

System of Birds

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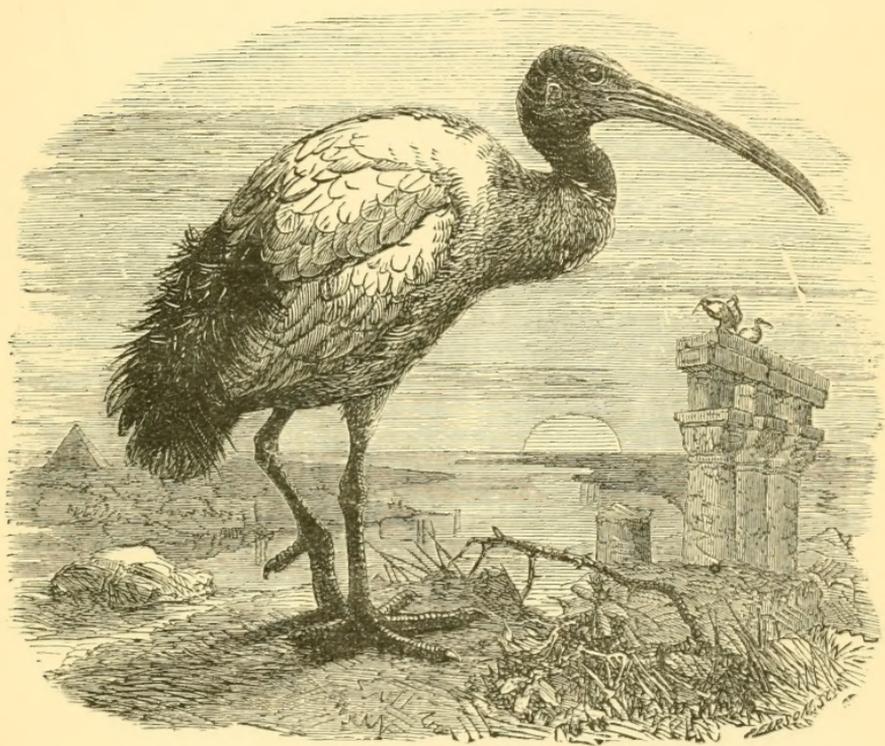
81

THE IBIS,

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101

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PHILIP LUTLEY SCLATER, D.Sc., F.R.S.,
AND
A. H. EVANS, M.A., F.Z.S.



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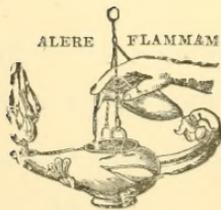
Quam magnificata sunt opera tua, Domine.

LONDON:
GURNEY AND JACKSON, 1 PATERNOSTER ROW.
(SUCCESSORS TO J. VAN VOORST.)

1903.

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PREFACE.

THE Editors have succeeded in compressing the third volume of the Eighth Series of 'The Ibis' into a somewhat smaller compass than that of some of the previous years. Six hundred and fifty pages of letterpress with twelve or thirteen plates are quite as much as can be conveniently handled when bound, and in future volumes it is hoped that it will not be found necessary to exceed these limits.

Our readers, we think, will allow that there is at the present time an abundant supply of contributions from nearly every part of the world on geographical ornithology; but there seems to be some danger of this enticing branch of our Science becoming a little too prominent in the pages of 'The Ibis,' and we venture to hope that greater attention may in future be given to the claims of the Anatomy, Pterylography,

and Classification of Birds. In all these three subjects much still remains to be done, and as regards their progress we can never cease to deplore the loss of such skilful and ingenious workers as Garrod, Forbes, and other tried friends.

P. L. S. }
A. H. E. }

3 Hanover Square,
London, W.,
September 25th, 1903.

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1903.

[An asterisk indicates an Original Member. It is particularly requested that Members will give notice to the Secretary of the Union, 3 Hanover Square, London, W., of any error in their addresses or descriptions in this List, in order that it may be corrected.]

