* rather than those of *Strix*.

Milne-Edwards that I find myself unable to add anything to what he has said, except with regard to the bones of the foot.

3. *Foot.*—A comparison of the relative length of the phalanges of the third digit appears to afford another character for the discrimination of the Striginæ and Buboninæ.

In *Strix* (fig. 3, A) the first phalanx of that digit is markedly shorter than the second phalanx.

Fig. 4.



Right foot of *Bubo benjalensis* (nat. size).

In *Bubo* (fig. 4, A) and in the other genera the two phalanges in question are subequal.

Applying this test to *Heliodilus*, it confirms the justice of Prof. Milne-Edwards's views of the affinities of that bird. In the illustration of the skeleton which he gives, it is quite obvious that the proportions of the two first phalanges of the third digit are those of *Strix*.

The illustration of *Photodilus* is not sufficiently accurate to admit of a statement with regard to this point. The skeleton was apparently defective.

The principal osteological characters of the genus *Strix*, and which apparently distinguish it from all others, are the following :—

(1) The skull is relatively long and narrow.
(2) The palatines are straight, nearly parallel to each other; they are of approximately the same width throughout; they almost conceal the underlying maxillo-palatines, which are broader from above downwards than from side to side.
(3) The prefrontal processes of the ethmoid are rounded bones of some width.
(4) The interorbital region of the skull does not form a thin plate anteriorly, but is of considerable width from side to side.
(5) The sternum has but one notch on either side.
(6) In the foot the second joint of the third toe is considerably longer than the basal joint.
(7) There is no bony ridge upon the tarso-metatarsus.

On the other hand, in the Bubonidæ the skeleton has the following characters :—

(1) The skull is relatively broad and short.
(2) The palatines are curved, the hinder part of the bone being much wider than the anterior region; the maxillo-palatines are very broad from side to side.
(3) The prefrontal process of the ethmoid is a thin plate*.

* In *Athene noctua* and *Speotyto cunicularia* these processes are very small, and are hidden by the palatines when the skull is viewed from the ventral surface. The skull is broader in these two genera than in any others examined by me, and the maxillo-palatines are smaller.

(4) The interorbital plate is thin and often fenestrated.
(5) The sternum has two notches on either side.
(6) In the foot the second joint of the third digit is subequal in size to the basal joint.
(7) There is a bony ridge upon the under surface of the upper end of the tarso-metatarsus.

4. *Tensores patagii.*—I take this opportunity of noting certain points in the structure of the muscles and syrinx which are quite in harmony with the division of the Striges into two families, Strigidæ and Bubonidæ. With regard to the muscles I have to call attention only to the *tensor patagii brevis* and to the *tensor patagii longus*. In *Bubo* the *tensor patagii brevis* splits into two tendons, which are inserted on to the fascia of the muscles arising from the elbow. In *Strix flammea* these tendons are more complicated; the *tensor patagii brevis* gives rise to two tendons; the inner of these tendons branches, the outer branch fusing with the outer tendon; from the point where the inner branch joins the fascia covering the elbow-muscles a thin tendon passes obliquely through the patagium to join the tendon of the *tensor patagii longus*. This oblique tendon occurs in *S. flammea* on the *S. pratincola* and (according to a MS. sketch of Prof. Garrod) in *S. novæ hollandiæ*; it does not occur in any other Owl which I have dissected, viz. *Bubo maculosus, Scops leucotis, Pulsatrix torquata, Athene noctua, Syrnium aluco, S. nebulosum, Otus vulgaris, Ketupa javanensis,* and *Nyctea nivea*. For the present, therefore, there is this difference between the Strigidæ and the Bubonidæ; and although it is undoubtedly a small difference, its constancy makes it of some importance.

As the object of the present paper is not to give an account of the anatomy of the Striges, but to distinguish the two families Strigidæ and Bubonidæ, I have not indicated the numerous minute points of difference in the disposition of the *tensores patagii* in the various genera of Bubonidæ.

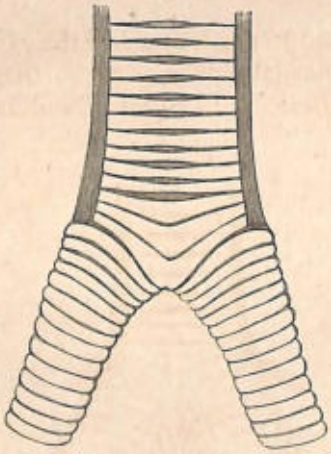
5. *Syrinx.* I have examined this organ in the following genera and species:—

Strix flammea.
Ketupa javanensis.
Bubo virginianus.
Bubo maculosus.
Bubo capensis.
Syrnium indranee.
Syrnium aluco.
Asio otus.
Nyctea nivea.
Glaucidium passerinum.
Speotyto cunicularia.
Pulsatrix torquata.
Otus brachyotus.
Scops leucotis.
Gymnoglaux nudipes.

In all these species the *sterno-tracheal* muscles are very stout, and there is but a single pair of *syringeal* muscles. The *syrinx* itself is tracheo-bronchial, though there are indications in several genera (particularly in *Scops*) of a passage towards a bronchial syrinx, such as is found in certain Cuckoos* and Goatsuckers†.

The principal difference which I have found to distinguish the syringes of the various genera of Owls concerns the in-

Fig. 5.



Syrinx of *Strix flammea*.

sertion of the intrinsic muscles, that is, their distance from the bifurcation of the trachea. *Strix* (fig. 5) possesses a typical tracheo-bronchial syrinx. The last tracheal rays are

* Beddard, "On the Structure and Classification of the Cuckoos," P. Z. S. 1885, p. 168.

† Beddard, "On the Syrinx &c. of the Caprimulgidæ," P. Z. S. 1886, p. 147.

fused at their lower extremities and form a triangular piece. The first bronchial semiring is a stout arched bar, which is

Fig. 6.

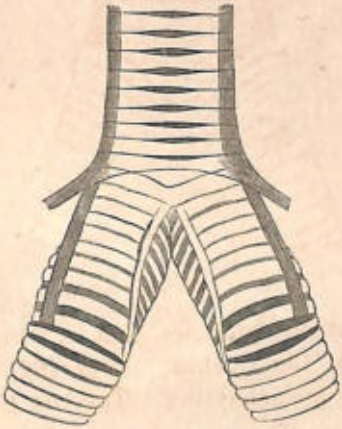


Syrinx of *Bubo maculosus*.

entirely ossified, and to this is attached the syringeal muscle; the remaining bronchial semirings are cartilaginous.

The syringes of *Bubo* (fig. 6), *Syrnium*, and *Asio* come nearest

Fig. 7.



Syrinx of *Scops leucotis*.

to that of *Strix*: in all of these the attachment of the syringeal muscles is apparently the same as in *Strix*; but the fact that

a varying number of tracheal rings are incomplete in front as well as behind, instead of being complete anteriorly, as in *Strix*, makes it appear as if the attachment of the said muscles had moved further down the bronchi. Of the above-mentioned types *Asio* is furthest removed from *Strix*; there are seven tracheal rings intervening between the last complete one and the first bronchial which bears the muscles.

This modification of the syrinx culminates in *Scops leucotis* (fig. 7, p. 343), where the syringeal muscles are attached to the tenth semiring.

There is thus a gradual series (which would probably be more complete could I report upon a larger collection of syringes) leading from *Strix* to *Scops*.

As the series is gradual, it is impossible to make a break anywhere, although the extremes, viz. *Scops* and *Strix* (*cf.* figs. 5 & 7), are different enough.

In view of the object of the present paper (that is, of establishing the justice of dividing the Striges into two groups), I may point out that the structure of the syrinx, although it would not be sufficient, if considered by itself, to justify such a classification, is by no means contradictory to it.

XXXV.—*On the Birds observed by Dr. Bunge on his recent Visit to Great Liakoff Island.* By Henry Seebohm.

For a period of five years, from 1882 to 1887, many interesting observations were made by Dr. Bunge in North-east Siberia. The results of his visit to the delta of the Lena were published in the 'Mélanges Biologiques tirés du Bulletin de l'Académie Impériale des Sciences de St. Pétersbourg,' xii. livr. i. pp. 31–107, of which a *résumé* may be found in the 'Transactions of the Norfolk and Norwich Naturalists' Society,' iv. pp. 301–305. The record of Dr. Bunge's observations in Great Liakoff Island is to be found in the 'Beiträge zur Kenntniss des Russischen Reiches und der angrenzenden Länder Asiens,' iii. pp. 231–283.

Dr. Bunge crossed the ice from the mainland to Great

Liakoff Island from the 6th to the 15th of April, 1886, he and his party employing twelve dog-sledges to perform the journey. A month later he accompanied Boron Toll to Kotelnyi, the largest of the New Siberian Islands, and afterwards returned to Great Liakoff, leaving his companion on the more northerly island to search for mammoth remains and other objects of interest. In the middle of November both the travellers recrossed the ice to the mainland.

The following account of the birds observed by Dr. Bunge during his stay upon Great Liakoff Island is compiled from his journal.

Great Liakoff Island lies ten degrees east of the delta of the Lena, between 73° and 74° N. lat. It is the most southerly of the New Siberian Islands, and is connected with the mainland by ice, which never entirely disappears. The climate is cold, even in the middle of summer; north winds prevail, and bring down fog and sometimes snow-storms even in July. The thermometer did not rise above freezing-point until the 9th of June; vegetation did not begin to appear until the 19th, and insects were scarcely seen before the 22nd; but summer began on the 28th, when the temperature reached 50° in the shade. The highest point registered was on the 26th of July, when the thermometer stood at 55° in the shade; but a fortnight later summer was over, and during the latter half of August it frequently froze. After the 17th of September the thermometer only rose once above freezing-point.

The only trees are stunted willows; the tundra is by no means rich in flowers. Three groups of granite hills near the coast, and one in the middle of the island, rise nearly a thousand feet above the sea. In the hollows of these hills large masses of snow and huge blocks of ice remain unmelted throughout the summer.

In winter the island is said to be absolutely deserted; but every summer it is visited by small parties of nomad Yakuts and herds of wild reindeer, wolves, arctic foxes, and lemmings, whilst seals and polar bears are occasionally seen on the coast.

From this group of islands great quantities of mammoth ivory have been sent. The bones are found along with those of extinct species of rhinoceros, musk-ox, deer, hare, and seal.

The following is a list of the birds obtained or observed by Dr. Bunge:—

Surnia nyctea.

Once only (on the 5th of September) was a bird of prey seen on the island, and doubtfully recorded as most probably a Rough-legged Buzzard; but Snowy Owls were occasionally observed.

Emberiza nivalis.

Only four Passerine birds (two of them only solitary stray visitors) were observed on the island, though as many as five-and-twenty species are recorded from the valley of the Lena on the mainland.

The Snow Buntings had arrived on the island before our travellers reached it. On the 7th of June they were in full song; on the 20th they were evidently building, and on the 11th of July they had young. They were last seen on the 22nd of September.

Emberiza lapponica.

Buntings (which have been since identified as Lapland Buntings) are first recorded on the 10th of June, and had become common on the 14th; on the 20th they were evidently building, and on the 28th a nest with five fresh eggs was taken. Other nests with much incubated eggs were taken on the 7th and 8th of July; and on the 11th a nest with newly hatched young was found. They were seen every day until the 3rd of September, when the last bird of this species left for the south, about three weeks before the Snow Buntings.

Motacilla alba.

A solitary White Wagtail was seen on the 22nd of June.

Saxicola œnanthe.

The Wheatear is only once mentioned; on the 25th of July it was observed at the west end of the island.

TETRAO ALBUS.

The Willow Grouse was seen during the whole winter on the mainland, and may possibly be also a resident on Liakoff Island. On the 10th of July a nest with six eggs was taken, and on the 16th another with four eggs. On the 22nd young were seen, and on the 11th of August a male bird was shot with the white feathers appearing under the brown plumage.

CHARADRIUS HIATICULA.

I have never seen an example of the Common Ringed Plover from any locality east of the valley of the Yenesay; but Mr. Pleske assures me that the skins sent by Dr. Bunge are those of *C. hiaticula* and not of *C. placidus*. It is first mentioned on the 11th of June, when several examples were seen. It is recorded as having been rare on the 13th, 16th, and 17th, but as more common on the 20th. On the 17th of July it appeared to be breeding, and on the 29th young in down were seen.

CHARADRIUS FULVUS.

A Golden Plover was seen on the 12th of June, and several on the 14th, and the species identified as the one with grey axillaries on the 16th. They were more abundant on the 20th, and a nest with four eggs was taken on the 30th.

CHARADRIUS HELVETICUS.

A pair of Grey Plovers were seen on the 19th of June, and more on the 20th; but no further mention is made of this species.

CHARADRIUS MORINELLUS.

Two female Dotterels were shot on the 30th of June, and a pair which evidently had eggs or young were seen on the 25th of July. A small flock was observed on the 27th of July; so that the occurrence of this species east of the Yenesay is established beyond doubt. Mr. Pleske has examined the skins sent by Dr. Bunge and assures me that they are correctly identified.

LIMOSA RUFA UROPYGIALIS.

We may take it for granted that the Bar-tailed Godwits observed on the Great Liakoff Island belonged to the eastern form of that species. They are doubtfully recorded on the 1st of July, and flocks were seen and many birds shot on the 2nd and 3rd. Large flocks were seen on the 5th, and afterwards until the 16th. The Yakuts told Dr. Bunge that these birds did not breed on the island; but on the 4th of August he observed a male, which behaved exactly as if it had a nest. On the 12th of August two examples were seen flying south.

STREPSILAS INTERPRES.

Turnstones were seen on the 16th of June and on several subsequent days. On the 27th a nest with four somewhat incubated eggs was found, and on the 13th of August a fully fledged young bird was seen.

TOTANUS PUGNAX.

A young Ruff was obtained on the 19th of August.

TRINGA CANUTUS.

The first Knot was seen on the 6th of July, and on the 11th small flocks appeared. On the 14th several examples were shot, and on the 18th more; but on the 20th this species became rarer, and is not recorded after the 31st.

TRINGA MINUTA.

The Stint recorded under this name appears to have been neither *Tringa minuta ruficollis* nor *Tringa subminuta*, as might have been expected, but is determined by Mr. Pleske to have been the western form of the Little Stint. On the other hand, an example from the delta of the Lena and a second from Ustyansk on the delta of the Lena are referred to *T. minuta ruficollis*. The Little Stint was first seen on the 16th of June, and several were shot on the 20th. A nest with four fresh eggs was taken on the 20th, and it is described as having been very common on the 2nd of July. Young in down are recorded on the 24th of July, and young able to fly on the 13th of August.

TRINGA SUBARQUATA.

The Curlew Sandpiper is first recorded as appearing in small flocks on the 11th of June, and as having been shot on the 14th, and found in greater numbers on the 18th; but it is described as having become rarer on the 20th, and is not mentioned afterwards. There can be little doubt that both this species and the Knot breed further north.

TRINGA ARENARIA.

A flock of Sanderlings was seen on the 10th of June, and others appeared on the 20th and 22nd. This species is not recorded again until the 26th of July; but on the 29th a flock was observed, and on the 13th of September a single example was seen.

PHALAROPUS FULICARIUS.

The Grey Phalarope is first recorded on the 19th of June, when a pair were seen; on the 20th several pairs appeared, and on the 5th of July a nest with four incubated eggs was found. On the 6th a nest with three fresh eggs was discovered, and several males with great sitting-spots were obtained. On the 11th of August small flocks in autumn plumage were seen, and a few solitary birds lingered until the 13th of September.

STERCORARIUS RICHARDSONI.

Skuas were first seen on the 14th of June, and identified on the 17th as Richardson's Skua; but this species was only occasionally seen.

STERCORARIUS BUFFONI.

Buffon's Skua was first identified on the 21st June; on the next day it became commoner, still more so on the 31st, and very common on the 11th of July.

STERCORARIUS POMARINUS.

The Pomarine Skua was first seen on the 20th of June, but appears to have been very rarely seen afterwards.

LARUS VEGÆ.

The Herring Gull found by Dr. Bunge on the Liakoff Islands is identified by Mr. Pleske with the species found on

the coast of Tchuski Land by the 'Vega' expedition, which was described as a new species by Palmén under the name of *Larus argentatus*, var. *vegæ*. It is said to differ from *L. affinis* in having flesh-coloured legs (Palmén, Bidrag Sibir. Ishafsk. Fogelfauna Vega-exp. p. 370). It is first recorded on the 2nd of June, said to be commoner on the 9th, and still more so on the 11th. On the 29th a slightly incubated egg was found, and on the 6th of July three nearly fresh eggs. On the 26th of August the young were able to fly.

LARUS GLAUCUS.

Glaucous Gulls were occasionally seen.

COLYMBUS SEPTENTRIONALIS.

The Red-throated Diver is recorded on the 21st of June, and several are said to have been seen on the 22nd. Several were heard on the 4th of July, and one was seen on the 22nd, and others on the 26th. Many were seen on the 11th of August, and a few remained until the 9th of September.

ANSER ALBIFRONS.

On the 5th of June and afterwards a solitary White-fronted Goose was seen, and on the 11th and afterwards small flocks began to appear. On the 6th of July a nest with four incubated eggs was found, and from the 7th to the 21st birds were frequently seen. From the 20th of July to the end of the month they were observed in full moult; and two examples were seen as late as the 13th of September.

ANSER BRENTA.

A pair of Brent Geese were seen on the 10th of June, and a second pair on the 12th. On the 20th several were shot, and large flocks were seen from the 8th of July to the 16th. On the 28th four examples were seen.

SOMATERIA STELLERI.

Steller's Eider Duck is recorded on the 7th of May, when a flock was seen flying towards the Lena delta. Three days later another flock was seen flying in the same direction. On the 20th, 21st, and 27th of June, and on the 3rd and 6th of July, other flocks were seen. No other records occur, except

that between the 16th and 26th of August mention is made of their occurrence.

SOMATERIA SPECTABILIS.

A large flock of King Eiders were seen on the 9th of June, and others were seen on the 14th. A pair were shot on the 17th, and others were seen on the 20th and 21st. On the 3rd of July a nest with three eggs was found, and between the 20th and the 26th flocks of females were seen.

FULIGULA GLACIALIS.

Long-tailed Ducks were heard on the 5th of June, but do not appear to have been seen until the 20th. They were occasionally observed for some weeks; and between the 16th and 26th of August they appeared in large flocks.

ANAS FORMOSA.

The Baikal Teal is described as very rare; but a nest with four fresh eggs was taken on the 29th of June. The species is doubtfully recorded on the 3rd of July, but no example is said to have been obtained.

XXXVI.—*Critical Notes on the Procellariidæ.*

By OSBERT SALVIN, M.A., F.R.S., &c.

In the first volume of the late Mr. G. Dawson Rowley's 'Ornithological Miscellany' I published two articles on the Procellariidæ under the above given title. I now propose to continue the series, with a view to preparing the ground for the completion of a long-promised Monograph of the family. The present paper has been based chiefly on an examination of some of the specimens brought to England by Sir Walter Buller from New Zealand, the determination of which was necessary for the second edition of his 'Birds of New Zealand,' now in course of issue.

Some other specimens have also been examined, as will be seen from the following notes. The arrangement of the series of specimens in the British Museum, and the incorporation with it of Gould's, Mr. Seebohm's, and our own col-

lections, has suggested most of these notes. Others will, I trust, follow, as obscure points relating to this family become clearer.

PUFFINUS CHLORORHYNCHUS.

Puffinus chlororhynchus, Less. Traité d'Orn. p. 612 (1831); Puch. Rev. Zool. 1850, p. 633; Sharpe, Phil. Trans. clxviii. p. 467; Ridgw. Man. N. Am. Birds, p. 62.

Thiellus chlororhynchus, Bonap. Consp. Av. ii. p. 200; Coues, Pr. Ac. Nat. Sc. Phil. 1864, p. 123.

Procellaria chlororhyncha, Schl. Mus. Pays-Bas, vi. *Procellariæ*, p. 25.

Puffinus sphenurus, Gould, Ann. & Mag. N. H. xiii. p. 365 (1844); id. Birds Austr. vii. pl. 58; Ridgw. Man. N.-Am. Birds, p. 62.

Thiellus sphenurus, Bp. et Coues, ll. cc.

Procellaria sphenura, Schl. l. c.

Lesson's type of his *P. chlororhynchus* in the Paris Museum was brought from Australia (Baie des Chiens Marins), so Pucheran tells us, by Quoy and Gaimard in 1820. Those writers who have attempted to separate it from *P. sphenurus* of Gould attribute to it a more western range, extending from Western Australia to the Mascarene Islands and the Cape of Good Hope, and reserve the name *P. sphenurus* for the more eastern bird, giving its range "Australian Seas." Gould's types of *P. sphenurus*, however, came from Houtmann's Abrolhos, off the coast of W. Australia, so that the difference of habitat breaks down. I have compared specimens from the Mascarene Islands (Mauritius and Rodriguez), Raine's Islet (N.W. Australia), Bird Islet (N. Australia), Norfolk I., Lord Howe's I., Eimeo (Society Is.), and New Zealand, and fail to see how any separation can be maintained. The Mascarene birds have perhaps a rather stouter bill, the colour of which in the skin is more of a fleshy yellow; but these differences seem to me to be of little importance, as intermediate specimens occur. The slight difference in size is not more than occurs in most birds having so wide a range. Gould's figure represents a bird with a dark bill, but his

escription gives it as "reddish fleshy brown, darker on the culmen and tip."

We have two skins said to have come from New Zealand, where its occurrence, at least on the shores of the North Island, can hardly fail to be established.

Both the following species belong to this section of *Puffinus*, which may be distinguished by the long cuneate tails of all its members.

PUFFINUS CUNEATUS, sp. nov.

Supra fuliginosus; capite summo, dorso postico, tectricibus alarum minoribus et remigibus saturatioribus, plumis dorsi antici pallide fuliginoso limbatis, tectricibus alarum majoribus ad apices griseo tinctis: subtus medialiter albidus; gulæ et cervicis lateribus griseis, pectore et hypochondriis quoque hujus coloris, ventre imo et crisso omnino obscurioribus, tectricibus alarum inferioribus albidis griseo vix irroratis, cauda cuneata nigra: rostro obscure plumbeo, pedibus flavis extrorsum obscurioribus: long. tota 17·0, alæ 11·8, caudæ rectr. med. 5·3, lat. 3·65, rostri a rictu 2·2, a naribus 1·2, culminis nudi 1·6, tarsi 1·85, dig. med. cum ungue 2·32.

Hab. Insulis Krusenstern (*H. J. Snow*).

Mus. nostr. et H. Seebohm, nunc in Mus. Brit.

In general coloration this species resembles *P. creatopus*, ues, but it may be readily distinguished by its smaller arker bill, smaller feet, and especially by its longer more cuneate tail, the latter character placing it along with *P. chlororhynchus* and *P. bulleri*, described below, in Gloger's supposed genus or section "*Thiellus*" (see Coues, Pr. Ac. Nat. Sci. Phil. 1864, p. 122)*.

I have two specimens of this bird before me, both obtained in the spring of 1883 by Mr. H. J. Snow, of Yokohama†.

* The name *Thyellus* was proposed by Gloger in Froriep's 'Notizen,' xvi. (1827) p. 279, simply as a substitute for *Puffinus*. Bonaparte (Consp. Av. ii. p. 200) altered the spelling, and restricted it to this section of *Puffinus*, and in so doing he was followed by Coues.

† The Krusenstern Islands here referred to are apparently the small cluster of islands so named by Kotzebue, which form part of the Marshall Group, and are situated in about lat. 10° 17′ N., long. 190° W. The islands extend over an area of 15 miles long by 5 wide. The native name

In several respects this bird conforms to Latham's description of his White-breasted Petrel *, said to inhabit Turtle and Christmas Islands; but there are differences which make it undesirable to make another, and probably fruitless, attempt to identify this name, which has already been applied to *Œstrelata neglecta* of the Kermadec Islands. Turtle Island is probably Vatoa or Turtle I., one of the Fiji group; and Christmas I. the island of that name south of the Sandwich Islands.

PUFFINUS BULLERI, sp. nov.

Supra saturate griseus, capite toto supra cum cervice postica fuliginoso-nigris, loris et regione ophthalmica vix griseo intermixtis: tectricibus alarum minoribus fuliginoso-nigris, majoribus externe griseis et extrorsum albo limbatis; remigibus fuliginoso-nigris, pogonio interno bitriente interna nigra; pagina alarum inferiore et corpore subtus niveis, crisso utrinque schistaceo limbato: cauda cuneata nigricante, rectricibus lateralibus griseo tinctis: rostro obscure plumbeo, mandibula infra carnea; pedibus externe corylinis, interne flavis: longit. tota (circ.) 16·5, alæ 11·3, caudæ rectr. med. 5·2, rectr. lat. 3·5, rostri a rictu 2·6, a naribus 1·3, culminis nudi 17·5, tarsi 2·0.

Hab. New Zealand (*W. L. Buller*).

Mus. W. L. Buller et nostr.

This distinct species appears to belong to the section of genus possessing long cuneate tails, of which *P. chlororhynchus* is the best-known species. Its coloration at once makes it easily recognizable, no other species having a grey mantle, with which the dark head and dark wings are in striking contrast, this style of coloration being characteristic of many species of *Œstrelata*.

The description is based upon two specimens, one of them obtained by Sir Walter Buller in New Zealand. The other

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of the largest is Ailuk. There is a Krusenstern Rock lying to the westward of the Sandwich Islands; but this can hardly be the place whence these Petrels were obtained, as the sea is described as only breaking in one spot. Another Krusenstern Island lies in the narrowest part of Behring's Straits.

* *White-breasted Petrel*, Lath. Gen. Syn. vi. p. 400.

Procellaria alba, Gm. Syst. Nat. i. p. 565; Lath. Ind. Orn. ii. p. 822.

we purchased some time ago from Mr. Whitely of Woolwich, who stated that he had received it from New Zealand.

PUFFINUS GRISEUS.

Nectris fuliginosa, Solander, MS.; Parkinson, Icon. ined. No. 23 (nec *Puffinus fuliginosus*, Kuhl).

Procellaria fuliginosa, G. Forst. Icon. ined. No. 94.

Grey Petrel, Lath. Gen. Syn. vi. p. 399.

Procellaria grisea, Gm. Syst. Nat. i. p. 564 (nec Kuhl).

Puffinus griseus, Finsch, J. f. Orn. 1874, p. 209; Salv. in Rowley's Orn. Misc. i. p. 236; Dresser, B. Eur. viii. pl. 616.

Puffinus fuliginosus, A. Strickl. (mot. propr.!), P. Z. S. 1832, p. 129.

Puffinus tristis, J. R. Forst. Descr. An. p. 23; Buller, B. N. Zeal. p. 315.

Puffinus amaurosoma, Coues, Pr. Ac. Nat. Sc. Phil. 1864, p. 124.

Puffinus stricklandi, Ridgw. Man. N. Am. B. p. 61.

There is now a large series of skins of this bird in the British Museum; and I have taken the opportunity of comparing birds from the North Atlantic with others from the Pacific Ocean, and have failed to see how two species can be set up proposed by Mr. Ridgway. In his recently published 'anual' it will be seen that dimensions do not afford any agnostic characters, and that the only difference to be detected is that the under wing-coverts in the Atlantic bird are grey, transversely mottled with white at the tips, whereas in *P. griseus* they are white, transversely mottled with grey at the tips. A comparison of specimens shows how trivial this difference is.

In the Pacific Ocean this species occurs as far north as the Kurile Islands, whence specimens have been sent by Mr. H. J. Snow.

PUFFINUS CARNEIPES.

Puffinus carneipes, Gould, P. Z. S. 1844, p. 57; id. Birds Austr. vii. pl. 57; Seebohm, Ibis, 1884, p. 176; Ridgw. Man. N. Am. Birds, p. 62.

Nectris carneipes, Coues, Pr. Ac. Nat. Sc. Phil. 1864, p. 126.

Sir W. Buller's collection contains a specimen which appears to me to belong undoubtedly to this species; the only other examples which I have seen are from Hakodate (*Henson*), in Northern Japan. The latter only differ in being in rather older, and in more worn plumage, the New Zealand bird being freshly moulted. These additional localities show that this bird has a much wider range than has hitherto been suspected. Gould's types came from Cape Leewin, S.W. Australia.

The bird is rare in collections, and we have considerable doubts as to the correct determination of those stated to be in the Leyden and other museums (cf. Schl. Mus. Pays-Bas, vi. *Procellariæ*, p. 26); the Leyden birds should, I believe, be referred to *Puffinus griseus* (Gm.).

PUFFINUS TENUIROSTRIS.

Procellaria tenuirostris, Temm. Pl. Col. livr. 99 (1835).

Puffinus tenuirostris, Salvad. Orn. Pap. e Mol. iii. p. 462.

Puffinus brevicaudus, Brandt (1836); Gould, B. Austr. vii. p. 56; Buller, B. N. Zeal. p. 315.

It seems well established that *P. brevicaudus* of the Australian and New-Zealand Seas does not differ from *P. tenuirostris* of Japan. The latter name has priority (see Salvadori, *l. c.*).

PUFFINUS GAVIA.

Procellaria gavia, Forst. Descr. An. p. 148 (1844).

Puffinus gavia, Buller, B. N. Zeal. p. 318.

Sir W. Buller's collection contains a specimen referred to this species, which is the first I have seen answering to Forster's description. It has a general resemblance to *P. opisthomelas*, Coues, as regards the colour of its plumage, but may at once be distinguished by its pure white under tail-coverts.

Of *P. opisthomelas* I have before me a careful drawing prepared from one of the types obtained off the coast of Lower California, and lent me by the authorities of the Smithsonian Institution.

In his recently published 'Manual of North American Birds,' p. 60, Mr. Ridgway calls this bird "the Black-vented Shearwater," a name which may still be retained for the bird of the Californian coasts when Dr. Coues's title, *P. opisthomelas*, is restored to it.

PUFFINUS OBSCURUS.

Dusky Petrel, Lath. Gen. Syn. vi. p. 416.

Procellaria obscura, Gm. Syst. Nat. i. p. 559; Lath. Ind. Orn. ii. p. 828.

A skin, said to have come from New Zealand, in our collection belongs to the larger form of this species. It agrees with one from Manua, Samoa Islands, except that the crissum is white in the middle to its extremity, the sides alone being dusky. In the Samoa bird the central feathers of the crissum are dusky tipped with white. These differences can hardly be considered specific, seeing that considerable variation prevails in this respect when a large series of birds is examined. The smallest birds with the darkest crissum that I have seen are from the Pelew Islands.

PUFFINUS ASSIMILIS.

Puffinus assimilis, Gould, P. Z. S. 1837, p. 186; id. B. Austr. vii. pl. 59.

Puffinus nugax, Solander, MS.; Gould, Handb. B. Austr. ii. p. 458; Coues, Proc. Ac. Nat. Sc. Phil. 1864, p. 141.

Gould's specimens were obtained on Norfolk I.; but he remarks that he saw numerous examples flying off the north-eastern end of New Zealand. J. MacGillivray found this species at Raoul I., one of the Kermadec Group, and Sir W. Buller has a specimen from Little Barrier I.

P. assimilis may at once be distinguished from *P. obscurus* by the colour of the primary quills, which are white for about two thirds of the outer portion of the inner web, except towards the tip.

ŒSTRELATA HERALDICA, sp. nov.

Supra fusca, dorsi plumis vix obscure griseo limbatis, fronte et genis albis fusco intermixtis; corpore subtus albo, pectore (anguste), cervicis lateribus et hypochondriis

cinereo irroratis, crisso quoque lateraliter obscure cinereo maculato; subalaribus plerumque nigricantibus, harum autem longissimis albis fusco terminatis; remigibus nigricantibus, rachidibus omnibus fuscis, pogonio interno bitriente interna ad basin alba; cauda nigricante, rectricibus triente basali albo; rostro nigro, pedibus flavis, digitis dimidio distali nigro: long. tota 14·0, alæ 11·0, caudæ rectr. med. 4·6, lat. 3·65, tarsi 1·4, dig. med. cum ungue 1·8, rostri a rictu 1·5.

Hab. Chesterfield Is., W. Pacific (*MacGillivray*).

Mus. Brit. et nostr.

We have long possessed a specimen of this bird, obtained in exchange from Gould, and there is another exactly like it in the British Museum. The latter was called by Gray *Procellaria phillipii*, he having identified it with the bird so named by himself, the basis of which is the Norfolk-Island Petrel of Phillip's 'Voyage to Botany Bay' (p. 161, pl.).

The colour of the feet and of the primaries justifies the reference of our specimens to Phillip's description; but the size (16 inches) and the colour make it more than doubtful if the latter really refers to the same bird. The figure represents a bird with a much longer, heavier bill, more like that of one of the *Œ. fuliginosa* group; indeed, were it not for the colour of the feet, I should have little hesitation in referring Phillip's bird to *Œ. solandi*, Gould.

The bird now described at first sight resembles *Œ. mollis* (Gould), but may readily be distinguished by its larger size, darker tail, and especially by having two thirds of the inner web of the primaries, as well as the longest coverts, white.

Both the specimens before me were obtained by John MacGillivray at the Chesterfield Islands, a small group lying a little to the north of west of New Caledonia.

ŒSTRELATA GULARIS.

Procellaria gularis, Peale, U.S. Expl. Exp. Birds, p. 99.

Procellaria affinis, Buller, Man. B. New Zeal. p. 88.

A specimen of *P. affinis* submitted to me by Sir W. Buller agrees accurately with the description of *Œ. gularis*, and I have little doubt should bear that name.

ŒSTRELATA HYPOLEUCA, sp. nov.

Supra nigricans; interscapulio et uropygio cinereis plumis singulis pallide cinereo limbatis, vertice antico albo limbato, fronte, loris et corpore toto subtus pure albis, subalaribus albis margine alarum externo et plaga ad basin remigum nigricanti-fuscis, remigibus omnino nigris; cauda nigra ad basin alba; rostro nigro, pedibus flavis, digitis dimidio distali nigro: long. tota (circ.) 13·0, alæ 9·0, caudæ rectr. med. 4·65, lat. 3·2, rostri a rictu 1·4, tarsi 1·1, dig. med. cum ungue 1·4.

Hab. Krusenstern Is., N. Pacific (*H. J. Snow*).

Mus. Brit.

Obs. Œ. torquatæ, Macg., affinis, sed paulo major, cauda multo longiore distinguenda.

Mr. H. Seebohm has recently presented to the British Museum a single specimen of an *Œstrelata* obtained by Mr. H. J. Snow of Yokohama on the Krusenstern Is., in North Pacific Ocean, in the spring of 1883.

It belongs to the section of the genus having the whole of the inner web of the primaries black, and therefore is allied to *Œ. mollis* and *Œ. torquata*. It is considerably smaller than *Œ. mollis*, which, moreover, has the under wing-coverts black. *Œ. torquata* is its nearest ally, from which it differs (*Mr*ts rather larger size and much longer tail (that of *Œ. tor*-in*sata* only measuring 3·8 inches, instead of 4·65). Moreover, the whole under surface of the body of *Œ. hypoleuca* is pure white, without a trace of the grey which prevails to a greater or less extent on the chest of *Œ. torquata* and sometimes overspreads the whole under surface except the throat.

Œstrelata torquata is a bird that seems to have been overlooked by recent writers on Procellariidæ. It was described by J. MacGillivray in 1860 (Zool. xviii. p. 7133) from specimens obtained by himself in Aneiteum, New Hebrides, in 1859. I have now four of these examples before me, bearing MacGillivray's labels. One was acquired by Schlegel for the Leyden Museum in 1861, and appears in his 'Mus. des Pays-Bas, Procellariidæ,' p. 13, as *Procellaria desolata*, Gm.! MacGillivray seems to have intended to name the species "*P. aneiteumensis*," under which title it appears in Gray's

'Hand-list' (iii. p. 107); but there can be no doubt that the birds before me are referable to his *P. torquata*.

Besides the New Hebrides Group, this bird occurs in the Fiji Islands, whence we have specimens from Viti Levu, collected by Kleinschmidt in 1878.

ŒSTRELATA FULIGINOSA.

Procellaria fuliginosa, Kuhl; Buller, B. N. Zeal. p. 303, pl.

Procellaria macroptera, Gould, Handb. B. Austr. ii. p. 449.

Procellaria gouldi, Hutton; Buller, B. N. Zeal. p. 308.

Sir W. Buller's collection contains two specimens attributed to *P. gouldi*, Hutton. They agree with one in the British Museum from the coast of Tasmania, referred by Gould to *P. macroptera*, Smith. These I have compared with a large series from the South Atlantic Ocean, the Cape Seas, and elsewhere; and though they are rather larger and (especially the New-Zealand specimens) have stronger bills, I do not think the differences sufficiently constant or important to justify the recognition of more than one form of this widely ranging species. Some stress has been laid upon the greyness of the face of *P. gouldi*; but this character, too, fails, and a specimen before me with a short wing has the chin white.

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XXXVII.—*Notices of recent Ornithological Publications.*

[Continued from p. 282.]

59. *Bartlett on Weavers and Finches.*

[A Monograph of the Weaver-Birds, Ploceidæ, and arboreal and terrestrial Finches, Fringillidæ. By Edward Bartlett. Parts I., II. 4to. Maidstone: 1888.]

We wish every success to Mr. Edward Bartlett in his efforts to realize a long-cherished plan to produce an illustrated Monograph of the Ploceidæ and Fringillidæ. The undertaking is arduous, as both families are numerous and contain many difficult genera. In the two parts already issued the following species are figured:—

PART I.—*Feb.* 29, 1888.

Textor dinamelli.
—— boehmi.
Chrysomitris atrata.
Paroaria cucullata.
Pyrrhula nipalensis.
Munia oryzivora.

PART II.—*April* 30, 1888.

Cardinalis virginianus.
Chrysomitris uropygialis.
Passer domesticus.
Textor panicivora.
—— albirostris.

The synonymy of each bird is fully given and followed by a short description; after which come notes on the history and habits, and a list of specimens examined. The coloured figures are neatly drawn by Mr. F. W. Frohawk.

60. *Berlepsch on the Colombian Trochilidæ.*

[Kritische Uebersicht der in den sogenannten Bogota-collectionen (S. O. Colombia) vorkommenden Colibri-Arten und Beschreibung eines neuen Colibri (*Cyanolesbia nehrkorni*), von Hans von Berlepsch. Journ. f. Orn. 1887, p. 313.]

This is an excellent and accurate list of the 95 species of Humming-birds that occur in what are commonly called "Bogota" collections, that is, amongst the skins brought into the capital of the Colombian Republic by the native collectors from the surrounding districts. The skins, as is well known to ornithologists, are immediately recognizable by their peculiar preparation. A new species is described as *Cyanolesbia nehrkorni*, from a single specimen in the author's collection.

61. *Bocage on additions to the Avifauna of St. Thomas, West Africa.*

[Additamento á fauna ornithologica de S. Thomé. Por J. v. Barboza du Bocage. Jorn. Sci. Math. Phys. e Nat. Lisboa, no. xlvi. p. 81.]

In a collection lately received by the Coimbra Museum from the West-African Island of St. Thomas are examples of six species. Two of them, *Turturæna malherbii* and *Columba arquatrix*, var., are new to the avifauna of this island.

62. *Bocage on Birds from Equatorial Africa.*

[Sur quelques oiseaux recueillis dans l'Afrique équatoriale (pays de Muata-Yamvo) par M. A. Sesinando Marques. Par J. v. Barboza du Bocage. Jorn. Sci. Math. Phys. e Nat. Lisboa, no. xlvi. p. 84.]

This short paper gives an account of six species, of which two (*Syrnium bohndorfi* and *Corethrura pulchra*) are additions to the ornithology of Angola. The specimens were collected by M. A. Sesinando Marques in the territory of Muata-Yamvo.

63. *Bull on the Birds of Herefordshire.*

[Notes on the Birds of Herefordshire. Contributed by members of the Woolhope Club. Collected and arranged by the late Henry Graves Bull. 8vo. London and Hereford: 1888.]

Some information is no doubt to be gleaned from this work, although not a few sad instances of ignorance and credulity are to be met with. We may cite the statements that the Redwing has bred near Ross, and that the Great Black Woodpecker has several times been observed in Herefordshire. After these, we should like stronger evidence than mere assertion with regard to the Sooty Tern, said to have been picked up dead near Marston in May 1885. About one third of the volume is made up of quotations from Shakspeare and other poets.

64. *Buller's 'Birds of New Zealand.'*

[A History of the Birds of New Zealand. By Sir Walter Lawry Buller. Parts II.–VI., 1887–88. Folio. London.]

Sir Walter Buller has already made great progress with his new 'History of the Birds of New Zealand,' of which it is only necessary to say that the work is as well done as might have been expected from the author's unrivalled acquaintance with the subject. Of the 13 parts which will complete the work, six are already issued. The first part was noticed in our January number (Ibis, 1888, p. 133). The next five parts contain illustrations of the following species:—

PART II.—*October* 1887.

Plate 1. Miro australis.
—— albifrons.
Myiomoira toitoi.
—— macrocephala.
Plate 2. Certhiparus novæ zealandiæ.
Clitonyx albicapilla.
—— ochrocephala.
Plate 3. Sphenœacus punctatus.
Anthus novæ zealandiæ.
Plate 4. Rhipidura flabellifera.
—— fuliginosa.

PART III.—*January* 1888.

Plate 1. Zosterops cærulescens.
Anthornis melanura.
Plate 2. Prosthemadera novæ zealandiæ.
Plate 3. Pogonornis cincta.
Plate 4. Xenicus longipes.
—— gilviventris.
Acanthidositta chloris.

PARTS IV., V., VI.—*March* 1888.

Plate 1. Halcyon vagans.
Plate 2. Eudynamis taitensis.
Gerygone flaviventris.
Plate 3. Chrysococcyx lucidus.
Plate 4. Platycercus auriceps.
—— novæ zealandiæ.
—— alpinus.
Plate 5. Nestor meridionalis.
Plate 6. —— notabilis.
Plate 7. Stringops habroptilus.
Plate 8. Spiloglaux novæ zealandiæ.
Sceloglaux albifacies.
Plate 9. Circus gouldi.
Plate 10. Harpa novæ zealandiæ.
Plate 11. Coturnix novæ zealandiæ.
Plate 12. Carpophaga novæ zealandiæ.

(*M*We presume that a numbered list of all the plates will be ins'en with the final part of the work.
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65. *Carazzi on additions to the Birds of Spezia.*

[Appendice ai materiali per una Avifauna del Golfo di Spezia e della Val di Magra. Del Dott. Davide Carazzi. 8vo. Spezia: 1887.]

This is a short appendix to the author's list of the birds of Spezia (*cf.* Ibis, 1888, p. 134), and contains the names of some additional species, and corrections to the former list.

66, 67. *Chamberlain on Canadian Birds.*

[A Catalogue of Canadian Birds, with Notes on the Distribution of the Species. By Montague Chamberlain. 8vo. Saint John, N. B.: 1887.]

[A Systematic Table of Canadian Birds. By Montague Chamberlain. 4to. Saint John, N. B.: 1888.]

Mr. Chamberlain has lately published two very useful

works on Canadian Birds, and promises us, moreover, a complete bibliography of Canadian Ornithology, which is already "well under way." The Catalogue contains the names of the North-American Birds as yet known to be met with in Canada, in systematic order, with notes on the mode and frequency of their occurrence. The system adopted is that of the Check-list of the A. O. U. In the subsequently issued "Systematic Table," only the names, English and Latin, are given, together with the higher groups to which the species are referred. It appears that out of the 1028 species of birds now admitted into the North-American list 551 are registered as Canadian. Mr. Chamberlain in his preface makes some apposite remarks upon the vexed question of subspecies.

68. *Dubois on the Birds of Belgium.*

[Fauna des Vertébrés de la Belgique. Par Alphonse Dubois. Série des Oiseaux, Tome I. (1876–1887). 4to. Bruxelles: 1887.]

In this carefully compiled work, Dr. Dubois follows the old scheme of classification, and, commencing with the Raptores, places the Goatsuckers and Swifts among the Passeres, far away from the Woodpeckers, Cuckoos, &c., which we are accustomed to find united with them in the Order Pic[illegible]on. The letterpress is, as a rule, excellent, and great pa[illegible] have evidently been taken with the geographical distribution, which is further indicated by small coloured maps accompanying each species. Turning over the pages, we see with some surprise that the author has omitted to notice the remarkable fact that all the Hawk Owls obtained in the British Islands have, with one exception, belonged to the North American, and *not* to the Palæarctic form. Dr. Dubois distinguishes the slightly smaller and brighter-coloured Tree Sparrow which inhabits the Malay Peninsula and Java as *Passer montanus*, var. *malaccensis*. The book is rather bulky and inconvenient for handling, but certainly nothing so good in quality has hitherto been published in the French language.