Date of
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- 5 1896. ARRIGONI DEGLI ODDI, Count ETTORE, Professor of Zoology, University, Padua; and Ca' oddo, Monselice, Padua, Italy.
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- 60 1894. CHANCE, A. MACOMB, B.A.; Lawnside, Edgbaston, Bir-
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- 65 1889. CLARKE, STEPHENSON ROBERT, F.Z.S.; Borde Hill, Cuckfield,
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- 70 1882. CORY, Prof. CHARLES B., F.Z.S.; 160 Boylston Street, Boston, Mass., U.S.A.
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- 90 1896. DOBBIE, JAMES B., F.Z.S. ; 9 Mansfield Place, Edinburgh.
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- 95 1890. DRUMMOND-HAY, Major JAMES A. G. ; 1st Bn. Coldstream
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- 100 1895. ELLIOT, EDMUND A. S., M.R.C.S. ; Woodville, Kingsbridge,
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- 110 1898. FARQUHAR, Commr. STUART ST. J., R.N. ; H.M.S. 'Vestal,'
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- 115 1892. FINN, FRANK, B.A., F.Z.S.; 29 Chalcot Crescent, Primrose
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- 120 1903. FOSTER, NEVIN HARKNESS; Hillsborough, Co. Down, Ireland.
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- 125 1895. FROHAWK, FREDERICK WILLIAM; Rose Cottage, Hockley,
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- 130 1892. GERRARD, JOHN, Government Inspector of Mines; Worsley,
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- * 1858. GODMAN, FREDERICK DuCANE, D.C.L., F.R.S., F.Z.S.; 10 Chandos Street, Cavendish Square, W. *President.*
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- 145 1870. GURNEY, JOHN HENRY, F.Z.S.; Keswick Hall, Norwich; and Athenæum Club, Pall Mall, S.W.
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- 155 1893. HARTERT, ERNST; The Museum, Tring, Herts.
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1893. HARTMANN, WILLIAM; Tangley Mere, Chilworth, Surrey.
1899. HARVEY, Capt. ROBERT NAPIER, R.E.; Stanhope Lines, Aldershot.
- 160 1873. HARVIE-BROWN, JOHN A., F.R.S.E., F.Z.S.; Dunipace House, Larbert, N.B.
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- 165 1902. HERBERT, BRON; Picket Post, Ringwood, Hants.
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- 170 1877. HOLDSWORTH, EDMUND W. H., F.Z.S.; South Town, Dartmouth, Devon.
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- 175* 1858. HUDLESTON, WILFRID HUDLESTON, M.A., F.R.S., F.Z.S.; 8 Stanhope Gardens, S.W.
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1869. HUME, ALLAN OCTAVIAN, C.B., C.S.I., F.Z.S.; The Chalet, Kingswood Road, Upper Norwood, S.E.
1890. HUNTER, HENRY CHARLES VICARS; Mawley Hall, Cleobury Mortimer, Salop.
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- 180 1902. INNES BEY, DR. WALTER FRANCIS; Curator of the Zoological
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1902. JACOB, DR. FRANK HARWOOD; 4 Oxford Street, Nottingham.
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- 185 1896. JESSE, WILLIAM; La Martinière College, Lucknow, Oudh,
India.
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- 190 1902. JOY, NORMAN HUMBERT, M.R.C.S., L.R.C.P.; Bradfield, near
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- 195 1895. KINGSFORD, WILLIAM EDWARD; Cairo, Egypt.
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1882. KNUBLEY, The Rev. EDW. PONSONBY, M.A.; Steeple Ashton
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- 200 1884. LANGTON, HERBERT; 11 Marlborough Place, Brighton.
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1892. LA TOUCHE, JOHN DAVID DIGUES, C.M.Z.S.; Imperial Maritime
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- 205 1876. LEGGE, Col. WILLIAM VINCENT (late R.A.), F.Z.S.; Cullenswood
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1898. LE SOUËF, DUDLEY, C.M.Z.S.; Director of the Zoological
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1868. LE STRANGE, HAMON, F.Z.S.; Humstanton Hall, King's Lynn,
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1875. L'ESTRANGE, Col. PAGET WALTER, R.A.; 10 The Lees,
Malvern.
1903. LETHBRIDGE, AMBROSE YARBURGH; Rokeby, Barnard Castle,
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- 210 1893. LEWIS, FREDERICK; Assistant Conservator of Forests, The
Kachchin, Colombo, Ceylon.
1889. LEYLAND, CHRISTOPHER JOHN; Haggerston Castle, Beal,
Northumberland.
1897. LILFORD, JOHN, Lord, F.Z.S.; Lilford Hall, Oundle,
Northants.
1874. LLOYD, Col. JOHN HAYES, F.Z.S.; 95 Adelaide Road,
N.W.
1898. LOAT, WILLIAM LEONARD S., F.Z.S.; Cumnor Place, near
Oxford.
- 215 1897. LODGE, GEORGE EDWARD, F.Z.S.; 5 Thurloe Studios, Thurloe
Square, S.W.
1889. LOYD, Lt.-Col. ARTHUR PURVIS, F.Z.S. (late 21st Hussars);
Harnham Cliff, Salisbury (temporary).
1896. LUBBOCK, PERCY; 26 Cadogan Gardens, S.W.
1877. LUMSDEN, JAMES, F.Z.S.; Arden House, Arden, Dumbarton-
shire, N.B.
1896. LUTTMAN-JOHNSON, JAMES ARTHUR, M.A., F.Z.S.; 101 Mount
Street, W.
- 220 1900. McCONNELL, FREDERICK VAVASOUR; 37 Cranley Gardens,
South Kensington, S.W.
1897. McLEAN, JOHN CHAMBERS; Waikohu Station, Te Karaka,
Gisborne, New Zealand.
1899. MACMILLAN, GEORGE AUGUSTIN; 19 Earl's Terrace, Ken-
sington, W.

- Date of
Election.
1894. MACPHERSON, ARTHUR HOLTE ; 51 Gloucester Terrace, Hyde Park, W.
1899. MARAIS, JOHANN VAN OOSTERZEE; c/o J. Hammond Toone, Esq., Department of Agriculture, Cape Town, Cape Colony.
- 225 1894. MARSHALL, ARCHIBALD McLEAN ; 29 Queen's Gate Gardens, S.W.
1894. MARSHALL, JAMES McLEAN ; 29 Queen's Gate Gardens, S.W.
1899. MARTIN, BASIL WILLIAM ; Darley Abbey, Derby.
1901. MARTIN, Rev. WILLIAM KEBLE, B.A. ; 4 Queen's Road, Beeston, Notts.
1897. MASON, Col. EDWARD SNOW ; 20 Minster Yard, Lincoln.
- 230 1898. MASSEY, HERBERT ; Ivy Lea, Burnage, Didsbury, Manchester.
1899. MATHEWS, ARNOLD ; Ballynahinch Castle, Toombeola, Co. Galway.
1896. MAXWELL, Rt. Hon. Sir HERBERT E., Bt., P.C., M.P., F.R.S. ; 49 Lennox Gardens, S.W.
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1899. MEINERTZHAGEN, RICHARD ; King's African Rifles, Nairobi, British East Africa ; 25 Rutland Gate, S.W. ; and Brockwood Park, Alresford, Hants.
- 235 1900. METCALFE, GEOFFREY BRYAN THEOPHILUS ; Sth (King's Royal Irish) Hussars, Cavalry Depôt, Canterbury ; and Roche Court, Salisbury.
1886. MILLAIS, JOHN GUILLE, F.Z.S. ; Comptons Brow, Horsham.
1903. MILLS, The Rev. HENRY HOLROYD ; Treslothan Vicarage, Camborne, Cornwall.
1879. MITCHELL, FREDERICK SHAW ; Clyderhowe, Edmonton, Alberta, N.W.T., Canada.
1901. MITCHELL, P. CHALMERS, M.A., D.Sc., F.Z.S. ; Secretary to the Zoological Society of London, 3 Hanover Square, W.
- 240 1897. MITCHELL, WILLIAM ; 5 Bury Street, St. James's, S.W.
1898. MONRO, HORACE CECIL, C.B. ; Queen Anne's Mansions, Queen Anne's Gate, S.W.
1900. MONTAGU, EDWIN S. ; 12 Kensington Palace Gardens, W.
1900. MUGFORD, FREDERICK ERNEST ; 16 Buckingham Street, Strand, W.C.
1886. MUIRHEAD, GEORGE ; Speybank, Fochabers, Co. Moray, N.B.
- 245 1893. MULLENS, Major WILLIAM H., M.A., F.Z.S. ; 9 St. James's Place, S.W.