69. *Emin Pasha's Letters and Journals.*

[Emin Pasha in Central Africa, being a collection of his letters and journals, edited and annotated by Professor G. Schweinfurth, Professor F. Ratzel, Dr. R. W. Felkin, and Dr. G. Hartlaub. Translated by Mrs. R. W. Felkin. London: 1888. 1 vol., 8vo.]

Few African travellers and explorers have done more for ornithology than Emin Pasha. Besides his excellent collections, his letters and journals, which are here given to us, contain many interesting notes on bird-life in Central Africa, and are well worthy of study. Here, for example, is what Emin Pasha tells us of the station of Agaru, in the Shuli country, about 4° N. lat., east of the Nile, and 3700 feet above the sea-level:—"Like Latuka, Agaru should yield many treasures to the collector. I found a Weaver-bird, resembling *Hyphantornis spekei*, but differing from it in its white under-jaw and throat; it is probably a new species. For the first time I met with the superb *Pholidauges leucogaster*, which appeared to be passing in small noisy flocks to the north-west. The Beef-eaters (*Buphaga erythrorhyncha*), which prove such a sore pest to the cattle, were particularly numerous and bold. Kingfishers (*Halcyon semicærulea*), the beautiful *Ispidina picta*, and Bee-eaters (*Merops bullockii* and *M. pusillus*) sat on the bushes catching insects. The Hoopoe (*Upupa epops*) is also fairly common. Fringillidæ appear in legions at this season of the year, being attracted by the ripening corn. While in Tárangole, the place of the House-Sparrow is taken by the *Philagrus melanorhynchus*, it is here represented by the *Passer swainsoni*, a bird of the same group. Neither of them, however, build their nests in the huts. Altogether, the feathered fauna of this country is more closely allied to that of Abyssinia and the Somali-country than to that of our province."

Emin's "zoo-geographical notes," to which a whole chapter is devoted, are also deserving of careful perusal.

70. *Harvie-Brown on the Isle of May.*

[The Isle of May: its Faunal Position and Bird-Life. By J. A. Harvie-Brown. Proc. Roy. Phys. Soc. Edinburgh, ix. p. 303.]

Although the larger portion of this presidential address relates to the bird-life of the Isle of May, which lies at the entrance of the Firth of Forth, yet it is practically one of Mr. Harvie-Brown's interesting contributions to the subject of migration. A map and an illustration of the island—not unlike Heligoland in appearance—are given.

71. *Le Messurier on Indian Game, Shore, and Water-Birds.*

[Game, Shore and Water Birds of India. By Colonel A. Le Messurier, R.E. 8vo. Calcutta: 1888.]

This appears to be a new and revised edition of a work first printed in 1874, "for private circulation only." The arrangement and nomenclature are mostly those of Jerdon, and are consequently rather antiquated. But Col. Le Messurier's Handbook will be, no doubt, of much use to Indian sportsmen who require a convenient and portable volume. The illustrations will be of material assistance in this way. We think, however, that the range of each Indian species should have been concisely stated.

72. *Mansel-Pleydell on the Birds of Dorsetshire.*

[The Birds of Dorsetshire, a Contribution to the Natural History of the County. By J. C. Mansel-Pleydell. 8vo. London and Dorchester: 1888.]

This is a very useful and compact treatise upon the birds of the above county, not unduly swollen by the introduction of extraneous matter, but confining itself to the prescribed limits. It is illustrated by some very good woodcuts by Mr. G. E. Lodge, and by an adequate number of references to the standard authorities on British systematic ornithology. The typographical errors are not a few; we notice two in the head-line of Montagu's Harrier (p. 12), and two (one of an important date) under the Little Stint; while, owing we suppose, to unfortunate transpositions, the 'Ibis List' is made responsible for *Milvus regalis* and *Aquila lagopus* as the scientific names, respectively, of the Kite and the Rough-legged Buzzard, whereas those used were *Milvus ictinus* and *Archibuteo lagopus*! It is rather too bad to manufacture errors for this List after making the following charge in the

preface:—"As regards nomenclature—a difficult subject—the 'Ibis List,' which should be authoritative (having been published in 1883 by a committee of the British Ornithologists' Union), unfortunately contains many errors which, considering the reputation of the compilers, ought to have been avoided." Now we challenge the writer of this passage to make good his statement; for whatever mistakes that List may contain, we hold that avoidable errors in nomenclature are not among them, and we consider the above-given remarks cast a most unjust slur upon a work to which great care was devoted by some of the most competent ornithologists of the country.

73. *Nehrkorn on his Collection of Eggs.*

[Mittheilungen über seine Eiersammlung. Von A. Nehrkorn. Jahresber. Ver. f. Naturw. z. Braunschweig, v. p. 117.]

Herr Nehrkorn of Riddagshausen, near Brunswick, a gentleman well known to many of us, gives a short but interesting account of his celebrated Collection of Eggs, which contains altogether examples of over 3000 species. We do not know the exact extent of the series in the British Museum, which is probably equally rich; but it is much desired by ornithologists that steps should be taken to bring [illegible] specimens of the important part of the National Bird-collection into [illegible]xamp[illegible] better order, so that we may know what it really contains.

74. *Pelzeln and Lorenz on types in the Vienna Museum.*

[Typen der ornithologischen Sammlung des k. k. naturhistorischen Hofmuseums. Von August von Pelzeln und Dr. Ludwig von Lorenz. Theil. II., III. Ann. d. k. k. naturhistorisch. Hofmuseums, Wien, 1887, pp. 191, 339.]

Messrs Pelzeln and Lorenz continue their useful list of the ornithological types in the Vienna Museum, of which we have already spoken (Ibis, 1887, p. 254). In the two parts now before us the Passerine birds are completed.

75. *Ridgway on the Species of* Phrygilus.

[On *Phrygilus gayi* (Eyd. & Gerv.) and allied species. By Robert Ridgway. Pr. U. S. Nat. Mus. 1887, p. 431.]

Mr. Ridgway holds that the specimen of *Phygilus gayi* (so labelled) in the Jardin des Plantes, which was examined by Sclater and Salvin in 1869 (*cf.* Ibis, 1869, p. 285), was "not the type of that species, but one of Gay's wrongly identified specimens." Mr. Ridgway accordingly makes *Emberiza aldunatei*, Gay, = *Fringilla gayi*, and *Phygilus gayi*, Scl. et Salv., = *P. formosus*. This view, however, is not accepted by Mr. Sharpe in the Catalogue of Birds (xii. p. 781). Mr. Ridgway now gives the synonymy and characters of this group of the genus *Phrygilus*, and includes in it a new species from Lake Titicaca, which he proposes to call *P. punensis*.

76. *Salvadori on a new* Hemixus.

[Descrizione di una Specie del Genere *Hemixus* raccolta in Sumatra dal Dott. O. Beccari. Per Tommaso Salvadori. Ann. Mus. Civ. Stor. Nat. Genova, ser. 2, v. p. 525.]

The eight examples of *Hemixus* obtained by Dr. Beccari on Mount Singalan in Sumatra in 1878, and referred by Count Salvadori in his list of Dr. Beccari's collection to *H. malaccensis*, prove to belong to a distinct species, proposed to be called *Hemixus sumatranus*.

77. *Salvadori on the Caspian Plover in Italy.*

[La *Ægialitis asiatica* (Pall.) trovata per la prima volta in Italia. Nota di Tommaso Salvadori. Atti R. Accad. Sci. Torino, xxiii. p. 44.]

On November 15, 1887, a specimen of this very rare wanderer to Europe was obtained in the flesh from a game-dealer in Turin, by Signor Enrico Marchisio, being the first instance of the occurrence of this species in Italy. It was said to have been shot on the banks of the Metaurus, fatal, it will be remembered, to the more distinguished invader Hasdrubal. Two examples of this Plover have been taken on Heligoland, but, with the exception of one obtained near Odessa, no others have been recorded on this side of the Caspian. In the reference "(*Mus. Britannico, fide Saunders*)," for its occurrence in the Altai Mountains, we think there must be some mistake.

78. *Seebohm on the Distribution of the Limicolæ.*

[The Geographical Distribution of the Family Charadriidæ, or the Plovers, Sandpipers, Snipes, and their Allies. By Henry Seebohm. 4to. London: Sotheran & Co., 1887.]

This handsome work will, we are sure, be received with favour by all ornithologists, although they may not entirely sympathize with the views which our energetic coadjutor has put forward in it. For an account of these views, and of the circumstances which have induced the author to bring them before the public, we must refer our readers to Mr. Seebohm's preface—they are not easily explained in a few lines. It must suffice to remark that they have resulted in the production of a large quarto volume of more than 500 pages, beautifully illustrated, not only by numerous woodcuts inserted in the text, but also by 21 excellent coloured plates, drawn by the cunning hand of Mr. Keulemans. Mr. Seebohm expressly disclaims the term of Monograph as applied to his book, but diagnoses are given of all the species, and sufficient remarks to render it very useful as a book of reference. Amongst the species figured we may call special attention to the Magellanic Plover (*Pluvianellus sociabilis*), which for these last fifty years has been only known from [redacted] specimens. In 1887, Mr. Young obtained a third example out of a flock of five or six individuals in Tova Harbour on the coast of Patagonia.

We subjoin a complete list of the plates in this volume, as named by Mr. Seebohm:—

1. Charadrius rubecola.
2. —— sociabilis.
3. —— rufiventer.
4. —— totanirostris.
5. —— monachus.
6. —— obscurus.
7. —— tenellus.
8. Lobivanellus albiceps.
9. —— superciliosus.
10. Vanellus cayanus.
11. Cursorius somalensis.
12. Cursorius cinctus.
13. —— bitorquatus.
14. Himantopus pectoralis.
15. Tringa ruficollis.
16. Phegornis mitchelli.
17. —— cancellatus.
18. —— leucopterus.
19. Rhynchæa semicollaris.
20. Scolopax rochusseni.
21. —— saturata.

79. *Shufeldt on some Birds' Sterna and Skulls.*

[On a Collection of Birds' Sterna and Skulls, collected by Dr. Thomas H. Streets. By Dr. R. W. Shufeldt. Pr. U. S. Nat. Mus. 1887, p. 377.]

Dr. Shufeldt gives an account of a collection of sterna and skulls of birds made by Dr. Streets, of the U. S. Navy, in the north and south Pacific in 1884–85, and now presented to the U. S. National Museum. Several good illustrations are inserted in the text, amongst which we may call attention to the figures of two skulls of *Corvus corax sinuatus*, as likely to be serviceable to those who pin their faith to exact measurements.

80. *A. C. Smith on the Birds of Wiltshire.*

[The Birds of Wiltshire. By the Rev. Alfred Charles Smith, M.A. London: 1887.]

This work is described in the preface as being "a plain account of the Birds of Wiltshire, written by a Wiltshire man and for Wiltshire people;" but its bulk is considerably increased by the insertion of a great deal of matter relating to the author's experiences abroad, especially in the south of Europe and in Egypt. These, together with Mr. Smith's remarks upon the vernacular and local names of birds in many foreign countries, mingled with scraps of folk-lore, will be very interesting, no doubt, to a larger circle than the inhabitants of Wiltshire, but they have no particular reference to that county. We will not take exception to the classification and nomenclature adopted by the author, for he disarms us by plainly stating that, as a member of the B. O. U., he honestly tried his very best to fall in with the new scheme as set forth in the 'B. O. U. List,' and gave it up in despair! This surrender will, however, hardly excuse him for writing *Laniadæ* and *Charadriadæ*, and as each of these errors occur twice, they cannot be attributed to the printer. Again, with every respect for Mr. Smith's old-fashioned habits, it is rather too much to find the Bustards placed among the Struthionidæ, and the Petrels included amongst the Laridæ! We also regret to see the list of Wiltshire birds swollen by the insertion of such species as the African Buzzard, Great Black Woodpecker,

Gold-winged Woodpecker, Cayenne Rail, and the Canada, Egyptian, and Spur-winged Geese. Mr. Smith, who finds no difficulty in assuming that examples of the last two are genuine wanderers all the way from Africa, rather than unpinioned birds which have escaped from semi-confinement, questions the propriety of considering the Mute Swan as a British bird, although it breeds in a wild state (or did so until quite recently) no further off than the south of Sweden, and is frequently seen on the wing in this country. We are also sorry to see that by calling the Little Owl *Noctua passerina*, instead of *Athene noctua*, he conveys the totally erroneous impression that the Least or Sparrow-Owl has been obtained in Wiltshire, whereas it has never occurred in any part of our islands. Perhaps the most interesting portion of the book is that containing the description of the Wiltshire Ravens and the Raven-trees, still, or until recently, frequented.

81. *Sousa on two new Birds from Angola.*

[Descripção de duas especies de Aves de Angola da exploração do Sr. José d'Anchieta. Por José Augusto de Sousa. Jorn. Sci. Math. Phys. e Nat. Lisboa, no. xlvi. p. 105.]

The veteran explorer Anchieta has sent to the Lisbon Museum the specimens upon which Sr. de Sousa now proposes to found two new species, *Chætura anchietæ* and *Cisticola dispar*.

82. *Sousa on the Birds of Angola.*

[Aves de Angola. Por José Augusto de Sousa. Jorn. Sci. Math. Phys. e Nat. Lisboa, no. xlvi. p. 105.]

In this paper is given a list of 67 species of birds, of which examples were obtained by Sr. Anchieta at Quissange in the latter part of 1886. Two new species represented in the same collection were described in the paper above noticed.

XXXVIII.—*Letters, Extracts, Notices, &c.*

We have received the following letters addressed to the Editors of 'The Ibis:'—

Brunswick,
April 23, 1888.

Sirs,—In the April number of 'The Ibis,' which I received from London yesterday, I find an essay by Mr. R. B. Sharpe (containing descriptions and excellent illustrations of several new species), "on a Collection of Birds from the Island of Paláwan." This has been printed simultaneously with a list of my own of the birds of Paláwan, which is appearing just now in Vienna, in Part ii. of the 'Ornis' for 1888. My work is based chiefly upon a large collection of birds made by Dr. and Mrs. Platen last year at Puerto Princesa in Paláwan, in which there are examples of several species new to science.

At the meeting of the 'Verein für Naturwissenschaft' in Brunswick, held on February 2, 1888, I described and named two of these new species, namely, *Prionochilus plateni* (=*Pr. johannæ*, Sharpe, Ibis, 1888, p. 201, pl. iv. fig. 1) and *Prioniturus platenæ* (=*Pr. cyaneiceps*, Sharpe, ibid. p. 194); and at the meeting of the same Society, held on February 16, 1888, I also described *Syrnium wiepkeni* (=*S. whitehe[illegible]*ds Sharpe, ibid. p. 196, pl. iii.), *Siphia platenæ* (=*Siphia e[illegible]*ds *thacus*, Sharpe, ibid. p. 199, pl. iv. fig. 2), and *Hyloterpe plateni* (=*H. whiteheadi*, Sharpe, ibid. p. 198).

Siphia ramsayi of Paláwan, which I also then described, seems to have been either not obtained by Whitehead, or at all events not named by Sharpe.

The reports of this Society's meetings, with the descriptions (recognizable, as I believe) of these new species, were published in the 'Braunschweigische Anzeiger,' no. 37, February 12, 1888, p. 335, and no. 52, March 1, 1888, p. 467.

There can be no doubt, therefore, that my names and descriptions of the above-mentioned five new species have priority, and that, in the place of Sharpe's names, mine should in future be employed for them.

Perhaps it will be of some interest to you if I take this opportunity of giving a list which shows the results of the collections made by Whitehead and Platen, and of the essays on them of Sharpe and myself respectively. Sharpe introduces the following species as collected or observed by Whitehead, which have not been obtained either recently by Platen, or formerly by other collectors :—

1. *Circus spilonotus* (?); 2. *Pandion haliaëtus* (these two species were only observed, not obtained); 3. *Baza leucopias*, sp. n.; 4. *Halcyon coromanda*; 5. *Collocalia fuciphaga* (I have in my list mentioned this species in Dr. Platen's collection as "*Cypselus lowi*," wrongly as I now see, as the last-named species is not yet proved to belong to Paláwan); 6. *Batrachostomus cornutus*; 7. *Caprimulgus macrurus*; 8. *Cuculus sonneratii*; 9. *Pericrocotus cinereus* (Sharpe mentions, evidently erroneously, Lemprière also as an authority for this species); 10. *Cryptolopha montis*; 11. *Pitta erythrogastra*; 12. *Iole striaticeps*, sp. n.; 13. *Cisticola cisticola*; 14. *Munia atricapilla*; 15. *Turtur tigrina*; 16. *Esacus magnirostris*; 17. *Glareola orientalis*; 18. *Numenius lineatus*; 19. *Terekia cinerea*; 20. *Gallinago australis* (is this *Rhynchæa australis*?); 21. *Gallinago fasciata* (is this name a printer's error for *Rallina fasciata*?); 22. *Herodias intermedia*; 23. *Sterna sinensis*; 24. *Hydrochelidon hybrida*; and 25. *Fregata minor*. These 25 species will go to augment my list.

On the other hand, from the Platen collection, I can supplement Sharpe's list with the following species :—

1. *Hypotriorchis severus* (Horsf.); 2. *Spizaetus philippensis* (Gurney); 3. *Spilornis bacha* (Daud.) (Sharpe could only tell from a wing that a species different from *S. pallidus* and *S. holospilus* occurs in Paláwan); 4. *Ninox scutulata* (Raffl.); 5. *Cuculus canoroides*, S. Müll.; 6. *Hierococcyx strenuus*, Gould; 7. *Eudynamis mindanensis* (Linn.); 8. *Pelargopsis gouldi*, Sharpe; 9. *Caprimulgus manillensis*, G. R. Gray; 10. *Siphia ramsayi*, W. Blas. (a species with which Sharpe's description of *Siphia lemprieri* does not agree); 11. *Hemichelidon sibirica* (Gm.); 12. *Lalage dominica* (P. L. S. Müll.); 13. *Artamus leucogaster* (Valenc.); 14. *Parus amabilis*,

Sharpe; 15. *Pitta propinqua* (Sharpe); 16. *Acrocephalus orientalis* (Temm. & Schleg.); 17. *Sturnia violacea* (Bodd.); 18. *Leucotreron leclancheri* (Bp.); 19. *Myristicivora bicolor* (Scop.) (a species which, by-the-by, Sharpe himself in 1877 mentioned as observed by Steere in Paláwan); 20. *Turtur dussumieri* (Temm.); 21. *Calœnas nicobarica* (Linn.); 22. *Gallus bankiva* (Temm.); 23. *Turnix haynaldi*, nov. sp.; 24. *Rallina fasciata* (Raffl.); 25. *Amaurornis phœnicura* (Penn.); 26. *Charadrius fulvus*, Gmel.; 27. *Ægialitis vereda* (Gould); 28. *Limicola platyrhyncha* (Temm.); 29. *Tringa albescens*, Temm.; 30. *Bubulcus coromandus* (Bodd.) (a species noticed in 1878 by both Sharpe and Tweeddale, but now omitted by Sharpe without any reason assigned); 31. *Sterna melanauchen*, Temm.; and 32. *Anous stolidus* (Linn.).

All the remaining species seem to appear both in Sharpe's and my list, although in some instances under different names, the differences arising in some cases from simple difference of nomenclature, in others from divergence of our opinions concerning the limits of genera and species and similar causes.

For instance, I consider the following as synonyms:—

(My nomenclature.)	(Sharpe's nomenclature.)
Syrnium wiepkeni, W. Blas.	= *S. whiteheadi*.
Scops everetti, Tweedd.	= *S. fuliginosa*, sp. nov.
Prioniturus platenæ, W. Blas.	= *P. cyaneiceps*, sp. nov.
Centrococcyx javanensis (Dumont)	= *C. affinis*.
Hirundo gutturalis	= *H. rustica*.
Siphia platenæ	= *S. erithacus*.
Hypothymis occipitalis	= *H. azurea*.
Muscicapa griseosticta	= *M. manillensis*.
Hyloterpe plateni, W. Blas.	= *Prionochilus johannæ*, sp. nov.
Budytes viridis	= *Motacilla flava*.
Broderipus acrorhynchus (Vigors), var. *palawanensis*, Tweedd.	= *Oriolus palawanensis*.
Carpophaga ænea (Linn.), nov. var. *palawanensis*, W. Blas.	= *C. ænea*.
Turnix fasciata (Temm.)	= *T. nigrescens*.

Amongst these I have not included some of the more familiar synonyms.

Although, from what I have said, there can clearly be no question as to the priority of my names, I by no means declare them to be in all cases correct. In several instances the nomenclature requires more consideration: for instance, whether the *Scops* of Paláwan should be called *S. fuliginosa* or *S. everetti* (as I have termed it) I will not venture to decide.

Again, the exact equivalences of Sharpe's *Pelagopsis leucocephala* to my *P. gouldi*, of Sharpe's *Caprimulgus macrurus* to my *C. manillensis*, of Sharpe's *Siphia lemprieri* to my *S. ramsayi*, of Sharpe's *Pitta erythrogastra* to my *P. propinqua* (which stand as representing each other in our lists), need still further examination.

Yours, &c.,
WILH. BLASIUS.

Buaapest,
May 1, 1888.

SIRS,—The Hungarian National Museum has just received an example of *Syrrhaptes paradoxus*, Pall., ♀ ad., which was shot in Transylvania on the 27th of April. It [illegible] not unlikely that this interesting wanderer will also visit other countries in the present year.

In the spring of 1863 these rare guests made their appearance here in great numbers, and our Museum got at that time three males and one female.

I think it therefore opportune to call the attention of ornithologists, through the medium of 'The Ibis,' to this occurrence.

Yours &c.,
Dr. JULIUS v. MADARÁSZ.

Christiania,
May 10, 1888.

SIRS,—I have just received a pair of *Syrrhaptes paradoxus* killed out of a flock of about thirty on the strand at

Listorland, in the south of Norway, not far from the Naze, on May 12th. Five specimens were shot. In my specimens the testes and ovary were well developed, the eggs being of about the size of those of a *Regulus*.

Yours &c.,
R. Collett.

Topclyffe Grange,
Farnborough, R. S. O., Kent,
May 23, 1888.

Sirs,—I have just been spending a few days in Jersey, where the birdstuffer at St. Heliers (Mr. Thomas Caplin) showed me a fine pair (male and female) of *Syrrhaptes paradoxus*, which were shot on the island on Tuesday, the 15th inst., by Mr. Romeril, and sent in to him for preservation the same day. These two specimens were, he informed me, shot out of a flock of about eighteen individuals, and were, so far as he could ascertain, the only two obtained on the island.

Yours &c.,
H. E. Dresser.

Costock Rectory, Loughborough,
May 26, 1888.

Sirs,—A beautiful specimen of Pallas's Sand Grouse was found by my son near here on May 24th. It had been killed by striking against the telegraph wires, and the head nearly severed from the body, but was otherwise in good condition. It seems to be a male in full plumage, and weighed 8 oz.

Yours &c.,
C. S. Millard.

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22 Corporation Street, Belfast,
May 31st, 1888.

Sirs,—You and the readers of 'The Ibis' will be interested to learn that the present visit of Pallas's Sand Grouse to England has, as in 1863, extended to Ireland; an example

of this bird, which had been shot a day or two previously near Hillough, Co. Down, having been brought to me yesterday.

I have not yet heard whether the bird was alone or in company with others, but am inquiring. It was an adult male bird, 16 inches long, and the two centre tail-feathers almost 4 inches longer than the others. If I hear of others turning up I shall let you know.

Yours &c.,
R. Lloyd Patterson.

Nynehead, Wellington, Somerset,
June 5th, 1888.

Sirs,—It may be of interest to you to know the extent of the invasion of the Sand Grouse. On Sunday afternoon I was with our Vicar and a friend in his garden, when five of these birds passed us at a distance of 8 or 10 yards—quite close enough for us all to observe the pointed wings and tail and the peculiar colour. The Golden-Plover-like flight first attracted our attention; they were passing from S.E. to N.W. at about 20 feet from the ground. These are the furthest west that I have heard of. One was killed at Street, about twenty miles to the east of this, a few days ago.

The spot I saw them in is about a mile and a half N.N.E. of Wellington Church: the ground about is tolerably free from trees, and the enclosures vary from 30 to 150 acres each.

Yours &c.,
W. A. Sanford.

Heerengracht 534, Amsterdam,
June 5th, 1888.

Sirs,—In 'Nature' I find a note from Mr. Alfred Newton on the occurrence of *Syrrhaptes paradoxus* in England. In Holland also these birds occur at the present moment at different places and in considerable numbers, so that we have received several specimens here in the Zoological Gardens. The gizzard of one that was opened in my presence contained

barley and different small seeds. If I hear of their breeding anywhere I will let you know.

Yours &c.,
F. E. Blaauw.

Notes on the Breeding of the Hoatzin.—The following extracts from a letter addressed to Sclater by Mr. Quelch, of the British-Guiana Museum, Demerara, dated March 31st, 1888, will be read with interest :—

"I have just been up to the Berbice River and the Canjé Creek after the Hoatzin. From information given to me I had ascertained that the birds were laying, but that they had only just begun. When I went up myself and examined the district, I found a considerable number of nests in process of being built, a number of nests with one, others with two, and a few with three eggs. Two eggs seem to be the usual complement; in fact, I was told they never laid more than two eggs at one nesting, but in a few nests there were certainly three eggs. In not a single nest did I find any young ones, nor did I see any birds about which, from their smaller size, appeared to have been lately hatched. I brought down with me a considerable number of eggs, some quite fresh, and others, so far as I can judge from the appearance of [illegible]rds eggs, in different stages of incubation; and in this resp[illegible] the conduct of the birds when driven off the nest seemed to me conclusive. The incubated eggs (sixteen) I have put into spirit, forty over proof, and will change soon into fresh spirit. The fresh eggs I am trying to get a hen to hatch out, but I do not know yet whether I shall succeed.

"I am going to wait for another three weeks or so, and then I shall go up and take my zinc pans for the big birds and what chickens and incubated eggs I can find. I am afraid the birds will have to be shot. There is no way of catching them otherwise. They are fairly plentiful along the Canjé Creek and the Berbice River; but there is generally great difficulty in getting close to them, and always so in regard to the nests. These they make among a very prickly, spreading, decumbent sort of shrub or small tree,

which grows in the swamps along the water-side in a thick dense mass, and into which it is most tedious and difficult to penetrate. The nests overhang the water, so that from the land it is out of the question to get at them. From the water, again, it is a most tedious process. One has to wade, often up to the thighs, through thick mud, at low tide, and to cut a way into the prickly growth; and then, by pulling down the branch bearing the nest (for it is out of the question to climb), there is a chance of getting the eggs. Often, however, in the process the eggs jerk out; for the nest is perfectly shallow and open, consisting only of a few sticks loosely drawn together. At high tide it is even more tedious, for the boat has to go where a man otherwise might have gone at low tide, and this necessitates cutting a large channel.

"However, I am going to try my best to send you a satisfactory collection."

The new Irruption of Syrrhaptes paradoxus.—The great ornithological event of the present summer is the new irruption of *Syrrhaptes paradoxus* into Western Europe, which seems likely to attain the development of that of 1863. We have given above seven letters received on the subject; and dates have been published by Dr. Meyer in 'Nature' (May 17th and 24th), 'The Times' (May 23rd), and elsewhere. In this country specimens have been obtained in Notts, Hertfordshire, and many other localities. Prof. Newton, the historian of the irruption of 1863 (*cf.* Ibis, 1864, pp. 186-222), has kindly undertaken to prepare an account of the present visitation, and will be glad to receive information on the subject, especially cuttings from local newspapers, with *date* and *source* specified.

News of Bird-collectors in Foreign Parts.—Mr. W. R. Davison, M.B.O.U., writes to us that he is now nearly settled in his new post at the Raffles Museum, Singapore, and is getting things into order. He hopes shortly to be able to make a trip into the native State of Pahang, in the

Malay Peninsula, where the mountains are said to reach from 10,000 to 12,000 feet in altitude, and fine novelties may be expected to occur.

Mr. John Whitehead, who has been in Paláwan, and sent home the fine collection described by Mr. Sharpe in our last number, will make another expedition up Kinabalu before his return home, and will doubtless obtain further novelties in this most interesting locality.

Mr. Godman, whose absence in Mexico was spoken of in our last number, is expected home in the middle of June, and has, we hear, made considerable collections in many departments of zoology.

Canon Tristram has been spending the spring months in the Canary Islands, and collecting birds with his habitual energy. We have no doubt that, on his return, our excellent coadjutor will let us have the benefit of his experiences for this Journal.

Under the instructions of a joint Committee of the Royal Society and British Association, of which Prof. Flower is the Chairman, an attempt is being made to obtain a better knowledge of the Fauna and Flora of the Lesser Antilles. Mr. George A. Ramage, the naturalist employed by the Committee, has commenced his labours in Dominica, where he receives the efficient support of Dr. Nicholls, and will pass on subsequently to the more northern islands of the Leeward group.

Mr. C. M. Woodford, who so efficiently explored the ornithology of the Solomon Islands (see P. Z. S. 1888, pt. ii.), has departed on a new expedition to some of the less-known adjoining groups of the South Pacific, such as the Louisiades and Santa-Cruz group, where this excellent collector will, no doubt, make many discoveries.

From Petermann's 'Mittheilungen' we learn that General Prjevalsky will start in August next on his fourth journey into Central Asia. He will be equipped for two years' travel, the ultimate destination of his expedition being Lhassa, the capital of Tibet. The General will be accompanied by an escort of 28 persons, including 12 Cossacks and two scien-

tific companions, Lieutenant Robrowsky and Sub-Lieutenant Koslow.

Obituary.—Mr. H. Pryer and M. M. N. Bogdanow.

From the 'Times' of April 23rd we learn of the death, in Japan, on the 17th of February, of Mr. Harry Pryer, C.M.Z.S., the Yokohama naturalist, at the early age of 37. When Mr. Pryer went to Japan in 1870 he was already known as an active Fellow of the Entomological Society of London. In the intervals of a busy mercantile career he interested himself in Japanese natural history, and soon became a recognized authority on the subject. In conjunction with Captain T. Blakiston, he wrote the very useful list of the Birds of Japan, published in the 10th volume of the 'Transactions of the Asiatic Society of Japan' in 1882. To the 11th volume of the same journal he contributed an article upon the Butterflies of Japan, and in 1886 published the first number of an illustrated work on the same subject, entitled 'Rhopalocera Nihonica.' Mr. Pryer was not only an assiduous collector, but a keen observer and a practical investigator, and his researches on the parasites of the silkworm have been of material advantage to the silk-culture of Japan. His house and garden were filled with valuable specimens of animals, living and dead, and the loss sustained by the European community through his death is shared by the Japanese, who recognize the valuable services he rendered to them in connexion with the establishment and maintenance of the museum at Tokio.

Modest N. Bogdanow, for some years head of the Ornithological Department of the Imperial Academy of Science in St. Petersburg, died on the 16th of March. He succeeded Valerian von Russow (whose death from smallpox was recorded in 'The Ibis' in 1879) in the charge of the valuable collection of birds in the Imperial Museum, but was compelled by failing health to relinquish his post a year or two ago in favour of Theodor Pleske, whose works on the 'Ornithologie der St. Petersburger Gouvernements' and the 'Säugethiere und Vögel der Kola-halbinsel' are familiar to

all ornithologists interested in the distribution of birds in Russia. Professor Bogdanow's important contributions to ornithological literature are very little known in this country, in consequence of their being written in the Russian language; but MS. translations of his three most important works, 'The Mammals and Birds of the Black-earth Regions of the Volga' (published in Kazan in 1871), 'The Birds of the Caucasus' (Kazan, 1879), and 'A Monograph of the Russian Shrikes' (St. Petersburg, 1881) are in Mr. Seebohm's library, and have been consulted and appreciated by many ornithologists. In 1884 the first part of his 'Conspectus Avium Imperii Rossici' was published at St. Petersburg, and is accessible in the library of the Zoological Society. It is deeply to be regretted that the talented author has not lived to complete this important work.

News of Emin Pasha.—A letter lately received by Prof. Flower from Emin Pasha is dated "Tunguru Island, Lake Albert, Oct. 31st, 1887," and announces the despatch of two boxes of bird-skins and other objects to the British Museum. The Albert Lake, he observes, has never been previously visited by a naturalist, and he hopes to discover many novelties. He had just shot a specimen of what was apparently *Larus fuscus*, the most southern locality yet known to birds for this bird.

THE IBIS.

FIFTH SERIES.

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XXXIX.—*Further Descriptions of new Species of Birds discovered by Mr. John Whitehead on the Mountain of Kina Balu, Northern Borneo.* By R. Bowdler Sharpe, F.L.S., F.Z.S., &c.*

(Plates IX.–XII.)

Mr. John Whitehead left Labuan on the 15th of December last, and ascended the great mountain of Kina Balu for the second time. The discoveries of this expedition are no less remarkable than those of the first; but as, by the time that these lines are in print, Mr. Whitehead may be expected in England, I do not propose to do more than give a very few notes on some of the actual novelties and extreme rarities of which he has sent me specimens. Of the rest of the acts of Mr. Whitehead, of the collections he has made, and of the nests and eggs he has found during his four years' travel in the Malay Archipelago, I hope he will himself give an account. Attention should be especially drawn to the Ceylonese affinities of some of the new genera described in this paper.

Fam. Corvidæ.

1. Cissa jefferyi, sp. n.

Adult male. General colour above bright emerald-green;

* See Ibis, 1887, p. 435, for previous paper on this subject.

scapulars like the back, with greenish-white edges, as well as the upper tail-coverts; lesser wing-coverts green externally, reddish on inner web; remainder of coverts deep claret-red or maroon; the bastard-wing and primary-coverts reddish brown; quills claret-red, the primaries reddish brown, the inner secondaries greenish white, except on the outer web, which is for the most part claret-red; tail-feathers green, with a slight bluish tinge, tipped with greenish white, all but the centre feathers with a black subterminal bar; crown of head bright emerald-green; a narrow line at base of nostrils; lores, eyebrow, feathers round eye, sides of face, and ear-coverts black, forming a broad band, which encircles the nape; cheeks and under surface of body light emerald-green; under wing-coverts and axillaries ashy brown, washed with green; quills below coppery brown: "bill and skin round the eye deeper vermilion than the legs, which are deep vermilion; iris white, with a very pale pink tinge" (*J. W.*). Total length 11 inches, culmen 1·25, wing 5·3, tail 4·1, tarsus 1·7.

Adult female. Similar to the male, but a trifle more bluish. Total length 11 inches, culmen 1·1, wing 5·2, tail 4·8, tarsus 1·6.

Nos. 2046, 2222. Mr. Whitehead writes:—"I ex[pect] this is a new species, as it is quite distinct from *Cissa mik[adi]* and I should like it named after my father, *Cissa jefferyi*. The note of this bird is quite distinct from that of *C. minor*. I first met with it in pairs, at 8000 feet; but I afterwards found it at 4000 feet, where it closely approaches the range of *C. minor*. I fancy the alpine bird has a more greenish tinge than the latter species, which is met with at a lower altitude. While *C. minor* frequents the thick growth which springs up in a couple of years after the rice-crops, *Cissa jefferyi* never leaves the virgin forest."

The green colouring in all the species of *Cissa* is so evanescent and so liable to change to blue, or *vice versâ*, that I do not attach much importance to any difference in this respect between the two forms found on Kina Balu; and the fact that the female bird happens to be a little more blue

than the male does not amount to much. The great difference between *C. jefferyi* and *C. minor* is found in the whitish inner secondaries, which have no subterminal black bar at all, and the bar before the end of the tail-feathers is very much narrower.

Fam. Muscicapidæ.

2. Muscicapula maculata (Tick.); Sharpe, Cat. B. Brit. Mus. iv. p. 207.

No. 1907. "Met with from 3000 to 8000 feet. I have a nest with one egg. Bill, feet, and iris black." I cannot see any difference between this male bird and specimens from the Himalayas. The bird Mr. Whitehead sends as the female is undoubtedly the same as my *Muscicapula westermanni* (P. Z. S. 1888, p. 270), so that if these two birds are sexes of one species, the latter may have to be separated on the female alone, as the males appear to be exactly alike, while *M. westermanni* is certainly different from any Himalayan specimens of *M. maculata*.

3. Muscicapula hyperythra (Blyth); Sharpe, *t. c.* p. 206.

Nos. 1957, 2325. "Bill and iris black; legs dirty white. From 4000 to 8000 feet. I found a nest and eggs, but the deer were hard set."

Apparently identical with Himalayan specimens. New to Borneo.

4. Cryptolopha trivirgata (Strickl.); Sharpe, *t. c.* p. 396.

Nos. 2072, 2106. "Iris black; bill dark brown; feet slaty grey; soles yellow. Met with from 5000 to 9000 feet."

This species is also recorded from Borneo for the first time.

5. Rhinomyias gularis, sp. n.

Adult male. General colour above dark ochraceous brown of a russet tint; upper tail-coverts more rufous brown; wing-coverts like the back, the median and greater coverts dusky, edged with the same colour as the back; bastard-wing, primary-coverts, and quills dusky brown, edged with rufous brown, the inner secondaries with dusky cross-bars under

certain lights; tail-feathers blackish, externally rufous brown, the centre ones with dusky cross-bars under certain lights; crown of head like the back, but a little more dingy towards the forehead; lores dusky, surmounted by a white streak passing into an eyebrow of dull ashy grey; feathers round eye, sides of face, ear-coverts, and cheeks reddish brown; the chin and sides of throat a little more dusky; throat creamy white; sides of neck like the mantle; fore neck and chest ashy olive, slightly washed with ochreous brown; breast light ashy grey, paler towards the abdomen, which is white; sides of body, flanks, and thighs dull ashy, washed with ochreous brown; under tail-coverts pale fawn-buff; under wing-coverts and axillaries dull ashy, with whitish edges; quills below dusky, ashy fulvous along the inner edge: "bill black; legs whitish blue; iris hazel" (*J. W.*). Total length 5·9 inches, culmen 0·7, wing 3·4, tail 2·3, tarsus 0·95.

Female (immature). Like the male, but with tawny-rufous tips to the greater wing-coverts and upper tail-coverts; the throat purer white, and the abdomen with a few dusky tips to some of the white feathers. Total length 5·8 inches, culmen 0·7, wing 3, tail 2·2, tarsus 0·9.

Nos. 2083, 2323. "A brown Flycatcher, found from 3000 to 7000 feet. I have a nest and two eggs."

The large size of this species, its ashy-grey flanks and breast, distinct ashy eyebrow and rufous ear-coverts, all easily distinguish it from its nearest ally, *R. pectoralis*.

Fam. Turdidæ.

6. Merula seebohmi, sp. n.

Adult male. General colour above, including the wings and tail, black; head, entire sides of face, ear-coverts, cheeks, throat, and chest black, the latter rather more sooty black; abdomen, breast, and sides of body rich chestnut, the lower abdomen white; flanks, thighs, and under tail-coverts black, the latter with white centres to the feathers, tinged with tawny buff; under wing-coverts and axillaries blackish, the latter fringed with whitish at the ends; quills below blackish,

a little more ashy along the inner edge. Total length 9·6 inches, culmen 0·95, wing 5·2, tail 4·2, tarsus 1·45.

Female (not quite adult). Browner than the male, and having the chestnut underparts rather duller. Some pale centres to the wing-coverts make it appear that the specimen is not quite full-plumaged, and the primaries have ashy margins. Total length 9·5 inches, culmen 0·95, wing 4·7, tail 4, tarsus 1·35.

Nos. 1923, 1961. "Met with from 8000 to 12,000 feet. More common about 9000 feet amongst the stunted and weather-beaten trees."

"This species is very similar to *M. javanica*, but is black where the latter is brown. I wish it to be named after Mr. Seebohm, who is interested in Thrushes."

7. CETTIA OREOPHILA, sp. n.

Adult male. General colour above dark olive-brown, the wing-coverts like the back, the greater coverts and quills a trifle more russet-brown; tail-feathers brown, externally lighter brown, like the back; crown of head like the back; lores dusky, surmounted by a narrow eyebrow of yellowish buff; eyelid yellowish buff; sides of face and ear-coverts dark olive-brown, washed with ashy; cheeks and under surface of body pale ashy grey, the fore neck and sides of chest washed with brown; abdomen a little whiter; sides of body and flanks ochreous olive-brown, with silky white bases to some of the flank-feathers; thighs more reddish brown; under tail-coverts like the flanks; under wing-coverts and axillaries white, with a tinge of olive-yellow along the bend of the wing; quills below dusky, ashy whitish along the inner edge: "upper mandible dark brown, the lower one yellow at base; legs pale brown; iris dark brown" (*J. W.*). Total length 4·8 inches, culmen 0·5, wing 2·05, tail 2·2, tarsus 0·95.

Adult female. Similar to the male, with the grey of the throat very strongly mottled and overspreading the entire breast. Total length 4·8 inches, culmen 0·55, wing 1·9, tail 2, tarsus 0·9.

Nos. 1937, 1967. "Met with from 7000 to 12,000 feet."

This species resembles *Cettia fortipes* of the Himalayas, but is easily distinguished by its ashy grey throat and breast. These birds are placed in the genus *Cettia* by Mr. Seebohm, but they seem to me to belong to at least a distinct subgenus, and, but for the weight of his authority, I should have preferred to call this new species *Horornis oreophila*.

Fam. Pycnonotidæ.

Oreoctistes *, gen. n.

Genus simile generi "*Kelaartia*" dicto, sed rostro breviore et crassiore, caudâ magis rotundatâ, et fasciis auricularibus absentibus distinguendum.

The type is

8. Oreoctistes leucops, sp. n. (Plate IX. fig. 1.)

Adult male. General colour above dull olive-greenish, the feathers dusky in the centre, with olive margins; wing-coverts like the back; bastard-wing, primary-coverts, and quills dusky brown, edged with rather lighter olive-yellow, particularly the primaries, the inner secondaries resembling the wing-coverts; tail-feathers blackish, externally olive-yellowish, the ends narrowly fringed with whity brown; crown of head dusky, the feathers edged with dark ashy, producing a scaled appearance, many of them, on the nape especially, washed with olive-yellowish; centre of forehead like the head; lores, eyebrow, feathers round eye, sides of face, cheeks, and throat white, the hinder ear-coverts and hinder part of eyebrow light earthy brown; lower throat, fore neck, and chest light ashy brown, some of the feathers edged with pale olive-yellow, the sides darker brown; breast and abdomen white, with a slight tinge of yellow; sides of body, flanks, and thighs dark brown, with an olive tinge; vent and under tail-coverts bright yellow; under wing-coverts and axillaries white tinged with yellow; edge of wing bright yellow; quills below dusky, ashy fulvous along the inner edge: "bill, feet, and iris black" (*J. W.*). Total length 7·3 inches, culmen 0·55, wing 3·45, tail 3·45, tarsus 0·85.

* ὄρος, *mons*; κτίστης, *colonus*.



J.G. Keulemans del. et lith.

Mintern Bros. imp.

1. ORTHOCTISTES LEUCOPS. 2. ANDROPHILUS ACCENTOR.



BRACHYPTERYX ERYTHROGYNA, ♂ & ♀

Adult female. Exactly like the male, but the ashy colour on the chest not quite so sharply emphasized. Total length 7·5 inches, culmen 0·6, wing 3·3, tail 3·4, tarsus 0·75.

Nos. 1931, 2063. "Only met with between 7000 and 8000 feet."

Fam. Timeliidæ.

Allocotops*, gen. n.

Genus simile generi "*Melanocichla*" dicto, sed pileo et genis nudis facile distinguendum.

The type is

9. Allocotops calvus, sp. n.

Adult male. General colour above dull chocolate-brown; bastard-wing and primary-coverts blackish; quills and tail-feathers blackish brown, externally dull chocolate-brown; crown of head, lores, space round the eye, cheeks, and sides of throat bare and yellow; ear-coverts chocolate-brown, like the head; centre of the throat and under surface of body sooty brown, inclining to ashy: "bare part of head yellow; feet brownish yellow, more brown than yellow" (*J. W.*). Total length 10·2 inches, culmen 1·1, wing 5, tail 4·7, tarsus 1·15.

Adult female. Similar to the male, and with an equally bald head. Total length 10 inches, culmen 1, wing 4, tail 4·4, tarsus 1·35.

Young male. Of the same colour as the adults, but with the crown feathered; the under surface slightly more ashy.

"Native name 'Rigo-rigo.' Local. Met with from 3000 to 4000 feet, but not common anywhere."

10. Brachypteryx erythrogyna, sp. n.† (Plate X.)

Adult male. Entirely dark indigo-blue; wings black, externally dark indigo; tail-feathers black; from the base of the forehead to above the eye a half-concealed streak of silky white: "bill, feet, and iris black" (*J. W.*). Total length 5·7 inches, culmen 0·65, wing 2·45, tail 2, tarsus 1·15.

Adult female. General colour above indigo or slaty blue,

* ἀλλόκοτος, *insuetus*; ὤψ, *facies*.

† ἐρυθρός, *ruber*; γυνή, *femina*.

the scapulars like the back; lower back mixed with reddish brown; rump of the latter colour, deepening towards the upper tail-coverts, which are deep chestnut; lesser wing-coverts like the back, with dull rufous margins; median and greater coverts, bastard-wing, primary-coverts, and quills dusky blackish, edged with deep chestnut, especially distinct on the latter, which appear chestnut; tail-feathers deep chestnut-brown; crown of head chestnut-brown, more dingy on the hind neck, which is slightly mixed with the blue of the back; forehead, lores, eyebrow, sides of face, ear-coverts, cheeks, and under surface of body rich chestnut; sides of body, flanks, thighs, and under tail-coverts rather deeper in colour and more chestnut-brown; under wing-coverts and axillaries deep chestnut; quills below dusky, more ashy along the inner edge. Total length 5·3 inches, culmen 0·6, wing 2·4, tail 1·9, tarsus 1·15.

This species has a certain resemblance to the male of *B. cruralis*, but instead of having a distinct white eyebrow, it has only a half-concealed white mark on the sides of the crown. The female is of course quite different from the hen of any other species of the genus.

Nos. 2062, 2084, 2085. "Met with from 4000 to 9000 feet, but nowhere common."

ANDROPHILUS*, gen. n.

Genus simile generi "*Elaphrornis*" dicto, sed plumulis nuchalibus absentibus distinguendum.

The type is

11. ANDROPHILUS ACCENTOR, sp. n. (Plate IX. fig. 2.)

Adult male. General colour above uniform rufous brown or dark chestnut, the feathers of the lower back and rump extremely lax; upper tail-coverts like the rump; wing-coverts, quills, and tail-feathers dusky brown, edged with the same colour as the back; crown of head a little more dingy than the back; lores dusky, surmounted by a line of dusky grey, scarcely forming an eyebrow; sides of face and ear-

* ἀνήρ, *homo*; φιλέω, *amo*.

coverts reddish brown, washed with grey, with ashy shaft-lines; cheeks and sides of throat dark slaty grey, spotted with black, especially along the malar line; throat ashy white, spotted with black; sides of neck rufous brown, washed with grey; fore neck and breast light slaty grey, the former with black spots; abdomen ashy whitish, washed with rufous brown; sides of body and flanks dark rufous brown, as also the thighs and under tail-coverts; under wing-coverts and axillaries dusky brown, with rufous edges; quills below dusky brown, ashy along the inner edge: "bill black, greyish at base of lower mandible; legs dark brown; iris dark brown" (*J. W.*). Total length 5·8 inches, culmen 0·6, wing 2·3, tail 2·35, tarsus 0·95.

Adult female. Similar to the male, but with less grey on the face and chest, which are more rufous brown. Total length 6 inches, culmen 0·6, wing 2·2, tail 2·4, tarsus 0·9.

Nos. 1939, 2087. "A peculiar little bird, with a throat like an Alpine Accentor. Met with at 7000 feet, never met with above or below."

I have chosen the generic name from the extraordinary tameness of this bird and the *Corythocichla*, both of which, Mr. Whitehead says, were difficult to shoot from their persistence in closely following the observer.

12. Corythocichla crassa, sp. n.

Adult male. General colour above streaked, the feathers being light brown in the centre, with paler shaft-streaks and broad black edges; scapulars like the back; lower back and rump uniform brown; upper tail-coverts slightly more reddish brown, with whitish shaft-streaks; wing-coverts dusky, externally light reddish brown, with pale shaft-lines; the bastard-wing similarly marked; primary-coverts and quills dusky brown, externally pale brown, slightly more olive on the primaries; tail-feathers dusky brown, externally dull earthy brown; crown of head, nape, and hind neck blacker than the back, but similarly pale-centred and showing white shaft-streaks; forehead and lores white, as also a narrow eyebrow, the latter somewhat tinged with ashy; feathers

round eye and a streak above the ear-coverts black; sides of face, ear-coverts, and hinder cheeks pale tawny buff, with ashy-whitish shaft-lines, the upper ear-coverts edged with black; fore part of cheeks and throat white, shading off into delicate ashy on the fore neck; sides of neck like the back, but with broader pale centres; chest and remainder of under surface bright tawny buff, with slightly indicated dusky margins and shaft-lines of tawny whitish; sides of body and flanks browner, but with pale shaft-lines; thighs dingy brown; under tail-coverts like the flanks and similarly streaked; under wing-coverts and axillaries dusky brown, with tawny-buff shaft-lines; quills below dark sepia-brown, slightly more ashy along the inner edge: "upper mandible black, the lower one greyish at base; feet dark brown; iris brown" (*J. W.*). Total length 5·3 inches, culmen 0·7, wing 2·7, tail 1·9, tarsus 1·1.

Adult female. Similar to the male. Total length 5 inches, culmen 0·6, wing 2·65, tail 1·7, tarsus 1·15.

Nos. 1994, 2081. "Only between 7000 and 8000 feet."

To judge by descriptions this new species must approach *C. epilepidota* of Sumatra, a species which is only known to me from the types in the Leiden Museum. On referring to my characters of these birds given in the 'Notes from the Leiden Museum' (vol. vi. p. 172), it would seem that the Kina-Balu bird is much larger and stouter than *C. epilepidota*, and is distinguished by its ochre or tawny-buff under surface, tawny-buff ear-coverts, &c., and many other points, which can be seen at a glance by comparing the descriptions of the two species.

Chlorocharis, gen. n.

Genus simile generi "*Cyanoderma*" dicto, sed caudâ magis quadratâ nec rotundatâ.

The type is

13. Chlorocharis emiliæ, sp. n. (Plate XI. fig. 1.)

Adult male. General colour above light olive-green, the lesser and median coverts like the back; greater coverts, bastard-wing, primary-coverts, quills, and tail-feathers dusky



W. & Hamilton del. et lith. Mintern Bros. imp.

1. CHLOROCHARIS EMILIÆ.
2. MEGALÆMA PULCHERRIMA.

blackish, edged with the same colour as the back, a little brighter and more olive-yellow on the primary-coverts and quills; crown of head dusky brown, washed with olive-green; the occiput and nape like the back; base of forehead washed with olive-yellow; lores and feathers above and below the eye black; a distinct eyebrow of olive-yellow; eyelid black; sides of face, ear-coverts, and cheeks olive-yellow, rather greener posteriorly, like the sides of the neck; throat and under surface of body pale olive-green, yellower on the centre of the breast, abdomen, and under tail-coverts; sides of body, flanks, and thighs light olive-green; under wing-coverts and axillaries whitish, edged with olive-yellow, the edge of the wing green; quills below dusky, ashy white along the inner edge: "bill brown, the lower mandible pale yellowish orange; nasal operculum black; tarsus brown, toes brownish yellow; claws brown; iris hazel" (*J. W.*). Total length 5·5 inches, culmen 0·7, wing 2·75, tail 2·1, tarsus 0·85.

Adult female. Similar to the male. Total length 5 inches, culmen 0·7, wing 2·6, tail 1·9, tarsus 0·9.

Nos. 2077, 2079. "I do not know well what to call this species, but it is most Finch-like in its ways. Found from 7000 to 12,000 feet."

Fam. Capitonidæ.

14. Megalæma pulcherrima, sp. n. (Plate XI. fig. 2.)

Adult male. General colour above grass-green, all the feathers edged with lighter green; wing-coverts like the back; bastard-wing and primary-coverts green; quills blackish, externally green, yellowish along the edge of the primaries towards their tips, the innermost secondaries entirely green; tail-feathers green, bluish below; crown of head beautiful cobalt-blue as far as the nape; sides of crown golden green from above the eye; hind neck ornamented with a distinct collar of golden yellow; lores black, washed with cobalt-blue, a line of which colour skirts their lower edge to the eye; above the latter a small streak of cobalt-blue; sides of face, ear-coverts, and cheeks golden green, the fore part of the latter cobalt-blue, like the throat;

remainder of under surface of body emerald-green, with a wash of golden green on the fore neck and breast; on each side of the lower throat a spot of bright golden yellow, like the collar on the neck; sides of body and flanks more grass-green, the latter with paler green edges; thighs green, yellowish on their inner aspect; under tail-coverts light emerald-green; under wing-coverts and axillaries pale yellow, slightly washed with green; quills below dusky, yellow along the inner edge: "bill black; feet scaly green; iris black" (*J. W.*). Total length 7·8 inches, culmen 0·8, wing 3·7, tail 2·35, tarsus 0·95.

Adult female. Similar to the male, but with an enormously large bill (!), the colour of the sides of the crown and the sides of the face golden yellow, not so bright as the collar on the neck, but not so green as in the male. Total length 8·3 inches, culmen 0·95, wing 3·6, tail 2·3, tarsus 1.

Nos. 1916, 2026. "Found from 5000 to 8000 feet, but very local."

It is difficult to find the nearest ally of this beautiful Barbet, which is quite distinct from any other species of *Megalæma*. Perhaps the nearest is *M. henricii*, which has a blue throat and some blue on the crown; but the Kina-Balu bird has no yellow on the forehead and eyebrow, and has a golden-yellow collar instead of a red one.

Fam. Cuculidæ.

15. Hierococcyx bocki, Wardlaw Ramsay, Ibis, 1886, p. 157.

Nos. 2257, 2302. Ad. ♂ ♀. "Bill yellow at base, greenish yellow at tip, culmen dark brown; feet yellow; iris dark brown."

Compared with the type in the Tweeddale collection.

16. Cuculus poliocephalus.

No. 2202. ♀. "Bill black; bare skin round eye, legs, and gape king's yellow; eye yellow." Only met with at 8000 feet. Note very like that of a *Megalæma*.

"I send two species of Cuckoo, which seem to be resident



J. G. Keulemans del. et lith.

HARPACTES WHITEHEADI.

Mintern Bros. imp.

birds. These Cuckoos are very fond of crying out, or rather whistling, in the middle of the night."

Both these Cuckoos I have submitted to Captain Shelley, who confirms the identifications. They are both of them new to Borneo.

Fam. TROGONIDÆ.

17. HARPACTES ORESKIOS (T.); Gould, Monogr. Trogon. pl. 46.

No. 2143. ♂. "Eye black; gape cobalt, darker on lower bill. Skin round eye whitish cobalt. Feet slaty cobalt."

This male seems to be identical with specimens from Tenasserim.

18. HARPACTES WHITEHEADI, sp. n. (Plate XII.)

Adult male. General colour above bright cinnamon; scapulars like the back; wing-coverts black, finely barred with white cross lines; bastard-wing similarly marked; primary-coverts black; quills black, with a distinct white margin; secondaries black, externally lined with white, like the wing-coverts; upper tail-coverts like the back; two centre tail-feathers deep cinnamon, with a broad black tip; the next pair black, with a chestnut shaft, the remainder black, with black shafts and some white near the end of the outer web, the outer feathers white for nearly the terminal half and for a good distance along the outer web; crown of head brilliant scarlet; lores black; ear-coverts scarlet, like the head; throat black, shading off into slaty grey on the fore neck; the chest pearly grey, extending in a kind of crescent up the sides of the throat, the lateral feathers tipped with scarlet; remainder of under surface of body brilliant scarlet, deeper below the grey chest; abdomen slightly paler and more rose-coloured; thighs blackish, with cinnamon ends; under tail-coverts like the back; under wing-coverts black; quills below black, with a white patch at the back: "bill and bare cheeks blue, as well as the bare patch round the eye; feet dull brownish pink; iris reddish brown" (*J. W.*). Total length 12 inches, culmen 0·9, wing 5·2, tail 6·5, tarsus 0·55.

Adult female. Differs from the male in having the head

cinnamon, as well as the lower parts from the chest downwards, which are scarlet in the male; the wing-coverts and secondaries barred with ochreous brown instead of white. Total length 12 inches, wing 5·5, tail 7.

Nos. 2300, 2373. 4000 feet.

The beautiful red head and grey chest of this species distinguish it at a glance from *H. kasumba*, *H. hodgsoni*, and, in fact, from every known species of the genus. It is quite a Trogon apart. The colour of the bill and face are from a coloured sketch sent by Mr. Whitehead, who, if he had not been a born traveller, would have made his mark as an artist.

19. Carpophaga badia (Raffl.); Salvad. Ucc. Born. p. 291.

No. 1906. ♂. "Eye pale dull yellow; skin round eye, cere, and feet dirty pink. A very local species, as yet met with only in one forest."

This fine Pigeon is now recorded from Borneo for the first time, though Count Salvadori hints that it is a species likely to occur in the island.

XL.—*Note on the Geographical Distribution of the Crested Cuckoos* (Coccystes). By G. C. Norman, F.Z.S.

Of this Old-World genus I am able to recognize seven distinct species, of which one is Palæarctic or, rather, Mediterraneo-Persic, in its distribution, one is strictly Indian, one is Indo-Ethiopian, and all the rest are absolutely Ethiopian. The material for the present paper consists chiefly of the large series of skins in the British Museum and in the collection of Captain Shelley, who is at present engaged in describing the species of *Cuculidæ*. I have therefore confined my observations to the geographical aspects of the question, this paper having been in preparation before Captain Shelley was working at the group, and I have to thank him for the loan of his private collection, which contains a fine series of the African species. Mr. Seebohm has likewise very kindly placed his specimens of *Coccystes* at my disposal; and I am also much obliged to Mr. R. Bowdler Sharpe for many valuable hints in my studies.

1. Coccystes glandarius.

The Great Spotted Cuckoo does not seem to be plentiful in any part of Europe, except the southern half of the Iberian peninsula; very few have occurred in the south of France, Italy, and Greece, whilst its wanderings to Great Britain and to Germany are purely accidental. It has been found to the eastward as far as the neighbourhood of Shiraz, in Persia; but even there its visits seem to be somewhat irregular, as will be seen from the note by Sir Oliver St. John, given below. In all parts of Northern Africa, from Mogador to Egypt, the species is apparently resident, and on migration it would seem to be found throughout the African continent as far as the Cape of Good Hope.

PALÆARCTIC REGION.

Europe. *Portugal.*—"Scarce in the neighbourhood of Oporto. On May 23, 1880, two of these birds flew close over my head near Leça de Palmeira Creek, and specimens have been obtained at Ovar and near Oporto. It appears to prefer the neighbourhood of marshy ground" (Tait, Ibis, 1887, p. 307).

Spain.—Common in Andalucia, and at least as far north as Aranjuez, in New Castille, where it is very abundant. Obtained as early as 2nd March (H. Saunders, Ibis, *et in litt.*). A specimen in the museum at Santander (Irby, Ibis, 1883, p. 179).

France.—Roux states that he saw it several times in Provence in young plumage. Jaubert has never seen it himself, but possessed a specimen from near Montpelier. It is evidently an accidental spring visitor in the south of France (Jaub. et Barth.-Lapomm., Rich. Orn. p. 338). Accidental in the Gard; once shot in May; a second procured near Montpelier (Crespon, Orn. Gard, p. 268). Mentone (Moggridge, Ibis, 1864, p. 406).

Italy.—Accidental in Italy, most frequently in Liguria (Salvad. Elench. Ucc. Ital. p. 72). Very rare and accidental in Liguria in spring; Tuscany, Rome, Naples (Giglioli, Avif. Ital. p. 210). Near Pisa, April; Genoa, March (Giglioli, Ibis,

1881, p. 191). Occasional near Naples (Göldlin, J. f. O. 1881, p. 190).

Sicily.—Accidental, especially on the west coast. Specimens in the museums of Catania and Syracuse, Messina (Doderlein, Avif. Sicil. p. 54).

Malta.—Extremely rare; only three specimens obtained (Wright, Ibis, 1864, p. 50).

Greece.—Not mentioned by Lindermayer. One received from Zadkonoa, where apparently it is not rare (Mühle, Orn. Griechenl. p. 29). Rare in Greece; a young bird from the market in the Athens Museum (Krüper, J. f. O. 1875, p. 279).

Great Britain and Ireland.—Island of Omagh [Omey], Galway, March 1842 (Thompson, B. Ireland, i. p. 364). Near Bellingham, Northumberland, August 5, 1870 (E. Charlton, Zool. s.s. p. 2344).

Germany.—Lausitz (Naumann, Vög. Deutschl. v. p. 245). Woods of the Spree near Lübben (Brehm). Levezow, near Teterow, in Mecklenberg (Schalow, J. f. O. 1876, p. 116).

Russia.—One of the rarest birds in Southern Russia; once killed in Bessarabia. Probably less rare on the other side of the Black Sea (Nordmann, in Démid. Voy. Russ. Mérid. iii. p. 208). Probably visits the Caucasus (Bogdanoff; Schalow, J. f. O. 1880, p. 272). Not mentioned in Radde's 'Ornis Caucasica.'

Asia Minor.—Common in the interior (Danford, Ibis, 1878, p. 7). Smyrna, arriving in the Northern Province of Asia Minor at the end of March (Krüper, J. f. O. 1875, p. 279).

Palestine and Syria.—This Cuckoo returns nearly a month earlier than its congener. For a few days large flocks of them may constantly be seen on their passage northwards, but many remain scattered in the wooded parts of the country (Tristram, Faun. & Flor. Palestine, p. 90).

Persia.—Sometimes extremely abundant in favourable places in Southern Persia; in other years, again, I have not noticed one. During the two summers that I had a collector, I was unable to procure a single specimen, though I

tried hard in several places where I had seen many in former years. The thick willow and "sinjít" jungles in the beds of streams appear to be its favourite resorts. In the summer of 1864 there were dozens breeding about the Kara-agatch River, twenty miles west of Shiraz * * * * I first saw them early in May. The next and the following year, though I was frequently in the same spot, I saw no Cuckoos, but in 1867 I remarked them again about the Kara-agatch, and also in the jungly bed of the Polvar, further north; after which I saw none till with Mr. Blanford, when I shot one out of a few willow trees near Sarvistán. (Sir O. St. John, in Blanford's 'Eastern Persia,' p. 120.)

North Africa.—Very common in Morocco; Tangier, January; Tetuan, March (Drake, Ibis, 1867, p. 425, 1869, p. 152). Lake Masharalhaddar (Reid, Ibis, 1885, p. 247). Occurs near Tangier on passage, always in pairs, but not in any great numbers (Favier; Irby, B. Gibr. p. 69). Found breeding in Algeria (Salvin, Ibis, 1859, p. 316). Inhabits all the wooded localities of Algeria (Loche, Explor. Sci. Algér. Ois. ii. p. 74).

Canary Islands.—Occasionally on migration (Bolle, J. f. O. 1854, p. 461).

ETHIOPIAN REGION.

West-African Subregion.—Casamance (Payés), Bissao (Beaudouin; Hartl. J. f. O. 1861, p. 265). Senegambia (Mus. Paris; Hartl. Orn. W.-Afr. p. 188). Common in Senegambia, St. Louis, Sorrez, Thionk, Leybar, Babagaye, Soldè, Matam, Podor, Dagana, Cayor, Country of the Serrères, Ghimbering, Cagnout, Albreda, Gandiole, M'bao (Rochebr. Faun. Sénég., Ois. p. 102). Fantee (Hinde; Sharpe, Cat. Afr. B. p. 12). Cape Coast (Ussher, Ibis, 1874, p. 52). Accra (Shelley & Buckley, Ibis, 1872, p. 286). Loango Coast (Falkenstein; Reichen. J. f. O. 1877, p. 16).

Abyssinian Subregion.—Resident in Egypt and Nubia (Shelley, Birds of Egypt, p. 162). Entire Nile valley southwards to the Gazelle River and Djur Country; also Bogos Land, the Quola of Abyssinia, Danakil and Somali coasts,

and a great part of Arabia. In some districts of the Nile Delta, in Siut, Dendera, Dongola, and especially in the low lands of the Rek Negro Country (Heuglin, Orn. N.O.-Afr. ii. p. 786). Goro, Shoa, November; Daimbi, February (Ragazzi; Salvadori, Ann. Mus. Genov. vi. p. 215). Daimbi, Addagalla (Antinori & Salvadori, *op. cit.* i. p. 94). Gondokoro (Emin Pasha; Hartlaub, Abhandl. Bremen, viii. p. 210). Semmio, Nyam Nyam Country (Bohndorff; Sharpe, Journ. Linn. Soc. xvi. p. 432, 1882).

East-African Subregion.—Naiwascha, Masai Land (Fischer, J. f. O. 1885, p. 124). Victoria Nyanza, April (Fischer; Reichen. J. f. O. 1887, p. 58). Gonda, West of Lake Tanganyika (Böhm, J. f. O. 1885, pp. 41, 56).

South-African Subregion.—Very rare in Cape Colony; specimens from Caffraria (Layard, B. S. Africa, p. 251). Windvogelberg (Bulger; Sclater, P. Z. S. 1886, p. 22). Kingwilliamstown (Trevelyan; Sharpe's ed. Layard, B. S. Afr. p. 157). Modder River, November (Barratt, Ibis, 1876, p. 200). Very common in Kroonstad, Orange Free State, "in our summer, but not seen in winter" (Symonds, Ibis, 1887, p. 329). Very scarce in the Transvaal (Ayres, Ibis, 1879, p. 298). Not uncommon in the wet season in Damaraland, and also about the river Okavango (Andersson, B. Damaraland, p. 225). Ondonga (Andersson; Sharpe, Cat. Afr. B. p. 12). Capangombe, Mossamedes; Huilla, in Benguela; Humbe, on Cunene River (Anchieta; Bocage, Orn. Angola, p. 145).

2. Coccystes coromandus.

This species does not inhabit the whole of the Indian peninsula, but it extends along the Himalayas as far as Kumaon. It is apparently much more plentiful in Assam, and also occurs in the neighbourhood of Calcutta, nesting in Tipperah. It recurs in Madras, but whether it extends along the eastern countries of the Indian peninsula I do not know. The Hume collection contains a specimen from the Nilgiris, and a long note by Colonel Legge on its occurrence in Ceylon will be found below. It extends throughout the Burmese countries, and probably over the whole of Southern China,

and apparently reaches to the neighbourhood of Pekin. It is found throughout the Malayan peninsula, Sumatra, Java, Borneo, and even in Northern Celebes.

The following is a list of exact localities, with the authority in each case:—

Indian Subregion.—Kumaon, May (Irby, Ibis, 1861, p. 230). River Chira and River Thal, Kumaon (Reid, Cat. Lucknow Mus. p. 40). Nepal Valley, May; breeds (Scully, Str. F. 1879, p. 257). Native Sikkim (Mandelli; *Hume Coll.*). Sikkim, in the warmer valleys (Jerdon, B. Ind. i. p. 341). Tipperah (Simpson, Ibis, 1882, p. 87). Breeds in Tipperah (Hume, Nests & Eggs Ind. B. p. 138). Cachar (Simpson, Ibis, 1882, p. 87). Sadhya, Assam (J. Cockburn; *Hume Coll.*). Garo Hills (Godwin-Austen, J. A. S. B. xliii. p. 156). Dacca (*Hume Coll.*). Rare near Calcutta (Blyth, Cat. B. Mus. As. Soc. p. 74). Madras; obtained alive (Jerdon, Madr. Journ. p. 222). "Not seen by me in South India; does not ascend the hills" (Davison, Str. F. 1878, p. 162). Khotagherry, December (Miss Cockburn; *Hume Coll.*). Trichinopoly (*Hume Coll.*).

Ceylon.—Kandy District (Holdsworth, P. Z. S. 1872, p. 432); Colombo, February (Hart; *Hume Coll.*); Ragam Corale, Western Province, Ceylon, December (Hart; *Hume Coll.*). "Migratory in Ceylon, arriving in October and departing again in April. Whether or not it leaves the extreme north of the island altogether, I have been unable to ascertain with certainty; but there is no question about its being a visitor to the southern parts of the west coast, for in October 1876, while I was at Colombo, an individual was captured on a canoe, some miles from the coast, and on which it had alighted in an exhausted state. When it first arrives it is not unfrequently seen in the Western Province, and then disappears from the seaboard, taking up its quarters in the interior of the low country and ascending the hills to some altitude. It occurs sometimes in Dumbara, and in March 1877, Mr. Bligh saw an example near his bungalow on the Catton estate, at an elevation of more than 4000 feet; he informs me that they are very rare in the Haputale district,

and, indeed, its numbers throughout the island are very limited. The island of Manaar and the adjoining coast may perhaps be considered an exception; in the former I saw a good many in March, and Mr. Simpson says it is found about Illepekadua and in the interior between that place and Mahintale. Mr. Holdsworth does not record it from Aripu. Layard procured it at Ratnapura" (Legge, B. Ceylon, p. 249).

Indo-Chinese Subregion.—Karen-Nee (Wardlaw-Ramsay; Walden, in Blyth's B. Burmah, p. 81). Common in the whole of Pegu, except the plains of the south (Oates, B. Brit. Burmah, ii. p. 117). Rarely met with in Tenasserim; once at Meetamyo (Hume & Davison, Str. F. 1878, p. 162). Kaukaryit, June and August (J. Darling; *Hume Coll.*). Salanga Islands (Müller, J. f. O. 1882, p. 406). Malacca (Davison, Str. F. 1878, p. 162). Penang (Cantor; Horsf. & Moore, Cat. ii. p. 693). Singapore (Charlton; *Mus. Brit.*). Sumatra (Schlegel, Mus. P.-B. p. 43). Rare in Sumatra (Büttik. Notes Leyden Mus. ix. p. 29). Borneo: Labuan (Motley & Dillwyn, N. H. Labuan, p. 55); Sarawak (Ussher; Sharpe, Ibis, 1878, p. 414; Doria & Beccari; Salvad. Ucc. Borneo, p. 67); Dyak River (Sclater, P. Z. S. 1863, p. 209). Banjermassing, S. Borneo (J. Motley; Sclater, P. Z. S. 1863, p. 209). Celebes (Fischer; Blasius, J. f. O. 1883, p. 155).

China.—Amoy, May (Swinhoe, Ibis, 1867, p. 227). Ningpo, May (Swinhoe; *Seebohm Coll.*). Tientsin (Ince; *Mus. Brit.*).

Cochin China and Siam (*teste* Oates, B. Brit. Burm. ii. p. 117).

3. Coccystes jacobinus.

The present species has been divided at different times into several sub-species; but after a careful comparison of a large series, I am unable to find any character to separate the Indian birds from the bulk of the African specimens, and the name of *C. pica* should therefore be dropped. It is only in Gaboon and in South-eastern Africa that recognizable

races are to be met with. The first of these, *C. caroli*, is a long-tailed form of *C. jacobinus*, with distinct blackish streaks on the throat, showing an approach to *C. cafer*. In the extreme range of the species in South-eastern Africa, the specimens of Pied Cuckoo are remarkable for a greyish shade on the throat and breast, which seems to be a constant character in all specimens from British Caffraria and the adjacent parts. This race has been called by Cabanis and Heine *C. hypopinarius*; but it seems to me that a perfect gradation takes place between this race and the true *C. jacobinus*, which also occurs in Natal and the Transvaal, the majority of the specimens being absolutely indistinguishable from Indian examples. The geographical distribution of these two sub-species is given below.

The following is a summary of the measurements of the wings of the skins in the British Museum. African birds appear to vary considerably in their dimensions, as will be seen from the following :—

	Wing. inches.		Wing. inches.
a. Dakar, Senegambia ..	5·8	*k, l*. Damara Land	5·7 6·1
b. Waliko, Anseba Valley	5·6	*m*. Lake N'gami.....	5·9
c, d, e. Mombasa	5·4–5·9	*n*. Transvaal	6·0
f, g. Tete, Zambesi	5·6–6·1	*o*. Natal	5·7
h, j. Biballa	6·1–6·3		

The Indian specimens measure as follows :—

	Wing. inches.		Wing. inches.
a. Sind	5·7	*t*. Almorah	5·9
b. Kathiawar	5·7	*u*. Dehra Dhoon	5·7
c, d. Sambhur Lake	5·7–5·8	*v, w, x, y*. Nepal	5·7–5·9
e. Mt. Aboo	5·7	*z, a', b'*. Futtehghur	5·4–5·7
f. Umballa	5·7	*c', d', e'*. Oudh.....	5·8–5·9
g. Lahore	6·1	*f', g'*. Shillong	6·0
h. Murree	5·5	*h'*. Manipur.....	5·9
j, k, l, m. Simla	5·6–5·8	*j', k'*. Calcutta.....	5·6–5·7
n. Jhansi.....	5·7	*l'*. Dacca	6·1
o, p, q. Kumaon	5·7–5·9	*m'*. Saugor	5·6
r, s. Naini Tal.....	5·8–5·9	*n', o'*. Khandeish	5·6–6·0

	Wing. inches.
p'. Matheran	5·6
q'. Belgaum	5·8
r'. Mysore	5·6
s', *t'*, *u'*. Malabar	5·5–5·9
v', *w'*. Madras	5·5–5·7
x'. Ramiswaren Island	5·8
y', *z'*. Colombo, Ceylon	5·4
α, *β*. Tonghoo	5·7–6·0
γ, *δ*, *ε*, *ζ*. Pegu	5·8–6·0

From this it would appear impossible to draw any distinction in size between African and Indian specimens, the former having the wing 5·4 to 6·3 inches, and the latter 5·4 to 6·1.

Indian Subregion.—? Afghanistan (Griffith). Pind Dadun Khan and Katas, in Salt Range (W. Theobald; Hume, Nests & Eggs, p. 137). Sind (Dr. H. Gould; *Mus. Brit.*). Arrives in Sind the last week of May; leaves middle of October (Butler, Str. F. 1877, p. 327). Kurrachee (James; Hume, Str. F. 1873, p. 173). Kathiawar (Lloyd, Ibis, 1873, p. 407). Sambhur, August & September (Adam; *Hume Coll.*). Mt. Aboo, July (Dr. G. King; *Hume Coll.*). Gurgaon, Delhi, September (W. N. Chill; *Hume Coll.*). Umballa (*Seebohm Coll.*). Lahore (Marshall; *Mus. Brit.*). Simla, July (A. O. Hume). Gilgit, June (Biddulph, Ibis, 1881, p. 50). Naini Tal, September (*Hume Coll.*). Almorah, August (*Hume Coll.*). Dehra Dhoon; very common (Hume, Nests & Eggs, p. 137). Agra (Hume, Nests & Eggs, p. 137). Jhansi, N.W. Provinces, August (*Hume Coll.*). Etawah (*Hume Coll.*). Kumaon (Horsf. & Moore, Cat. ii. p. 694). Nepal (Gray, Zool. Misc. p. 85). Futteghur, July and August (*Seebohm Coll.*). Oudh, January and November (*Hume Coll.*). Calcutta, January (*Hume Coll.*). Faridpur (Cripps, Str. F. 1878, ii. p. 265). Dacca (*Hume Coll.*). Shillong, July (*Hume Coll.*). Cachar, May (Hume, Str. F. 1877, p. 27). Chota Nagpur (Ball, Str. F. 1874, p. 394). Birbhum, Lohardugga (Ball, *op. cit.* vii. p. 207). Saugor, Central Provinces (*Hume Coll.*). Very common in Central India during and after rains (Swinhoe & Barnes, Ibis, 1885, p. 68). Common in the Deccan (Davidson & Wenden, Str. F. vii. p. 79). Dhulia, Khandeish, June and July (Davidson; *Hume Coll.*). Matheran, November (*Hume Coll.*). Bel-

gaum, August (E. A. Butler). Ahmednuggur, Mahabaleshwur (Fairbank, Str. F. 1876, p. 225). Muddur, Mysore, May (W. Davison). Rare on the Malabar coast; common in the Carnatic; Nilgiris to 5000 feet (Jerdon, B. of India, ii. p. 339). Khotagherry (Hume, Nests & Eggs Ind. B. p. 137). Common in the Nilgiris, most numerous about Ootacamund, Coonoor, Khotagherry, &c., occasionally seen in the Wynaad (Davison, Str. F. x. p. 360). Madras, April (Davison). Ramiswaren Island, March (*Hume Coll.*).

Ceylon.—"Widely distributed over the low country of Ceylon, but is subject to a partial migration away from the wet regions on the western and south-western seaboard, during the prevalence of the S.W. monsoon. Colombo, November and December. Arrives in Galle district at the same time. In the scrubby jungles of the Girawa and Magam Pattus and throughout the Eastern Province, in the jungles between the Mahawelliganga and the coast, in the maritime portions of the north and west, as far south as Chilaw, it is a resident species, and is abundant in some districts. It is partial to those dry districts which are covered with low scrub, such as the neighbourhood of Hambantota and many similar spots on the east coast, the Jaffna peninsula, the north-west coast, and the island of Manaar, as also the Puttalam and Chilaw district. I have seen it occasionally in the interior of the northern division of the island, but it is scarcer there than in the maritime portion. It ranges into the Central Province to a considerable elevation, occurring in Uva up to 3000 feet; but in the western portions (to wit, the valley of Dumbara and adjacent districts) it is not found at such an altitude" (Legge, Birds of Ceylon, p. 247).

Indo-Chinese Subregion.—Abundant in Upper Pegu (Jerdon, B. of India, ii. p. 339). From Thayetmyo east to Pegu Hills, south to Engmah (Oates, B. of Brit. Burmah, ii. p. 118).

Ethiopian Region. *North-east Africa.*—Rarer than *C. cafer*, and seems to go a little further north, but not so far south as that bird, being more a frequenter of steppe-land. Bogos Land, August; Senaar, September; East Kordofan,

October; Khartoum, November; and Province of Berber. Autub, on the Blue Nile (Antinori). Ambukol, in Nubia (Ehrenberg; Heuglin, Orn. N.O.-Afr. p. 788). Not seen elsewhere than in the Anseba Valley, and rare there (Blanford, Geol. & Zool. Abyssinia, p. 313). Waliko (Jesse; Finsch, Trans. Z. S. vii. p. 286). Shoa: Ambo-karra, August; Micurro, May (Antinori); Salvad. Ann. Mus. Civic. Genov. (2) i. p. 95). Lado, Equatorial Africa (Emin Pasha; Hartlaub, Abhandl. nat. Ver. Bremen, vii. p. 114).

East Africa.—Mombasa (Wakefield; Sharpe, P.Z.S. 1873, p. 597). Usambara Hills; Dar-es-salaam (Kirk; Shelley, P. Z. S. 1881, p. 594). Masai Land, Kipini, Bagamoyo, Mawini, Paré, Kamboko (Fischer, J. f. O. 1885, p. 124). Kilima-N'jaro: plentiful (Jackson; Shelley, Ibis, 1888, p. 292).

South Africa.—Tete, Zambesi River (Kirk; *Mus. Brit.*). Bamangwato, December (Jameson; Shelley, Ibis, 1882, p. 246). Limpopo River, November; Transvaal, November (Buckley, Ibis, 1874, p. 367). Transvaal (Ayres, Ibis, 1876, p. 432, 1877, p. 342). Natal (Ayres; Sharpe, Cat. Afr. B. p. 13). Common in Damaraland, and also seen at Lake Ngami (Andersson, B. Damaraland, p. 225). Cunene River, Huilla and Biballa in Benguela, and Gambos in Mossamedes (Bocage, Orn. Angola, p. 146).

West Africa.—Senegambia: common at Kita, Bakoy, Bafing, Falémé, Bakel, Maina, Boukarié; rarer in the southern region, Daranka, Sedhiou, and Bathurst (Rochebr. Faun. Sénég., Ois. p. 103). Dakar (Marche; *Mus. Brit.*). Landana, Congo (Petit; Sharpe & Bouvier, Bull. Soc. Zool. France, iii. p. 74). Kassongo, Upper Congo (4° 30′ S. lat.) (Bohndorff; Reichenow, J. f. O. 1887, p. 308).

Subspecies *a*. Coccystes hypopinarius.

The following list of localities gives an idea of the range of this race. Dr. Reichenow also records it (J. f. O. 1877, p. 16) from the Loango coast, and has, no doubt, compared the specimen with typical examples in Germany; but I have never seen a specimen from Western Africa, and the Damara birds are undoubtedly *C. jacobinus*.

South Africa.—Eland's Post (T. C. Atmore; Sharpe's ed. Layard, B. S. Afr. p. 158). Weenen, Natal (W. Arnold; *Seebohm Coll.*). Natal (Ayres; *Mus. Brit.*). A pair seen and a male obtained at Blaauw Kranz River, November (Reid). Butler noticed it at Newcastle and twice at Colenso in November (Butler, Feilden, and Reid, Zoologist, 1882, p. 207). Pretoria (*Seebohm Coll.*). Transvaal (Ayres; *Mus. Brit.*). Rustenberg, Eastern Transvaal (Barratt, Ibis, 1876, p. 200).

Subspecies *b*. Coccystes caroli, mihi.

The only specimen of this race which I have seen was presented to the British Museum by the late Mr. Henry Ansell, who procured it on the River Danger in Gaboon. It is similar to *C. jacobinus*, but differs in having the throat distinctly streaked with black, thereby showing a slight approach to *C. cafer*; but the striping is very much more attenuated than in that species. The under surface is creamy white, as is often the case in the young bird of *C. jacobinus*. The type specimen, however, is perfectly adult, and has the wing 6·7 inches and the tail 8·9 inches. The latter is of extraordinary length, as in *C. jacobinus* it never exceeds 7 inches.

I have attached to this bird the name of my father, Mr. Charles Loyd Norman, who has always taken great interest in my ornithological studies.

4. Coccystes brazzæ.

This species was discovered by M. de Brazza at Diele, on the Congo. I have never seen a specimen, but Dr. Oustalet describes it as being similar to *C. jacobinus*, but without any white alar patch, so that there can be no doubt of its being perfectly distinct (*cf.* Oustalet, Le Nat. 1886, iii. p. 299).

5. Coccystes cafer.

The distribution of this species in Africa, as shown by the list of localities given below, appears to extend over the greater part of the continent, with the exception of the Gaboon and the Congo regions. It may, however, be expected to occur in both these districts.

West-African Subregion.—Common in Senegambia(Rochebr.

Faun. Sénégamb. p. 102). Casamance (*teste* Verreaux; Hartl. Orn. W.-Afr. p. 188). Sierra Leone (*Mus. Brit.*). Liberia, St. Paul's River (Büttik. Notes Leyden Mus. vii. p. 225). Denkera (Blissett; *Mus. Brit.*). Not uncommon throughout the Gold Coast (Shelley & Buckley, Ibis, 1872, p. 286). Abrobonko (Ussher, Ibis, 1874, p. 53). Ashanti (Hartlaub, Orn. W.-Afr. p. 188). Aguapim (*id. loc. cit.*). Plentiful on Cameroons and Wuri Rivers (Reichen. J. f. O. 1875, p. 3). Malauge, Angola (Reichen. Mitth. Afr. Gesellsch. i. p. 2). Semmio, Nyam Nyam Country (Bohndorff; Sharpe, Journ. Linn. Soc. xvi. p. 432).

South-African Subregion.—Caconda, Benguela (Bocage, Orn. Angola, App. p. 542). Heard on the Okavango River as early as September, but is scarce there; very rare in Damaraland (Andersson, B. Damaraland, p. 225). Tati, Matabele Land, October (Sharpe, App. Oates's Matabele Land, p. 305). Crocodile River, November (Sharpe, *t. c.* p. 305). Plentiful in woods of Magaliesbergen, Transvaal; Rustenberg (Ayres, Ibis, 1884, p. 224). Natal (T. Ayres; *Mus. Brit.*). Weenen, Natal (W. Arnold; *Mus. Brit.*). Kingwilliamstown (Trevelyan; *Mus. Brit.*). Grahamstown and Eland's Post (T. C. Atmore; Sharpe's ed. Layard, B. S. Afr. p. 158). Swellendam (Cairncross; Layard, B. S. Afr. p. 253).

East-African Subregion.—Marangu, west of Lake Tanganyika (Böhm). Usambara Hills and Dar-es-salaam (Kirk; Shelley, P. Z. S. 1881, p. 594).

Abyssinian Subregion.—Commoner than *C. jacobinus* in North-east Africa. Extends along the Nile as far as Dongola, is not rare in Taka, on the Abyssinian coast-land; it occurs even in the warmer districts of Abyssinia, thence through Senaar, and in the whole district of the White Nile (Heugl. Orn. N.O.-Afr. i. pt. ii. p. 790). Fazogloa (*Mus. Brit.*). Anseba Valley, November and July; Kassala, August (Antinori & Salvadori, Viagg. Bogos, p. 49). Upper Lebka and Anseba Valley, July (Blanford, Geol. & Zool. Abyssinia, p. 312). Gabena-weldt gonfallon; Maragaz; Waliko (W. Jesse; Finsch, Trans. Z. S. vii. p. 285). Shoa, Mahal-

uonz, Let-Marefia, Anié, Kaffague (Antinori; Salvad. Ann. Mus. Civ. Gen. (2) i. p. 79). Sciotalit (Ragazzi; Salvad. *op. cit.* vi. p. 215). Gondokoro (Emin Pasha; Hartl. Abhandl. Bremen, viii. p. 210).

6. Coccystes serratus.

Limited to Africa, where its distribution appears to be very restricted, being confined to the Cape Colony, whence it ranges to Natal and the Transvaal. The specimens from the Gold Coast seem to me to be a little smaller, but are otherwise not specifically distinct.

West-African Subregion.—? Cape Lopez, Gaboon (Du-Chaillu; *cf.* Cassin, Proc. Philad. Acad. 1856, p. 321). Denkera, Fantee (Ussher; Sharpe, Ibis, 1872, p. 68).

South-African Subregion.—Nel's Poort; common (Layard, B. S. Afr. p. 252). Rondebosch, Karroo, in December and January (Victorin; Grill, Zool. Anteckn. 1859, p. 42); Transvaal, October and November (Ayres, Ibis, 1878, p. 408, 1885, p. 344). Grahamstown (T. C. Atmore; Sharpe, Cat. Afr. B. p. 13). Natal (Ayres; Gurney, Ibis, 1859, p. 246).

7. Coccystes albonotatus.

This appears to be the East-African representative of *C. serratus*, from which it differs in being larger and in having the tail-feathers tipped with white. So far as is known, it is confined to the Zanzibar district and the adjoining countries. Usambara Hills (Shelley, P. Z. S. 1881, p. 594); Mombasa (Gurney, Ibis, 1882, p. 73; Cab. J. f. O. 1878, p. 237); Lamu (Fischer, J. f. O. 1885, p. 124).

XLI.—*Notes on some Oriental Birds.*

By John Whitehead.

1. Eudynamis orientalis.

In Dr. Jerdon's 'Birds of India' (vol. i. p. 343) he says of the Indian bird *E. orientalis*:—"The young female has white spots and marks much tinged with rufous, and the young male has a good deal of white in his plumage." Also that it extends to "part of Malayana and the Philippines."

If so, the Philippine and Palawan species must be very different. The "Phow," as the Sulus call this bird, from its loud call "phow," was plentiful in Palawan when I landed in the middle of June, and might be heard many times in the day, uttering its loud call, especially when a gun was fired or a large branch fell. This habit I have observed in the Argus Pheasant, both birds seeming to delight in hearing a great noise, as though it afforded them pleasure.

The Palawan Cuckoo passes all day in the tops of the high jungle-trees (often quite out of shot), seldom going amongst the outside branches, but preferring to hop about well under shelter from sun and Hawks. Towards evening, however, the male frequents more open spots on the borders of the forest, settling on low trees, where he remains until almost dark, uttering loud cries. This bird is very tenacious of life and requires a severe wound to bring it down. I never heard or shot an adult bird after the middle of August, when it no doubt migrates to Borneo and other islands, as most of the birds in Labuan are seen after September during the N.E. monsoon.

The most interesting fact in the history of the "Phow" is the peculiar plumage of the young bird. The young of both sexes are black, like the adult male. The only signs of the female plumage in one young female were on the secondaries, which, on the inside of the wing, were slightly barred with brown. Another young female had two or three brown feathers on the back, the wings being dull black. Why should the young birds not follow the general rule and have the plumage of the female? I do not know of another case, where the sexes vary in plumage, that the young take the plumage of the male*. Why should the young birds not follow the general rule and take the plumage of the female, or have a plumage distinct from that of both parents? The answer to this riddle appears to be that the "Phow" lays its eggs in the nest of the Yellow-mottled Mynah (*Gracula javanensis*). The young Cuckoo, being black, does not differ from the young Mynah, and so the deception is carried on until the

* [There is another case known in *Tadorna variegata*. *Cf.* Sclater, P. Z. S. 1866, p. 149.—Edd.]

young bird can take care of itself. If the young followed the general rule, and resembled their mother in being of a brown colour, the Mynahs might not feed them. The Mynah breeds in holes of old rotten trees, sometimes using Woodpeckers' holes, making it more difficult to see the intruder in the dark; and no doubt, when the young bird emerges into daylight, it would startle the old birds to see the young Cuckoo of any other colour.

One of the young Cuckoos was shot whilst being fed by the foster-parents, and no doubt the young Cuckoo gets rid of the nestling Mynah at an early period. Of course it might be argued that it would not be necessary to deceive the Mynah, for other birds take care of their parasites; but perhaps the Mynah has a greater knowledge of the world.