- Date of
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1892. MUNN, PHILIP WINCHESTER; Laverstoke, Whitechurch, Hants.
1897. MUNT, HENRY; 83 Kensington Gardens Square, W.
1900. MUSTERS, JOHN PATRICIUS CHAWORTH, D.L., J.P.; Annesley
Park, Nottingham.
1885. NEALE, EDWARD; 43 Charlotte Street, Portland Place,
W.
- 250 1882. NELSON, THOMAS HUDSON; The Cliffe, Redcar, Yorkshire.
1895. NESHAM, ROBERT, F.Z.S., F.E.S.; Utrecht House, Queen's
Road, Clapham Park, S.W.
1897. NEUMANN, OSCAR; 10 Potsdamer Strasse, Berlin, W.
1872. NEWCOME, FRANCIS D'ARCY WILLIAM CLOUGH; Thurston
Lodge, Bury St. Edmunds, Suffolk.
- * 1858. NEWTON, ALFRED, M.A., F.R.S., F.Z.S., Professor of Zoology
in the University of Cambridge; Magdalene College, Cam-
bridge.
- 255 1886. NICHOLLS, HOWARD HILL JOHN, M.R.C.S.; Bramber Lodge,
Downview Road, West Worthing.
1902. NICHOLS, JOHN BRUCE; Parliament Mansions, Victoria
Street, S.W.
1900. NICHOLS, WALTER BUCHANAN; Stour Lodge, Bradfield,
Manningtree, Essex.
1876. NICHOLSON, FRANCIS, F.Z.S.; 84 Major Street, Manchester;
and Heathside, Knutsford, Cheshire.
1902. NICOLL, MICHAEL JOHN; 10 Charles Road, St. Leonards.
- 260 1895. NOBLE, HEATLEY; Temple Combe, Henley-on-Thames.
1887. NORMAN, GEORGE CAMERON, F.Z.S.; 68 Lombard Street, E.C.;
and Mount Melville, St. Andrews, N.B.
1882. OATES, EUGENE WILLIAM, F.Z.S.; Savage Club, Adelphi
Terrace, W.C.
1892. OGILVIE, FERGUS MENTEITH, M.A., F.Z.S.; The Shrubbery,
72 Woodstock Road, Oxford.
1890. OGILVIE-GRANT, W. R.; British Museum (Nat. Hist.),
Cromwell Road, S.W.
- 265 1889. OGLE, BERTRAM SAVILE; Hill House, Steeple Aston,
Oxford.
1883. PARKER, HENRY, C.E., F.Z.S.; 76 Station Road, South Shore,
Blackpool, Lancs.
1880. PARKIN, THOMAS, M.A., F.Z.S.; Fairsent, High Wickham,
Hastings.
1891. PATTERSON, ROBERT, F.Z.S.; Malone Park, Belfast.

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Election.

1884. PATTERSON, SIR ROBERT LLOYD, D.L., F.L.S.; Croft House, Hollywood, Co. Down.
- 270 1902. PEASE, SIR ALFRED EDWARD, Bt., M.P., F.Z.S.; Pinchinthorpe House, Guisborough, Yorkshire; and Barberton, Transvaal, South Africa.
1894. PEARSON, CHARLES EDWARD; Hillcrest, Lowdham, Nottingham.
1891. PEARSON, HENRY J.; Bramcote, Notts.
1898. PENN, ERIC FRANK; Taverham Hall, Norwich.
1891. PENROSE, FRANCIS GEORGE, M.D., F.Z.S.; 84 Wimpole Street, W.
- 275 1900. PERCIVAL, ARTHUR BLAYNEY, F.Z.S.; Somerset Court, Brent Knoll, Somerset; and The Treasury, Mombasa, East Africa Protectorate.
1886. PHILLIPS, E. LORT, F.Z.S.; 79 Cadogan Square, S.W.
1888. PHILLIPS, GEORGE THORNE; Wokingham, Berkshire.
1893. PIGOTT, THOMAS DIGBY, C.B.; 5 Ovington Gardens, S.W.
1893. PIKE, THOMAS MAYER, M.A.; c/o Mr. Porter, 7 Prince's Street, Cavendish Square, W.
- 280 1899. POPE, WALTER HENRY; 2 De Vaux Place, The Close, Salisbury.
1896. POPHAM, HUGH LEYBORNE, M.A.; 14 Arlington Street, St. James's, S.W.; and Oxford & Cambridge Club, Pall Mall, S.W.
1898. PRICE, ATHELSTAN E.; Broxbourne, Herts.
1903. PROCTOR, MAJOR FREDERICK WILLIAM (late West Riding Regt.); Downfield, Maidenhead.
1901. PROUD, JOHN T.; Dellwood, Bishop Auckland.
- 285 1893. PYCRAFT, WILLIAM PLANE, F.Z.S.; British Museum (Natural History), Cromwell Road, S.W.
1888. RADCLIFFE, CHARLES ROBERT EUSTACE; Hyde, Wareham, Dorset.
1903. RALFE, PILCHER GEORGE; The Parade, Castletown, Isle of Man.
1903. RATCLIFF, FREDERICK ROWLINSON; 24 Lancaster Gate, W.
1879. RAWSON, HERBERT EVELYN, F.Z.S.; Fallbarrow, Windermere.
- 290 1894. READ, RICHARD HENRY, L.R.C.P., M.R.C.S.; Church Street, Hanley, Staffordshire.
1888. READ, ROBERT H.; 8a South Parade, Bedford Park, W.
1877. REID, CAPT. SAVILE G. (late R.E.), F.Z.S.; The Elms, Yalding, Maidstone.