2. Megapodius cumingi.

On most of the small islands round the coast of Borneo this Megapode, of which the native name is 'Menambun,' is very plentiful. It never seems to care about going many hundred yards inland, but prefers the loose sandy soil close to the sea, where it can scratch up those huge mounds which so often attract one's attention when walking near the sea-coast.

Whilst in Palawan I had a good opportunity of watching these birds, for they are very plentiful, and June to August are their nesting-months. The old birds are difficult to see, owing to their dull brown colour. They are very shy and generally run off long before you are near them. Their note is a most doleful "Mōw," exactly like a cat in distress, and is heard many times towards evening, adding to the melancholy of the forest.

Their nest is a most wonderful structure, and is no doubt built by the labour of several pairs of birds. A Sulu boy caught seven or eight birds on one heap. The largest nest I have seen was 34 paces round and 5½ feet high, and the heap must have contained many cartloads of earth, sticks, and stones, and yet the ground round about was apparently untouched. How such a heap is brought together is a mystery; but it is no doubt the gradual work of many birds

for several years; for the birds, if not molested, use the same heap many seasons. The eggs are often buried so deep that with our small implements (a cocoa-nut shell) we found it impossible to get at them. The eggs are often placed amongst the roots of a tree, and this makes them very difficult to get at. A good many green leaves are plucked and placed in the hole, and amongst these the egg is laid. The leaves would ferment and so assist in hatching the eggs, which are of a pale salmon-colour with a chalky surface, which is easily chipped off. The Ousuns make regular egging-expeditions, and often brought the eggs to me, to be exchanged for two or three smokes of tobacco.

The young bird's early life is to me a mystery. It may be dug out of the heap fully fledged and ready to fly. I sent one home with my collection which might pass for an adult bird of another species; but this bird had never seen the daylight until we dug it out; none of the feathers had soft shafts or seemed in any way new. The young are neither fed nor looked after by their parents, which, as they are of all ages, would be difficult. They generally squat until you are within 15 yards or so and then take wing like a Quail, never running out of danger like the old birds.

3. Plotus melanogaster.

The Indian Snake-bird, or Darter, of which the native name is Baisan (to dive)-Buaia (crocodile), is fairly common in the rivers of Borneo, being most frequently met with near the mouths and let-ways. It often sits motionless on some dead log, or rests on a low flat-topped tree, after the manner of Cormorants. As your boat gets too near, it glides off into the water like a water-rat, often enough vanishing altogether, as it easily swims with its body below the surface, leaving only its snake-like head and neck above.

During the breeding-season they collect in numbers, nesting on low trees in some secluded nook. The "rookery" I visited in North Borneo was up a long and narrow creek amongst hippa palms. This creek widened out a little, forming a small pond, around which there were several low

trees about 30 feet high. On these trees were placed the nests in numbers; on one I counted eighteen, and in all I think there must have been some fifty nests. At this time of the year, the beginning of May, only a few birds remained, and I only found two eggs, upon which the female was still sitting, but dead and dry as an Egyptian mummy.

The Darters were not the only inhabitants of this secluded spot, for hundreds of Fruit-Bats were dangling at the ends of the hippa palms, passing away their day in chattering and screaming, no doubt discussing their last night's raid on some poor native's garden. These Bats seem to court the full glare of the sun, keeping up a gentle fluttering motion with one wing, as though fanning themselves. Every now and then some dozens would fly off as we approached (making a loud rattling noise with their wings), seeking out a new resting-place, when the screaming and chattering would be increased, as their companions did not wish to be disturbed. I noticed as they flew between us and the midday sun that they kept their mouths open, as if panting for breath.

To return to the Darters, about the middle of November I sent a native to see if they were nesting. He returned with some twenty eggs and two nests. The eggs are like those of a Cormorant, only much smaller; becoming stained during incubation, after the manner of the Grebe's. The colour of the fresh egg is almost white, but becomes gradually brown during incubation, four and five being found in a nest. Young birds were also about; so this species is not very strict in its nesting-season. The nests were composed of small sticks, making a firm structure, lined with leaves.

XLII.—*On the Habits and Range of Bulwer's Pheasant.*

By W. H. Treacher.

In compliance with the request of one of the Editors for some notes on Bulwer's Pheasant (*Lobiophasis bulweri*), I can now give the readers of 'The Ibis' the following information. I was in Labuan when the first specimen was

brought in from the coast of Borneo, just opposite that British Colony, in December 1874. It was taken to Mr. (now Sir Hugh) Low, who was known to the natives far and wide as a collector of birds, beasts, butterflies, and fishes. As Sir Henry Bulwer (then Governer of Labuan, and now High Commissioner of Cyprus) was just leaving for England, Mr. Low gave him the skin, which he took home and presented to the British Museum, where it was named after him, by Mr. Sharpe, *Lobiophasis bulweri*. This specimen came from the Upper Lawas, a small river in the Sultanate of Brunei, on the west coast of Borneo, which has become somewhat famous for its wealth in birds and orchids.

It is strange that though Mr. Low had collectors hunting for him, probably ever since the foundation of the Colony of Labuan in 1848, no Bulwer's Pheasant was ever brought in till the end of 1874.

The late Mr. H. T. Ussher succeeded Sir Henry Bulwer as Governor, and after I had been up the Lawas, and made special communications with the Kadayan and Murut natives, we had no trouble in procuring skins, though we found it difficult to keep the birds alive, and I do not think any living specimen has yet reached home. Most of my skins are included in the collection of Borneo birds which I presented to the Oxford University Museum, which was catalogued by Mr. Sharpe (P. Z. S. 1877, p. 93).

Soon afterwards, I think, we heard that the bird had been discovered in Dutch Borneo. The native name of this pheasant is 'Karampagi,' given to it from the curious shape of the white tail, which resembles that of a knife used by the natives for cutting the ears of *padi* (rice). The only other district in Northern Borneo where I have heard of the Bulwer's Pheasant being common is that of the Kimabatangan river, which flows out on the east coast of British North Borneo. Mr. G. Hewett, who was for some time the representative of the British North Borneo Government in that district, and resided at Penungah, some 170–200 miles up the river, has kindly favoured me with the following notes:—

"I am afraid I cannot tell you very much about the Bulwer

Pheasant. I used to trap a good many up in Penungah, but I never saw one except those I caught. They were very plentiful, but they lie very close and seldom or never fly. I obtained them on steep hill-sides, and have never found one on any low-lying or flat ground. They are very pugnacious, and their heads are consequently often raw and scarred, while they would attack any other birds put in their cages. I do not know what they live on, but they thrive well in captivity on *padi*, boiled rice, and fruit. They roost in trees, and climb to their roost instead of flying. The hen bird has no resemblance to the cock, being more like the female of our common European Pheasant, though larger; it was consequently supposed to be a distinct species, and was described as such by Mr. Sharpe under the name of *Lobiophasis castanei-caudatus*. I never could keep any of the hens alive, as they refused food and seemed to mope, and would die in about two days. I am sorry I cannot give you any better information about them, but I could only gather such facts as I was able to observe myself."

The Dyaks say when a Bulwer's Pheasant flies a flood is coming.

XLIII.—*An Attempt to Diagnose the Suborders of the Great Gallino-Gralline Group of Birds by the aid of Osteological Characters alone.* By Henry Seebohm.

Many opinions have been expressed, in 'The Ibis' and elsewhere, as to the new system which must replace the now discarded Cuvierian classification of birds; and occasionally, as in Professor Huxley's celebrated paper on the taxonomic value of the modifications of certain of the cranial bones, the reasons upon which the opinions were based have been given.

I propose in the present paper to record certain facts in the osteology of the Charadriidæ and their nearest allies, which facts possess at least this value—a knowledge of them enables the student to diagnose the various suborders. These

suborders may or may not be natural groups, expressing the mutual relationship of the birds contained in them; but we have every reason to believe that they are approximately so.

There can be little doubt that the osteological characters of birds are a much safer guide to their natural affinities than the external characters which are to be discovered by an examination of the bill and the feet, or the wings and the tail, and which consequently are founded more upon modifications of skin than modifications of bone. Other departments of anatomy may be more important than osteology, but next to the skin and feathers the skeleton is the easiest to obtain; so much so, indeed, that of a great many species of birds the osteology is the only part of the anatomy of which anything is known.

Articulation of the Dorsal Vertebræ.

It has recently been shown (Parker, Proc. Roy. Soc. xliii. p. 470) that other birds besides the Penguins and Auks are opisthocœlous (or post-concave) in the articulation of their dorsal vertebræ. We are assured that the Limicolæ, Gaviæ, *Phalacrocoraæ*, *Plotus*, *Steatornis*, and the Psittacidæ are opisthocœlous, and that it is the more common kind of articulation in Archaic reptiles. It would, however, be a mistake to assume that the Impennes and the Gavio-Limicolæ, because they have opisthocœlous dorsal vertebræ, are more nearly related to each other than the latter are to some of the groups which have heterocœlous (or saddle-shaped) dorsal vertebræ. The fact is, that every intermediate form between one and the other occurs in the Gavio-Limicolæ—so much so, indeed, that the dorsal vertebræ of *Numenius arquata*, for example, more nearly resemble in their articulation the dorsal vertebræ of the Gallinæ than those of the Impennes. The last free vertebra of *Spheniscus demersus* is anteriorly convex and posteriorly concave, both in its lateral and vertical sections. That of *Argus giganteus* is the same in its vertical section, but exactly the opposite in its lateral section. That of *Numenius arquata* agrees with both in having the posterior outline of the vertical section concave, is interme-

diate between the two in having the posterior outline of the lateral section straight, and differs from both in having the anterior outline of the vertical section straight, whilst in the anterior outline of the lateral section it agrees with the Pheasant and not with the Penguin. In order to make the term opisthocœlous cover the articulation of the dorsal vertebræ of the Impennes and the Gavio-Limicolæ, and exclude that of the other suborders, it must be artificially defined as follows:—Opisthocœlous vertebræ are, posteriorly, either straight or concave (not convex) when seen in lateral section. As thus understood (its taxonomic importance reduced to a minimum), opisthocœlism becomes a useful character for diagnostic purposes. Two facts in connexion with this character are important: typically heterocœlous dorsal vertebræ may or may not be ankylosed together, and may or may not have deep lateral depressions; opisthocœlous dorsal vertebræ are never ankylosed together, and always have deep lateral depressions.

Ankylosis of the Dorsal Vertebræ.

The sacrum is composed of ankylosed vertebræ, in front of which is a free dorsal vertebra. Four completely ankylosed dorsal vertebræ precede this free dorsal vertebra in the Columbæ, the Pterocletes, the Crypturi, the Gallinæ, and the Podicipes; but, as usual, the character breaks down in one group. In the Grallæ, *Rhinochetus* and *Opisthocomus* are typically Galline in this respect; *Psophia* and some species of *Grus* and *Otis* are partially so; whilst in most species all the vertebræ in front of the ankylosed sacral vertebræ are free.

Ventral Processes of the Dorsal Vertebræ.

In Birds each dorsal vertebra is furnished with three, and sometimes with four, prominent processes. Above the neural canal is the neural spine, and on each side of it is a transverse process (diapophysis) which articulates with the shoulder (tuberculium) of the rib on each side. Below the neural canal is the centrum, each end of which articulates

with the adjoining vertebræ in the different modes already described. At the bottom of the centrum, that is to say opposite the neural spine, a ventral process (the hypapophysis) frequently occurs.

The number of rib-bearing vertebræ which are unfurnished with ventral processes vary very much in the group of birds under consideration. It is greatest in the Rallidæ and Gruidæ (6 to 7) and in *Thinocorus* (7). In the Laridæ and Charadriidæ the usual number is 5 (as it is also in the Otididæ), but in some of the Alcidæ it is only 2. In the Cracidæ it varies from 3 to 4, as it does also in the Turnicidæ and the Pteroclidæ. It is smallest in the Gallinæ, the Impennes, the Crypturi, and the Colymbidæ, and in most of the Tubinares (0 to 2). In the last-mentioned suborder the number is 4 in *Oceanites* and *Diomedea*.

Median Processes of the Furculum.

At the junction of the two halves of the furculum (or merrythought) a median process (the hypocleidium or interclavicle) is frequently developed. In the remarkable bird *Opisthocomus* it forms a long bone uniting the furculum with the sternum. In the Cracidæ it is much prolonged, and it is well developed and usually laterally flattened in all the Gallinæ. In all the other suborders under consideration it is either very small or absent.

Pneumaticity of the Humerus.

I am inclined to agree, to a certain extent, with Professor Huxley in his assertion (Proc. Zool. Soc. 1868, p. 296) that the pneumaticity or otherwise of certain bones of birds is a character of no systematic value, though the isolated case to which he refers is not a case in point. Prof. Parker has since discovered that the statement that the Cracidæ differ from the Megapodidæ in this respect was an error. No osteological character appears to be constant in every group, and I do not know that the character in question is much more erratic than others which are admitted to be of some taxonomic importance.

Pneumatic humeri appear to be constant in the Gallinæ, the Pterocletes, the Columbæ, and the Crypturi. The humerus appears to be always oily in the Colymbæ, the Podicipes, and the Impennes. The Tubinares appear to have oily humeri, with the exception of the Diomedeidæ; and so have the Gavio-Limicolæ, with the exception of three genera, *Stercorarius*, *Rhynchops*, and *Anous*. In the Grallæ the only exceptions that I know of are the Gruidæ, the Otididæ, *Opisthocomus*, and possibly *Psophia*.

Subclavicular Process.

The coracoid articulates not far from one end with the end of the scapula, and at the end with the side of the clavicle near its end. The end of the scapula also articulates with the end of the clavicle, and the end of the clavicle is generally also articulated with a process which springs from near the end of the coracoid. This process is called the subclavicular process; it is absent in the Ratitæ, the Crypturi, and the Gallinæ.

Bifurcation of the Nasal Bone.

The bifurcation of the nasal bone where it joins the frontal and becomes separated into two processes, one (the superior or inner process) coalescing with the nasal process of the præmaxillary, and the other (the inferior or outer process) joining the maxillary, varies in different species of birds. In the Plovers the angle of bifurcation is as acute as possible, and the apex extends as far as the posterior terminations of the nasal processes of the præmaxillary between the centres of the lachrymals. Garrod regarded this character as of great importance in the classification of birds, and proposed to term birds possessing it *schizorhinal* (Garrod, Proc. Zool. Soc. 1873, p. 33). In most birds this angle of the bifurcation of the nasal is rounded off, and a line drawn across the skull at a tangent to the two curves falls in front of the lachrymals and the termination of the nasal processes of the præmaxillary. To this character Garrod applied the term *holorhinal*; but it is doubtful whether it has the taxonomic importance which

he at first supposed it to possess, inasmuch as some birds are intermediate. The character consists of two parts, one relating to the length of the nasal aperture, the other to its shape. Some genera, of which *Cursorius* and *Glareola* are examples, are schizorhinal in respect of the length of the nasal aperture, but holorhinal in respect of its shape. These birds were regarded by Garrod as schizorhinal.

This character appears to be constant in Columbæ, Pterocletes, Crypturi, Gallinæ, Podicipes, Colymbi, Tubinares, and Impennes, but it breaks down in the Gaviæ and the Grallæ.

The typical Gruidæ are schizorhinal, but the Rallidæ are holorhinal. The typical Gruidæ have a long narrow sternum with no xiphoid processes; but the Rallidæ have long external xiphoid processes, separated by a deep notch from the median xiphoid process, and considerably prolonged beyond it. The genus *Psophia* is Ralline in the bifurcation of the nasals, but Gruine in the shape of its sternum. It is also Gruine and not Ralline in the extent to which its dorsal vertebræ are ankylosed; but it is Ralline, and not Gruine, in having, when adult, no lateral occipital fontanelles.

Lateral Occipital Fontanelles.

In addition to the *foramen magnum* many birds have *lateral fontanelles* in the occipital bone. It is not known that these lateral fontanelles serve any special purpose, unless economy of bone be regarded as such; but in some cases they are very useful as aids to classification. For example, they are present in the Charadriidæ and absent in the Parridæ, which otherwise agree in being schizorhinal and in having basipterygoid processes. They are present in the Alcidæ and absent in the adult Laridæ, which also agree in being schizorhinal, but are without basipterygoid processes.

But, like all other osteological characters, the presence or absence of lateral occipital fontanelles is a most unsafe guide to the classification of birds. Although they are normally present in the Charadriidæ, they are frequently completely ossified, in some species (*Totanus pugnax*, for example) more

frequently than in others. On the other hand, although there are no traces of these fontanelles in the Laridæ when adult, they are found in these birds whilst they are in an embryonic condition, and in some genera (*Chionis*, for example) they do not completely ossify until advanced age.

Basipterygoid Processes.

The presence of basipterygoid processes on the basisphenoid which articulate with facets on the pterygoids is a very archaic character. They are suppressed in the embryos of many Passerine birds, but are present in all others. In all Passerine birds, and in half the remainder, they are absorbed before the bird becomes adult; but in the other half of the non-Passerine birds, and in all the Ratitæ, they are always present. They also occur in the lizards and some of the snakes.

The position of the basipterygoid processes varies considerably in different groups of birds. In all the Ratitæ, and, amongst the Carinatæ, in the Crypturi, the basipterygoid process springs from the basisphenoid, and not from its rostrum, and articulates with the pterygoid near the quadrate. In most other Carinate birds, wherever it has not been absorbed, it springs from the basisphenoid rostrum; and in most of the Charadriidæ it articulates with the pterygoid near the centre of that bone. In the Gallinæ it is situate still further from the quadrate—so much so, indeed, that in many species the facet which articulates with the pterygoid adjoins the end of the palatine. This character completely breaks down in the Tubinares, and partially so in the Grallæ, as will hereafter be pointed out when these suborders are discussed.

The Sternum.

Although Dr. Parker says (Trans. Zool. Soc. v. p. 227) that the sternum is "the worst part for the systematist to hold by," we may possibly find that it will help us where other characters fail.

The great Gallino-Gralline Order of Birds may be divided into ten suborders, as follows:—

GALLINE.

Crypturi.
Gallinæ.
Pterocletes.
Columbæ.

GRALLINE.

Hemipodii.
Grallæ.
Tubinares.
Gavio-Limicolæ.
Colymbo-Podicipes.
Impennes.

These suborders may be distinguished from each other by the following osteological characters:—

A. Wing-bones rounded; first digit of manus distinct; scapulars narrow; tarsus long, with the three metatarsals indistinguishable, except at the ends.
  a. Posterior processes of the ilia widely separated, disclosing the broad flat sacrum.
    a^1. Coracoids without subclavicular processes.
      a^2. Bifurcation of nasals schizorhinal. — CRYPTURI.
      b^2. Bifurcation of nasals holorhinal . . — GALLINÆ.
    b^1. Coracoids with subclavicular processes.
      c^2. Dorsal vertebræ heterocœlous.
        a^3. Bifurcation of nasals schizorhinal.
          a^4. Basipterygoid processes present, but (to exclude *Grus antigone*, which occasionally possesses them) lateral occipital fontanelles absent.
            a^5. Basal phalanx of hallux as long as those of other digits. — COLUMBÆ.

b^5. Hallux absent, or with basal phalanx shorter than those of other digits.
a^6. Vomer absent ..... PTEROCLETES.
a^6. Vomer very broad..... HEMIPODII.
b^4. Basipterygoid processes absent, or (to include *Grus antigone*, which occasionally possesses them) lateral occipital fontanelles present ..... SCHIZORHINAL GRALLÆ.
b^3. Bifurcation of nasals holorhinal.
c^4. Horny covering of nostrils not tubular ..... HOLORHINAL GRALLÆ.
d^4. Horny covering of nostrils tubular ..... TUBINARES.
d^2. Posterior ends of the dorsal vertebræ, as seen in lateral section, not convex.
c^3. Basipterygoid processes absent.. GAVIÆ.
d^3. Basipterygoid processes present. LIMICOLÆ.
b. Posterior processes of the ilia so closely approximated that a narrow neural ridge is all that they disclose.
c^1. None of the dorsal vertebræ in front of the sacrum ankylosed..... COLYMBI.
d^1. Most of the dorsal vertebræ in front of the sacrum ankylosed..... PODICIPES.
B. Wing-bones flattened; first digit of manus fused with the second in the adult; scapular very broad; tarsus very short, with deep grooves between the metatarsals .. IMPENNES.

CRYPTURI.

The Tinamous may be regarded as the least-changed descendants of the ancestors of the Gallinæ, and, as such, may be associated with that group in the same Order, in spite of their dromæognathous palates.

They possess the following characters :—

1. In the bifurcation of their nasals they are schizorhinal.

2. The ankylosed sacral vertebræ are preceded by a free vertebra, in front of which are four ankylosed dorsal vertebræ.

3. The coracoids are not furnished with subclavicular processes.

4. The vomer is ankylosed with the maxillo-palatines.

5. They possess basipterygoid processes which spring from the body of the basisphenoid, and articulate with the pterygoids as near the quadrate as possible.

6. In the articulation of their dorsal vertebræ they are heterocœlous.

7. They have never more than one dorsal vertebra in front of the ankylosed sacral vertebræ, which is without a ventral process.

8. The humerus is pneumatic.

The 4th character is diagnostic of the Crypturi, but they are also easily diagnosed by their combination of the 1st and 3rd characters.

The Tinamous divide with the Penguins the honour of being the oldest family in this order. The 3rd, 4th, and 5th characters are all struthious. The sternum is, however, in no respect Ostrich-like. It resembles that of the Phasianidæ in having a well-developed keel, springing from a very narrow median xiphoid process, but differs from it in having the forked and flattened lateral processes represented by a long slender unforked rounded process on each side.

There can be little doubt that the Crypturi are more nearly allied to the Gallinæ than to any other group of birds.

Gallinæ.

If the Gallinæ be restricted to the three families Phasianidæ, Cracidæ, and Megapodidæ, their diagnosis becomes very simple. They all agree in having the following characters:—

1. In the bifurcation of their nasals they are holorhinal.

2. The ankylosed sacral vertebræ are preceded by a free vertebra, in front of which are four ankylosed dorsal vertebræ.

3. The coracoids are not furnished with subclavicular processes.

4. The basipterygoid processes are always present, and

articulate with the pterygoids, as near the palatines and as far from the quadrates as possible.

5. They are heterocœlous in the articulation of their dorsal vertebræ.

6. The median process of the furculum is much developed.

7. The angle of the mandible is produced and recurved.

The 4th character is diagnostic; and so is the combination of the 1st and 3rd.

The Gallinæ may almost be diagnosed by their peculiar sternum. The median xiphoid process is very long and very narrow; the internal processes are much shorter, and the external processes shorter still. The clefts are so deep that the sternum may be described as all processes.

The Gallinæ appear to be intermediate between the Crypturi and the Pterocletes.

Pterocletes.

The Sand Grouse are intermediate between the Columbæ and the Gallinæ. They present the following characters:—

1. In the bifurcation of their nasals they are schizorhinal.

2. The ankylosed sacral vertebræ are preceded by a free vertebra, above which are four ankylosed vertebræ.

3. They possess subclavicular processes.

4. They have no vomer.

5. They possess basipterygoid processes, which spring near the body of the basisphenoid and articulate with the pterygoids as near the quadrate as possible.

6. In the articulation of their dorsal vertebræ they are heterocœlous.

7. The hallux is either very small and elevated, or absent altogether.

The Pterocletes may be diagnosed in a variety of ways. The 4th character is diagnostic; but as the vomer is very small in the Columbæ, it is safer to combine the 7th with it. Equally diagnostic is the combination of the 3rd and 5th; or that of the 1st, 3rd, 6th, and 7th.

The Sand Grouse agree with the Pigeons in the 1st, 2nd, 3rd, and 6th characters; and with the Gallinæ in the 2nd

and 6th. They also agree with half the Gallinæ in the 7th character.

The sternum of the Pterocletes very closely resembles that of the Columbæ; the external lateral processes are very short, the outer posterior notches are very deep, and the inner ones small or completely ossified in the adult.

The Pterocletes further resemble the Columbæ in having the humerus pneumatic, and in having no median process to the furculum.

Columbæ.

The Columbæ appear to be so closely connected to the Gallinæ through the Pterocletes, that it seems impossible to exclude them from the Order. The Pigeons are probably more nearly allied to the Sand Grouse than to any other group of birds, although they are born helpless and naked, which is not the case with the Sand Grouse or with any other group of the Order. The Columbæ possess the following characters:—

1. They are heterocœlous in the articulation of their dorsal vertebræ.
2. They are schizorhinal in the bifurcation of their nasals.
3. The basal phalanx of the hallux is as long as that of the middle toes.
4. They are typically Galline in the ankylosis of their dorsal vertebræ.
5. They possess subclavicular processes.
6. They have basipterygoid processes, which articulate with the pterygoids near the middle of those bones.

They may be diagnosed by their combinations of the 2nd and 3rd characters.

If we regard the extinct Dodo as belonging to the Columbæ, the 6th character would break down in this group, inasmuch as there are no basipterygoid processes in the genus *Didus*. It would, however, be unfair to include extinct species in any group, as it is only by the extinction of species that any classification of groups becomes possible.

Hemipodii.

The Hemipodes resemble the Quails in their general appearance to so great an extent that many ornithologists find a difficulty in overcoming the superstition that they are very closely allied. A comparison of the osteological characters with those of the Gallinæ shows that the Hemipodii differ widely from the Gallinæ, but resemble closely the Schizorhinal Grallæ.

The Hemipodes possess the following characters:—

1. They are heterocœlous in the articulation of their dorsal vertebræ.

2. None of the dorsal vertebræ in front of the ankylosed sacral vertebræ are ankylosed.

3. Only two dorsal vertebræ in front of the ankylosed sacral vertebræ are unfurnished with ventral processes.

4. They are schizorhinal.

5. The coracoids are furnished with subclavicular processes.

6. They possess basipterygoid processes which articulate with the pterygoids nearer the quadrates than the palatines.

7. The humerus is not pneumatic.

8. The vomer is very short, very broad, and truncated in front.

9. The episternum is not perforated to allow the coracoids to touch each other at their bases.

10. The sternum has only one lateral xiphoid process on each side.

The Hemipodii may be diagnosed in various ways, either by their combination of the 1st and 8th characters; or of the 6th and 8th; or of the 2nd, 3rd, 4th, and 6th. They differ from the Gallinæ in no less than eight characters, the 2nd, 4th, 5th, 6th, 7th, 8th, 9th, and 10th. On the other hand they only differ from the Gaviæ and the Grallæ in two characters (from the former in the 1st, from both in the 6th, and from the latter in the 8th), and it is to these suborders that the Hemipodes are nearest allied.

Grallæ.

I propose to include in this suborder the Fulicariæ and the

Alectorides of Sclater, which are synonymous with the Geranomorphæ of Huxley. I see no reason why *Opisthocomus* and *Cariama* should not also be included in the Grallæ. The former has been regarded as closely allied to the Cracidæ, and the latter to the Serpentariidæ; but in each case there are at least six facts which are opposed to their supposed affinity, but are consistent with their close relationship to the Grallæ. They appear to be like *Mesites*, *Eurypygus*, *Rhinochetus*, and *Psophia*, the scattered remnants of a once large and widespread group, from which the Gruidæ and Rallidæ are also descended.

Opisthocomus differs from the Gallinæ in the following particulars :—

1. It has no basipterygoid processes.
2. It has subclavicular processes.
3. The posterior margin of the sternum is not very deeply cleft.
4. It has very few ventral processes on the dorsal vertebræ.
5. The angle of the mandible is not prolonged and recurved.
6. The episternum is not pierced so as to allow the coracoids to meet at their bases.

In each of these six characters in which it differs from the Gallinæ it agrees with the Otididæ.

Cariama differs from *Serpentarius* in the following particulars :—

1. It is schizognathous.
2. It has no basipterygoid processes.
3. It has subclavicular processes.
4. It has no median process to the furculum.
5. It has lateral processes to the sternum.
6. It has very few ventral processes on the dorsal vertebræ.

In each of these six characters in which it differs from *Serpentarius* it agrees with the Rallidæ.

The following families appear to be sufficiently allied to be associated together in a suborder, to which the name of Grallæ may be applied :—

Schizorhinal	*Opisthocomidæ*	Large hallux.*
	Mesitidæ	Large hallux.*
	Eurypygidæ.	
	Gruidæ	Lateral occipital fontanelles.
	Rhinochetidæ	Long narrow sternum, with no notches.
	Psophiidæ	Long narrow sternum, with no notches.
	Otididæ	No hallux.
Humerus not pneumatic.	*Rallidæ.*	
	Cariamidæ.	

I have been unable to find any satisfactory characters by which the Fulicariæ may be distinguished from the Alectorides; but they may be somewhat unnaturally divided into two groups, the Holorhinal Grallæ and the Schizorhinal Grallæ. The Rallidæ (including *Heliornis*) and the Gruidæ (including *Aramus*) are the typical families of the two sections; but if they be regarded as natural sections, the Otididæ must be removed from the Alectorides to the Fulicariæ, and the Psophiidæ must be placed in a different suborder from the Rhinochetidæ, in spite of the similarity of the sternum. It is quite possible that these changes may be right; but until their propriety be established by other characters, it is probably safest to regard the Grallæ as one suborder, which may be more or less artificially divided into two sections.

The holorhinal Grallæ possess the following characters:—

1. They are heterocœlous in the articulation of their dorsal vertebræ.
2. The posterior processes of the ilia are widely separated.
3. The coracoids are furnished with subclavicular processes.
4. They are holorhinal.

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* *Mesites* and *Opisthocomus* are not only aberrant in having Columbine feet, but the former has no furculum, and the latter has a very remarkable sternum, which looks as if the keel had been turned upside down, the posterior half projecting more than the anterior portion.

5. The horny covering of the nostrils is not tubular.
6. They have no basipterygoid processes.

The schizorhinal Grallæ agree with all these characters except the 4th.

The Grallæ vary exceedingly in the number of ankylosed vertebræ in front of the sacrum, and in the number of dorsal vertebræ which are furnished with ventral processes. Most of them have a small hallux, but the Otididæ have none, and the Opisthocomi and Mesitidæ have a large one, like the Columbæ and some of the Gallinæ (Cracidæ and Megapodidæ).

The 6th character is not a very safe one. I have seen examples of one species of *Grus*, and of more than one species of *Otis*, in which, for some inexplicable reason (if we call it atavism it looks less like accident), the basipterygoid processes have become ossified, instead of being absorbed during the progress from youth to maturity.

The holorhinal Grallæ may be diagnosed by their combination of the 1st, 2nd, 3rd, 4th, and 5th characters. The schizorhinal Grallæ may be diagnosed by the same combination, after the necessary alteration of the 4th character has been made.

If osteological characters have the taxonomic value which they are supposed to possess, the Tubinares appear to be the nearest allies of the Grallæ.

Tubinares.

The Petrels possess in their tubular nostrils a character which distinguishes them from all their allies; and although this feature is confined to the horny covering of the bill, it simplifies the diagnosis of the group so much, that I have ventured to include it as one of their osteological characters. These are as follows :—

1. The external nostrils are produced into tubes.
2. In the articulation of their dorsal vertebræ they are heterocœlous.
3. In the bifurcation of their nasals they are holorhinal.

4. None of the vertebræ which precede the ankylosed sacral vertebræ are ankylosed.

5. The coracoids are furnished with subclavicular processes.

6. The pelvis is not laterally compressed.

7. The hallux is either absent or consists of only one phalanx.

8. They vary in the number of dorsal vertebræ which are unfurnished with ventral processes, the Oceanitidæ and the Diomedeidæ having three, but the Procellariidæ rarely having any.

Rather more than half the species possess basypterygoid processes, but they are absent in the Diomedeidæ, the Oceanitidæ, and in the genus *Procellaria* and one or two allied genera.

The 1st character is absolutely diagnostic. The combination of the 2nd, 3rd, and 4th characters are diagnostic, except that they do not exclude the Grallæ. The addition to this combination of the 8th character still leaves the Oceanitidæ and Diomedeidæ undistinguished from the Otididæ. It is difficult to avoid coming to the conclusion that the Tubinares are a highly specialized group, nearest related to the once large, now small, group of the Grallæ.

Gavio-Limicolæ.

I have been unable to find any osteological characters to separate the Gulls from the Plovers, except the presence in the latter, and the absence in the former, of basipterygoid processes. As this character is not constant in the Tubinares, and occasionally breaks down in the Grallæ, it must be received with caution, or at least be regarded as of secondary importance. The Gaviæ are connected with the Limicolæ by a series of intermediate genera: *Dromas* and *Chionis* might be regarded as Gaviæ, and *Glareola*, *Cursorius*, *Pluvianus*, and *Œdicnemus* as Limicolæ, whilst *Thinocorus* might be regarded as an archaic survivor of the common ancestors of both; but as basipterygoid processes are unknown in any of these genera, if this character be taken as the test, they must all be removed from the Limicolæ to the Gaviæ. It is

possible that it would be as consistent to associate the Stone Curlews with the Gulls as the Lapwings with the Avocets. These seven genera further agree with the Laridæ, and differ from the Charadriidæ, in having no lateral occipital fontanelles when adult. Huxley separates the Limicolæ (under the name of the Charadriomorphæ) from the Gaviæ, which he associates with the Tubinares, the Colymbi, and the Podicipes (under the name of Cecomorphæ). Sclater separates the Limicolæ, the Gaviæ, and the Tubinares from each other, but he removes the Alcidæ from the Gaviæ and associates them with the Colymbi and the Podicipes (under the name of Pygopodes). If the articulation of the dorsal vertebræ be an important character, the Alcidæ and the Gaviæ cannot be separated far from each other, nor can the former be associated with the Colymbi or the Podicipes.

As thus restricted, the Gavio-Limicolæ possess the following characters:—

1. The posterior ends of the dorsal vertebræ, as seen in lateral section, are not convex.
2. None of the dorsal vertebræ above the ankylosed sacral vertebræ are ankylosed.
3. The first digit of the manus is present.
4. The pelvis is not laterally compressed.
5. The coracoid is furnished with subclavicular processes.

The combination of the 1st and 3rd of these characters is diagnostic of the group.

In the bifurcation of their nasals the Limicolæ are all schizorhinal; and of the Gaviæ the Laridæ and Alcidæ are all schizorhinal; but the intermediate genera vary in this respect. *Dromas* is typically schizorhinal, *Chionis* and *Glareola* are almost so; the angle is blunter in *Thinocorus*, and well rounded in *Cursorius*, whilst *Pluvianus* and *Œdicnemus* are typically holorhinal.

Although this character, founded on the modification of the bifurcation of the nasals, appears completely to break down in the Gaviæ, its importance in other groups must not be undervalued.

It is impossible to determine the relative importance of osteological characters. In the foregoing key I have given

the articulation of the dorsal vertebræ precedence over the bifurcation of the nasals. It is equally probable that the reverse is the proper course. If it were carried out the result would be that the Gruidæ would be transferred from the Grallæ to the Gaviæ, whilst the genera *Œdicnemus* and *Pluvianus* would be transferred from the Gaviæ to the Grallæ. It seems impossible to determine whether the Stone Curlews ought to be removed from the society of the Coursers, and from the anomalous position of being holorhinal birds between the Gulls and the Plovers, both of which are schizorhinal, and be placed under the protection of the Bustards, where they would be in the anomalous position of being opisthocœlous birds between the Bustards and the Trumpeters, both of which are heterocœlous.

Colymbo-Podicipes.

It is with profound regret that I confess myself unable to place the Divers in a different suborder from the Grebes. In spite of the difference in their habits and the contrast between their eggs, the osteological differences between the Colymbi and the Podicipes, like those between the Gaviæ and the Limicolæ, appear to be of only secondary importance. On the other hand, the Alcidæ, which are associated by many systematists with the Colymbi and the Podicipes, present many and important osteological differences. An opinion based upon osteological characters alone must be regarded with caution; but osteology appears to teach that the Auks are archaic Gulls, whilst the Grebes and the Divers are highly specialized Penguins.

The Colymbi differ from the Podicipes both in the sternum and in the vertebræ. In the Colymbi all the vertebræ in front of the ankylosed sacral vertebræ are free. In the Podicipes the ankylosed sacral vertebræ are preceded by only one free vertebra, in front of which are four ankylosed dorsal vertebræ. In the Colymbi the median xiphoid process of the sternum is prolonged until it projects beyond the lateral processes, whilst in the Podicipes it is abruptly

truncated, so that the lateral processes extend considerably beyond it.

The Colymbo-Podicipes agree together in the following characters:—

1. They are heterocœlous in the articulation of their dorsal vertebræ.
2. The posterior processes of the ilia are approximated to such an extent that the sacrum is almost hidden.
3. The coracoids are furnished with subclavicular processes.
4. They are holorhinal.
5. The hallux is always present, but its basal phalanx is shorter than that of the other toes.
6. All the dorsal vertebræ in front of the ankylosed sacral vertebræ have ventral processes.
7. The humerus is not pneumatic.
8. They have no basipterygoid processes.
9. The cnemial process of the tibia is remarkably developed.

The 2nd and 9th characters are equally diagnostic of the Colymbo-Podicipes. They differ from the Alcidæ in the 1st, 2nd, 4th, and 9th characters.

Impennes.

The Penguins are regarded by many ornithologists as more archaic than the Tinamous, but the arrangement of the bones of the palate is so precisely that of a Bustard or a Gull, that it is impossible to accept such a conclusion. It is true that none of the feathers of the wing are differentiated into quills, and that many of their osteological characters are diagnostic, but it is not difficult to suggest a cause for these facts. The quills of the wings of the *Apteryx* may be slowly dying out by *degradation by disuse*, whilst those of the Penguins may have rapidly disappeared by *differentiation by use for another purpose*. It is much more difficult to suggest the nearest allies of the Penguins:—

1. They are not heterocœlous in the articulation of their dorsal vertebræ*.

* The Penguins are more opisthocœlous than any other group in the Order. The dorsal vertebræ are not only posteriorly concave, but they are anteriorly convex, and in both cases the description applies as much to the vertical as to the lateral section.

2. None of the dorsal vertebræ in front of the sacrum are ankylosed.

3. The posterior processes of the ilia are widely separated.

4. The coracoids are furnished with subclavicular processes.

5. They are holorhinal.

6. The hallux is always present, but its basal phalanx is shorter than that of the other toes.

7. All the dorsal vertebræ in front of the ankylosed sacral vertebræ have ventral processes.

8. The humerus is not pneumatic.

9. They have no basipterygoid processes.

10. The first digit of the manus is fused with the second in the adult.

11. The three metatarsal bones of the tarso-metatarsus are very short, and are separated from each other throughout their whole length by deep grooves.

12. The bones of the forearm are all flattened.

13. The scapula is very broad, not differing very much in size from the keel of the sternum.

Not only are the 10th, 11th, 12th, and 13th characters each of them diagnostic, but the combination of the 1st, 5th, and 6th is so also.

The Colymbi agree with the Impennes in more of these characters than any other group does, and may possibly be their nearest allies.

XLIV.—*Note on the Genus* Rectes. By R. Bowdler Sharpe, F.L.S., F.Z.S., &c.

Dr. A. B. Meyer has kindly lent me a series of skins of *Rectes*, from New Guinea, along with the types of some of his new species. In 1877, when I completed the third volume of the 'Catalogue' of Birds in the British Museum,' I admitted four species of *Rectes* with a cap, viz.:—

1. *R. cirrhocephalus* (=juv.), *R. dichrous* (=ad.).
2. *R. uropygialis*.
3. *R. tibialis*.
4. *R. aruensis*.

I need not treat of the uniform-headed species, about which there has been little or no discussion.

Count Salvadori has divided the genus into three sections, which are almost the same as my divisions, but they depend upon the relative length of the bill. If characters such as the comparative length of the bill could always be depended upon, they would be useful enough; but it is generally requisite that all the species should be laid on the table side by side, so that one can judge of what is meant by "rostro longiusculo" and "rostro breviusculo." In the species of *Rectes* it so happens that this difference of size of bill in the sections of the genus is very strongly marked, and they fall nearly into the three genera given by me in the 'Catalogue,' as *Rectes*, *Pseudorectes*, and *Melanorectes*. *Rectes cristatus* I had never seen in 1877, and I wrongly placed it in *Rectes*, whereas I find now that it should be placed in the genus *Pseudorectes*, and called *Pseudorectes cristatus*.

It is principally with regard to the capped species of *Rectes* that Count Salvadori and I differ; for he considers that *Rectes dichrous* and *R. cirrhocephalus* are separate species, whereas I have united them together. He has also founded a new species, *Rectes decipiens*, from North-western New Guinea.

Since that time Dr. Meyer has added two new species to the genus: *R. rubiensis* ('Ueber neue und ungenügend bekannte Vögel, Nester und Eier aus dem Ostindischen Archipel,' p. 38) and also *R. analogus* (Zeitschr. ges. Orn. i. p. 284). He has lent me specimens of both these birds, and I am therefore able to form some idea of what they are like.

One more species has also been named by D'Albertis and Salvadori, *Rectes brunneiceps*, from the Fly River.

Dr. Meyer lent me his series of specimens when I wrote the 'Catalogue,' and I came to the conclusion that the grey bird was the young of *R. dichrous*, and I united the two under the oldest name of *R. cirrhocephalus*. This conclusion I arrived at from a study of the series brought back by Dr. Meyer himself; but since the time that Count Salvadori determined that there were two distinct species—one with a black head and another with a grey one—Dr. Meyer has adopted this view also.

As I am unable to *prove* that the grey-headed birds are the

young of the black-headed ones, I accept the evidence of Count Salvadori and Dr. Meyer, who have had very large series at their disposal, although I do not consider the question to be yet definitely settled.

From the Astrolabe Mountains Mr. C. Hunstein sent two males and a female of a *Rectes*. The female is *R. brunneiceps* of D'Albertis and Salvadori, and the male is undescribed. It may be diagnosed as follows :—

RECTES MERIDIONALIS, sp. n.

R. similis *R. uropygiali*, sed scapularibus dorso concoloribus nec nigris, et uropygio tantum nigro distinguenda. Long. tot. 10·0, alæ 5·2, caudæ 4·3.

These specimens are doubtless the same as the three from Naiabui referred to *R. dichrous* by Count Salvadori; but I shall not be surprised to learn that they are only really the *males* of *R. brunneiceps*. Time alone can prove this.

The true *R. dichrous* also occurs in South-eastern New Guinea, quite a series having been obtained by Mr. Forbes in the Sogeri district of the Astrolabe range. Dr. Meyer has a pair from Amberbaki, where the female is exactly similar to the male, and we have in the British Museum a nestling which is almost exactly like the adults, having a black head and throat. The female has the wing 4·3 inches, the male 4·2, and in Forbes's six specimens the wing varies from 4·1 to 4·3 inches. The entire absence of black on the rump and upper tail-coverts distinguishes *R. dichrous*.

I quite agree that *Rectes tibialis* of my Catalogue is not separable from *R. uropygialis*, as Count Salvadori has already determined.

Rectes decipiens of Salvadori seems to be a large form of *R. dichrous*, with the wing 5 inches; but I do not see how the distinction between this species and *R. cirrhocephalus* and *R. rubiensis* can be maintained, for they seem to run one into the other. Thus a male collected at Dorey by Mr. Wallace is exactly similar in the colour of the head to a female from Rubi, and a male from Rubi is absolutely the same as a male from Inviorage.

In the same way *Rectes analogus* of Meyer, from the Aru Islands, is only the young of *R. aruensis*. We have several similar ones in the Museum, from the Aru Islands.

XLV.—*On two apparently undescribed Species of* Sturnus.

By R. Bowdler Sharpe, F.L.S., F.Z.S., &c.

It seems somewhat strange that two birds, of which the British Museum possesses an abundant series, should prove to be unnamed, but such I believe to be the case. One of these is the ordinary Starling of India, and the other is the Indian representative of *Sturnus purpurascens* of Armenia.

I cannot at the present moment go into the question of the ranges of these two species, as I am waiting for additional materials from some important European localities, and I intend very shortly to publish a paper on the distribution of the species of *Sturnus*. I therefore content myself with giving diagnoses of the two undescribed forms.

Sturnus menzbieri, sp. n.

S. similis *S. vulgari*, sed capite et gulâ totâ rubescenti-purpureis distinguendus. Long. tot. 8·0, culm. 1·15, alæ 5·05, caudæ 2·35, tarsi 1·1.

The Museum has this species marked by Mr. Robson as *S. vulgaris* from Asia Minor, as well as several specimens from Persia. It is the Starling of Krasnoyarsk, where Mr. Seebohm procured it in breeding-plumage. The Museum also has specimens from Afghanistan, and from all parts of India from Scinde to Assam, and from Oude to Madras, so that its range is immense. It is the species figured by Gould in the 'Birds of Asia' as *Sturnus humii*; but his description applies to another bird, viz. *S. indicus*, Hodgs. (*S. nitens*, Hume).

The Oriental form of the Common Starling possesses green scapulars like that species, and has of course green wing-coverts. In the colours of the flanks it also approaches *S. vulgaris*; but it may be separated at a glance by its purple head and throat, which characters also distinguish it from *S. indicus*.

Sturnus porphyronotus, sp. n.

S. similis *S purpurascenti*, sed dorso rubescenti-purpureo, uropygio concolore, distinguendus. Long. tot. 8·0, culm. 1·15, alæ 5·0, caudæ 2·45, tarsi 1·15.

Of this well-marked form the Museum possesses a good series of birds in breeding-plumage from Afghanistan, and in winter dress from the plains of India. Mr. Seebohm also has three from Saharunpur. Mr. Dresser has apparently figured this red-backed form as the adult of *S. purpurascens*; but no Asia Minor skins in the Museum or in Mr. Seebohm's collection can be mistaken for the Indian bird.

Sturnus caucasicus, Lorenz, is a perfectly good species, representing *S. poltaratzkii* in the Caucasus. It differs, however, from that species in having a dark green head.

Sturnus poltaratzkii, Finsch, is, as Mr. Seebohm has already discovered, Mr. Hume's *Sturnus nobilior*, the types of which the Museum now possesses.

I add a 'Key' to the species of *Sturnus*, about which the only thing that strikes me as remarkable is the necessity for admitting *Sturnus vulgaris* to both sections, as the breeding-plumage is often intensely purple above, and approaches that of *S. minor* and others of the purple-winged group.

Genus Sturnus, L.

Clavis Specierum.

a. Pileo dorsoque concoloribus.
  a'. Scapularibus viridibus (chalybeo vel æneo nitentibus).
    a''. Tectricibus alarum viridibus vel chalybeo-viridibus.
      a'''. Pectore viridi: hypochondriis chalybeis vel purpurascenti-cæruleis.
        a^1. Pileo gulâque viridibus ..... *vulgaris*, hiem.
        b^1. Pileo gulâque rubescenti-purpureis ..... *menzbieri*.
      b'''. Pectore æneo- vel cuprescenti-viridi: pileo viridi ..... *indicus*.
    b''. Tectricibus alarum violaceis vel purpurascentibus, haud viridescentibus: pileo gulâque purpurascentibus ..... *poltaratzkii*.
    c''. Tectricibus alarum læte chalybeis aut chalybeo-viridibus, extus rubescenti-purpureis: pileo gulâque viridibus ..... *caucasicus*.
  b'. Scapularibus rubescenti- vel cyanescenti-purpureis, haud viridescentibus.

d''. Interscapulio dorsoque chalybeo-viridibus: uropygio et supracaudalibus purpurascentibus vix chalybeo aut chalybeo-viridi nitentibus: abdomine purpureo, hypochondriis æneo-purpureis ..... *purpurascens.*

c''. Tergo rubescenti-purpureo: uropygio dorso concolore, vix chalybeo, sed minime viridi lavato.

c'''. Tergo vix chalybeo-purpureo lavato: abdomine sordide rubescenti-purpureo aut æneo-purpureo ..... *porphyronotus.*

d'''. Tergo rubescenti-purpureo, unicolore.

*c*⁴. Corporis lateribus æneo-viridibus: abdomine cuprescenti-viridi..... *minor.*

*d*⁴. Corporis lateribus chalybeis vel chalybeo-viridibus ..... *vulgaris*, æstiv.

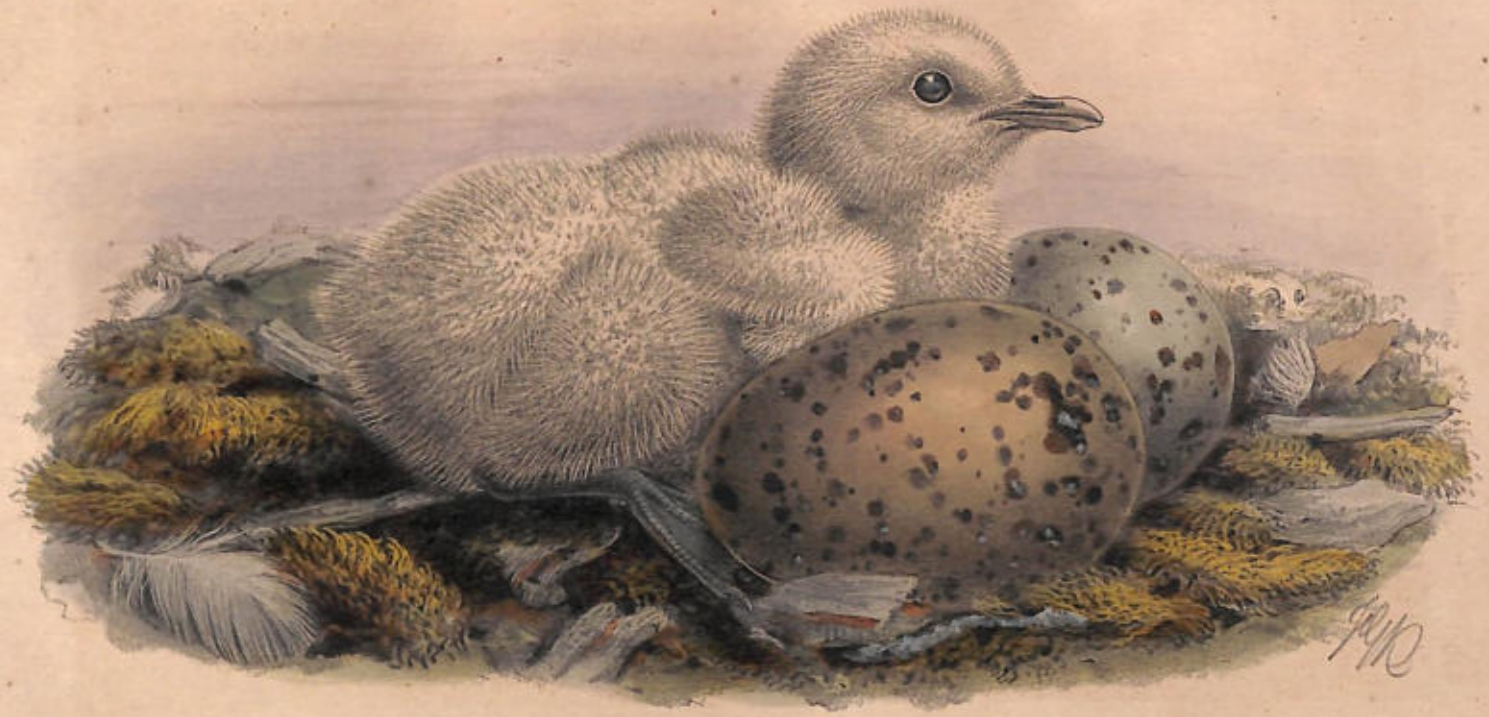
b. Pileo dorsoque concoloribus ..... *unicolor.*

XLVI.—*On a Breeding-colony of* Larus eburneus *on Spitsbergen*. By Professor Robert Collett, Zoological Museum, Christiania.

(Plate XIII.)

In August 1887 Capt. Johannesen, master of one of the Norwegian Arctic traders, passed Cape Smith, the eastern-most point of north-eastern Spitsbergen, and one which has only been reached in summers exceptionally free from ice. On the small island of Stor-oën, lying about 16 English miles to the east of Cape Smith, in 80° 9′ N. lat., he discovered a colony of *Larus eburneus*, and as it was easily accessible, and he had not previously succeeded in examining one, although he had seen several in Tsfjorden and in other parts of Spitsbergen, he made a short stay at the island in order, if possible, to obtain eggs and young, which he knew would of interest.

On the 8th of August, when he visited the island, he found young birds in all stages, from newly hatched to fully fledged, together with a small number of eggs, which, however, were on the point of hatching, and in all probability not one would have been left a week later. Captain Johannesen brought with him to Tromsö 19 eggs and one nest, together



J. G. Keulemans del. et lith.

LARUS EBURNEUS

Mintern Bros. imp.

d'. Interscapulio dorsoque chalybeo-viridibus: uropygio et supracaudalibus purpurascentibus vix chalybeo aut chalybeo-viridi nitentibus: abdomine purpureo, hypochondriis æneo-purpureis ..... *purpurascens.*

c''. Tergo rubescenti-purpureo: uropygio dorso concolore, vix chalybeo, sed minime viridi lavato.

c'''. Tergo vix chalybeo-purpureo lavato: abdomine sordide rubescenti-purpureo aut æneo-purpureo ..... *porphyronotus.*

d'''. Tergo rubescenti-purpureo, unicolore.

*c*⁴. Corporis lateribus æneo-viridibus: abdomine cuprescenti-viridi..... *minor.*

*d*⁴. Corporis lateribus chalybeis vel chalybeo-viridibus ..... *vulgaris*, æstiv.

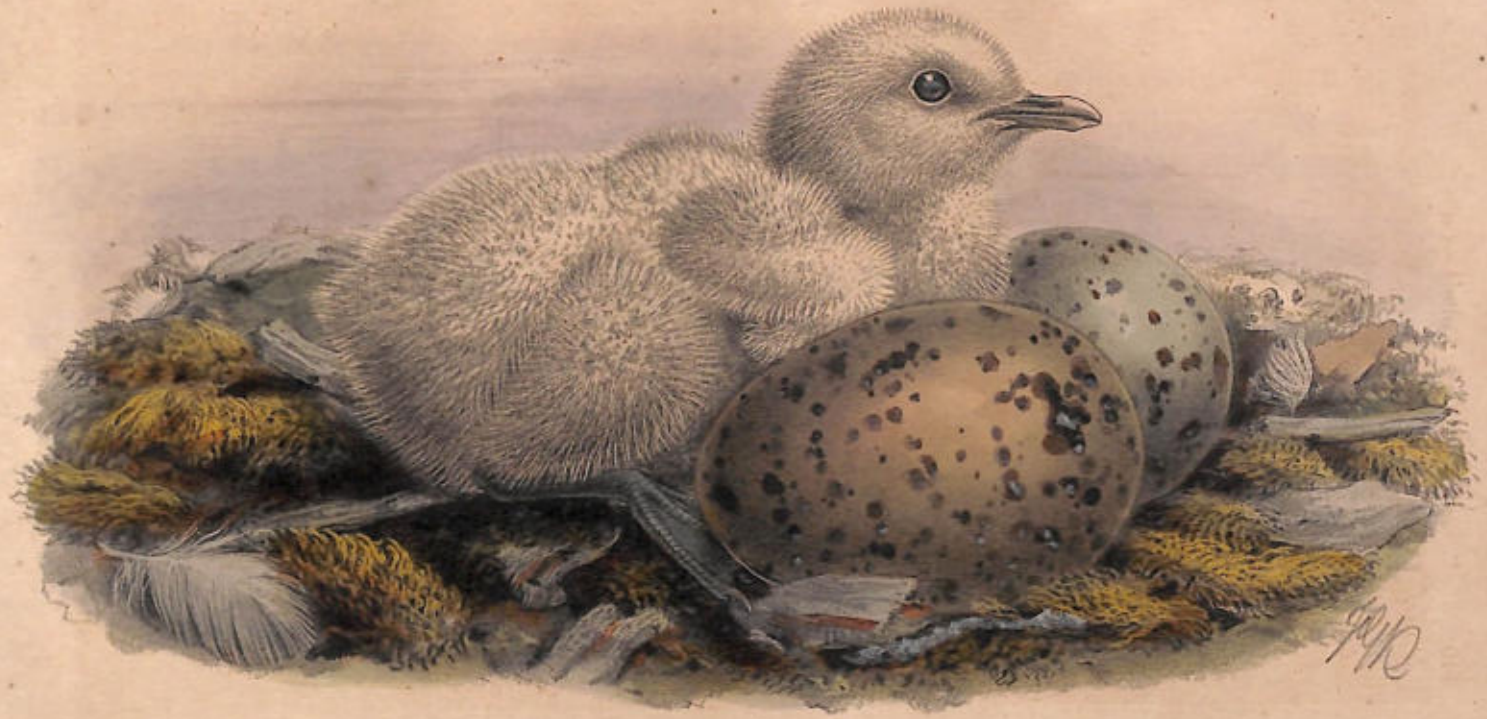
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J. G. Keulemans del. et lith.

LARUS EBURNEUS

Mintern Bros. imp.

with two old birds and three young in down, which were all acquired by Herr Foslie, curator of the Tromsö Museum, to which he subsequently presented all except a few eggs.

The nidification of *L. eburneus* is as yet but imperfectly known, as, up to the present time perhaps, on only two occasions have authenticated eggs been obtained. On June 18th, 1853, Capt. (now Sir Leopold) M'Clintock, R.N., found a pair breeding at Prince Patrick's Island, one of the Parry group, south-west of Grinnell Land, in 77° 25′ N. lat., 116° W. long. (Ibis, 1866, p. 217). The nest was near the beach, and contained one egg, which is preserved in the Dublin Museum. The nest is described as being chiefly formed of moss, with a feather or two, and down. In July 1861, at Murchison Bay, in 80° N. lat., on the west side of north-eastern Spitsbergen, Professor Malmgren discovered a colony breeding in a steep perpendicular limestone cliff, from 50 to 150 feet above the sea. On July 30th he obtained from this colony two of the lowest nests, each of which contained one egg much incubated, now preserved in the Riks-Museum, Stockholm. The nests, placed on the ledges of the rocks, were 6 to 9 inches in depth and composed of dry plants, grass, moss, &c., and a few feathers. I have considered that an account of the materials brought home by Capt. Johannesen would not be without interest, and Herr Foslie, at my request, has forwarded the chief part of them for examination, further placing at my service the particulars obtained from Capt. Johannesen respecting the situation of the breeding-place, &c. I am also indebted to my friend Mr. Landmark for assistance in measuring and describing the eggs, and to Dr. Kiär for determining the species of mosses of which the nest consisted. Stor-oën is about 9 English miles in length and 6 in breadth; the greater part of its surface is covered by a glacier, which rises to a height of about 400 feet; the remaining portions consist of sand and gravel, with here and there small stones, likewise oases covered with moss; while in a few places the ground consisted only of rock.

L. eburneus was breeding on the N.E. side of the island,

close to, or only a short way above, high-water mark, on low-lying ground like *L. canus*, *L. fuscus*, &c., and not in the cliffs. Capt. Johannesen estimated the number of nests at from 100 to 150; they were somewhat apart, at distances varying from two to four yards.

As previously mentioned, on the 8th of August the eggs had been hatched in most of the nests; only in about a fourth of them were eggs still to be found. There were one or two eggs or young but never more in a nest. On being examined at Tromsö it was found that all the 19 eggs contained almost fully developed young chicks. Many of the nests contained young of various ages, whilst others were already empty. Several black-spotted young, capable of flight were seen, likewise several young birds of the previous year's brood remained on the breeding-ground.

The nest is composed chiefly of green moss, which forms about nine tenths of its mass: the rest consists of small splinters of drift-wood, a few feathers, single stalks and leaves of algæ, with one or two particles of lichen. No trace of straw is to be found; a couple of pebbles may possibly have appertained to the under-layer of the nest. The mosses occur in pieces the size of a walnut, or less, and have evidently been plucked in a fresh state from a dry subsoil, either on rocks or gravelly places. They belong to the following species:—*Ceratodon purpureus*, Brid., *Webera cruda*, Schimp., *Catoscapium nigritum*, Brid., *Racomitrium lanuginosum*, Brid. (with short teeth, not ciliæ, in the margin of the leaves behind the tip), *Hypnum uncinatum*, Hed., and var. *gracillimum*, Bergg., *Hypnum turgescens*, Schimp., and *Orthothecium strictum*, Lor. The mosses are all sterile. Several of the splinters of drift-wood were found of a length of about 100 millim. Under the microscope they all proved to be of conifers, probably Larch, drifted from the Siberian rivers. Some were very old, others, however, being still hard, and possessing a fresh appearance. The feathers, of which only a few were found, are snowy white, and have probably fallen from the brooding bird. Some portions of the algæ were dry crumpled leaves and stalks of seaweed. Only a few bits

of a lichen were found, which appear to have got in accidentally.

The average of nine eggs was 59·9 millim. in length by 33·7 millim. in breadth. The ground-colour of five specimens is almost entirely alike, viz. a light greyish-brown tint, with faint admixture of yellowish green, such as often appears on the eggs of *L. canus*, which, however, have often a deeper brown or green hue. In structure and gloss all nine eggs greatly resemble those of *L. canus*; but the granulations under the microscope are a little coarser, more uneven, and in larger numbers; on the other hand the granulations are perceptibly finer than in *L. fuscus*. The eggs are easily distinguished from those of *Rissa tridactyla* by their greater gloss, and the small excrescences do not lie quite so crowded, and are a little more flattened than they usually are in the last-mentioned species.

Newly hatched young in down: length of tarsus 17 millim., middle toe with claw 24 millim. White all over; the down white to the root. Even in this first stage, the young in down may be distinguished from the young of other species by the strong and hooked claws, especially on the hind toe, the somewhat marginated web on the toes, and the forward nostrils. The downy covering is particularly close; *L. eburneus* in this respect is more closely related to the other species of *Larus* than to *Rissa*, the hair-like tips being shorter. The bill is horny brown with lighter margins; the claws light horn-colour. In a somewhat older bird the length of the tarsus is 25 millim., middle toe with claw 31 millim.; the tips of the feathers appear on the shoulders, which exhibit a broad dark-brown transverse band within the white and still down-bearing tips; the bill is horn-brown, with but slightly lighter tip and edges. On account of the long claws the emargination of the web appears to be larger than it really is.

XLVII.—*Winter Notes in Spain.* By Abel Chapman.

Having spent another winter in the Peninsula, I venture to submit the following accounts of my observations at that season, as supplementary to my former paper (Ibis, 1884, p. 66), which chiefly referred to the spring and summer in Andalucia.

Notwithstanding its usually fine winter climate, Southern Spain is hardly so rich in birds at that season as might be expected. The difference between its spring and winter avifauna is much more marked than the temperature and prevailing conditions would appear to render necessary. All the brilliantly plumaged southern forms have disappeared, for the Bee-eaters, Rollers, Golden Orioles, Hoopoes, and many others, which in summer lend quite a semi-tropical character to the Spanish avifauna, withdraw during the autumn months, and many of the Raptores, Sylviidæ, and Ardeidæ have also gone; while in a wet season—such as the winter of 1887–88 in Spain proved to be—the scarcity or absence of the wading birds is very remarkable.

Among the Spanish winter residents are several of our British summer visitors. In the beautiful gardens of my friend Mr. W. J. Buck, at Jerez, these were very numerous, and included Blackcaps, Willow Wrens, Chiffchaffs, and Wagtails, besides large flocks of Goldfinches, Green and Brown Linnets, Chaffinches, Siskins, Redpolls, Serin Finches, Great and Blue Tits, and Robins. The presence of many of these birds at the end of December amidst the brilliant evergreens of palm and pine, eucalyptus and pepper-tree, orange, olive and loquat, would have given a spring-like character to the gardens but for one circumstance—they were silent, and perhaps the only real winter songster was the Goldfinch, whose numbers in this land of thistles is legion, and their pretty warbling song incessant. On December 28th I observed a few Sand Martins (*Cotile riparia*) hawking in the sun at Vejer-de-la-Frontera, and during December, January, and February, Swallows (*Hirundo rustica*) were noticed on several occasions; but neither of these species winter regularly in Spain.

The blank left by the departure of the summer birds is to some extent filled by the arrival of the northern migrants; but it is in the nature of these to be always less conspicuous, and their presence may be entirely overlooked unless one goes to seek them in their own haunts. With my limited experience, it is impossible to give the dates at which the various steps in this transition from summer to winter conditions take place; but among the earliest signs I observed of the autumnal arrival on the Peninsular coast was the appearance of the Common Sandpiper (*Totanus hypoleucus*) in the early days of September, rapidly followed by a stream of allied species. *Limosa lapponica, Totanus canescens, Tringa canutus, T. alpina, Ægialitis hiaticula*, and others, together with Common Terns, Black-headed Gulls, &c., have come in force by the middle of September. On the 11th the Whimbrels (*Numenius phæopus*) arrived, but only remained a month, or rather their transit occupied that period. The last I shot was on October 10th, after which date* none were seen till their return journey in May. Curlews (*Numenius arquata*), on the other hand, are very numerous all the winter; they arrive later than the Whimbrels, and depart in spring, before the latter have reappeared. Of the immense numbers of wading birds which throng the Iberian coasts and rivers during September and October, a very large proportion seem to pass on southwards, and comparatively few spend the winter in the Peninsula; at least that is the case in wet seasons, such as have been both the winters I have passed in the country.

Snipes and the bulk of the migrant Ducks seem to arrive during October. Our first day's Snipe-shooting was on October 22nd, when we got 17½ couples, including some Jack-Snipe, besides several Golden Plovers, a Tufted Duck, and a couple of Teal. We observed a good many Mallard and some large packs of Wigeon, though the first of the latter actually obtained was on the 7th November. I also recollect shooting, on the same day, a single Turtle Dove (*Turtur communis*),

* On the same day I shot the first Golden Plover, a single bird; the bulk arrived a week or so later.

which rose from a patch of rushes adjoining the marsh. The Geese are rather later in appearing; it is mid-November before the bulk of them are due.

The "marismas" of Southern Spain are the winter home of very great quantities of wild-fowl; probably nowhere in Europe can natural conditions be found more congenial to their requirements than the vast shallow watery wildernesses which stretch along the Lower Guadalquivir. There, amidst abundant plant and insect-food, the Ducks and Geese can pass the colder months in comparative security; and the hope of investigating the winter conditions of bird-life in these regions was one of the chief motives of my last journey—marred, unluckily, by the very wet season. For more than a fortnight in December the rain was incessant, obliterating all traces of roads or rivers, reducing the whole country to a swamp, and the valleys and low-lying lands to sheets of standing water. Our first glance showed the hopelessness of expecting to do much good with the wild-fowl, for the delta of the Guadalquivir was a vast inland sea of tawny water, extending to the horizon along the whole length of the Coto de Doñana and Coto del Rey. Yet, unfavourable as the season was, at times the massed bird-life was marvellous, considering that the fowl were scattered over some twenty leagues of unbroken water. In dry seasons, when they are restricted to such pools as then remain, it is not uncommon to see even the larger sheets of water, such as the Lagunas de Santa Olaya, packed with such swarms of Ducks, Divers, and Grebes of various kinds, as literally to hide the surface of the lake; but under the adverse conditions of last winter, much hard work was necessary to form any acquaintance with the fowl, among which we spent some long days and nights. So far as our observations went, I would give the first place, as regards numbers, to the Pintails (*Dafila acuta*) —"rabudos" in Spanish; but the Wigeon (*Mareca penelope*) were not far behind, both these species being seen in thousands daily. Next in abundance would come Teal (*Querquedula crecca*) and Shovellers (*Spatula clypeata*), for the Mallards (*Anas boscas*), though common enough, were not in any-

thing like the wonderful aggregations of the four first-named species, and were more inclined to frequent the rushy lagoons and smaller pieces of water than the open "marisma," where the others were mostly found.

When flight-shooting in the early mornings, Pintails, Wigeons, and Shovellers were by far the most numerous. The flocks of Shovellers seemed to come off the land, or from the rushy margins of the Doñana, and in an opposite direction to the course held by the other Ducks named. It was very interesting about dawn to watch the endless flights of Ducks and Geese, which in every direction lined the half-lighted skies, and the chorus of their wild notes was not less attractive. The Pintails are silent on flight, but keep up a constant confused sibilant chatter when on the water; the Shovellers make a spluttering sort of quack, less defined than that of the Mallard; and the note of the latter, with the gaggling of the Geese and Flamingoes, the piping whistles of Wigeon, Curlews, and many other wild-fowl, all blended in that matutinal concert. A few Tufted Ducks also appeared at morning flight—the only diving Ducks actually identified last winter, though I know that the Common Pochards and the White-fronted Ducks (*Erismatura mersa*) were also present on the open "marisma," and, I think, some of the White-eyed Ducks (*Fuligula nyroca*) as well. Of the handsome Red-crested Pochard we saw nothing, nor, at this season, of the Gadwall or the Garganey. The marsh-pools, I should perhaps add, are at all times rather too shallow exactly to suit the tastes of the diving Ducks. A pair of Sheld-ducks (*Tadorna cornuta*) were shot in January by a native fowler, and late in that month a small string of the Ruddy Sheld-duck (*Tadorna rutila*) passed near our half-hidden punts, but not within shot. This completes the list of the Duck-tribe which we were able to identify.

Next to the Ducks the most conspicuous winter wild-fowl of the "marisma" are the Grey Geese, which resort thither from November till February in very large numbers, and, so far as we were able to form an opinion, they appeared to be all *Anser cinereus*. They spend the night afloat and come

to the grassy shores and points of land at daybreak, flying inshore in small successive parties from the open water. There, if unmolested, they remain feeding, preening and washing in the shallows, or resting on the banks, all day. At the particular spots along the edge of the "marisma" to which, at dawn, the Geese thus resort, a few flight-shots may be obtained on a favourable morning; but the difficulty of shooting Wild Geese is proverbial, and these big Grey-lags are the hardest and most invulnerable of fowl. The Spanish wildfowlers use trained stalking-ponies, called "cabestros," for Ducks and—to a less extent—Geese are accustomed to the presence of the numerous half-wild ponies and cattle bred in the Bætican wilderness, and take little notice of their approach. It is curious that they should not observe the extra pair of legs; but the most cautious birds appear entirely to overlook such irregularities, and so long as the fowler allows no part of his figure to appear above the outline of the pony's back, no attention is paid to what may be in full view beneath. It was a singular experience to arrive thus, almost into the midst of such wary and suspicious birds as Pintail, Mallard, and Wigeon, many of which were frequently swimming quietly, calling or preening themselves, within 15 or 20 yards of our guns, while others passed and repassed close overhead.

Wild Swans we never saw, but one of our "pateros" (duck-shooters) told me he had shot two or three during a severe winter many years ago; he regarded them as very rare, and, indeed, did not know what they were until he took them to San Lucar for sale.

The comparative scarcity of the wading birds during wet seasons I have already noticed. During the many long days we spent behind our stalking-ponies on the shores of the "marisma," we hardly observed any variety of this class of birds. On a few occasions, chattering flocks of Black-winged Stilts (*Himantopus candidus*) were met with; the legs of the young were already pale pink, but the irides were still dark. On January 30th a very large pack of Avocets (*Recurvirostra avocetta*) were feeding on the oozy mud-flats outside the Palacio de Doñana, and the "pateros" assured me that they

had just arrived. Along the peculiar marsh-belt known as the Retuerta—the point at which the conflict between the blown sands from the Atlantic and the alluvial deposits of the great delta is being most keenly waged—were a good many Green Sandpipers (*Totanus ochropus*), invariably single birds and rather tame. At Santa Olaya I observed a small party of Kentish Plovers (*Ægialitis cantiana*) running along the sandy shores of the lagoon, and this species, with Dunlins and Ring Dotterels, also frequented the mud-banks of the Guadalquivir. On the night of January 27th, while riding along the "marisma," we recognized the note of the Greenshank (*Totanus canescens*), and Redshanks (*T. calidris*) were plentiful enough on all the mud-flats and "salinas." These, with Curlews and Plovers, almost complete the list of their class. The lack of Waders and of the pretty Little Egrets, Buff-backed and Squacco Herons, so conspicuous in spring, left rather a blank along the broad rushy confines of Doñana. The Spoonbills (*Platalea leucorodia*) were also absent, though, in Portugal, I remember observing them at intervals throughout the winter on the lagoons of the Vouga and elsewhere. Yet there was no actual deficiency of bird-life—it was quality rather than quantity that was wanting. The air was alive with Pewits and Plovers, small Gulls, Magpies and Jackdaws, Skylarks, Meadow Pipits, Wagtails, Common and Reed-Buntings, and similar species. Herons (*Ardea cinerea*) stood posted at intervals in the shallow water, and here and there a small party of Storks; while in the midst of all this bird-population, and apparently utterly unnoticed by them, the Marsh Harriers (*Circus æruginosus*) ceaselessly wheeled and circled. After watching them for hours, I have never seen them attempt to take a bird on the wing, or to pursue anything at all, though frequently pouncing upon something—I could not see what—among the rushes or shallow water. There the Harrier would remain with outstretched wings, struggling with some victim (perhaps a frog) for a few minutes, and then quietly resume his hunting. The Hen-Harriers (*C. cyanus*) were unusually scarce; probably the season was too wet for their tastes, and the few I observed

were hunting over the drier plains of palmetto and cistus-scrub, and not in the "marisma." Montagu's Harrier (*C. cineraceus*), so common in spring, was entirely absent.

One winter's day, while vainly endeavouring to circumvent, by means of the "cabestro" ponies, the Geese, which, by the way, will rarely allow approach in this manner, we fell in with a pack of about forty Pintailed Sand Grouse (*Pterocles alchata*). I was wrong in assuming, in my last paper (Ibis, 1884, p. 84), that these beautiful birds are only spring migrants to Spain, for during last winter I observed them on different occasions in the plains of the Guadalquivir and the Guadalete. The birds in question were extremely shy and wild, defying our most careful attempts to approach, and after crouching along, bent nearly double, behind the pony for a couple of hours, my back and limbs paralyzed by the excruciating pain of the prone position, the end of the operations seemed as far off as ever. The "Gangas," however, had a strong fancy for that sandy spit (probably the only available resort left uncovered by the water), and, though not permitting approach, they never left us entirely, although at times they were almost out of sight, far up in the blue sky (we could hardly trace them, but for the harsh croak), then down they would drop direct, shooting to the earth like a shower of falling stars. At last a couple of raking shots added seven males and three females to our bag, some of the former already beginning to assume the black throat, but otherwise they were all more or less in winter plumage, the males having few or none of the pretty yellow spots on the back which characterize their spring dress, and both sexes were paler in tone than at the latter season. The carriage of these birds on the ground is very sprightly; they sit half upright, rather like a Pigeon. On our final, successful approach, we noticed many of them lying down on one side, nestling in the warm sand. Their flight resembles that of the Golden Plover, but the narrow black bordering on the under wing is conspicuous; at times, when high in air, they might almost be taken for Teal. As divergent opinions have been expressed with regard to the edible qualities of these Sand

Grouse, I may mention that we carefully tested these birds and found them excellent. Their flesh is dark, as tender and well-flavoured as that of a Grouse, and was equally good when cold. The Spanish name "Ganga," as I mentioned in my former paper, signifies "a bargain." As a coincidence, it may perhaps be admissible to add that, on the very morning after writing the above (May 30th), I received by post from my puntsman on the Northumbrian coast, a package containing a pair of Pallas's Sand Grouse (*Syrrhaptes paradoxus*), shot the day before from a flight of sixty*.

On January 6th I again enjoyed a sight of my old friends the Camels. Our party were assembled for the mid-day "bocadillo" on the verge of the "marisma," when these huge creatures were descried in the distance. There was a herd of nineteen, of all sizes, dreamily standing knee-deep in the water, and each form clearly reflected below. With our powerful field-glasses we could watch them putting their heads down to the water, as though to graze on something growing beneath its surface. Presently the herd moved slowly off to a small rush-grown island a mile or two from the shore, and there we were obliged to leave them to their ruminations. Hard by stood a very large flock of Flamingoes, the rosy sheen of their long solid ranks gleaming bright in the sunlight, and the intervening waters were dotted over in all directions with numerous packs of Geese and Ducks. Flamingoes appeared to remain on the Spanish side of the Straits all through the winter. There were plenty in the "marisma" in November, and the "guardias" said they still remained there in December. Immediately after the heavy rains at the end of that month, while riding through the "marismilla" forests, we observed, high over the pines, a large flight passing northwards, which were, most probably, in the act of crossing over from Africa. Their winter movements are certainly regulated by the quantity of water in the marshes.

One curious circumstance we noticed in the "marisma" was

* The Pallas's Sand Grouse is hardly so well flavoured, and their flesh, on the *inner* part of the breast, is *white*, like that of a Blackcock.

the immense quantities of insects (small black gnats, or mosquitos) which lined its leeward shores. For league after league layers of tiny living creatures extended in unbroken succession; in width they would not be less than several yards, and they were often an inch or two thick. More than half of these living millions were floating on the water's edge, the rest were on the dry mud or sand, where one could pick them up in handfuls.

In the Coto de Doñana we had a prolonged campaign with large and small game during the early part of January. About half the time was spent among the open scrub-covered plains at the further extremity of that extensive preserve; thence we moved our quarters to the pine forests of the "marismilla," nearly opposite San Lucar. At first sight these fragrant woods appeared rather devoid of bird-life. We often rode for miles without seeing more than a few Ravens or a Kite; the latter always *Milvus ictinus*, for the Black Kite (*M. migrans*) is exclusively a summer visitor. Among the thick bushy tops of the stone-pines were numbers of small birds, which I had some difficulty in making out, as they were extremely shy, and it was, of course, not permissible when after deer &c. to fire at such small fry; but later, while waiting concealed in my "puestos" in the heart of the silent forest, I had opportunities of observing them, as they sent down small showers of pine-cone scales upon me. They were principally Hawfinches (*Coccothraustes vulgaris*), but there were also small parties of Crossbills (*Loxia curvirostra*) similarly employed. On two or three occasions, when our "drives" were finished before dark, I used the opportunity of trying to obtain some of the smaller forest-birds. But in this a singular difficulty occurred. In Andalucia the sun gives us an hour or two more of his company than on a winter's day at home. All day long he shone in a blue and cloudless sky; but almost as soon as his rim sank behind the distant pines it was dark, and the nocturnal concert of frogs and Owls commenced. The transition from day to night is startlingly sudden, twilight only lasting a few minutes. The feathered race is well aware of this, and provide for the event

by going to roost a full half-hour before sunset. One of the first signs of approaching night is the flight of the Ravens. Perhaps one has not realized the fact that the day is far spent, and is reminded of it by their dark files slowly crossing the sky towards their roosting-places while it is yet broad daylight. The same habit is observable with the smaller birds. For the last half-hour of the day none can be seen, and when one eventually finds their retreat, they are buried in the deepest recesses of the pines; hence these half-hours at dusk produced but little. Among other birds obtained were the Missel Thrush, Black Redstart, Robin, and other common species. One evening, while wandering among the pines, a Buzzard dipped down from a lower branch and silently sped away, till a shot in the wing brought him down. This was a remarkably pale example, the whole plumage being of a warm cream-colour, slightly mottled and splashed above with dusky brown; irides dark, and claws white. My brothers obtained Buzzards in somewhat similar plumage in Germany (adults, shot at the nest) in the spring of 1878, but I never before met with the variety in Spain, the Spanish type being generally dark. Another fine species met with among the pines was the Eagle Owl (*Bubo ignavus*); and once, while posted for a "drive" in the remote and isolated "mancha" of Salivar, one of these great birds came straight for my position, gliding beneath the dark trees and sweeping close over my head. I may perhaps be allowed to mention that the results of this "caceria" included 27 stags and 5 wild pigs, besides several hundred heads of small game and wild-fowl. Four lynxes were bagged during the season, as well as foxes, badgers, &c. The sand-wastes in the neighbourhood of such wild spots as the Salivar and other isolated "manchas" are traversed in every direction with the tracks of lynx, wild cat, ichneumon, and badger, besides those of "game" and the rectilineal footprints of the Stone Curlew. The Spanish red deer differ from the Scotch type in the absence of the rough hairy mane; some of the heads obtained were remarkably fine for forest-deer, the best having fifteen points, though not a very large animal, and several others were "royals,"

and, among others, two heads of thirteen and eleven points respectively, form part of my collection.

Leaving the pine-region for the more open scrubby plains towards the west, where the cistus and tree-heath, broom and giant heather, with lentiscus and many another evergreen, grow in the wildest luxuriance, we had a different set of birds. Here, though we got a few deer and B. shot an enormous old boar, the chief game were Red-legged Partridges, Snipe, and Quail; the latter were not, of course, numerous at this season, and only a single specimen of the Andalucian Quail (*Turnix sylvatica*) was obtained. Quite the most numerous inhabitant of the scrub was the Magpie, which sat about in hundreds; clouds of Common Starlings gyrated over the plains, and every grove of cork-trees was occupied by the Spanish Green Woodpeckers (*Gecinus sharpei*), the crops of which contained ants and sand. I observed one Lesser Spotted Woodpecker (*Dendrocopus minor*), and the Southern Grey Shrikes (*Lanius meridionalis*) everywhere mumbled their harsh scolding notes from a dead branch or tall shoot of cistus. Little Owls (*Athene noctua*) frequently fluttered up from the scrub, and Short-eared Owls (*Asio accipitrinus*) were so abundant that we often had five or six on wing at once before our line.

Fantail Warblers (*Cisticola schœnicola*) frequented the "juncales" or rushy margins of the lagoons, where in spring they breed. I also recognized in these spots a few Cetti's Warblers (*Cettia sericea*), and saw others which I failed to identify, besides an occasional flock of Crag Martins (*Cotile rupestris*) and a stray Swallow. The lagoons at Zopiton and elsewhere swarmed with Coots; there were also a few Grebes (*Podiceps nigricollis*) and Dabchicks. Packs of Stone Curlew hovered well out of shot; while of small birds the Black Redstart, Wagtails (Grey, Yellow, and White), and hosts of Larks were the most noticeable. One day a large Falcon made several stoops at the Partridge which were rising before us, and at last, having turned a hare, drove her right back upon our line, when pursuer and pursued fell to a right and left. This proved to be an example, in the first

year's plumage, of the small race of Peregrine, *F. minor* or *F. punicus*, the upper coverts broadly margined with chestnut and striated below. The crop contained about a score of "lisos" (I believe, blind worms)—surely a singular prey for a noble Falcon! We observed Falcons, probably of the same species, on other occasions, and also obtained a Sparrow-Hawk.

One of the most interesting and characteristic spectacles of a wet winter in the Coto de Doñana are the Vultures. Almost daily we saw assemblages of these birds gravely holding a sort of inquest on the remains of the numerous cattle and horses that had died of cold or disease, or had been drowned by the inundation of the "marisma." As many as thirty or forty tawny Griffons (*Gyps fulvus*) would be gathered around a carcase, while others sat gorged on the trees or enjoyed a digestive nap on some sand ridge hard by; but however sleepy they appeared, they were alert enough to detect any attempt to approach them. At a certain spot on the Retuerta, where the huge sand-hills almost attain the dimensions of mountains, a large flock of Griffons was always posted, apparently to take advantage of the extensive view over the plains. On two or three occasions we also met with the Black Vulture (*Vultur monachus*). This species is of far nobler aspect than the Griffon, showing in life none of the repulsive bare neck of that bird, and has a majestic appearance on the wing. I must admit to mistaking the first pair seen (January 4th) for the largest Imperial Eagles I had ever met with. My host B. had always held that the Imperial Eagles I shot here in 1883 were small specimens, and that there existed in the Coto Eagles of much greater size. I was extremely anxious to secure one of these aquiline monsters, and when one of the above-named pair, after an almost endless series of aerial gyrations, settled far away on the top of a wild olive-tree, I left the shooting-party and went in pursuit. By means of one of the trained ponies, I eventually got to within some forty yards, and at that distance a charge of s.s.G. brought the huge bird to the ground; the great wings, however, never ceased to work, and despite

another dose of mould-shot, the Vulture quickly recovered, and flew slowly and low to the edge of the marisma, a mile away. On our second approach he was lying stretched flat on the short grass, yet rose again, and after receiving two more cartridges at pistol-range, flew a quarter of a mile before falling dead. Subsequently I had a similar experience with another; it seems all but impossible with a shot-gun to kill these huge Raptores outright; their hard muscular frames and thick sinews, tough as steel wire, appear impervious to shot, and unless a pellet chances to take the wing-bone, they will go on, though struck in a dozen places. This bird proved a magnificent specimen, a male, measuring 9 feet 9 inches across the wings. The irides were dark, legs and feet whitish, and claws black; cere and bare skin in front of neck bluish colour; tail pointed. It had no offensive smell. The whole plumage deep black-brown, the head covered with downy feathers of the same hue. As already mentioned, the bare part of the neck during life is entirely hidden by the ruff of long lanceolate plumes which surrounds it.

The Spanish Imperial Eagle (*Aquila adalberti*) is now a comparatively scarce bird in this region; twenty years ago it bred here quite commonly, but I only observed a single adult during the two expeditions I made to the Coto de Doñana last winter. This one was engaged in a skirmish with two large tawny-coloured Eagles, perhaps its own offspring. The latter were numerous, some of them as pale and washed-out looking as the Griffons, others—less common—of a rich bright chestnut-colour, very handsome objects as they sat on some tall tree in the sunshine. The question of the specific distinction of the large tawny-coloured Eagles of Southern Europe is, I know, a knotty problem, demanding far more experience than mine; but I may, perhaps, narrate the following experiences as tending to show the existence in Spain of a large tawny-coloured Eagle of well-marked specific identity, and distinct from the immature *A. adalberti*. In April 1883, I found a nest of one of these large Eagles on a stone-pine in the Coto de Doñana, and I distinctly saw the old bird as she rose from the nest, about 100 yards away.

The place was remote, and the night too near to allow of my then awaiting her return (though I *should* have done so at any cost!); so, after taking the two eggs, substituting for them a couple of hard-boiled hen's eggs, and setting a large circular steel trap in the nest, I left it. On returning next morning there was no sign of the Eagle at the nest. After walking all round, shouting out, and going up an adjacent sand-ridge, which all but overlooked the nest, I was satisfied she was not there, especially as the night before she had risen rather wild. Accordingly we prepared to ascend; but whilst throwing the ropes over the lowest branches, a great shadow suddenly glided across the sand beside me, and on looking up there was the great chestnut-coloured Eagle slowly flapping from her nest within 15 or 20 yards overhead. Before I could drop the rope and clutch my gun the chance was gone; unluckily, however, the shot took some effect, and though it failed to stop the bird, she went away badly struck, with one leg hanging down, and never returned. Thus, by bad luck, this chance of settling a doubtful point was lost. In June of the same year (1883) we obtained a Tawny Eagle, which I imagined would be a young Imperial of the year, and being only winged, the bird was placed in the garden at Jerez, where it lived till the early autumn of 1885. It was then (at any rate) 2½ years old, and possibly much older, yet it had never changed colour at all. The whole plumage was rich tawny chestnut, rather lighter beneath, and the new autumn feathers, which were growing at the time of the bird's death, were also coming bright chestnut, and without a sign of black. This Eagle, which I now have set up, has also, to my eye, quite a different physical type from *A. adalberti*, old or young, being heavier and more massive in build, beak, and claws—indeed almost vulturine. The middle toe appears to have four scutes, against six (one rudimentary) in *A. adalberti*; tail above uniform dark brown. As already mentioned, I observed these rich tawny-coloured Eagles on several occasions during last winter in Spain. The forest-guards distinguished them from the young Imperial Eagles, and said they were most numerous in winter, though

they had known of their nesting occasionally. Casual observation is not, of course, of much value upon fine points, but I give their opinion for what it may be worth.

In the "campina" surrounding the city of Jerez were many interesting birds. Bustards, both the great "Abutarda" and the little "Sison," as usual, were in plenty on the open corn-lands. These great brown expanses of rolling country, at this season, look hungry and barren in the extreme, and in the entire absence of covert we did not attempt to molest the Bustards. Storks (*Ciconia alba*) also frequent the "campina" in winter, and almost daily we observed flights of Cranes passing over in gaggling skeins, or sedately stalking about the broad stretches of growing corn and *garbanzos*. In the marshy valleys of Catalana and the Albaledejo, near Jerez, the Snipe and Golden Plover were congregated in thousands; the Snipe actually sitting on the tops of the grass-tufts, which alone showed above water. The only other birds observed here were Little Bustards, Curlews, Pewits, and Marsh Harriers. On the barren lands, sprinkled with dwarf iris, stones, and the bleached skeletons of enormous thistles, were swarms of Goldfinches, Sky-, Calandra-, and Crested Larks, Buntings, Stonechats, and Pipits, with Kestrels in attendance. At a Coto in the neighbourhood of Jerez, I found my old companion of 1883, Felipe, established as keeper. His preserve, a range of low rolling hills of gravelly soil, thickly overgrown with lentiscus and palmetto, produced a few Partridges and great numbers of rabbits; and Felipe assured me that during November and December so many Eagles came to feed on the latter, that he had killed over thirty the previous year. By the middle of January they had mostly retired to the Sierras to breed, and, he added, they were nearly all Golden and Bonelli's Eagles ("Aguila perdicera," he called the latter), with a few Short-toed Eagles (*Circaëtus gallicus*) early in the autumn. The latter species—preying chiefly on snakes and large lizards, most of which hibernate—appears to leave that part of Spain in winter; but I noticed a few of both reptiles during my visit, and some of their persecutors may also remain, though I saw none. Many of the

Raptores which are so conspicuous in spring are entirely absent in winter; such as the Booted Eagle, Egyptian Vulture, Black Kite, and Montagu's Harrier, none of which I saw, and but very few of the Lesser Kestrel, which in spring so abounds about the ruins of the old Moorish towers and in the streets of Jerez and Seville. A few days after my visit to Felipe, he rode in with a cargo which sorely puzzled the officials of the "consumos" (octroi), for under either arm he bore an Eagle, and in a sack on his back were two immense wild cats! The Eagles were *A. chrysaëtus* and an immature tawny-breasted *A. bonelli*.