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1903. RENAULT, WILLIAM E.; 15 Grafton Square, Clapham, S.W.
1893. RENDALL, PERCY, M.D., F.Z.S.; Ewell, Surrey; and Devonshire Club, St. James's Street, S.W.
- 295 1895. RICKETT, CHARLES BOUGHEY; Hong Kong and Shanghai Bank, Foochow; and care of Messrs. H. S. King & Co., 65 Cornhill, E.C.
1896. RIPPON, Lt.-Col. GEORGE, F.Z.S.; 29th Burma Infantry, Mandalay, Upper Burma.
1902. RIVIERE, BERNARD BERYL; 82 Finchley Road, N.W.
1898. ROBINSON, HERBERT C.; Holmwood, Aigburth, Liverpool.
1896. ROGERS, Capt. J. MIDDLETON, F.Z.S.; 1st (Royal) Dragoons; and Riverhill, Sevenoaks, Kent.
- 300 1893. ROTHSCHILD, The Hon. L. WALTER, M.P., D.Sc., F.Z.S.; The Museum, Tring, Herts.
1894. ROTHSCHILD, The Hon. N. CHARLES, F.Z.S.; Tring Park, Tring, Herts.
1883. ST. QUINTIN, WILLIAM HERBERT, F.Z.S.; Scampston Hall, Rillington, Yorkshire.
1903. SANDEMAN, Capt. ROBERT PRESTON (late 10th Hussars); Dan-y Park, Crickhowell.
1899. SAPSWORTH, ARNOLD DUER, F.Z.S.; The Dower House, Ember Court, East Molesey, Surrey; and National Liberal Club, Whitehall Place, S.W.
- 305 1902. SARGEAUNT, ARTHUR ST. GEORGE; 83 Madeley Road, Ealing, W.
1870. SAUNDERS, HOWARD, F.L.S., F.Z.S.; 7 Radnor Place, Hyde Park, W. (*Secretary.*)
1902. SAUNDERS, WILLIAM HENRY RADCLIFFE, C.E., F.Z.S.; 33 Princes Square, W.
1898. SCHERREN, HENRY, F.Z.S.; 9 Cavendish Road, Harringay, N.
- * 1858. SCLATER, PHILIP LUTLEY, D.Sc., F.R.S., Odiham Priory, Winchfield, Hants. (*Editor.*)
- 310 1891. SCLATER, WILLIAM LUTLEY, M.A., F.Z.S.; South African Museum, Capetown, South Africa.
1899. SELOUS, FREDERICK COURTENAY, F.Z.S.; Heatherside, Worplesdon, Surrey.
1889. SENHOUSE, HUMPHREY PATRICIUS, B.A.; The Fitz, Cocker-mouth, Cumberland.
1899. SERLE, The Rev. WILLIAM, M.A., B.D.; The Manse, Dudding-ston, Edinburgh.
1900. SERVICE, ROBERT; Maxwelltown, Dumfries.