Towards the end of January I paid a visit to the sierras, a forty-mile ride eastward of Jerez. I had hopes of finding an eyry of the Bearded Vulture, though these were not destined to be fulfilled. Nothing but the usual Spanish birds, already named, were observed in our long ride, and on the evening of the 22nd I put up at the "cortijo" of a hospitable hill-farmer. Among the miscellaneous crowd gathered round the blazing logs was a birdcatcher who had been plying his vocation in the adjacent woods of the sierra; he brought me a Great Spotted Woodpecker, and among two dozen "zorzales" (Thrushes) which I bought for dinner for my men and myself, I was surprised to find six or eight Redwings. The birdcatcher was quite aware of the migratory habits of the Song Thrush in Spain, saying they were "pajaros de entrada," which disappeared when the Swallows came; but he saw no difference between them and the Redwings. The Blackbird, on the other hand, is resident and breeds in Andalucia. Both species, with Missel Thrushes and several common Finches and Tits, were plentiful in these woods, and the Redwing fairly numerous. I also observed here the Tree-creeper and several Cushats and Jays, the latter a species which, strange to say, I had not previously met with in Spain. The Choughs, on the other hand, were not present in their usual spring haunts at this season. About the small clearings or patches of corn-land in the sierras the Corn Buntings had already commenced to sing, though on the plains they were still silent. We spent some days searching the stony heights of the

sierras for an eyry of the Bearded Vulture, but, though we found plenty of nesting-places of the Griffon, we could see nothing of the more coveted prize. The Griffons were busy building their nests with big living branches of oak and olive, and claws full of grass torn up by the root. We watched them gathering and carrying these materials from places where charcoal-burners had been at work, and examined several nests; but none, of course, contained eggs so early as January.

Very few birds were observed on these barren mountain-tops. On the knife-edged ridge of the Sierra de las Cabras, where the white rocks project in abrupt vertical strata, were several of the Blue Rock Thrush, or "Solitario," and I was rather surprised to see also the Black Chat (*Saxicola leucura*), which I had imagined was purely a spring migrant. Among the scrubby brushwood lower down the hill-side, the characteristic species was the little Dartford Warbler, a bird of such intensely tame and skulking habits, that it is impossible to get a shot beyond three or four yards, which involves annihilation. Another Warbler observed in the valleys of the sierra was *Sylvia melanocephala*, but not commonly, it being more numerous in the aloe- and cactus-hedges about Jerez and the vine-country. After some hardish work and rough mountain-riding, I was obliged to return to Jerez; and then, within half an hour of paying off my guides, while riding through the chasm of the Boca de la Foz, we at length descried a Bearded Vulture. The splendid bird continued slowly sailing overhead for some minutes, and eventually appeared to enter a high range of crags which I have before mentioned in 'The Ibis.' I had made up my mind to spend another night there (though we had neither food for man nor beast), when the great bird reappeared, and after treating us to another long and excellent view, winged its way in the direction of the distant and loftier sierras towards Grazalema and Ronda. I had never before enjoyed so good an opportunity of observing this fine bird in life, and was much surprised with the general contour, which was less falcon-like, and far more vulturine, than I had expected. The wings

are certainly quite as heavy, and as broad at the points, as those of the Griffon, but when the bird is circling they show rather more curve at the shoulder; a light spot towards the ends of the quills, the warm reddish breast, and the white head were very conspicuous from below. The form, however, was that of a Vulture; though this bird is at once distinguished from any other species by its tail, which is very long and continues broadening out for fully half its length, from which point it narrows away to the sharp cuneate tip.

This completes my winter's notes, for a subsequent expedition to the marisma produced nothing more of novelty or interest than has already been described. The results, I am painfully aware, are meagre, in view of the ornithological wealth of Southern Spain, and the exceptional opportunities which, through the kindness of my friends in Jerez, I have enjoyed for its exploration. The adverse weather is an extenuating circumstance; and in Spain a wet season signifies more than words can convey, creating obstacles and difficulties which must be seen to be believed.

XLVIII.—*On the Birds of Lomas de Zamora, Buenos Aires, Argentine Republic.* By Frank Withington. *With Notes* by P. L. Sclater *.

Lomas de Zamora is one of the many subdivisions, or Partidos, as they are here called, into which the Province of Buenos Aires is divided. It is some eight square leagues in area, consisting of more or less rich and fertile pasture lands, and, with the exception of an almost imperceptible undulation

* [Mr. Withington has most kindly placed at my disposal the specimens upon which these notes are based. They are 150 in number, and are referable to 92 species. I have inserted the scientific name of each species, according to the numbers attached to the specimens in Mr. Withington's MS., and have appended a few notes where necessary.

As might have been expected, most of the species are well known inhabitants of this district, but there are several of much interest, *e. g.*, *Agriornis striata*, *Pachyrhamphus polychropterus*, *Coccyzus americanus*, *Buteo swainsoni*, and the typical form of *Falco peregrinus*.—P. L. S.]

in some parts, is perfectly flat. It cannot be called well wooded, as the only trees to be seen at all are those of orchards and other similar plantations on a small scale. By far the most common tree throughout the district is the Tala (*Celtis tala*), which, when kept close cut, makes excellent hedges, and forms the favourite nesting-places of many kinds of birds, especially such bush-loving species as the Calandria (*Mimus calandria*) and Uracca (*Guira piririgua*), &c. There are three small "arroyos" or creeks which flow in a northerly direction, and end in "lagunas" or lakelets of insignificant size, and generally overgrown with reeds and other aquatic vegetation. In these and other localities the following birds were collected.

1. Turdus leucomelas, Vieill.

Fairly plentiful during winter and spring. They chiefly frequent dark woods and undergrowth, where they step about noiselessly, now and then uttering their somewhat pleasant low whistling note.

2. Turdus rufiventris, Vieill.

Very rare. I have only seen two examples altogether. One of these, the present specimen, I shot in a small wood, whence it attracted me by its sweet song. It was very tame, and showed none of that skulking shyness which I noticed in this species in the Banda Oriental. It swarmed with lice, and from its throat I took a large tick.

3. Mimus modulator, Gould.

[Two specimens of this species.—P. L. S.]

4. Tanagra bonariensis (Gm.).

Migratory, arriving here about the middle of May, when they become fairly plentiful. They are often seen in small lots of five or six, but generally more of them are males than females. They are very partial to gardens and plantations.

5. Pyranga azaræ, d'Orb.

At one time fairly common, but these last few years I have only noticed stragglers here and there.

6. Poospiza nigro-rufa (d'Orb. et Lafr.).

Fairly common in woods and such places, where there is much undergrowth. The Napuidary (*Acacia bonariensis*), for instance, is a favourite resort of the bird. I have never known it breed here.

7. Donacospiza albifrons (Vieill.).

Not common, but breeds here. I have taken the nest on several occasions.

8. Embernagra platensis (Gm.).

Plentiful. I have never known it nest here.

9. Embernagra olivascens (d'Orb. et Lafr.).

Common in the vicinity of lagunas and arroyos (creeks), where it may be seen seated on some post of a wire fence or aquatic plant, feeding on a species of mollusk which appears to be its chief food. It does not breed here.

10. Molothrus bonariensis (Gm.).

Very common. A downright parasite; it does not seem specially partial to any particular kind of bird. I have taken eggs from nests of species of *Furnarius, Anumbius, Troglodytes, Mimus, Milvulus, Zonotrichia,* and from those of several other species.

11. Agelæus thilius (Mol.).

Fairly abundant. Breeds in the reed-covered lagunas, and lays three white eggs spotted with black.

12. Agelæus flavus (Gm.).

[A pair of this species.—P. L. S.]

13. Leistes superciliaris, Bp.

[A young bird of this species, apparently not distinguished from *Trupialis defilippii*.—P. L. S.]

14. Amblyrhamphus holosericeus.

[A single adult of this species, from "an aviary."—P. L. S.]

15. Pseudoleistes virescens (Vieill.).

Abundant: seen in large flocks feeding in the open camps. In some districts it frequents fields of green maize

or Indian corn, where it does a considerable amount of damage by eating the tender grains of the new cob. I have never found it nesting here.

16. Trupialis defilippii, Bp.

Very common, goes in large flocks and frequents open land. Breeds in the long grass. Two nests lately found had each three eggs, and both of them contained also eggs of *Molothrus bonariensis*.

17. Agriornis striata, Gould.

Very rare. The two examples sent herewith are the only ones I have ever shot, nor do I remember having seen others.

[One of these is a male, obtained 30th June, 1883, the other a female, obtained 29th April, 1884. The "iris" is marked "brown" in both specimens.—P. L. S.]

18. Myiotheretes rufiventris (Vieill.).

Seen in flocks of from ten to twenty, frequenting the open camp during winter. As a rule they are very tame, and I have several times noticed that when one is shot out of the flock, many of the others instead of flying away, surround it and attack it, until fired at again. These birds appeared to me exceedingly tenacious of life, and hard to bring to bag; it may have been my bad shooting, but I have never observed it in such a marked degree in any other bird.

19. Tænioptera nengeta (Linn.).

[A single specimen in the collection: iris noted as "bright scarlet."—P. L. S.]

20. Tænioptera coronata (Vieill.).

A migratory species which visits us during the winter, when it is not uncommon. It may often be seen sitting on wire fences and dried thistle-stalks, every now and again taking short rapid flights after some insect, and returning to its former perch.

21. Tænioptera dominicana (Vieill.).

[Examples of both sexes of this species are in the collection. Iris "dark brown."—P. L. S.]

22. Tæniоptera irupero (Vieill.).

Uncommon. A few are generally seen during the winte It does not breed with us.

23. Tæniоptera rubetra, Burm.

[Specimens of both sexes.—P. L. S.]

24. Alectrurus risorius (Vieill.).

[A single immature bird.—P. L. S.]

25. Sisopygis icterophrys (Vieill.).

Not common. I took one egg believed to be of this species from a nest of *Columbula picui*, in which there were two eggs of the rightful owner.

26. Lichenops perspicillatus (Gm.).

Partly migratory; during the summer it is fairly abundant and breeds here, but as I have not taken the nest for several years, I can offer no further remarks thereon.

27. Machetornis rixosa (Vieill.).

Common and usually seen in pairs. It lays its eggs in the deserted nests of other birds, but sometimes builds a nest for itself in an ivy-covered tree. It lays from three to four eggs.

28. Muscisaxicola macloviana (Garn.).

Very abundant everywhere. It breeds with us and lays three or four eggs.

29. Centrites niger (Bodd.).

Fairly common, only found in open land and on marshy ground. I never heard of its breeding here.

30. Elainea albiceps (d'Orb. et Lafr.).

Migratory; in summer fairly plentiful and breeds here, but I have never been able to take the nest.

31. Pitangus bolivianus (Lafr.).

Very common. Breeds in hedges and in almost any situation. Its nest is a shapeless mass of sticks, grass, wool, hair, and feathers, profusely lined with feathers; the entrance is placed rather high up on the side. The bird lays from three to five eggs, of a creamy-yellow colour

blotched with reddish brown, the blotches being some large and some small.

32. Pyrocephalus rubineus (Bodd.).

This bird arrives early in September and becomes very abundant. It generally selects a forked branch as the situation for its nest, seldom more than ten feet from the ground, and oftener much less. It never lays more than three eggs. It departs about the end of April.

33. Tyrannus melancholicus (Vieill.).

Fairly plentiful in the wooded districts. I never knew it breed here.

34. Milvulus tyrannus (Linn.).

Migratory, appearing about the middle of September and beginning to breed in October. The nest is generally placed in tala-trees, about six or eight feet from the ground. One now before me is composed of twigs, fibrous roots, grass, and the down of thistles. Wool is sometimes used instead of thistle-down. This bird generally lays four eggs, but often not more than three.

35. Pachyrhamphus polychropterus (Vieill.).

[A pair of this species, killed February 1st, 1886.—P. L. S.]

The only examples of this species I have met with in this part of the world, though I have lately noticed it fairly plentiful in Santa Fé. Both specimens were sitting together on a small tree in a thick wood when I shot them. The contents of the stomach were what I took for the fruit of the Ombu (*Phytolacca dioica*), but it was too far digested to make certain of. There were no signs of insect food whatsoever.

36. Phytotoma rutila (Vieill.).

[Two males of this species : iris "orange."—P. L. S.]

37. Upucerthia dumetoria (Geoffr. et d'Orb.).

This is a rare bird with us. I once took three young from a nest in a hole under a bridge over which there was constantly a great deal of traffic. I may add that the hole was not made by the birds.

38. Furnarius rufus (Gm.).
[A pair of this species.—P. L. S.]

39. Cinclodes fuscus (Vieill.).
[A single specimen.—P. L. S.]

40. Synallaxis spixi, Scl.
Uncommon. I have found only one nest of this species in these parts. This was built in a small tala-bush, and was composed of sticks and twigs, and completely covered over. It contained three small greenish-white eggs.

41. Synallaxis sordida, Less.
[A single female of this species.—P. L. S.]

42. Phacellodomus striaticollis (d'Orb. et Lafr.).
A resident species and very common. It chiefly frequents hedges and thick bushes, where it is seen creeping about, now and then uttering a peculiar sharp piping note. The nest is usually placed on a projecting branch of a tala-hedge or other small bush, and contains from three to five eggs.
[This species is erroneously referred to *P. ruber*, in 'Argentine Ornithology' (i. p. 194). Since the volume was issued I have had an opportunity of examining d'Orbigny's specimens of *P. ruber* and *P. striaticollis*, and have ascertained that the ordinary species of the Argentine Republic which I have always supposed to be *P. ruber* is his *P. striaticollis*. Mr. Hudson's notes (Arg. Orn. i. p. 194) under *P. ruber* therefore really refer to this species.—P. L. S.]

43. Antrostomus parvulus (Gould).
Migratory. Visits us in the summer, where it is fairly abundant. It is seldom seen during the day except when disturbed from its slumbers from under some bush or hedge. I have never known it breed here.

44. Picus mixtus, Bodd.
By no means a common species. A few are now and then seen in the woods climbing about the trees in the most unconcerned manner. I have never taken the eggs, but have found several old nests.

45. Chrysoptilus cristatus (Vieill.).

A great rarity in these parts; this specimen (shot June 6th, 1887) is the only example of the species I have obtained here.

46. Colaptes agricola, Malh.

Two females of this species.

47. Ceryle torquata (Linn.).

This is the only specimen of this bird I have seen in the district. It was found perched on a willow branch overhanging a small stream.

48. Guira piririgua (Vieill.).

Common. Often lays in the old nests of the Chimango (*Milvago chimango*). They are polygamous, and I have taken as many as twenty eggs out of one nest.

49. Coccyzus americanus (Linn.).

[A single specimen, obtained 28th January, 1886, undoubtedly belongs to this North-American species, of which the occasional occurrence in the Argentine Republic was already known to us. See notice P. Z. S. 1872, p. 496.—P. L. S.]

50. Coccyzus melanocoryphus, Vieill.

[Several examples of this species.—P. L. S.]

51. Coccyzus cinereus, Vieill.

Fairly common, appearing about end of October and beginning to breed soon afterwards. The nest is placed in hedges, about eight feet from the ground, and its structure resembles that of *Coccyzus melanocoryphus*. Although I have several times found the nest I have only once seen the eggs, which were quite white.

52. Strix flammea, Linn.

[One skin of this well-known bird, belonging to the subspecies *perlata*.—P. L. S.]

53. Asio brachyotus (Forster).

Very common. In summer evenings scores of these birds are seen hawking over the long grass fields after their prey, which consists of mice, beetles, &c. The nest is generally

placed under thistles or in long grass. It contains from four to five eggs, white, and somewhat elliptical in shape.

54. Speotyto cunicularia (Mol.).

Very abundant. Always seen sitting in pairs, either on the posts of wire fencing or outside their burrows. The usual clutch of eggs is five, but I have taken as many as seven from one nest.

55. Circus cinereus, Vieill.

Common. In winter large flocks of these birds frequent the open camps, feeding in the long grass, returning again towards evening to the lagunas and swamps, where they pass the night. It does not breed with us.

56. Asturina pucherani, Scl. et Salv.

I have only seen one example of this species, which I shot; the contents of its stomach were small birds, mice, and insects.

57. Buteo swainsoni, Bp.

One shot out of a large flock on Feb. 4th, 1886. For several evenings in succession large flocks of these birds flew over the house, and settled on the trees in the garden, apparently much exhausted. The majority remained until next morning. They came from the south-west, and flew away towards the north.

[On the occurrence of this species in South America, *cf.* Salvin, Ibis, 1875, p. 372.—P. L. S.]

58. Buteo albicaudatus (Vieill.).

At one time fairly common, but the last few years I have only noticed odd ones here and there.

59. Buteo erythronotus (King).

Not common, though a few examples are usually seen during the winter months. The food is mice and a small species of cavy. It does not breed here.

60. Urubitinga unicincta (Temm.).

Not common, but breeds here. I have taken the nest on several occasions.

61. Falco peregrinus, Linn.

Very uncommon. For several years a pair of these birds frequented the district, and were generally seen perched on a dead willow tree. They were very shy, and it was only after continually hunting after them that on the 24th of November, 1886, I finally succeeded in obtaining one of them, an adult female. Their flight is rapid and powerful, the food small birds.

[The specimen is a typical *F. peregrinus*, and not one of the dark southern form (*F. cassini*) usually met with in South America.—P. L. S.]

62. Hypotriorchis femoralis (Temm.).

[A single example.—P. L. S.]

63. Tinnunculus cinnamominus (Sw.).

Plentiful. I have never known it nest here.

64. Rostrhamus sociabilis (Vieill.).

[One example.—P. L. S.]

65. Elanus leucurus (Vieill.).

Fairly plentiful. I have twice taken the nest of this bird, and on other occasions found unfinished ones. All these nests were placed in small isolated tala-trees, and I may mention that I never saw the nest built in a hedgerow of any sort. One of the nests contained four eggs, the other, if I remember rightly, three.

66. Milvago chimango (Vieill.).

[One example of this well-known species.—P. L. S.]

67. Ardea cocoi (Linn.).

Plentiful. A few are generally seen standing knee-deep in the arroyos. The present specimen was killed with a walking-stick as it flew from the ground after vomiting a large fish which it had just swallowed. The latter measured in length 15 inches, in girth 9½.

68. Ardetta involucris (Vieill.).

Plentiful in the reed-covered lagunas, where it breeds. The nest is simply a few pieces of reeds and stalks of grass, placed one on the top of another. It is somewhat triangular

in shape, with a very slight hollow in the middle, where the eggs, generally four in number, are laid.

69. Butorides cyanurus (Vieill.).

Rather uncommon. I have only seen it two or three times altogether, and have never known it nest here. Frequents the reed-covered lagunas.

70. Nycticorax obscurus, Bp.

[An immature specimen, probably referable to this species. —P. L. S.]

71. Plegadis guarauna (Linn.).

[An immature specimen, apparently of this species.— P. L. S.]

72. Cygnus coscoroba, Mol.

Fairly abundant; usually seen in small flocks of six or eight, about lagunas and other large sheets of water.

73. Mareca chiloensis (King).

Common during winter. It is migratory.

74. Rallus maculatus, Bodd.

Very common in all the lagunas and arroyos where there is cover. It breeds amongst the reeds, and its nest is placed about eighteen inches from the water. To reach it the birds collect a heap of reeds, grass, and other materials, and alongside form an inclined platform that answers the purpose of a staircase, by which the birds ascend or descend with ease. The usual clutch of eggs is seven, but I have taken fifteen from one nest, all good. These, of course, could not have been laid by one bird.

75. Rallus antarcticus, King.

This is the only example of this bird I have seen. It was killed by my dogs in a swamp, in June 1884.

76. Rallus rhytirhynchus, Vieill.

[A single skin of this Rail, obtained in November 1886. —P. L. S.]

77. Fulica armillata, Vieill.

78. Fulica leucopygia (Hartl.).

79. Fulica leucoptera, Vieill.

[Mr. Withington sends skins of all these three species, unfortunately without remarks.—P. L. S.]

80. Charadrius virginicus, Borck.

In the autumn large flocks of these birds may be seen feeding on the open camps and near lagunas and swamps. These birds are generally tame, and allow one to approach them quite near.

81. Eudromias modesta (Licht.).

Abundant in the marshes and swamps, where they are found in small flocks of from ten to fifteen individuals. They are tame but when flushed fly very fast, and are not easy to shoot.

82. Gallinago paraguaiæ (Vieill.).

Very abundant in the swamps and marshes. I have only taken one nest, which consists of a slight hollow scraped in the ground with a little grass as a lining. It was situated near a ditch of running water, and contained three hard-set eggs.

83. Rhynchæa semicollaris (Vieill.).

Abundant in marshes and swampy places. I have never found its nest.

84. Gambetta melanoleuca (Gm.).

A few of these birds are always to be seen about the lagunas.

85. Actiturus bartramius (Wilson).

During autumn this species is very plentiful, and is generally seen in small flocks of from five to twenty. It does not breed here.

86. Larus dominicanus, Licht.

Fairly plentiful.

87. Larus maculipennis, Licht.

Very abundant, and like the preceding species (*L. dominicanus*) frequents the vicinity of slaughter-houses, and feeds largely on carrion.

88. Æcmophorus major (Bodd.).

Not very common: it is generally found in the lagunas, but sometimes comes down to the arroyos.

89. Tachybaptes dominicus (Linn.).

[One skin of this widely-spread Grebe.—P. L. S.]

90. Podilymbus podiceps (Linn.).

This Grebe is plentiful and breeds in the reeds of the lagunas. The nest is simply a heap of rubbish placed amongst the reeds, and the eggs are almost on a level with the water. The clutch is four or five; all the eggs I have taken were very much stained, but they were quite fresh.

91. Rhynchotis rufescens (Temm.).

[One skin of this species is in the collection.—P. L. S.]

92. Nothura maculosa (Temm.).

Very numerous in the tall grass-covered camps. The nest is placed either in long grass or under thistles, and usually contains from five to ten eggs; but five is the normal clutch, and if there are any more in one nest, they will probably have been laid by more than one bird.

XLIX.—*On the Identity of* Ibis propinqua *with* Ibis melanocephala. By Henry Seebohm.

The following are the synonyms of *Ibis melanocephala*:—

Tantalus melanocephalus, Latham, Index Orn. ii. p. 709 (1790).

Ibis melanocephala (Lath.), Vieillot, N. Dict. Hist. Nat. xvi. p. 23 (1817).

Ibis macei, Wagler, Syst. Av. p. 368 (1827).

Ibis leucon, Temminck, Pl. Col. No. 481 (1829).

Ibis bengala, Cuvier, Règne An. i. p. 520 (1829).

Ibis aimolene, Hodgson, Gray's Zool. Misc. p. 86 (1844).

Geronticus melanocephalus (Lath.), Gray, Genera Birds, iii. p. 566 (1847).

Threskiornis melanocephalus (Lath.), Blyth, Cat. Birds Mus. As. Soc. p. 275 (1849).

Ibis propinqua, Swinhoe, Proc. Zool. Soc. 1870, p. 428.

Swinhoe was perfectly justified at the time in supposing

the black-headed white Ibis, which he found in China, and which has since been obtained in Japan, to be a new species, although it now appears that he was in error in so doing. Jerdon described the Indian species as having the disintegrated tertials quaker-grey, and erroneously stated that the quills were black. The skin in my collection, obtained in Yedo in the summer of 1874, has some of the quills tipped with black; the tertials are less developed than in examples from India in summer plumage, and there is very little trace of grey upon them. It is nevertheless a very large bird, much larger than the examples in the British Museum, before the arrival of the Hume Collection. I have now had an opportunity of comparing it with a larger series, and I have no doubt of the identity of the Indian and Burmese birds with those of China and Japan. In size it does not differ from the largest examples in the Hume Collection, and I have little doubt that the black tips of some of the quills are signs of comparative youth, as they are in the Spoonbills. It is probably in first summer plumage, and would have acquired the more developed richer-coloured tertials and lost the black tips to the quills in the following year.

The following table of dimensions shows the variations in size of this species:—

	Length of wing. in.	Length of tarsus. in.
Yedo, Japan	14¾	4·2
N.-West Prov. India, ♂ ad.	14½	4·4
Centr. Prov. India	14½	4·0
Centr. Prov. India, ♂ ad.	14½	3·9
N.-West Prov. India, juv.	14¼	4·1
Upper Tenasserim, ♂ im.	14	4·3
Centr. Prov. India, ♀ ad.	13	3·5
Pegu, ♂ ad.	13½	3·6
Delhi, India, ♂ juv.	12½	3·7

L.—*Notes on some Species of* Zosterops.

By Alfred and Edward Newton.

Canon Tristram having kindly submitted to us the type-specimen of *Zosterops prætermissa*, described and figured in

'The Ibis' for 1887 (p. 370, pl. xi. fig. 1), we feel bound to state that our good friend has, most unfortunately, been mistaken concerning it. It is beyond all doubt that this specimen (with the history of which, now that we have had an opportunity of recognizing it, we are perfectly acquainted) was originally received by one of us from Mr. Bewsher *in spirit*, and was, along with some others from the same collection, which were sold at Mr. Stevens's rooms at the same time (25th of October, 1881), skinned by Mr. Burton of Wardour Street. We have at present ten or a dozen more specimens, sent in the same bottle, which have been recently skinned by Mr. Cullingford, of the Durham Museum, and these show that the greater length of time that they have been immersed has had the effect of discharging still more of the colour of their plumage. But, after a careful examination, we have no hesitation in declaring that all these "victims of alcohol" are nothing more nor less than examples of *Z. anjuanensis* (Proc. Zool. Soc. 1877, p. 297, pl. xxxiii. fig. 1).

The Canon has also lent us the type-specimen of his *Z. hovarum* (Ibis, 1887, pp. 235, 370, pl. xi. fig. 2). If this really be from Madagascar, there can be little doubt that he is right in deeming it a good species, hitherto undescribed; but we think it due to the readers of 'The Ibis' to state, which we do with much regret, that the colouring of the figure of this species, as well as of the so-called *Z. prætermissa*, is so incorrect, that recognition from the plate would be impossible.

While on the subject of species of *Zosterops*, we think it advisable to notice that Mr. Sharpe (Cat. B. Brit. Mus. ix. p. 196) refuses to admit the validity of one described some years since by Dr. Hartlaub from specimens in our collection. Mr. Sharpe grounds his objection on the fact that the "British Museum series" of specimens makes it evident that "a perfect gradation" exists between Dr. Hartlaub's *Z. e.-newtoni* (Vögel Madagascars u. s. w. p. 97) and the long-known *Z. borbonica*. We must own to not having had the advantage of studying the "British Museum series" of the latter; but since it admittedly consists of no more than three examples—one adult female and two young—it seems somewhat inade-

quate to justify the abrupt dismissal of Dr. Hartlaub's conclusions, arrived at after the examination of at least thrice as many specimens from our own collection, in addition to such as he may have had at his disposal from other quarters. All the more inadequate does Mr. Sharpe's decision seem, when we find him wholly ignoring other differentiating characters duly pointed out by Dr. Hartlaub, and accounting for the discrepancy in tint by putting forth the suggestion that *Z. borbonica* undergoes a seasonal change of plumage, though he assigns no evidence in support of such a state of things, which would be highly interesting if it were proved to exist.

10th August, 1888.

LI.—*On two new Species of Starlings.*

By R. Bowdler Sharpe, F.L.S. &c.

The Oriental Starlings, such as *S. cineraceus*, *S. sericeus*, and their allies, have usually been included in the genus *Sturnus*, or have fluctuated between *Sturnia* and *Temenuchus*. As a matter of fact they do not belong to any of these genera. The type of *Sturnia* of Lesson is *S. sinensis*, which has usually been placed under *Hetærornis* of Gray, a genus which is long posterior in date to *Sturnia*. The true Starlings (*Sturnus*) are remarkable for their flattened bill and the bare operculum of the nostril. They have the wing long and pointed, thus differing from *Sturnopastor*, which has, moreover, a bare patch behind the eye.

In the grey-headed eastern group, for which I here propose the name of *Poliopsar*, the anterior plumelets of the forehead are continued over the nasal membrane, and the much more acute and narrow bill at once distinguishes these birds from *Sturnus*.

The following species belong to my new genus :—1. *P. sericeus* (Gm.); 2. *P. cineraceus* (Temm.); 3. *P. colletti*, Sharpe; 4. *P. cambodianus*, Sharpe; 5. *P. burmanicus* (Jerd.); 6. *P. leucocephalus* (Gigl. & Salvad.); 7. *P. andamanensis* (Beavan); 8. *P. erythropygius* (Blyth); 9. *P. malabaricus* (Gm.); 10. *P. nemoricola* (Jerd.); 11. *P. blythi* (Jerd.).

The bird which it is proposed to call after my friend Dr. Robert Collett was presented by him to the British Museum in 1886, and I have refrained from describing it up to this time in hopes of meeting with some additional specimens, as the locality of the one in question is not known. Having, however, now finished my studies of the Old-World Starlings, I have come to the conclusion that Dr. Collett's specimen really belongs to a distinct species, which may be diagnosed as follows:—

Poliopsar colletti, sp. n.

P. similis *P. cineraceo*, sed nigricantior: uropygio albo absente et caudâ minime albo terminatâ distinguendus. Long. tot. 8·0, culm. 1·05, alæ 5·0, caudæ 2·55, tarsi 1·45.

Loc. Unknown.

Poliopsar cambodianus, sp. n.

Ad. Similis *P. leucocephalo*, sed rostro flavo, concolore, pileo undique rosacescente et corpore subtus toto fulvo, necnon caudâ rosacescenti-fulvo terminatâ facilè distinguendus. Long. caudæ 2·5, tarsi 1·3.

Adult. General colour above dark slaty grey, with a slight wash of sandy brown; rump sandy isabelline; lesser wing-coverts like the back; median series blackish slate-colour; greater coverts bronzy brown, with a narrow black edging; bastard-wing black; edge of wing and primary-coverts white, forming a large patch; quills black, the secondaries bronzy brown, edged with black, resembling the greater coverts; upper tail-coverts dark slaty grey; tail-feathers blackish, tipped with sandy isabelline, paler on the inner webs, the terminal band increasing in width towards the outer feathers; head and neck all round and entire under surface of body sandy isabelline or rosy buff, rather paler on the throat, abdomen, and thighs; axillaries and under wing-coverts creamy white, with a tinge of isabelline, particularly on the edge of the wing; quills blackish below, slightly more ashy along the edge of the inner web. Total length 8 inches, culmen 0·9, wing 4·6, tail 2·5, tarsus 1·3.

Hab. Cambodia (*Mouhot*).

LII.—*Diagnoses of some new Species of Birds obtained on the Mountain of Kina Balu by Mr. John Whitehead.* By R. Bowdler Sharpe, F.L.S. &c.

Since I described the new species obtained by Mr. Whitehead during his second ascent of Kina Balu (*anteà*, pp. 383–396), that gentleman has returned to England with the rest of his collection, and I now add brief descriptions of some of the new species, reserving a more complete account of them till my full memoir on the entire results of Mr. Whitehead's explorations shall appear. This complete account will be accompanied by the traveller's field-notes, which are of very great interest.

Fam. Bubonidæ.

Scops luciæ, sp. n.

♀. Rufescens; rostro flavo; fasciâ frontali indistinctâ; torque pallido collari nullo. Similis *S. rufescenti*, sed abdomine albido, faciei ptilosi, et superciliis rufescentibus faciei laterali concoloribus distinguenda. Long. tot. 7·8, alæ 5·3, caudæ 2·75, tarsi 1·05.

♂. Similis feminæ, sed saturatior et paullò minor. Long. tot. 7·0, alæ 5·3, caudæ 2·45, tarsi 1·05.

Fam. Turdidæ.

Geocichla aurata, sp. n.

G. similis *G. citrinæ*, sed saturatiùs aurantiaca et abdomine subcaudalibusque albis distinctè flavido lavatis distinguenda. Long. tot. 8·3, culmin. 0·85, alæ 4·45, caudæ 2·9, tarsi 1·4.

Fam. Troglodytidæ.

Orthnocichla whiteheadi, sp. n.

♂. Chocolatino-brunnea; capite nigricanti-brunneo; fasciâ longâ superciliari cervinâ usque ad collum posticum productâ; loris et regione parotică nigricanti-brunneis; regione suboculari cervinâ; subtus alba, plumis pectoralibus

cinereo marginatis; corporis lateribus saturatè cineraceis; pedibus albicantibus. Long. tot. 3·3, culmin. 0·65, alæ 1·95, caudæ 0·8, tarsi 0·8.

Fam. Timeliidæ.

Phyllergates cinereicollis, sp. n.

P. similis *P. cucullato*, sed collo postico et colli lateribus clarè cinereis distinguendus. Long. tot. 4·4, culmin. 0·65, alæ 1·85, caudæ 1·85, tarsi 0·8.

Garrulax schistochlamys, sp. n.

G. similis *G. palliato*, sed dorso summo toto et scapularibus schistaceis; dorso imo uropygio et supracaudalibus tantùm rufescenti-brunneis. Long. tot. 10·3, culmin. 1·05, alæ 5·1, caudæ 4·45, tarsi 1·85.

Turdinulus exsul, sp. n.

♂. *T.* similis *T. roberti*, sed regione paroticâ cinerascente nec rufescente distinguendus. Long. tot. 4·6, culmin. 0·65, alæ 2·2, caudæ 1·15, tarsi 0·85.

Fam. Meliphagidæ.

Zosterops clara, sp. n.

Z. similis *Z. atrifronti*, sed pectore imo medio et abdomine lætè flavo, pectore et corporis lateribus clarè cinereis distinguenda. Long. tot. 4·0, culmin. 0·55, alæ 2·05 caudæ 1·4, tarsi 0·6.

Fam. Paridæ.

Dendrophila corallipes, sp. n.

D. similis *D. frontali*, sed pedibus corallinis nec fuscescenti-nigris distinguenda. Long. tot. 5·2, culmin. 0·6, alæ 2·9, caudæ 1·15, tarsi 0·65.

LIII.—*Notices of recent Ornithological Publications.*

[Continued from p. 371.]

83. *'The Auk.'*

['The Auk,' A Quarterly Journal of Ornithology. Vol. V. No. 2, April, No. 3, July, 1888.]

In the April number of 'The Auk' Mr. F. A. Lucas de-

scribes a visit to the Bird Rocks of the Gulf of St. Lawrence, largely frequented by Gannets, Guillemots, &c.; and in the July number gives an account of an excursion to the Penguin Islands, off the east coast of Newfoundland, in search of traces of the Great Auk. Not a bone or fragment of egg-shell was discovered there; but the paper is valuable and interesting, owing to the way in which the author criticises and examines, by the light of his personal experiences, the statements of Cartier and other ancient mariners. Mr. W. Brewster describes as new subspecies (p. 136) *Glaucidium gnoma hoskinsii*, from Lower California; *Mitrephanes phæocercus tenuirostris*, from Western Mexico; and *Dendroica æstiva sonorana*, from Southern Arizona, Western Texas, and Sonora. He also adds some remarks to a series, as yet uncompleted, of "Notes on the Birds of Fort Klamath, Oregon," by Dr. J. C. Merrill, U.S.A. (pp. 139 & 251). Mr. Cory concludes his long-drawn-out "Birds of the West Indies," and describes (p. 266) *Myiarchus berlepschi*, sp. n., from the island of St. Kitts. We have also the conclusion of Mr. W. E. D. Scott's "Avifauna of Pinal County &c., Arizona," annotated by Mr. J. A. Allen; and (pp. 183–188) Mr. Scott has some "Supplementary Notes from the Gulf Coast of Florida," with the description of a new Marsh Wren, *Cistothorus marianæ*. Mr. W. Amory Jeffries describes (p. 168) *Trochilus violajugulum*, sp. n., from Santa Barbara, California. Mr. William Dutcher's "Bird Notes from Long Island" contain remarks on the frequent occurrence of our Corn Crake (*Crex pratensis*) and on the complete acclimatization of our Skylark (*Alauda arvensis*) there; and a record of the first genuine occurrence in America of the Old-World species *Larus minutus*, an immature example having been shot about 15th September, 1887, and identified by Mr. Dutcher; the previous record under that name probably referred to Bonaparte's Gull. Dr. Shufeldt publishes some observations on the pterylosis of certain Picidæ, illustrated by five figures reproduced from 'Forest and Stream' of August 25th, 1887.

On the San Pedro Martir Isle, a rock 1045 feet high and

about a mile and a half square, in about 28° N. lat., in the Gulf of California, Mr. N. S. Goss found, strange to say, two new species of Boobies! One of these is named after him, *Sula gossi*, by Mr. Ridgway; the other is called by its discoverer *Sula brewsteri*. Mr. H. J. Roddy contributes some interesting remarks on the feeding-habits of some young Raptores; and Mr. C. L. Hopkins shows that the impugned sense of smell in *Cathartes aura* is at least sufficient to lead the bird, *up wind*, to a dead skunk and to a live irritated one: which we do not in the least doubt! *Tityra personata griseiceps*, sp. n., from Western Mexico, is described by Mr. R. Ridgway; *Agyrtria alleni*, sp. n., from Yungas, Bolivia, by Mr. D. G. Elliot; *Ammodramus sandwichensis brynnescens*, subsp. n., from the Valley of Mexico, by Mr. Amos W. Butler; *Ammodramus maritimus peninsulæ*, South-western Florida, and *A. m. sennetti*, from Gulf coast of Texas, subspp. nn., by Mr. J. A. Allen; *Tityra nigriceps*, sp. n., from the Upper Napo, Ecuador, also by Mr. Allen; and *Rallus longirostris scotti*, subsp. n., from the west coast of Florida, by Mr. G. B. Sennett. How long will it be before this "inestimable blessing" of trinomials becomes a curse to its employers, and breaks down from sheer unwieldiness? Mr. D. G. Elliot contributes a useful monograph of the Jacanidæ, but the changes which he proposes in nomenclature seem to us very undesirable. Some papers of local interest are not noticed; amongst them one (pp. 147, 148) which, for the benefit of the Editors we may remark, is omitted in the list of contents of No. 2.

84. *'The Audubon Magazine.'*

[The Audubon Magazine, published in the Interests of the Audubon Society for the Protection of Birds. Vol. I. No. 12; Vol. II. No. 1. 8vo. New York: 1888.]

So far as can be judged from two odd parts—all that have reached us—this magazine contains some fair articles of a popular kind; amongst others, notes on the life of Audubon, with illustrations. Miss Florence A. Merriam contributes a series of pleasantly-written articles on "Fifty Common Birds,

and how to know them"; and, as amusing reading, the correspondence respecting our House-Sparrow, between a very sentimental and ill-informed lady and General Spinner, may be cited.

85. *Barboza du Bocage on a new Bird from St. Thomé.*

[Sur un Oiseau nouveau de St. Thomé de la Fam. "Fringillidæ." Par J. V. Barboza du Bocage. Jorn. Sci. Math. Phys. e Nat. Lisboa, no. xlvii. p. 148.]

A new genus, *Phæospiza*, with a new species, *P. thomensis*, is the *Passer* sp. inc. of Souza's list (*infrà* p. 490), and has since been determined to be *Poliospiza rufibrunnea*, figured in the 'Cat. Birds Brit. Mus.' vol. xii. pl. vi., by Mr. R. B. Sharpe.

86. *Belgian Ornithological Report for* 1886.

[Compte Rendu des observations Ornithologiques faites en Belgique pendant l'année 1886. Bull. Mus. Roy. d'Hist. Nat. de Belgique, v. pp. 99–158.]

As before (*cf.* Ibis, 1887, p. 244), this Report is signed by Dr. Alph. Dubois, on behalf of the Committee, and the number of his collaborators shows an increase. We note that a young *Turdus obscurus* was taken in October 1886 near Brussels, and we do not take exception to the record of the occurrence of *Numenius tenuirostris* in February 1884 under 1886; but surely it is a little late to have the old and well-known *Otis macqueeni* of 1845 put before us. Frivolity apart, there can, however, be no objection to the story by the veteran M. Croegaert of his father's tame Little Bittern, which always passed the night in the embraces of an ape, for the parties concerned must long since have passed away.

87. *Büttikofer on Birds from Liberia.*

[Zoological Researches in Liberia. A List of Birds collected by the Author and Mr. F. X. Stampfli during their last sojourn in Liberia, by J. Büttikofer. Notes from the Leyden Mus. x. p. 59, pl. 5.]

151 species were collected in this locality, which is interesting as the only portion of this part of West Africa of which

the avifauna has been well investigated. No new species were met with, but the known range of many rare inhabitants of the Gold Coast is extended further to the westward. The author believes that *Heliornis* (potiùs *Podica*) *petersi* may, after all, be the same as *H. senegalensis*.

88. *Dall on the Scientific Work of Professor Baird.*

[Proceedings at a Meeting commemorative of the Life and Scientific Work of Spencer Fullerton Baird, held January 11, 1888, under the joint auspices of the Anthropological, Biological, and Philosophical Societies of Washington. 8vo. Washington: 1888.]

At the above Meeting several Addresses were given; the one by Mr. W. H. Dall, President of the Biological Society, contains an excellent sketch of the labours of the distinguished naturalist whose loss we have recorded with sorrow in 'The Ibis,' 1887, p. 480. We are glad to learn that the United States Senate has voted $25,000 for his widow.

89. *Fürbringer on the Anatomy of Birds.*

[Untersuchungen zur Morphologie und Systematik der Vögel. Zugleich ein Beitrag zur Anatomie der Stütz- und Bewegungsorgane. Von Max Fürbringer. 2 vols., 1709 pp., 30 pls. Amsterdam: 1888.]

This work is unquestionably one of the most important contributions to our science that has recently appeared; it is, indeed, in its scope almost unique; the only other modern work which can be compared to it being Dr. Gadow's treatise on the anatomy of birds, which is now being issued as a part of Bronn's 'Thierreich.' The first of the two large volumes contains a detailed account of the anatomy of the shoulder-girdle—its bones, ligaments, nerves, and muscles—illustrated by 26 plates; as well as the author's original investigations, which have brought to light many important facts bearing upon the classification of Birds. The second volume is devoted to a consideration of the systematic arrangement, and commences with a critical review of those external and internal structural characters which differ in various birds, and which are therefore of use for classificatory purposes. The facts thus brought together are not, in Prof.

Fürbringer's opinion, sufficient for the establishment of a definite system of classification; he propounds, however, a scheme which is more in accord with what a classification of Birds ought to be than many which have been put forward by ornithologists, inasmuch as it takes into account the sum total of structural variations. These views upon classification are illustrated by four plates representing the affinities of the different groups. Prof. Fürbringer discusses at some length the relations of the Ratitæ to other birds, tabulating the points of agreement and of difference; this is done with the object of discussing how far the views of Wiedersheim and others as to the diphylitic origin of Birds are tenable. The summary of facts points decidedly, as Prof. Fürbringer shows, to the conclusion that the Ratitæ have not been developed from one Reptilian stock (Dinosauria) and the Carinatæ from another (Ornithosauria), but that both have originated from the same stock. The last portion of the second volume is devoted to a discussion of the relationship of Birds to the different groups of Reptiles, the principal points of resemblance to the various groups being shortly stated in a number of paragraphs. The conclusion arrived at is that Birds have not taken their rise from any group of Reptiles known to us; but that, while presenting affinities more or less near to the Dinosauria, Crocodilia, and Lacertilia, they have been derived, in common with these groups, from the primitive Sauropsian stock.

The work concludes with a bibliography, which contains the titles of all the principal publications relative to the anatomy of Birds.

90. *Giglioli on Birds from Assab and Shoa.*

[Note intorno agli Animali Vertebrati raccolti dal Conte Augusto Boutourline e dal Dr. Leopoldo Traversi ad Assab e nello Scioa negli anni 1884–87, di Enrico Hillyer Giglioli. Ann. Mus. Civ. Stor. Nat. Genova, ser. 2, vi. p. 5.]

Dr. Giglioli gives an account of the collection of Vertebrates made by two former pupils of the taxidermical laboratory of Florence—Count Augusto Bourtourline and Dr. Leopold

Traversi. These gentlemen went first to Assab, on the western coast of the Red Sea, and afterwards to Massowa. Failing to get into Abyssinia in this direction, Dr. Traversi, leaving his companion (who was laid up by fever) to return to Italy, went back to Assab, and thence penetrated into Shoa, where he was well received by King Menilek, and remained nearly three years, practising medicine and making collections of natural history. The birds are referred by Dr. Giglioli to 120 species, the greater part of which have been already registered as inhabitants of Shoa by Count Salvadori in his excellent account of the birds of this district (Ann. Mus. Civ. Genova, ser. 2, vol. i. 1884). But 22 species are additions to the list, and 5 of them appear to be new to the Shoan avifauna. Two species are supposed to be possibly new, and called, in such case, *Poliospiza isabellina* and *Bradyornis traversi*; but Count Salvadori (*l. i. c.*) has since declared that the former of these =*P. tristriata*, and the latter = *Lioptilus chocolatinus*.

91. *Irby's Key List of British Birds.*

[British Birds: Key List. By Lieut.-Col. L. Howard Irby. 8vo. London: 1888.]

This work, written by an excellent practical ornithologist, is likely to prove of great service, owing to the large amount of information compressed into a small compass. If a little more care had been bestowed in its revision, it would have been nearly perfect of its kind; as it is, there are several slips and inconsistencies which obviously result from haste, and not from want of knowledge; but these can easily be corrected in another edition.

92. *Koller on the Birds of Holland.*

[Naamlist van in Nederland in den vrijen natuurstaat waargenomen Vogels. Door H. Koller. Bijdr. t. d. Dierkunde. Feest-numm. Amsterdam: 1888.]

The part of the 'Bijdragen tot de Dierkunde' of the Royal Zoological Society of Amsterdam recently issued, in com-

memoration of the Society's fiftieth anniversary, contains, amongst other excellent memoirs, one upon the native birds of Holland by Herr H. Koller. It is a list of 306 species, to each of which are added particulars of the time and locality of its occurrence in Holland, and an enumeration of the specimens in the Society's collection.

93. *Menzbier on the Posthumous Works of Severtzoff.*

[Œuvres Posthumes de M. le Dr. N. A. Sewertzow, publiées par la Société Impériale des Naturalistes de Moscou, rédigées par M. M. Menzbier. Nouv. Mém. Soc. Imp. d. Nat. Moscou, xv. p. 141.]

This is a second of the 'Etudes sur les variations d'âge des Aquilinés paléarctiques et leur valeur taxonomique,' of which the first has already been noticed (Ibis, 1886, p. 197). In the present Part the Golden Eagles are discussed and divided into *Aquila chrysaëtus*, inhabiting Northern Europe and Asia, *A. nobilis*, of temperate and Southern Russia, *A. daphanea*, Hodgs., of Turkestan, Northern India, Mongolia, and China, and *A. fulva*, subdivided into five varieties or subspecies, for the rest of the world. Our great authority on Accipitres will, no doubt, deal with this subject when the work is completed by the two further Parts which are promised.

94. *Meyer and Helm on Ornithological Stations in Saxony.*

[II. Jahresbericht (1886) der ornithologischen Beobachtungstationen im Königreich Sachsen, bearbeitet von Dr. A. B. Meyer und von Dr. F. Helm. 8vo. Dresden: 1887.]

Without making invidious comparisons, we may say that it is a pleasure to turn to such a Report as the present. Here everything is in order; a list shows at a glance the 14 species observed in 1885 but not noticed in 1886, while a second list contains the 33 additional species recorded in the latter, with due reference to the pages where the details of each will be found. Remarks on 199 species are followed by a systematic index, so that a worker can quickly turn to any family, genus, or species he may wish to look-up, and, as in last year's Report, there is an excellent coloured map.

95. *'Ornis.'*

[Ornis: Internationale Zeitschrift für die gesammte Ornithologie. Herausgegeben von Dr. R. Blasius und Dr. G. v. Hayek. III. Jahrgang (1887), Heft 4; IV. Jahrgang (1888), Heft 1.]

In the former of these Hefte Dr. Radde gives his third Report (for 1885) on the birds of the Caucasus, with a map; Herr Schneider of Basel treats of the species, 263 in number, found in Upper Alsace, Upper Baden, and the Swiss cantons of Basel, Aargau, Solothurn, and Bern; Herr Ziemer notes the increase of *Carpodacus erythrinus* in Pomerania and its general tendency to spread westward; Herr B. Gröndal has a long paper on the Icelandic names for birds; and there are several shorter articles and obituary notices. The latter Heft is almost entirely devoted to a portion (treating of 112 species) of the Report on the birds of the Austro-Hungarian Empire by V. v. Tchusi and K. v. Dalla-Torre, but Dr. Philippi gives a short paper on 80 species observed in Western Atacama and in the province of Tarapacá.

96. *Pelzeln and Lorenz on Types in the Vienna Museum.*

[Typen der ornithologischen Sammlung des k. k. naturhistorischen Hofmuseums. Von August von Pelzeln und Dr. Ludwig von Lorenz, Theil IV. (Schluss). Ann. d. k. k. naturhistorisch. Hofmuseums, Wien, 1888, p. 37.]

This article gives a list of the typical specimens of the Scansores and subsequent orders of birds in the Vienna Museum, and concludes this useful series (*cf.* suprà, p. 367).

97. *Salvadori on the Birds of Shoa.*

[Catalogo di una Collezione di Uccelli dello Scioa, fatta dal Dott. Vincenzo Ragazzi negli anni 1884, 85, 86. Per Tommaso Salvadori. Ann. Mus. Civ. Stor. Nat. Genova, ser. 2, vol. vi. p. 185.]

Count T. Salvadori works out in his usual thorough way the collection of birds made in Shoa by Dr. Vincenzo Ragazzi, who, after the death of Antinori, was appointed Director of the Italian Station Let-Marefia. The collection, made in two years, consists of 823 specimens, which are referred to 276 species. Of these 219 had already been obtained in Shoa by

Antinori and are mentioned in Salvadori's Catalogue of his birds, and 57 had not been obtained by Antinori. From these and other sources the total number of known species of the Shoan Avifauna is calculated to be 385. Ten of Dr. Ragazzi's species are described as new, namely, *Cypselus shelleyi* and *C. myoptilus*, *Cinnyris* (*Eleocerthia*) *ragazzii*, *Chalcomitra scioana*, *Cisticola cinereola*, *Fringillaria poliopleura*, *Serinus flavigula* and *S. reichenowi*, *Estrelda nigrimentum*, and *Urobrachya traversii*.

98. *Saunders's 'Manual of British Birds.'*

[An Illustrated Manual of British Birds. By Howard Saunders. Parts I.–VII. London: 1888.]

The publication of this work was commenced last April, and, when completed in about twenty monthly Parts, the Manual will form a volume of nearly 800 pages, on the plan of allotting two pages—inclusive of the illustration—to each species. Most of the woodcuts are identical with those in the 4th Edition of Yarrell's 'British Birds,' but the following species, not included in that work, have been specially drawn and engraved by Mr. G. E. Lodge:—*Saxicola isabellina*, *S. stapazina*, *S. deserti*, *Sylvia nisoria*, *Tichodroma muraria*, and *Acanthyllis caudacuta*. It has not been considered necessary to occupy valuable space with woodcuts of *Acrocephalus palustris*, *Anthus cervinus*, *Caprimulgus ruficollis* and *C. ægyptius*, as the characteristics of those species could not be shown in black-and-white; but new cuts will be given of some of the Accipitres which were inadequately represented in 'Yarrell.' The systematic arrangement is mainly that of the 'B. O. U. List,' and the Parts already published comprise the Passeres and Picariæ. As regards the letterpress, the last edition of Yarrell has, so far, been taken as a model, but the author has endeavoured to avail himself of our increased knowledge of geographical distribution.

99. *Sclater on the Oligomyodian* Passeres.

[Catalogue of the Passeriformes, or Perching Birds, in the Collection of the British Museum. Oligomyodæ, or the Families Tyrannidæ, Oxyrham-

phidæ, Pipridæ, Cotingidæ, Phytotomidæ, Philepittidæ, Pittidæ, Xenicidæ, and Eurylæmidæ. By Philip Lutley Sclater. London: 1888.]

The 14th volume of the Catalogue of the Birds in the British Museum, of which the second titlepage is transcribed above, was published on the 28th of June last. It has thus been issued in advance of the 13th volume, which will contain the remaining families of the Oscines, and, as we understand, the Pseudoscines, and "is not expected to be completed before 1889." The 14th volume is devoted to the first section of the Mesomyodian Passeres of Garrod's arrangement, *i. e.* to those in which the syrinx remains nearly as in the Oscines, but has a lesser number of singing-muscles. They are therefore called Oligomyodæ.

The second section of Mesomyodian Passeres (Tracheophonæ) will form the subject of the 15th volume, which Sclater now has in course of preparation.

The number of specimens of Oligomyodian Passeres in the Collection of the British Museum, as enumerated in the present volume, is 7360. "These are referred to 665 species, leaving only 38 species probably valid, but unrepresented in the Collection. The series of specimens is generally very complete, and the range of the species is in most cases admirably shown by the localities affixed to them. For this very valuable feature the Museum is mainly indebted to the Salvin-Godman Collection, with its unrivalled set of specimens obtained directly from the collectors."

Only one new specific title is first published in the present volume, namely, *Chloropipo holochlora*, but three new generic terms are used, namely, *Ochthornis* for *Elainea littoralis*, Pelz., *Cænotriccus* for *Todirostrum ruficeps*, Lafr., both of the family Tyrannidæ, and *Coracopitta* (in place of *Melampitta*) of the family Pittidæ.

Twenty-six coloured plates drawn by Smit are attached to the volume and illustrate the following species :—*Agriornis pollens, A. insolens, A. solitaria, Tænioptera holospodia, Ochthodiæta fusco-rufus, Ochthœca leucometopa, O. citrinifrons, O. pulchella, Platyrhynchus flavigularis, P. albigularis, Euscarthmus russatus, E. impiger, Leptopogon erythrops, Tyran-*

niscus cinereiceps, T. gracilipes, Elainea olivina, Rhynchocyclus fulvipectus, Sirystes albocinereus, Muscivora occidentalis, Cnipodectes subbrunneus, Myiobius flavicans, M. roraimæ, Ceratopipra iracunda, Heteropelma wallacii, H. flavicapillum, H. igniceps, Heterocercus aurantiivertex, Hadrostomus homochrous, Pachyrhamphus spodiurus, and *Iodopleura leucopygia.*

100. *Sousa on the Birds of St. Thomé.*

[Enumeração das Aves conhecidas da Ilha de S. Thomé, seguida da lista das que existem d'esta Ilha no Museu de Lisboa. Por José Augusto de Sousa. Jorn. Sci. Math. Phys. e Nat. Lisboa, no. xlvii. p. 151.]

A list of the birds of the island of S. Thomé, West Africa, with a catalogue of twenty-four species from that locality in the Lisbon Museum. A Sparrow is supposed to be new to science, but the specimens, being prepared in spirits only, are not described (*cf.* Barboza du Bocage *suprà* p. 482).

101. *Taczanowski on Caucasian Birds.*

[Contributions à la Faune Ornithologique du Caucase. : Par le Dr. L. Taczanowski. Bull. Soc. Zool. France, 1887, p. 618.]

Two collections, made principally in the district which lies between Tiflis and the Caspian, have added 5 species—of no special interest—to the lists already published by Dr. Radde and the late M. Bogdanoff. The Crested Lark has already been subdivided into about thirty species and subspecies; to these Dr. Taczanowski adds *Galerita cristata caucasica.* Altogether remarks are made on about twenty birds.

102. *Tegetmeier on Pallas's Sand Grouse.*

[The New Game Bird, Pallas's Sand Grouse: its Natural History, with a plea for its preservation. By W. B. Tegetmeier, F.Z.S. 8vo. London: 1888.]

This is a well-compiled, illustrated pamphlet, in which the sources of the author's information are duly acknowledged. Our sympathies are naturally with the writer in his praiseworthy attempt to secure protection for our visitors of the

present year; but although some of them have undoubtedly bred, we fear that our climate and soil will prove—not too cold, for these birds can stand severe dry cold—but too wet for them to establish a permanent footing. On this point we give an extract of a letter, dated August 13th, from an excellent observer, Mr. R. Service, of Dumfries:—"Sand Grouse still continue on the estate where they first appeared. There were more than sixty of them at one time, but they gradually dispersed, and there is now only a small flock of nine left. I was over the ground yesterday with one of the keepers. Only seven were shot, and these within the first few days after arrival. The utmost protection has been extended since, and although the ground was as suitable as possible in this country, none bred—two pairs were observed to separate as if for breeding-purposes, but they also disappeared. So that if plenty of keepers (who were all much interested in them), most suitable ground, plenty of feeding-ground, the utmost rest and quiet, did not induce them to breed, the birds themselves were to blame, or possibly the cold *wet* summer we have had."

LIV.—*Letters, Extracts, Notices, &c.*

We have received the following letters addressed to the Editors of 'The Ibis:'—

British Consulate, Noumea,
May 27th, 1888.

Sirs,—It is long since I had the pleasure of sending you any ornithological news from this far-away land, but I am now in a position to add a bird to our native fauna, and hasten to record it. This morning I received from Mr. Cecil Vivian, of H.M.S. 'Diamond,' now in our harbour, a specimen of a Cormorant, the first that has reached my hands, though our friend M. Grasset has described birds from the northern end of the island which, no doubt, were of this genus (*cf.* Ibis, 1882, p. 542). We were much surprised on examining it to find that it was the Little Black Cormo-

rant, *Phalacrocorax stictocephalus*, Bp., of Gould's 'Birds of Australia,' vol. ii. p. 495, for M. Marie states that the bird he obtained was *P. melanoleucus*. It is therefore an entirely new addition to the New Caledonian fauna, and our best thanks are due to Mr. Vivian for so kindly placing the bird at our disposal. From information received, it appears that the bird (a young one) was shot while sitting on a branch of a tree (mangrove probably) in a small river on the west coast, not far from this town. Mr. Brewer, another officer of the same ship, tells us that two days previously he saw two birds, apparently of the same species, but did not shoot one, being in the pursuit of nobler game in the shape of "Black Ducks" (*Anas superciliosa*). A Mr. Saxton, who knows the Cormorant well from his residence in New Zealand, informs us that at the north end of the island he has frequently seen "Shags," as he calls them, with white sides to the face and throat, and some white on the lower part. He says they were half the size of the great New-Zealand Shag, and frequented an inland swamp, perching on trees. This is probably the *Ph. melanoleucus* procured by M. Marie, so that we may boast of two Cormorants belonging to the New Caledonian ornis.

Yours &c.,

E. L. Layard.

Langass Lodge, Lochmadde, North Uist,
June 13, 1888.

Sirs,—It may be of interest to ornithologists to know that there is reason to suppose that the irruption of Sand Grouse has this year, as on a former occasion, extended to the Outer Hebrides. Dr. John Mackney, in a letter to my factor here, writes, on 25th May:—"I have just seen on the Machair here (Benbecula) what I believe is a covey of ten Pallas's Sand Grouse. I first saw a solitary bird on the moor near the house here a few days ago, and although I saw it two or three days in succession, I did not get a good view of it, but I thought of Pallas's Grouse from its appearance. To-day, however, I met with no less than ten of them together, and although they were a little shy, hiding themselves in the sand

when observed, and getting up quickly, something like Partridges, but flying more like Golden Plovers, I managed to get a good sight of them, and unless they are Pallas's Grouse I do not know what they are. They are light grey in colour, with blackish breasts and short legs, and when flying their tails seem short and pointed. They utter a sharp 'whirr, whirr.' My brother shot one here more than twenty years ago in the same place where I saw these birds, as mentioned in Gray's work on British Birds."

Yours &c.,

J. W. P. Campbell-Orde.

Zoological Society's Gardens,
Aug. 3rd, 1888.

Sirs,—Allow me to correct an error in my paper "On the Classification of the Striges," published in the July number of this Journal. There is a mistake in the description of woodcut fig. 4 (p. 339), the foot of *Bubo* there figured being the *left*, not the *right*.

Yours &c.,

Frank E. Beddard.

Bremen, Aug. 27, 1888.

Sirs,—In Mr. Ridgway's lately-published "Review of the Genus *Psittacula*" (Pr. U. S. Nat. Mus. 1887, p. 529) I am much surprised to find no mention of my *P. spengeli* (P. Z. S. 1885, p. 614, pl. xxxviii.). Now I consider the species described by Mr. Ridgway as *P. exquisita* to be my *P. spengeli*, which name has, of course, priority.

As to *P. cyanochlora* of Natterer (*l. s. c.*), I cannot quite reconcile it with any of Mr. Ridgway's species, but I am inclined to believe that it is the same as his *P. deliciosa*. If Mr. Ridgway's views are correct, the females of all the *Psittaculæ* have their wings without any blue. The very great extent of the subalar cobalt-blue in our specimen of *P. cyanochlora* seems to show that it is not a female or

a young bird. I believe it to be adult and to be a good species.

Yours &c.,
G. Hartlaub.

---

180 Stockwell Park Road, Brixton, S.W.,
August 31st, 1888.

Sirs,—The following notice of the capture of *Siurus noveboracensis* in lat. 47° 22′ N., long. 18° 50′ W., may interest some of the readers of 'The Ibis,' as I believe it is the first time the bird has been taken so near Europe.

When returning from New Zealand in the sailing-ship 'Northumberland' in 1886, I noticed, on the morning of August 26th, a small bird flying about the decks and settling on the spars. As we were then off the Bay of Biscay, I took our visitor to be a European Warbler blown off the mainland or the Azores, and not having much knowledge of the Sylvicolidæ, I did not take any particular interest in our visitor, which during the day was pursued by cats and steward's boys. On turning in, I was surprised to see a small bird sitting on the rope which closes the shutters in heavy weather, and catching it in my hand, I recognized it as the one we had seen flying about during the day. Little knowing what a good bird I had, I put it in a cardboard box for the night, intending to give it its liberty in the morning, but on opening the box found the bird had died during the night, possibly of hunger, as on skinning it I found no trace of food in the stomach. To those interested in migration, I may add that the weather on August 26th was misty, with squalls of rain and wind from W. to S.W. From the Meteorological Reports extending over an area between lats. 4°–4 46° N., longs. 22°–40° W., from August 1st to date of capture, I find the same sort of weather prevailed, with heavy gales of wind on the north and west sides of the given area.

It was not until this year, on looking over my skins, I thought of ascertaining the name of my Warbler, and looked through Gould's and many other works on the 'Birds of Europe,' and not finding it mentioned, the idea of having

captured a good bird dawned upon me. While staying in Hampshire lately I showed it to my friend Mr. C. Bygrave Wharton. He, failing to recognize it, proposed sending it to Prof. Newton, whom I now much thank for kindly identifying it as *Siurus noveboracensis*, a well-known North-American Warbler.

Yours &c.,
HUGH R. RABBETTS.

Extract from a Letter from Dr. Burmeister *to* Mr. Sclater, dated Buenos Aires, 25 June, 1888.—"In possession of the copy of the first volume of 'Argentine Ornithology;' I send you my best thanks, and wish to make a remark on the species of *Furnarius* which, following Döring and Cabanis, you call *F. tricolor* (Arg. Orn. i. p. 170). This name was applied by Döring to a bird which he believed to be identical with a species of the same genus (*Furnarius*) noticed in my 'Reise' (vol. i. p. 159), as observed at Rio Quinto, but not obtained. Some years later, when in Buenos Aires, I received a collection of skins from Bolivia, and found therein a specimen of the same bird which I had seen living in Rio Quinto. This species I named *F. tricolor*, and sent a specimen to Giebel at Halle, who described the new species in his 'Zeitschr. f. d. gesammte Naturw.' (xxxi. p. 17) under the name I had given to it. Döring believing my bird to be the same as the species of *Furnarius* obtained by him at Cordova, sent specimens of it under that name to Cabanis. But the two species are entirely different, and I propose to call the species discovered by Döring FURNARIUS CRISTATUS, on account of its crested head."

Assumption of Male Plumage by Female Birds.—Mr. J. H. Gurney writes:—"In this year's 'Ibis' (p. 227) a Domestic Hen of my father's is mentioned which assumed the Cock's plumage and afterwards lost it again. She has laid a great many eggs this summer, but his poultryman tells me they are useless, as he set two clutches with no result, and afterwards tried mixing them with no better success; he describes them as being very yellow compared with those of an ordinary Fowl.

"The Bearded Tit (*Panurus biarmicus*) may be added to the list of female birds which are known to occasionally assume male plumage. In the summer of 1882 a Bearded Tit, two years old, in Mr. J. G. Keulemans' aviary, hatched five eggs and moulted, during which operation she suffered much from cold and stiffness, and when she recovered her plumage it was partly that of the male (*cf.* 'The Field,' Sept. 14, 1872)."

Anniversary Meeting of the British Ornithologists' Union, 1888.—The Annual General Meeting of the British Ornithologists' Union was held at the rooms of the Zoological Society, 3 Hanover Square, on Wednesday the 16th May, at 6 P.M., Mr. W. T. Blanford, F.R.S., in the Chair.

The Minutes of the last Meeting having been read and confirmed, the Committee presented their Report, in which, after an explanation of the prosperous state of the finances, it was announced that there had been two losses by death, viz. Messrs. Heywood Jones and J. C. Hele, and two by resignation, viz. Mr. Henry Buckley and Capt. A. W. M. Clark Kennedy. The total number of Members was stated to be 204, viz. 174 Ordinary, 1 Extraordinary, 9 Honorary, and 20 Foreign Members.

As another series of 'The Ibis' would be completed with the present volume, the question of Editorship had been taken into consideration by the Committee, who regretted to say that Mr. Saunders was unable to continue as co-Editor; but that Mr. Sclater has expressed his readiness to undertake the editorship alone for the next series.

After some discussion, Professor Newton proposed, "That the Report of the Committee be received, and that on the completion of the current Series—the Fifth—of 'The Ibis,' another Series—the Sixth—be commenced, with Mr. Sclater as Editor." Mr. Salvin seconded this proposal, which, on being put to the Meeting, was carried unanimously.

The accounts having been passed, Professor Newton then proposed that, "as regards extra copies, contributors to 'The Ibis' should be placed, *mutatis mutandis*, on the same footing as authors of papers in the 'Proceedings' of the Zoological Society." This was seconded and carried. The following new

Ordinary Members were then balloted for and declared duly elected:—

Oliver Vernon Aplin, Bloxham, near Banbury, Oxon.
John Duncan Cameron (late Capt. R.A.), Lowwood, Bethersden, near Ashford, Kent.
James Carter, Burton House, Masham, Yorkshire.
Walter Chamberlain, Harborne Hall, near Birmingham.
William Wilfrid Cordeaux (Lieut. 2nd Dragoon Guards), Sialkote, Bengal, India.
William Evans, F.R.S.E., 18A Morningside Park, Edinburgh.
Herbert Knight Horsfield, Oakfield Terrace, Headingley, Leeds.
Frederick J. Jackson, 13 Westbourne Sq., London, W.
George Thorne Phillips, Wokingham, Berkshire.
Mervyn Owen Wayne Powys, 22 Malcolm St., Cambridge.
Eustace Radclyffe, Hyde, Wareham, Dorset.
Robert H. Read, 8 Great George St., Westminster, S.W.
Charles Joseph Wilson, 16 Gordon Sq., London, W.C.

The President and Secretary having been re-elected, Mr. Salvin was elected on the Committee in the place of Mr. W. T. Blanford, who retired by rotation. The Officers for the year 1888–1889 will therefore be as follows:—

President.

THE RIGHT HON. LORD LILFORD.

Secretary.

H. E. DRESSER, ESQ.

Editor.

P. L. SCLATER, ESQ.

Committee.

E. CAVENDISH TAYLOR, ESQ.
E. BIDWELL, ESQ.
O. SALVIN, ESQ.

A special vote of thanks was then proposed by Mr. W. E. Clarke, and seconded by Mr. R. B. Sharpe, to "Mr. Howard

Saunders for his exertions during his tenure of office as co-Editor of 'The Ibis'," and duly carried. After a vote of thanks to the Chairman, proposed by Mr. W. E. Clarke and carried by acclamation, the Meeting adjourned. The Annual Dinner, held at the Café Royal, was attended by twenty-six Members and guests.

Obituary.—We regret to announce that Mr. Henry Stevenson, F.L.S. &c., died at Norwich on the 18th of last August. His family, originally from Nottinghamshire, had for upwards of a century been proprietors of the old Conservative county journal, 'The Norfolk Chronicle,' the management of which Mr. Stevenson only resigned when compelled thereto by ill health in 1886. Educated at King's College School, London, he early displayed a taste for field-sports and a keen love for natural history; in 1855 he was elected Honorary Secretary to the Norfolk and Norwich Museum, a post which he held till his death; and in 1864 he was amongst the first additions made to the original number of the Members of the British Ornithologists' Union. His chief interest centred in the Norfolk and Norwich Naturalists' Society, of which he was one of the founders, and its President in the year 1871–72. No year passed without contributions from his pen to the 'Transactions' of that Society, the last being "On the Vocal and other Sounds emitted by the Common Snipe," read at the Meeting held on the 27th of March last. The pages of the 'Zoologist' also, for many years, bear testimony to his diligence and accuracy as an observer. To a succession of domestic bereavements was added, since 1875, acute bodily suffering; and it is not surprising therefore to those who knew him well that his chief work, 'The Birds of Norfolk,' vol. i. of which appeared in 1866 and vol. ii. in 1870, should remain unfinished. To those who enjoyed his friendship, Mr. Stevenson was a delightful companion; his powers of observation seemed almost intuitive, while his genial nature endeared him to all.

INDEX.

Acanthidositta chloris, 363.
Acanthiza magna, 93.
Acanthornis magna, 94.
Acanthyllis caudacuta, 488.
Accipiter minullus, 291, 295.
Aceros leucostigma, 279.
Acridotheres albocinctus, 72.
—— roseus, 322.
Acrocephalus brunnescens, 222.
—— orientalis, 374.
—— palustris, 488.
—— phragmitis, 110.
Actiturus bartramius, 472.
Æmophorus major, 473.
Ægialitis asiaticus, 305, 368.
—— cantianus, 113, 203, 449.
—— dubia, 203.
—— geoffroyi, 104, 203, 305.
—— hiaticula, 78, 104, 113, 305, 445.
—— minor, 104, 113.
—— mongolicus, 305.
—— pecuaria, 305.
—— peroni, 203.
—— tenellus, 305.
—— tricollaris, 305.
—— vereda, 374.
Ægithina viridis, 200.
Ælurœdus melanocephalus, 272.
Æthopyga shelleyi, 202.
Agelæus flavus, 463.
—— phœniceus, 263.
—— thilius, 463.
Agelaius phœniceus bryanti, 139.
Agelaius phœniceus sonoriensis, 139.
Agriornis insolens, 489.
—— pollens, 489.
—— solitaria, 489.
—— striata, 461, 464.
Agyrtria alleni, 481.
Aimophila cahooni, 269.
—— mcleodii, 269.
Alauda arvensis, 480.
—— chrysolæma, 271.
Alca impennis, 150.
—— torda, 82.
Alcedo asiatica, 197.
—— bengalensis, 197.
—— cyanostigmus, 297.
—— ispida, 74, 102.
—— semitorquatus, 291.
Alcippe bourdilloni, 146.
Alectrurus risorius, 465.
Allocotops calvus, 389.
Alophius camurus, 62.
—— deckeni, 69.
—— erythrorhynchus, 65.
—— ——, var. leucopareus, 65.
—— hartlaubi, 69.
—— hemprichii, 60.
—— monteiri, 62.
Alseonax muthei, 146.
Amaurornis phœnicura, 374.
Amaurospiza æquatorialis, 280.
—— axillaris, 280.
Amblyospiza unicolor, 294.
Amblyrhamphus holosericeus, 463.
Ammodramus maritimus peninsulæ, 481.
—— —— sennetti, 481.
—— sandwichensis brunnescens, 481.
Ampelis cedrorum, 255.
Anas boschas, 79, 230, 446.
—— formosa, 351.
—— superciliosa, 492.
Andropadus flavescens, 299.
Androphilus accentor, 390.
Anorrhinus albocristatus, 70.
—— leucolophus, 70.
Anous stolidus, 277, 374.
Anser albifrons, 350.
—— brenta, 350.
—— cinereus, 71, 447.
Anthornis melanura, 363.
Anthracoceros lemprieri, 198.
Anthreptes hypodila, 300.
—— malaccensis, 202.
Anthus arboreus, 115.
—— cervinus, 113, 488.
—— gustavi, 201.
—— maculatus, 201.
—— novæ-zealandiæ, 43, 363.
—— rufulus, 224, 301.
Antrostomus parvulus, 467.
Anuropsis cinereiceps, 200.
Aphelocoma californica hypoleuca, 139.
—— cyanotis, 139.
Aptenodytes forsteri, 325, 326, 327, 329, 330, 331, 332, 333, 334.
—— imperator, 327.
—— patachonica, 326, 327.
—— patagonica, 327.
—— pennanti, 326, 329, 331, 332, 333.
Apteryx australis, 127, 217.
—— oweni, 127.

Aquila adalberti, 456, 457.
—— bonelli, 459.
—— chrysaëtus, 459, 486.
—— daphanea, 486.
—— fulva, 486.
—— heliaca, 124.
—— lagopus, 366.
—— nobilis, 486.
Arachnothera dilutior, 202.
Archibuteo lagopus, 366.
Ardea alba minor, 78.
—— bahamensis, 268.
—— bubulcus, 78, 110, 113.
—— cinerea, 73, 78, 110, 449.
—— cocoi, 470.
—— comata, 110, 113.
—— garzetta, 113.
—— insignis, 73.
—— mexicana, 36.
—— occidentalis, 140.
—— purpurea, 143.
—— ralloides, 78.
—— sumatrana, 203.
—— virescens frazari, 268.
—— wuerdemanni, 140.
Ardetta atricapilla, 304.
—— involucris, 470.
—— minuta, 304.
—— sturmi, 304.
Argus giganteus, 416.
Artamus leucogaster, 373.
Asio accipitrinus, 454.
—— brachyotus, 468.
—— capensis, 291.
—— mexicanus, 336.
—— otus, 342.
Astur trivirgatus, 195.
Asturina pucherani, 469.
Asturinula monogrammica, 291.
Athene noctua, 96, 107, 112, 124, 336 340, 341, 371, 454.

Balearica chrysopelargus, 295.
Barbatula affinis, 296.
—— uropygialis, 296.
Batis molitor, 266.
—— pririt, 266.
Batrachostomus cornutus, 198, 373.
—— moniliger, 146.
Baza leucopias, 195, 373.
Baza sumatrensis, 195, 196.
Berenicornis albocristatus, 69, 70.
—— comatus, 69.
—— leucolophus, 69, 70.
—— macrourus, 70.
Berlepschia rikeri, 141.
Bourcieria traviesi, 150.
Brachylophus occipitalis, 6.
—— puniceus, 177.
—— sericollis, 185.
—— squamatus, 153, 171.
—— ——, v. nepalensis, 153, 156.
—— viridis, 33.
—— xanthopygæus, 171, 174.
Brachypteryx cruralis, 390.
—— erythrogyna, 389.
Bradyornis pallidus, 299.
—— traversi, 485.
Broderipus acrorhynchus, var. palawanensis, 374.
Buarremon cleoprorus, 128, 129.
—— simplex, 128, 129.
Bubo bengalensis, 336, 337, 339.
—— capensis, 342.
—— ignavus, 453.
—— maculosus, 341, 342, 343.
—— maximus, 336.
—— virginianus, 342.
Bubulcus coromandus, 374.
Buceros abyssinicus, 48.
—— africanus, 48.
—— albocristatus, 69, 70.
—— ——, var. leucolophus, 70.
—— albotibialis, 52, 56.
—— atratus, 51.
—— bicornis, 51.
—— brac, 48.
—— buccinator, 51, 52, 53.
—— camurus, 62.
—— caruncolatus abyssinicus, 48.
—— —— cafer, 49.
—— —— guineensis, 48.
—— casuarinus, 55.
—— coronatus, 60, 61.
—— cristatus, 52.
—— cylindricus, 52, 55.
Buceros deckeni, 68.
—— elatus, 50.
—— epirhinus, 64.
—— erythrorhynchus, 65, 66.
—— fasciatus, 59, 60.
—— fistulator, 51, 52, 53, 54.
—— flavirostris, 67.
—— hartlaubi, 69.
—— hastatus, 63.
—— hemprichi, 60.
—— leucomelas, 67, 68.
—— leucopygius, 52, 55.
—— limbatus, 60.
—— malabaricus, 51.
—— melanoleucus, 59, 61.
—— nagtglassi, 69.
—— nasutus, 63, 64, 65.
—— ——, var. caffer, 64.
—— ——, var. dubia, 64, 65.
—— ——, var. orientalis, 63.
—— ——, var senegalensis, 63.
—— pallidirostris, 64.
—— pœcilorhynchus, 63.
—— poensis, 51.
—— pulchrirostris, 62.
—— ruflrostris, 65, 67.
—— semifasciatus, 59, 60.
—— sharpii, 52, 54.
—— subcylindricus, 52, 54.
—— subquadratus, 55.
—— viti, 54.
—— (Rhynchaceros) deckeni, 68.
Buchanga leucophæa, 199.
—— longicaudata, 72, 224.
Bucorax abyssinicus, 48, 49.
—— cafer, 49.
—— guineensis, 48.
Bucorvus abyssinicus, 47, 48, 49.
—— ——, var. cafer, 50.
—— ——, var. guineensis, 49.
—— caffer, 47, 48, 49.
—— guineensis, 48.
—— pyrrhops, 48.
Budytes calcaratus, 222.
—— viridis, 374.
Bulweria columbina, 80.
Buphaga erythrorhyncha, 365.

Burrica mexicana, 138.
Butastur indicus, 195.
Buteo albicaudatus, 469.
—— erythronotus, 469.
—— latissimus, 268.
—— swainsoni, 461, 469.
Butorides cyanurus, 471.
—— javanica, 204.
Butreron cappelli, 131.
Bycanistes albotibialis, 56.
—— buccinator, 53.
—— cristatus, 53.
—— cylindricus, 55.
—— subcylindricus, 55.
—— subquadratus, 55.

Cacatua hæmaturopygia, 194.
Caccabis chukar, 96, 106, 219.
—— petrosa, 75, 76.
—— rufa, 76.
Cacomantis merulinus, 198.
Cænotriccus ruficeps, 489.
Callene albiventris, 146.
Callichen rufinus, 323, 324.
Calliechthrus leucolophus, 271.
Callolophus puniceus, 177.
Calœnas nicobarica, 283, 374.
Calornis panayensis, 202.
Camaroptera brevicaudata, 299.
Campethera caillianudi, 142.
—— nubica, 296.
Caprimulgus ægyptius, 488.
—— macrurus, 198, 373, 375.
—— manillensis, 373, 375.
—— mosambicus, 208.
—— ruficollis, 488.
Cardinalis cardinalis saturatus, 260.
—— —— yucatanicus, 139.
—— coccineus, 260.
—— saturatus, 260.
—— virginianus, 260, 361.
—— ——, var. coccineus, 260.
—— ——, var. saturatus, 260.
Cardinalis virginianus, var. yucatanicus, 260.
Carduelis caniceps, 224.
Carpodacus ambiguus, 280.
—— amplus, 133.
—— erythrinus, 134, 487.
—— mexicanus ruberrimus, 139.
—— roseipectus, 280.
Carpodectes antoniæ, 140.
—— nitidus, 140.
Carpophaga ænea, 202, 374.
—— ——, var. palawanensis, 374.
—— badia, 396.
—— bicolor, 202.
—— ianthina, 235.
—— jouyi, 235.
—— novæ zealandiæ, 363.
—— pickeringi, 282.
Casuarius bennetti, 126.
—— galeatus, 126.
Cathartes aura, 481.
Centrites niger, 465.
Centrococcyx affinis, 198, 374.
—— eurycercus, 198.
—— javanensis, 374.
Ceratogymna atrata, 50, 51.
—— elata, 50.
Ceratopipra iracunda, 490.
Certhia familiaris, 124.
Certhiola caboti, 257.
Certhiparus novæ zealandiæ, 363.
Ceryle maxima, 291.
—— rudis, 102, 224, 278, 296.
—— torquata, 468.
—— varia, 278.
Cettia fortipes, 388.
—— oreophila, 387.
—— sericea, 454.
Ceyx rufidorsa, 197.
Chætura anchietæ, 371.
—— gigantea, 198.
Chalcomitra scioana, 488.
Chalcopelia afra, 303.
—— chalcospilos, 303.
Chalcophaps indica, 203.
Chalcostetha insignis, 202.
Chamæthlypis poliocephala, 138.
Charadrius fulvus, 347, 374.
—— helveticus, 347.
—— hiaticula, 347.
—— monachus, 369.
—— morinellus, 347.
—— obscurus, 369.
—— placidus, 347.
—— rubecola, 369.
—— ruficapillus, 46.
—— rufiventer, 369.
—— sociabilis, 369.
—— tenellus, 369.
—— totanirostris, 369.
—— virginicus, 472.
Charmosyna stellæ, 272.
Chasiempis dolei, 143.
—— ibidis, 143.
—— maculata, 143.
—— ridgwayi, 143.
—— sandwichensis, 143.
Chauna chavaria, 270.
—— derbiana, 270.
Chelidon namiyei, 234.
—— urbica, 120.
Chenalopex ægyptiacus, 266, 306.
—— pugil, 282.
Chettusia cinerea, 73.
—— gregaria, 320, 323.
Chibia palawanensis, 199.
Chlorochoris emiliæ, 392.
Chloropicus awokera, 40.
—— canus, 17.
—— chlorolophus, 185.
—— dimidiatus, 162.
—— guerini, 11, 12.
—— karelini, 2, 33.
—— mentalis, 2.
—— miniatus, 2.
—— occipitalis, 7.
—— puniceus, 177.
—— squamatus, 154.
—— striolatus, 172.
—— vaillantii, 24.
—— viridis, 33.
—— xanthoderus, 180.
Chloropipo holochlora, 489.
Chlorospiza incerta, 320, 321, 322, 323.
Chordiles chapmani, 268.
—— henryi, 268.
—— popetue, 268.
—— sennetti, 268.
—— virginianus, 268.
Chrysococcyx cupreus, 208.

Chrysococcyx klaasi, 298.
—— lucidus, 363.
—— xanthorhynchus, 198.
Chrysocolaptes erythrocephalus, 197.
—— stricklandi, 184.
Chrysomitris atrata, 361.
—— icteria boliviana, 280.
—— —— capitalis, 280.
—— —— longirostris, 280.
—— mexicana, 263.
—— sclateri, 280.
—— stejnegeri, 280.
—— thibetana, 280.
—— uropygialis, 361.
Chrysophlegma chlorigaster, 181.
—— chlorolophus, 180, 185.
—— chlorophanes, 181.
—— flavinucha, 72.
—— puniceus, 177.
—— xanthoderus, 180.
Chrysoptilus cristatus, 468.
—— squamatus, 153.
Cichladusa guttata, 299.
Ciconia alba, 458.
Cinclodes fuscus, 467.
Cinclus cashmiriensis, 221.
—— schulzi, 279.
Cinnyris albiventris, 290, 300.
—— asiatica, 72.
—— aurora, 202.
—— kirki, 300.
—— sperata, 202.
—— verreauxi, 300.
—— (Eleocerthia) ragazzii, 488.
Circaëtus gallicus, 458.
Circus æruginosus, 72, 449.
—— cinereaceus, 450.
—— cinereus, 469.
—— cyanus, 449.
—— gouldi, 363.
—— macrurus, 290.
—— spilonotus, 195, 373.
—— swainsoni, 107.
Cissa jefferyi, 383, 384, 385.
—— minor, 384, 385.
Cisticola cinereola, 488.
—— cisticola, 201, 373.
Cisticola dispar, 371.
—— marginalis, 299.
—— schœnicola, 110, 454.
Cistothorus marianæ, 480.
Cittocincla nigra, 201.
Clitonyx albicapilla, 363.
—— ochrocephala, 363.
Cnipodectes subbrunneus, 490.
Coccothraustes humii, 280.
—— vespertinus, 269.
—— vulgaris, 452.
Coccystes albonotatus, 409.
—— brazzæ, 407.
—— cafer, 403, 405, 407.
—— caroli, 403, 407.
—— coromandus, 400.
—— glandarius, 397.
—— hypopinarius, 403, 406.
—— jacobinus, 266, 292, 402, 403, 406, 407, 408.
—— melanoleucus, 224.
—— pica, 402.
—— serratus, 409.
Coccyzus americanus, 461, 468.
—— —— occidentalis, 138.
—— cinereus, 468.
—— maynardi, 138.
—— melanocoryphus, 468.
Cœreba cyanea, 257.
Colaptes agricola, 468.
—— caniceps, 17.
—— canus, 17.
—— frondium, 32.
—— pinetorum, 32.
—— rufipileus, 133.
—— virescens, 32.
—— viridicanus, 17.
—— viridis, 32.
Coliuspasser eques, 293.
—— laticauda, 293.
—— xanthomelas, 293.
Collocalia fuciphaga, 198, 373.
—— troglodytes, 198.
Columba arquatrix, 361.
—— fasciata vioscæ, 268.
—— intermedia, 220.
—— leuconota, 219.
—— rupestris, 220.
Columbæ, 426.
Columbigallina passerina socorroensis, 139.
Columbula picui, 465.
Colymbus septentrionalis, 350.
Compsothlypis americana, 247.
—— graysoni, 139.
Coracias caudata, 266.
—— spatulata, 266.
Coracopitta, 489.
Corethrura pulchra, 362.
Corone pusilla, 202.
Corvultur albicollis, 294.
Corvus americanus hesperus, 139.
—— corax, 82, 220, 271.
—— —— principalis, 139.
—— —— sinuatus, 370.
—— cornix, 82.
—— corone, 82.
—— culminatus, 219.
—— scapulatus, 303.
—— splendens, 223.
—— tibetanus, 220.
—— tingitanus, 82.
Coryphospingus cucullatus, 280.
—— griseocristatus, 280.
—— mentalis, 280.
Corythaix fischeri, 297.
Corythocichla crassa, 391.
—— epilepidota, 392.
Cotile riparia, 257, 444.
—— rupestris, 216, 454.
Cotinga amabilis, 139.
—— ridgwayi, 139.
Coturniculus passerinus, 262.
—— savannarum passerinus, 262.
Coturnix communis, 219.
—— delegorgei, 303.
—— novæ-zealandiæ, 363.
Cracticus rufescens, 271, 272.
Creadion carunculatus, 133.
—— cinereus, 133.
Crex pratensis, 480.
Criniger chloris, 271.
—— frater, 201.
—— palawanensis, 201.
Crithagra ictera, 301.
Cryptolopha montis, 193, 199, 373.
—— trivirgata, 385.

Crypturi, 423.
Cuculus canoroides, 373.
—— poliocephalus, 394.
—— sonneratii, 198, 373.
Cursorius bitorquatus, 369.
—— cinctus, 369.
—— gallicus, 77.
—— senegalensis, 305.
—— somalensis, 369.
Cyanecula leucocyanea, 220.
—— suecica, 220.
Cyanocitta argentigula, 271.
Cyanolesbia nehrkorni, 361.
Cyanolyca yucatanica, 265, 271.
Cyanopolius cyanus, 23.
Cyanospiza ciris, 262.
—— cyanea, 261.
Cyclopsitta coccineifrons, 271.
Cyclorhis albiventris, 84, 86, 87.
—— altirostris, 84, 89, 90, 279.
—— atrirostris, 84, 90, 91, 92.
—— cearensis, 86, 87, 88, 89, 90, 91, 92.
—— contrerasi, 84, 85, 91, 92.
—— flavipectus, 84, 85, 86, 91, 92.
—— —— subflavescens, 84, 85, 91, 92.
—— flaviventris, 84, 85, 91, 92, 255.
—— —— yucatanensis, 84, 91, 92, 255.
—— guianensis, 84, 86, 87, 88, 89, 91, 92.
—— insularis, 84, 85, 91, 92, 255.
—— nigrirostris, 84, 90, 91, 92.
—— ochrocephala, 84, 86, 87, 88, 89, 90, 91, 92, 279.
—— virenticeps, 84, 85, 91, 92.
—— viridis, 87, 88, 89, 90, 91, 92.
—— wiedi, 87, 88, 89, 91, 92.
—— yucatanensis, 255.
Cygnus coscoroba, 471.
Cygnus olor, 111.
Cypselus apus, 111.
—— lowi, 373.
—— melba, 113, 120.
—— myoptilus, 488.
—— parvus, 298.
—— shelleyi, 488.

Dafila acuta, 73, 446.
Daption capense, 309.
Demiegretta jugularis, 143.
—— ringeri, 143.
Dendrocopus major, 74.
—— minor, 454.
Dendrocygna viduata, 307.
Dendræca æstiva, 247, 248.
—— albilora, 250.
—— blackburniæ, 249.
—— bryanti, 247, 248.
—— cærulescens, 248.
—— castanea, 249.
—— coronata, 248, 249, 278.
—— discolor, 250.
—— dominica, 250.
—— —— albilora, 250.
—— maculosa, 249.
—— palmarum, 251.
—— —— hypochrysea, 251.
—— pennsylvanica, 249.
—— petechia, 247, 248.
—— —— rufivertex, 247.
—— vicilloti, var. bryanti, 248.
—— virens, 250.
Dendroica æstiva sonorama, 480.
Dendrophila corallipes, 479.
—— frontalis, 201, 479.
Dendropicus cardinalis, 295.
Dichoceros bicornis, 72.
Dilophus carunculatus, 303.
Diomedea chlororhyncha, 309.
Dissura episcopus, 73.
Dolichonyx oryzivora, 263, 268.
Donacicola hunsteini, 272.
Donacospiza albifrons, 463.
Dromæus novæ-hollandiæ, 275.
Dromas ardeola, 304.
Drymornis bridgesi, 279.
Dryobates arizonæ fraterculus, 138.
—— scalaris sinaloensis, 138.
—— villosus maynardi, 138.
Dryococcyx harringtoni, 198.
Dryonastes ruficollis, 71.
Dryoscopus cubla, 292.
—— salinæ, 300.
Dryotomus sericeocollis, 185.
Dysporus serrator, 44.

Elainea albiceps, 465.
—— barbadensis, 268.
—— littoralis, 489.
—— olivina, 490.
Elanus leucurus, 470.
Emberiza aldunatei, 368.
—— cæsia, 109, 119, 124.
—— cia, 224.
—— cioides, 318, 319.
—— citrinella, 74.
—— durazzi, 320, 323.
—— godlewskii, 280.
—— jankowskii, 317.
—— lapponica, 346.
—— melanocephala, 114, 115.
—— nivalis, 346.
—— palustris, 320, 322.
—— schœnicola, 322.
Embernagra chloronota, 263.
—— olivascens, 463.
—— platensis, 463.
—— verticalis, 262, 263.
Empidonax cineritius, 269.
Ephthianura crocea, 272.
Epimachus macleayanæ, 275.
—— major, 275.
Erismatura mersa, 447.
Erithacus akahige, 233.
—— brunneus, 225.
—— gutturalis, 292.
—— komadori, 233.
—— namiyei, 233.
—— rubecula, 233.
Erythropygia leucoptera, 292.
Erythrospiza githaginea, 320, 323.

Esacus magnirostris, 203, 373.
Estrelda nigrimentum, 488.
Eucometis spodocephala, 259.
Eudromias modesta, 472.
Eudynamis malayana, 198.
—— mindanensis, 373.
—— orientalis, 409.
—— taitensis, 363.
Eudyptes chrysocoma, 275.
—— pachyrhynchus, 309.
Eulabes javanensis, 202.
Euphonia affinis, 257.
Euplocamus nycthemerus, 230.
Eurynorhynchus pygmæus, 278.
Eurystomus afer, 266, 298.
—— orientalis, 197.
—— pacificus, 46.
Euscarthmus impiger, 489.
—— russatus, 489.
Euspiza melanocephala, 134.
Eustephanus galeritus, 210.

Falco æsalon, 229, 268.
—— albigularis, 138.
—— cassini, 470.
—— cenchris, 226.
—— deiroleucus, 138.
—— eleonoræ, 102, 266, 323.
—— minor, 455.
—— peregrinus, 195, 461, 470.
—— punicus, 455.
—— rusticolus, 144.
—— tinnunculus, 269.
Francolinus granti, 303.
Fregata minor, 204, 373.
Fregilus himalayanus, 219.
Fringilla angolensis, 107.
—— cælebs, 228, 229.
—— cisalpina, 321, 323.
—— gayi, 368.
—— maderensis, 280.
—— mexicana, 138.
—— serinus, 320, 321.
Fringillaria cabanisi, 142.
—— poliopleura, 488.

Fulica armillata, 471.
—— atra, 76.
—— leucoptera, 472.
—— leucopygia, 471.
Fuligula glacialis, 351.
—— marila, 230.
—— nyroca, 219, 447.
Furnarius cristatus, 495.
—— rufus, 467.
—— tricolor, 495.

Galeoscoptes carolinensis, 243.
Galerita cristata caucasica, 490.
Gallinæ, 424.
Gallinago australis, 203, 373.
—— brehmi, 323.
—— fasciata, 203, 373.
—— major, 306.
—— paraguaiæ, 472.
Gallinula chloropus, 76, 110.
Gallus bankiva, 374.
Gambetta melanoleuca, 472.
Garrulax belangeri, 71.
—— leucolophus, 71.
—— palliatus, 479.
—— schistochlamys, 479.
Garrulus lanceolatus, 225.
Gecinus affinis, 162.
—— algirus, 24.
—— awokera, 4, 40.
—— caniceps, 17.
—— canus, 3, 14, 15, 16, 19, 20, 21, 23, 37.
—— chlorigaster, 1, 6, 180, 183, 188.
—— chlorolophus, 1, 6, 184, 185, 189.
—— chlorophanes, 180.
—— chlorophaus, 180.
—— chloropus, 185.
—— dimidiatus, 162, 166.
—— erythropygius, 2, 6, 170, 189, 190, 191, 193.
—— flavinucha, 189.
—— flavirostris, 2, 154, 157, 158.
—— frondium, 33.
—— gorii, 2, 5, 157, 158, 159, 161.
—— guerini, 2, 3, 10, 11, 14, 15, 23.
—— karelini, 1, 2, 33.

Gecinus nigrigenis, 170 189, 191, 192.
—— nipalensis, 185.
—— occipitalis, 3, 6, 9, 10, 11, 176.
—— pinetorum, 33.
—— puniceus, 1, 6, 176, 177.
—— saundersi, 33, 36.
—— sharpii, 2, 4, 22, 27, 29, 30, 35, 37, 38, 454.
—— squamatus, 2, 4, 153, 156, 157, 158, 159, 160, 161.
—— striolatus, 2, 5, 7, 10, 11, 164, 171, 174, 175, 176.
—— tancola, 2, 12, 14, 15.
—— vaillanti, 4, 24, 26.
—— virescens, 33.
—— viridanus, 5, 164, 165, 166, 170, 171, 174, 176.
—— viridicanus, 17.
—— viridis, 1, 2, 4, 19, 20, 22, 27, 29, 30, 32, 36, 37, 38, 40, 157.
—— vittatus, 5, 161, 162, 164, 165, 166, 170, 174, 176.
—— weberi, 171.
—— xanthoderus, 181, 183, 185.
—— xanthopygius, 1, 172, 174.
—— zarudnoi, 154, 158.
Geocichla aurata, 478.
—— citrina, 478.
—— schistacea, 272.
—— unicolor, 222.
Geoffroyius timorlaoensis, 271.
Geospiza difficilis, 280.
Geothlypis poliocephala, 138.
—— trichas, 252.
—— —— occidentalis, 252.
—— (Chamæthlypis) palpebralis, 139.
Geronticus melanocephalus, 473.
Gerygone flaviventris, 363.
Glareola ocularis, 304.
—— orientalis, 203, 373.
Glaucidium gnoma hoskinsii, 480.
—— passerinum, 342.

Glaucopis cinerea, 133.
—— wilsoni, 133.
Gorsachius melanolophus, 204.
Gracula javanensis, 410.
Graculus carbo, 225.
Grallæ, 427.
Graucalus sumatrensis, 198.
Guira piririgua, 462, 468.
Guiraca cærulea, 261.
—— cyanea argentina, 280.
—— parellina, 261.
Gymnocrex plumbeiventris, 272.
Gymnoglaux nudipes, 342.
Gyps fulvus, 102, 114, 124, 455.

Hadrostomus homochrous, 490.
Hæmatopus frazari, 268.
Halcyon chelicutensis, 297.
—— chloris, 197.
—— coromanda, 197, 373.
—— fusca, 225.
—— pileata, 197.
—— semicærulea, 297, 365.
—— senegalensis, 297.
—— smyrnensis, 102.
—— vagans, 363.
Haliaëtus leucogaster, 195.
—— leucoryphus, 72.
—— pelagicus, 232.
Halodroma urinatrix, 309.
Harpa novæ-zealandiæ, 363.
Harpactes hodgsoni, 396.
—— kasumba, 396.
—— oreskios, 395.
—— whiteheadi, 395.
Harporhynchus guttatus, 244.
—— longirostris, 244.
—— melanostoma, 244.
Hedymeles ludovicianus, 260.
Heliornis petersi, 483.
—— senegalensis, 483.
Helminthophaga peregrina, 247.
Helminthotherus vermivorus, 246.
Helodromus ochropus, 306.
Helotarsus ecaudatus, 266.
—— leuconotus, 266.
Hemichelidon sibirica, 373.
Hemipodii, 427.
Hemixus malaccensis, 368.
—— sumatranus, 368.
Henicocichla noveboracensis, 278.
Henicurus maculatus, 225.
Herodias intermedia, 203, 373.
Heteralocha acutirostris, 133.
Heterocercus aurantiivertex, 490.
Heteropelma flavicapillum, 490.
—— igniceps, 490.
—— wallacii, 490.
Hierococcyx bocki, 394.
—— strenuus, 373.
Hierofalco grebnitzkii, 144.
Himantopus candidus, 448.
—— knudseni, 143.
—— pectoralis, 369.
Himatione parva, 143.
Hirundo erythrogaster, 256.
—— —— swainsoni, 256.
—— gutturalis, 374.
—— javanica, 200, 234.
—— namiyei, 234.
—— nigricans, 45.
—— rufula, 100, 112, 116.
—— rustica, 120, 200, 316, 374, 444.
—— savignii, 120, 216.
Homorus lophotes, 279.
Hoplopterus spinosus, 305.
Horornis orcophila, 388.
Hydrochelidon hybrida, 204, 373.
—— indica, 225.
—— nigra, 306.
Hydrophasianus chirurgus, 222.
Hyloterpe griseola, 198.
Hyloterpe plateni, 372, 374.
—— whiteheadi, 198, 372.
Hyphantornis spekei, 365.
Hypolais elaica, 105, 112, 124.
Hypothymis azurea, 200, 374.
—— occipitalis, 374.
Hypotriorchis femoralis, 470.
—— severus, 373.
Hypsipetes amaurotis, 233.
—— —— squamiceps, 232.
—— pryeri, 233.
—— psaroides, 224.

Iache lawrencei, 139.
Ianthia cyanura, 225.
Ianthœnas ianthina, 144.
—— jouyi, 144, 235.
Ibis aimolene, 473.
—— bengala, 473.
—— leucon, 473.
—— macei, 473.
—— melanocephala, 143, 473.
—— propinqua, 143, 473.
Icoturus namiyei, 233.
Icteria viridis, 252.
Icterus auratus, 264, 271.
—— cucullatus, 264.
—— —— igneus, 264.
—— giraudi, 264.
—— gularis, 264.
—— sclateri, 271.
—— spurius, 263.
—— wagleri castaneopectus, 269.
Impennes, 434.
Iodopleura leucopygia, 490.
Iole striaticeps, 200, 373.
—— viridescens, 200.
Irena tweeddalii, 200.
Irrisor cyanomelas, 297.
Ispidina picta, 365.
Iynx torquilla, 72.

Junco hyemalis oregonus, 267.
—— —— shufeldti, 267.
—— insularis, 133.

Ketupa javanensis, 341, 342.
—— javanica, 336.

Lagopus pyrenaica, 77.
Lalage dominica, 373.
Lamprocorax minor, 271.
Laniagra guianensis, 90.
Laniarius poliocephalus, 301.
—— sulphureipectus, 301.
Lanius algeriensis, 75.
—— caudatus, 301.
—— collurio, 114, 124, 229.
—— erythronotus, 222, 223.
—— hardwicki, 226.
—— ludovicianus gambeli, 139.
—— luzionensis, 198.
—— meridionalis, 454.
—— nubicus, 114, 124.
—— vittatus, 229.
Larus affinis, 350.
—— argentatus, 79.
—— ——, var. vegæ, 350.
—— cachinnans, 79, 80.
—— canus, 442, 443.
—— dominicanus, 472.
—— eburneus, 440, 441, 443.
—— fuscus, 79, 382, 442, 443.
—— glaucus, 350.
—— hemprichi, 306.
—— lambruschinii, 324.
—— leucocephalus, 324.
—— maculipennis, 472.
—— melanocephalus, 111, 113.
—— minutus, 480.
—— schistisagus, 144.
—— scopulinus, 44.
—— vegæ, 349.
Leistes superciliaris, 463.
Leptopogon erythrops, 489.
Leucotreron leclancheri, 374.
Lichenops perspicillatus, 465.
Limicola platyrhyncha, 374.
Limicolæ, 431.
Limnocorax niger, 304.
Limosa lapponica, 445.
—— melanura, 236.
Limosa melanura melanuroides, 236.
—— rufa, 236.
—— —— uropygialis, 236, 348.
Linota cannabina, 230.
—— rufescens, 230.
Lioptilus chocolatinus, 485.
Lobiophasis bulweri, 413, 414.
—— castanei-caudatus, 415.
Lobivanellus albiceps, 369.
—— goensis, 224.
—— lobatus, 283.
—— personatus, 45, 283.
—— superciliosus, 369.
Lophoceros camurus, 57, 62.
—— damarensis, 58, 66, 68.
—— deckeni, 59, 68, 279.
—— elegans, 59, 68.
—— epirhinus, 57, 64.
—— erythrorhynchus, 56, 58, 65, 66, 68.
—— fasciatus, 56, 59.
—— flavirostris, 58, 67.
—— forskalii, 63.
—— hartlaubi, 59, 69.
—— hemileucus, 63.
—— hemprichi, 57, 60.
—— leucomelas, 58, 67, 68.
—— melanoleucus, 56, 57, 61, 64, 292.
—— monteiri, 57, 62.
—— nasutus, 56, 57, 63, 64.
—— pallidirostris, 58, 63.
—— semifasciatus, 57, 59.
Lophorhina minor, 272.
Lorius flavo-palliatus, 272.
Loxia curvirostra, 452.
Lycocorax obiensis, 272.
Lyncornis bourdilloni, 146.

Machetes pugnax, 78.
Machetornis rixosa, 465.
Macropygia tenuirostris, 203.
Malacolophus canus, 17.
—— dimidiatus, 162.
Malacolophus occipitalis, 6.
—— squamatus, 153.
—— viridis, 33.
Marecа chiloensis, 471.
—— penelope, 228, 230, 446.
Margarops montanus rufus, 268.
Masius chrysopterus, 137.
—— coronulatus, 137.
Megalæma henricii, 394.
—— pulcherrima, 393.
Megalurus palustris, 71.
Megapodius cumingi, 205, 411.
Megascops aspersus, 269.
—— elegans, 232.
—— hastatus, 139, 141.
—— vermiculatus, 141.
—— vinaceus, 269.
Melanocorypha calandra, 113.
Melanoptila glabrirostris, 244.
Meleagris gallopavo mexicana, 142.
Melidectes emilii, 272.
Melierax poliopterus, 290.
Melilestes iliolophus, 271.
Melittophagus cyanosticus, 296.
Melophus melanicterus, 72, 225.
Mergus serrator, 228, 230.
Merops ægyptius, 322.
—— apiastur, 75, 112, 221, 223, 322.
—— bullockii, 365.
—— nubicus, 296.
—— pusillus, 365.
—— superciliosus, 296.
Merula alpestris, 310.
—— collaris, 310.
—— fœa, 279.
—— insignis, 310.
—— javanica, 387.
—— maculata, 310.
—— merula, 311.
—— montana, 310.
—— seebohmi, 386.
—— torquata, 309, 310.
—— —— alpestris, 310, 311, 312.
—— —— orientalis, 311.
—— vociferans, 310.

Metoponia pusilla, 226.
Microdynamis parva, 272.
Microhierax cærulescens, 73.
Micropus melanocephalus, 200.
Miliaria miliaria, 280.
Milvago chimango, 468, 470.
Milvulus tyrannus, 466.
Milvus glaucopus, 136.
—— ictinus, 366, 452.
—— migrans, 295, 452.
—— regalis, 366.
Mimus calandria, 462.
—— gilvus, 244.
—— —— gracilis, 245.
—— modulator, 462.
—— triurus, 279.
Miro albifrons, 363.
—— australis, 363.
Mitrephanes phæocercus tenuirostris, 480.
Mixornis woodi, 200.
Mniotilta varia, 246.
Molothrus badius, 279.
—— bonariensis, 463, 464.
—— rufo-axillaris, 279.
Monticola solitaria, 201.
Montifringilla blanfordi, 280.
Motacilla alba, 346.
—— cinereocapilla, 321.
—— flava, 201, 321, 374.
—— melanocephala, 322.
—— melanope, 73, 219, 316.
—— vidua, 292, 301.
Muelleripicus pulverulentus, 197.
Munia atricapilla, 202, 373.
—— oryzivora, 361.
—— undulata, 226.
Muscicapa atricapilla, 74.
—— griseisticta, 200, 374.
—— manillensis, 200, 374.
Muscicapula hyperythra, 385.
—— maculata, 385.
—— westermanni, 385.
Muscisaxicola macloviana, 465.
Muscivora occidentalis, 490.
Myiarchus berlepschi, 480.
—— brachyurus, 139.
Myiobius flavicans, 490.
—— roraimæ, 490.
Myiodioctes mitratus, 253.
Myiodynastes audax insolens, 139.
Myiomoira macrocephala, 363.
—— toitoi, 363.
—— traversi, 308.
Myiophoneus temminckii, 225.
Myiotheretes rufiventris, 464.
Myristicivora bicolor, 374.
Myrmeciza boucardi, 129, 130.
—— longipes, 129, 130, 233.
—— swainsoni, 130.
Myrmothera longipes, 130.
Myzanthe pygmæa, 201.
Myzomela nigrita, 271.

Nectarinia asiatica, 230.
Nectris carneipes, 356.
—— fuliginosa, 355.
Neofalco albigularis, 138.
—— deiroleucus, 138.
Nestor meridionalis, 45, 363.
—— notabilis, 363.
—— productus, 150.
—— superbus, 45.
Nettapus auritus, 307.
—— pulchellus, 132.
Nigrita cabanisi, 292.
Niltava oatesi, 279.
Ninox japonicus, 232.
—— scutulatus, 232, 373.
Nisaetus fasciatus, 122.
Noctua passerina, 371.
Nothura maculosa, 134, 473.
Nucifraga brachyrhynchus, 238.
—— caryocatactes leptorhynchus, 238.
—— —— pachyrhynchus, 238.
—— colun biana, 240.
—— hemispila, 240.
Nucifraga macrorhynchus, 238.
—— multistriata, 240.
Numenius arquata, 217, 236, 306, 416, 445.
—— —— lineata, 236.
—— cyanopus, 132.
—— lineatus, 203, 373.
—— phæopus, 236, 306, 445.
—— —— variegatus, 236.
—— tenuirostris, 321, 482.
Numida pucherani, 295.
Nuttallornis borealis, 138.
Nyctea nivea, 336, 341, 342.
Nycticorax obscurus, 471.
Nyctidromus albicollis merrilli, 268.

Oceanites marinus, 80, 81, 82.
Ochthodiæta fusco-rufus, 489.
Ochthœca citrinifrons, 489.
—— leucometopa, 489.
—— pulchella, 489.
Ochthornis littoralis, 489.
Œdicnemus scolopax, 77.
Œna capensis, 294.
Œstrelata fuliginosa, 358, 360.
—— gularis, 358.
—— heraldica, 357.
—— hypoleuca, 359.
—— mollis, 358, 359.
—— neglecta, 354.
—— solandi, 358.
—— torquata, 359.
Oidemia (Melanetta) stejnegeri, 138.
Oporornis formosa, 252.
Oreicola ferrea, 72.
Oreocincla varia, 212.
Oreoctistes leucops, 388.
Oreomyza bairdi, 143.
Oriolus auratus, 303.
—— kundoo, 222.
—— larvatus, 266.
—— palawanensis, 200, 374.
—— squamiceps, 232.
—— xanthonotus, 200.
Orœcetes cinclorhynchus, 225.

Ortalis vetula pallidiventris, 138.
Orthnocichla whiteheadi, 478.
Orthotomus ruficeps, 201.
Osmotreron vernans, 202.
Otis macqueeni, 482.
—— tarda, 76, 98, 230.
—— tetrax, 97.
—— undulata, 76.
Otocompsa leucogenys, 222, 223.
Otocorys chrysolæma, 271.
Otophanes macleodii, 269.
Otus brachyotus, 342.
—— vulgaris, 341.
Oxycerca everetti, 202.

Pachycephala christophori, 271.
—— gilberti, 274.
Pachyprora orientalis, 298.
Pachyrhamphus polychropterus, 461, 466.
—— spodiurus, 490.
Palæeudyptes antarcticus, 275.
Pandion haliaetus, 195, 373.
Panurus biarmicus, 496.
Paroaria capitata, 280.
—— cervicalis, 280.
—— cucullata, 280, 361.
—— dominicana, 280.
—— gularis, 280.
—— nigrigenis, 280.
Parotia lawesi, 271, 272.
Parra africana, 304.
—— capensis, 266.
Parula americana, 247.
Parus amabilis, 373.
—— ater, 119, 120.
—— atriceps, 71.
—— britannicus, 119.
—— carolinensis agilis, 268.
—— cinereus, 222.
—— cypriotes, 119.
—— elegans, 201.
—— kamtschatkensis, 237.
—— palustris, 237.
—— —— baicalensis, 237.
—— stoneyi, 139.
Passer cinnamomeus, 219.
Passer domesticus, 272, 361.
—— —— griseigularis, 280.
—— montanus, 235.
—— ——, var. malaccensis, 364.
—— pyrrhonotus, 280.
—— saturatus, 235.
—— swainsoni, 365.
Passerculus sandwichensis, 262.
Passerina cyanea, 261.
—— parellina indigotica, 139.
—— sumichrasti, 139.
—— versicolor pulchra, 139.
Pelargopsis gouldi, 373, 375.
—— leucocephala, 197, 375.
Perdix graeca, 321.
Pericrocotus cantonensis, 234.
—— cinereus, 189, 234, 373.
—— igneus, 198.
—— japonicus, 234.
—— pulcherrimus, 279.
—— rubro-limbatus, 279.
—— speciosus, 224.
—— tegimæ, 234.
Perissoglossa tigrina, 251.
Pernis ptilorhynchus, 72, 195.
Petrochelidon pyrrhonota, 256.
—— swainsoni, 256.
Petroica toitoi, 42.
Petroica macrocephala, 309.
—— toitoi, 309.
Peucæa ruficeps, 268.
—— —— homochlamys, 280.
—— scottii, 268.
Phacellodomus frontalis, 141.
—— inornatus, 141.
—— ruber, 467.
—— striaticollis, 467.
Phæornis myiadestina, 143.
Phæospiza thomensis, 482.
Phalacrocorax africanus, 307.
Phalacrocorax melanoleucus, 492.
—— novæ-hollandiæ, 44.
—— punctatus, 43.
—— pygmæus, 73.
—— stictocephalus, 492.
Phalænoptilus nuttalli californicus, 139.
Phalaropus fulicarius, 349.
Phasianus colchicus, 227, 230, 312.
—— decollatus, 313, 314, 315.
—— elegans, 312, 313, 315, 316.
—— formosanus, 313, 314.
—— sladeni, 315, 316.
—— strauchi, 313, 314, 315.
—— torquatus, 312, 313, 314.
—— versicolor, 313, 315.
—— vlangali, 313, 315, 316.
Phegornis cancellatus, 369.
—— leucopterus, 369.
—— mitchelli, 369.
Philacte canagica, 144.
Philagrus melanorhynchus, 365.
Philetærus cabanisi, 290, 292.
Phœnicopterus ruber, 150.
Phœnicothraupis insularis, 259.
—— salvini, 259.
Pholidauges leucogaster, 303, 365.
Pholidophalus casuarius, 55.
—— fistulator, 54.
—— sharpii, 54, 55.
Phonipara intermedia, 261.
—— olivacea intermedia, 261.
Phonygama purpureo-violacea, 271.
Photodilus badius, 335.
Phoyx purpurea, 143.
Phrygilus caniceps bolivianus, 280.
—— formosus, 368.
—— gayi, 367, 368.
—— punensis, 368.

Phyllergates cinereicollis, 479.
—— cucullatus, 479.
Phyllornis palawanensis, 200.
Phylloscopus affinis, 148.
—— borealis, 201.
—— magnirostris, 147, 148.
—— rufus, 105.
—— sibilatrix, 112.
—— superciliosus, 224.
—— viridanus, 148.
Phytotoma rutila, 279, 466.
Pica caudata, 237.
—— —— leucoptera, 237.
—— kamtschatica, 237.
—— pica, 72.
Picolaptes rikeri, 141.
Picus affinis, 161; 164, 165, 166.
—— algirus, 24.
—— awokera, 40.
—— barbatus, 6.
—— bengalensis, 164.
—— cabanisi, 237.
—— caniceps, 16.
—— canus, 15, 20.
—— —— jessoensis, 17, 19.
—— —— perpallidus, 17, 21.
—— —— viridi-canus, 19.
—— chlorigaster, 180.
—— chloris, 16.
—— chlorolophus, 184.
—— chloropus, 184.
—— dimidiatus, 153, 162.
—— guerini, 12.
—— gularis, 176.
—— himalayanus, 225.
—— hyperythrus, 158.
—— japonicus, 237.
—— jessoensis, 20.
—— karelini, 33, 36.
—— luteus cyanopus persicus, 36, 40.
—— macii, 72.
—— major, 237.
—— —— cissa, 237.
—— mentalis, 180.
—— mixtus, 467.
—— nepalensis, 184.
—— nigrogenis, 189.
—— norvegicus, 16.
—— occipitalis, 6.
Picus persicus, 32.
—— puniceus, 176.
—— semirostris, 32, 36.
—— squamatus, 153, 166.
—— striolatus, 171.
—— tancola, 12.
—— viridanus, 166.
—— viridi-canus, 16.
—— viridis, 24, 27, 30.
—— vittatus, 166.
—— xanthoderus, 181.
—— (Chloropicus) canus, 24.
—— (——) viridis, 24.
Pinguinaria patagonica, 327.
Pinicola enucleator kadiaka, 139.
Pipilo consobrinus, 133.
Piprites chlorion, 137.
—— chloris, 137.
—— griseiceps, 137.
—— pileatus, 137.
—— tschudii, 137.
Piranga flammea, 139.
—— leucoptera latifasciata, 139.
Pitangus bolivianus, 465.
Pitta erythrogastra, 200, 373, 375.
—— propinqua, 374, 375.
—— sordida, 200.
Platalea leucorodia, 78, 449.
—— major, 143.
—— minor, 143.
—— regia, 45.
Platycercus alpinus, 363.
—— auriceps, 363.
—— novæ zealandiæ, 363.
Platypsaris insularis, 139.
Platyrhynchus albigularis, 489.
—— flavigularis, 489.
Plectophenax nivalis townsendi, 139.
Plectropterus gambensis, 266.
Plegadis falcinellus, 111.
—— guarauna, 471.
Ploceus badius, 293.
—— capitalis, 293.
—— dimidiatus, 293.
—— jacksoni, 290, 293.
—— melanoxanthus, 302.
—— nigriceps, 302.
Plotus levaillanti, 307.
—— melanogaster, 412.
Pluvianellus sociabilis, 369.
Podargus ocellatus, 272.
Podiceps capensis, 307.
—— minor, 113, 222.
—— nigricollis, 454.
—— occidentalis, 148, 149.
—— philippensis, 222.
Podicipes, 433.
Podilymbus podiceps, 473.
Pœcilonetta erythrorhyncha, 307.
Pogonorhynchus melanopterus, 291.
Pogonornis cincta, 363.
Polioaëtus ichthyaëtus, 145, 223.
Poliopsar andamanensis, 476.
—— blythi, 476.
—— burmanicus, 476.
—— cambodianus, 476, 477.
—— cineraceus, 476, 477.
—— colletti, 476, 477.
—— erythropygius, 476.
—— leucocephalus, 476, 477.
—— malabaricus, 476.
—— nemoricola, 476.
—— sericeus, 476.
Polioptila bilineata, 246.
—— cærulea, 245.
—— —— cæsiogaster, 139, 245.
—— cæsiogaster, 245.
Poliospiza isabellina, 485.
—— rufibrunnea, 280, 482.
—— tristriata, 485.
Polyborus lutosus, 133.
Polyplectrum napoleonis, 203.
Poospiza boliviana, 280.
—— nigro-rufa, 463.
Porphyrio alleni, 304.
—— antiquorum, 322.
Porzana albigularis, 140.
—— alfari, 140.
—— parva, 110.
—— spiloptera, 285.
Pratincola ferrea, 224.
—— indica, 224.
—— maura, 72.
Prinia mystacea, 299.
Prioniturus cyaneiceps, 194, 372, 374.

Prioniturus discurus, 194.
—— platenæ, 372, 374.
Prionochilus johannæ, 201, 372, 374.
—— plateni, 372.
—— xanthopygius, 201.
Procellaria affinis, 358.
—— alba, 354.
—— anceitumensis, 359.
—— chlororhyncha, 352.
—— desolata, 359.
—— fuliginosa, 355, 360.
—— gavia, 356.
—— gouldi, 360.
—— grisea, 355.
—— gularis, 358.
—— macroptera, 360.
—— obscura, 357.
—— phillipii, 358.
—— sphenura, 352.
—— tenuirostris, 356.
—— torquata, 360.
Progne purpurea, 255.
Prosthemadera novæ zealandiæ, 363.
Protonotaria citrea, 246.
Psaltriparus lloydi, 268.
Pseudochloris lutea, 280.
Pseudoleistes virescens, 463.
Pseudorectes cristatus, 436.
Psittacula cyanochlora, 493.
—— deliciosa, 493.
—— exquisita, 493.
—— spengeli, 493.
Pternistes clappertoni, 295.
Pterocles alchata 77, 323, 450.
—— arenarius, 77.
—— decoratus, 294.
—— exustus, 294.
—— gutturalis, 294.
Pteroclets, 425.
Ptilocichla falcata, 200.
Ptilogonys cinereus molybdophanes, 139.
Ptilopus melanocephalus, 202, 282.
Pucrasia nipalensis, 230.
Puffinus amaurosoma, 355.
—— anglorum, 80, 82.
—— assimilis, 357.
—— brevicaudus, 356.
—— bulleri, 353, 354.
—— carneipes, 355.
Puffinus chlororhynchus, 352, 353, 354.
—— creatopus, 353.
—— cuncatus, 353.
—— fuliginosus, 355.
—— gavia, 356.
—— griseus, 355, 356.
—— kubli, 80, 82.
—— nugax, 357.
—— obscurus, 80, 81, 82, 357.
—— opisthomelas, 356, 357.
—— sphenurus, 352.
—— stricklandi, 355.
—— tenuirostris, 356.
—— tristis, 309, 355.
Pulsatrix torquata, 341, 342.
Pycnonotus cinereifrons, 200.
—— xantholæmus, 146.
—— xanthopygius, 111.
Pyranga æstiva, 258.
—— azaræ, 462.
—— roseigularis, 258.
—— rubra, 258.
Pyrocephalus rubineus, 466.
Pyromelæna flammiceps, 266.
—— oryx, 266.
Pyromelana diademata, 290, 302.
—— nigriventris, 302.
Pyrrhocorax alpinus, 221.
Pyrrhospiza punicea humii, 280.
Pyrrhula cassini, 144.
—— cineracea, 144.
—— griseiventris, 144.
—— kamtschatica, 237.
—— kurilensis, 144, 280.
—— major, 144.
—— nipalensis, 361.
—— pyrrhula, 144.
—— —— europæa, 144.
—— —— kamtschatica, 144.
Pyrrhulauda leucotis, 301.
Pytilia melba, 302.

Querquedula angustirostris, 323, 324.
—— crecca, 446.
Quiscalus macrurus, 265.

Rallicula forbesi, 271.
Rallina fasciata, 373, 374.
Rallus antarcticus, 471.
Rallus coryi, 268.
—— longirostris scotti, 481.
—— maculatus, 471.
—— rhytirhynchus, 471.
—— salinasi, 285.
Rectes analogus, 436, 437.
—— aruensis, 435, 437.
—— brunneiceps, 436, 437.
—— cirrhocephalus, 435, 436, 437.
—— cristatus, 436.
—— decipiens, 436, 437.
—— dichrous, 435, 436, 437.
—— meridionalis, 437.
—— rubiensis, 436, 437.
—— tibialis, 435, 437.
—— uropygialis, 435, 437.
Recurvirostra avocetta, 448.
Regulus obscurus, 133.
—— satrapa aztecus, 139.
Rhinomyias gularis, 385.
—— pectoralis, 386.
Rhipidura flabellifera, 363.
—— fuliginosa, 363.
—— nigritorquis, 199.
Rhodospingus cruentus, 280.
—— mentalis, 280.
Rhynchaceros deckeni, 68.
—— erythrorhynchus, 65.
—— flavirostris, 67.
Rhynchæa australis, 373.
—— capensis, 306.
—— semicollaris, 369, 472.
Rhynchocyclus fulvipectus, 490.
Rhynchotis rufescens, 473.
Rissa tridactyla, 443.
Rostrhamus sociabilis, 470.
Ruticilla leucocephala, 219.
—— phœnicurus, 228, 229.
—— titys, 100.

Salpinctes guadalupensis, 133.
Saltator viridis, 89, 90.
Saltatricula multicolor, 279.
Sarcorhamphus gryphus, 270.

Saxicola deserti, 283, 284, 488.
—— isabellina, 149, 299, 448.
—— leucura, 460.
—— morio, 98, 109, 119, 124,
—— œnanthe, 149, 150, 346.
—— stapazina, 488.
Sceloglaux albifacies, 336, 363.
Schistospiza griseocristatus, 280.
Schizorhis leucogaster, 298.
Scolopax rochusseni, 369.
—— saturata, 369.
Scops brasilianus, 141.
—— brucei, 145.
—— elegans, 232.
—— everetti, 374, 375.
—— fuliginosa, 197, 374, 375.
—— giu, 114.
—— glabripes, 232.
—— japonicus, 232.
—— leucotis, 341, 342, 343, 344.
—— luciæ, 478.
—— nudipes, 141.
—— obsoletus, 145.
—— rufescens, 478.
—— semitorques, 232.
—— umbratilis, 197.
Sciurus noveboracensis notabilis, 252.
Selasphorus rufus, 210.
Sericornis humilis, 93.
—— magna, 93.
Serinus burtoni, 280.
—— crocopygius, 280.
—— flavigula, 488.
—— leucopterus, 280.
—— reichenowi, 488.
Serresius galeatus, 150.
Setophaga ruticilla, 253.
Sigmodus tricolor, 301.
Siphia erithacus, 199, 372, 374.
—— lemprieri, 199, 373, 375.
—— platenæ, 372, 374.
—— ramsayi, 372, 373, 375.
Sirystes albocinereus, 490.
Sisopygis icterophrys, 465.
Sitta albifrons, 237, 241.
—— amurensis, 241.
—— —— clara, 240.
Sitta cæsia, 237, 241.
—— —— albifrons, 241.
—— —— uralensis, 237.
—— clara, 241.
—— europæa, 322.
—— frontalis, 71.
—— syriaca, 322.
Siurus auricapillus, 251.
—— motacilla, 251.
—— noveboracensis, 252, 494, 495.
Somateria spectabilis, 351.
—— stelleri, 350.
Spatula clypeata, 446.
Speotyto cunicularia, 336, 340, 342, 469.
Spermophila moreleti, 261.
—— palustris, 280.
Sphagolobus atratus, 51.
Spheniscus demersus, 416.
—— patagonicus, 327.
Sphenocercus sphenurus, 225.
Sphenœacus fulvus, 308.
—— punctatus, 308, 363.
Spiloglaux novæ zealandiæ, 363.
Spilornis sp., 195.
—— bacha, 373.
—— holospilus, 195, 373.
—— pallidus, 195, 373.
Spindalis benedicti, 258.
—— exsul, 258.
—— zena, 140.
—— —— townsendi, 139.
Spiza americana, 263.
Spizaetus coronatus, 266.
—— limnaetus, 195.
—— philippensis, 373.
Spizella pinetorum, 262.
Stephanophorus leucocephalus, 279.
Stercorarius buffoni, 349.
—— parasiticus, 309.
—— pomarinus, 349.
—— richardsoni, 349.
Sterna antarctica, 45.
—— bergii, 204.
—— caspia, 113.
—— fluviatilis, 79.
—— fuliginosa, 277.
—— melanauchen, 874.
—— minuta, 112.
—— sinensis, 204, 373.
Strepsilas interpres, 203, 348.
Stringops habroptilus, 363.
Strix sp., 336.
—— delicatula, 336.
Strix flammea, 96, 336, 337, 338, 341, 342, 468.
—— novæ hollandiæ, 341.
—— perlata, 336, 468.
—— pratincola, 341.
Sturnia sinensis, 476.
—— violacea, 374.
Sturnus caucasicus, 439.
—— cineraceus, 476.
—— humii, 438.
—— indicus, 438, 439.
—— menzbieri, 438, 439.
—— minor, 439, 440.
—— nitens, 218, 438.
—— nobilior, 439.
—— poltaratzkii, 439.
—— porphyronotus, 438, 440.
—— purpurascens, 438, 439, 440.
—— sericeus, 476.
—— unicolor, 218, 222, 322, 440.
—— vulgaris, 322, 438, 439, 440.
Sula brewsteri, 481.
—— gossi, 481.
Surnia nyctea, 346.
Surniculus lugubris, 198.
Sycalis flaveola jamaicæ, 280.
—— lutea, 280.
—— taczanowskii, 280.
Sygmodus tricolor, 142.
Sylvania mitrata, 253.
Sylvia arundinacea, 322.
—— bonelli, 322.
—— cetti, 322.
—— conspicillata, 101, 112.
—— curruca, 224.
—— hippolais, 321.
—— hortensis, 124.
—— icterina, 321.
—— luscinioides, 322.
—— melanocephala, 102, 460.
—— melanothorax, 101, 102, 109, 116.
—— mystacea, 141.
—— nisoria, 488.
—— palustris, 322.
—— rubescens, 141.
—— rueppelli, 108.
—— rufa, 322.
—— sibilatrix, 322.
—— trochilus, 322.
—— turdoides, 322.
Sylviella micrura, 299.

Synallaxis sordida, 467.
—— spixi, 467.
Syrnium aluco, 341, 342.
—— bohndorfi, 362.
—— indranee, 336, 342.
—— nebulosum, 341.
—— sinense, 196.
—— whiteheadi, 196, 372, 374.
—— wiepkeni, 372, 374.
—— woodfordi, 336.
Syrrhaptes paradoxus, 375, 376, 377, 379, 451.

Tachybaptes dominicus, 473.
Tachycineta albilinea, 257.
Tadorna casarca, 73.
—— cornuta, 447.
—— rutila, 447.
—— variegata, 410.
Tænioptera coronata, 464.
—— dominicana, 464.
—— holospodia, 489.
—— irupero, 465.
—— nengeta, 464.
—— rubetra, 279, 465.
Tanagra bonariensis, 462.
Tantalus ibis, 266.
—— melanocephalus, 473.
Tanygnathus luzonensis, 194, 282.
Tanysiptera microrhyncha, 272.
Tchitrea paradisea, 222, 223.
—— perspicillata, 266.
Telephonus bucbakiri, 108.
—— jamesi, 290, 300.
Terekia cinerea, 203, 373.
Terpsiphone cristata, 292, 299.
Tetrao albus, 347.
—— bonasia, 237.
—— —— septentrionalis, 237.
—— tetrix, 135, 230.
—— urogallus, 135, 230.
Tetraogallus himalayensis, 220.
Textor albirostris, 361.
—— boehmi, 361.
—— dinamelli, 361.
—— panicivora, 361.
Thamnophilus guianensis, 87, 89.
—— rohdei, 131.
Thaumalea picta, 230.
Thiellus chlororhynchus, 352.
—— sphenurus, 352.
Threskiornis melanocephalus, 473.
Thriponax hargitti, 197.
Thryothorus brevicaudus, 133.
—— maculipectus canobrunneus, 139.
—— —— umbrinus, 139.
Tichodroma muraria, 488.
Tiga everetti, 197.
Tinnunculus alaudarius, 229, 230, 295.
—— cenchris, 98, 102, 106, 112.
—— cinnamominus, 470.
Tityra nigriceps, 481.
—— personata griseiceps, 481.
Tmetoceros abyssinicus, 48, 49.
—— habessinicus, 48.
Toccus coronatus, 61.
—— elegans, 68.
—— pœcilorhynchus, 64.
Tockus bocagei, 69.
—— camurus, 62.
—— deckeni, 68.
—— erythrorhynchus, 65, 66.
—— fasciatus, 59.
—— flavirostris, 67, 68.
—— hartlaubi, 69.
—— hemprichii, 60.
—— limbatus, 60.
—— melanoleucus, 61.
—— monteiri, 62.
—— nagtglassi, 69.
—— nasutus, 63, 64.
—— pallidirostris, 64.
—— pœcilorhynchus, 63.
—— pulchrirostris, 62.
—— semifasciatus, 60.
Todirostrum ruficeps, 489.
Totanus brevipes, 203.
—— calidris, 203, 449.
—— canescens, 445, 449.
—— glareola, 203.
—— hypoleucus, 445.
—— ochropus, 449.
—— pugnax, 348, 420.
Trachyphonus erythrocephalus, 290, 291.
—— shelleyi, 290, 291.
—— versicolor, 291.
Tragopan abyssinicus, 48.
Treron formosa, 235.
—— nasica, 202.
Treron permagna, 235.
—— sieboldi, 235, 236.
—— sororius, 236.
—— wakefieldi, 303.
Tringa albescens, 374.
—— alpina, 445.
—— arenaria, 349.
—— canutus, 348, 445.
—— minuta, 306, 348.
—— —— ruficollis, 348.
—— ruficollis, 203, 369.
—— subarquata, 78, 306, 349.
—— subminuta, 348.
Tringoides hypoleucus, 78, 203.
Trochalopteron meridionale, 146.
Trochalopterum lineatum, 225.
Trochilus colubris, 210.
—— violajugulum, 480.
Troglodytes beani, 245.
—— cahooni, 269.
Trogon ambiguus, 140.
Trupialis defilippii, 463, 464.
Tubinares, 430.
Turdinulus exsul, 479.
—— roberti, 479.
Turdinus rufifrons, 200.
Turdus albiceps, 211.
—— aliciæ, 243.
—— eclænops, 281.
—— chrysolaus, 142, 281.
—— falklandicus, 214.
—— fuscescens, 243.
—— grayi, 243.
—— javanicus, 215.
—— jouyi, 142.
—— leucomelas, 462.
—— mandarinus, 211.
—— merula, 211, 299.
—— migratorius, 214.
—— mustelinus, 242.
—— obscurus, 482.
—— pilaris, 134.
—— rufiventris, 462.
—— samoensis, 211.
—— serranus, 211.
—— tephronotus, 299.
Turnagra crassirostris, 133.
—— hectori, 133.
Turnix fasciata, 203, 374.
—— haynaldi, 374.
—— nigrescens, 203, 374.

Turnix sylvatica, 454.
Turtur auritus, 113.
—— communis, 445.
—— dussumieri, 374.
—— meena, 222.
—— rupicola, 222.
—— semitorquatus, 303.
—— tigrina, 203, 373.
Turturœna malherbii, 361.
Tyranniscus cinereiceps, 490.
—— gracilipes, 490.
Tyrannus borealis, 138.
—— melancholicus, 466.

Upucerthia dumetoria, 466.
Upupa epops, 74, 365.
Urobrachya traversii, 488.
Urocissa flavirostris, 219, 225.
—— occipitalis, 72.
Uromitrus filiferus, 72.
Urubitinga unicincta, 469.

Vanellus cayanus, 369.
—— gregarius, 320, 322, 324.
Venilia chlorophanes, 181.
—— punicea, 177.
Vidua fischeri, 290, 292.
—— hypocherina, 302.
—— paradisea, 302.
—— principalis, 302.
Vireo bairdi, 254, 255.
—— calidris, 253.
—— cinereus, 254.
—— crassirostris flavescens, 139.
—— flavifrons, 254.
—— magister, 254.
—— noveboracensis, 254.
—— ochraceus, 255.
—— olivaceus, 253.
—— philadelphicus, 254.
—— semiflavus, 255.
Vultur fulvus, 98.
—— monachus, 117, 455.

Xantholestes panayensis, 199.
Xanthura luxuosa, 265.
Xema capistratum, 323.
—— lambruschinii, 323.
—— melanocephalum, 323.
Xema minutum, 323.
—— ridibundum, 323.
Xenicus gilviventris, 363.
—— longipes, 363.
Xenorhynchus asiaticus, 73.

Zanclostomus æneus, 266.
Zaponia spiloptera, 285.
Zeocephus cyanescens, 200.
Zonotrichia whitii, 280.
Zosterops albifrons, 479.
—— anjuanensis, 475.
—— borbonica, 475, 476.
—— cærulescens, 363.
—— ceylonensis, 146.
—— clara, 479.
—— e.-newtoni, 475.
—— hovarum, 475.
—— japonica, 234, 235.
—— kirki, 300.
—— palpebrosa, 224, 235.
—— prætermissa, 474, 475.
—— rendovæ, 271.
—— simplex, 234.
—— subrosea, 234.

END OF VOL. VI.