- Date of
Election.
- 315 1901. SETH-SMITH, DAVID, F.Z.S.; 14 Canning Road, Addiscombe, Croydon.
1899. SHARMAN, FREDERIC; 47 Goldington Road, Bedford.
1871. SHARPE, RICHARD BOWDLER, LL.D., F.L.S., F.Z.S.; Assistant Keeper, Zoological Department, British Museum (Natural History), South Kensington, S.W.
1900. SHELFORD, ROBERT; Curator of the Sarawak Museum, Kuching, Sarawak, British North Borneo; and Hill House, Harvey Road, Guildford.
1870. SHELLEY, Capt. G. ERNEST, F.Z.S. (late Grenadier Guards); 39 Egerton Gardens, South Kensington, S.W.
- 320 1865. SHEPHERD, The Rev. CHARLES WILLIAM, M.A., F.Z.S.; Trottscliffe Rectory, Maidstone, Kent.
1900. SIMEY, ATHELSTANE ILIFF; 11 St. Peter's Road, Mile-end, E.
1882. SLATER, The Rev. HENRY H., M.A., F.Z.S.; Thornhaugh Rectory, Wansford, Northants.
1902. SMITH, ABEL HENRY, M.P.; Woodhall Park, Hertford.
1896. SONDES, GEORGE EDWARD, Earl, F.Z.S.; Lees Court, Faversham.
- 325 1881. SOUTHWELL, THOMAS, F.Z.S.; 10 The Crescent, Chapel Field, Norwich.
1903. SPARROW, Capt. RICHARD; 7th Dragoon Guards, Natal, South Africa; and Rookwoods, Sible Headingham, Essex.
1893. STANLEY, SAMUEL S.; 3 Regent Grove, Leamington, Warwickshire.
1900. STARES, JOHN WILLIAM CHESTER; Portchester, Hants.
1902. STENHOUSE, JOHN HUTTON, M.B., R.N.; *c/o* Messrs. Woodhead & Co., 44 Charing Cross, S.W.; and H.M.S. 'Hotspur,' Bermuda, West Indies.
- 330 1898. STIRLING, WILLIAM, J.P., D.L. Co. Ross; Monar, Ross; and Kinellan Lodge, Strathpeffer, N.B.
1893. STONHAM, CHARLES, C.M.G., F.R.C.S., F.Z.S.; 4 Harley Street, Cavendish Square, W.
1881. STUDDY, Col. ROBERT WRIGHT (late Manchester Regiment); Waddeton Court, Brixham, Devon.
1887. STYAN, FREDERICK WILLIAM, F.Z.S.; Ben Craig, Bayham Road, Sevenoaks; and Shanghai, China.
1887. SWINBURNE, JOHN; Haenertsburg, Transvaal, S. Africa.
- 335 1882. SWINHOE, Col. CHARLES, M.A., F.L.S., F.Z.S.; 7 Gloucester Walk, Campden Hill, W.

- Date of
Election.
1884. TAIT, WILLIAM CHASTER, C.M.Z.S. ; Entre Quintas 155, Oporto, Portugal.
- * 1858. TAYLOR, EDWARD CAVENDISH, M.A., F.Z.S. ; 74 Jermyn Street, S.W.
1873. TEGETMEIER, WILLIAM BERNHARD, F.Z.S. ; 16 Alexandra Grove, North Finchley, N.
1889. TENNANT, EDWARD PRIAULX ; 40 Grosvenor Square, W. ; and The Glen, Innerleithen, N.B.
- 340 1886. TERRY, Major HORACE A. (late Oxfordshire Light Infantry) ; The Lodge, Upper Halliford, Shepperton.
1900. THORBURN, ARCHIBALD ; High Leybourne, Hascombe, near Godalming, Surrey.
1893. THORPE, DIXON L. ; Loshville, Etterby Seaur, Carlisle.
1903. TICEHURST, CLAUD BUCHANAN ; Winstowe, St. Leonards-on-Sea ; and St. John's College, Cambridge.
1894. TICEHURST, NORMAN FREDERIC, M.A., M.B., F.R.C.S. ; 35 Pevensey Road, St. Leonards-on-Sea.
- 345 1902. TOWNSEND, REGINALD GILLIAT, M.A. ; Buckholt, Dean, Salisbury.
1893. TREVOR-BATTYE, AUBYN B. R., F.Z.S. ; Chilbolton, Stockbridge, R.S.O., Hants.
- * 1858. TRISTRAM, The Rev. HENRY BAKER, M.A., LL.D., F.R.S., C.M.Z.S., Canon of Durham ; The College, Durham.
1864. UPCHER, HENRY MORRIS, F.Z.S. ; Sheringham Hall, Norfolk.
1896. URWICK, WILLIAM F. ; 27 Bramham Gardens, S.W.
- 350 1894. USSHER, RICHARD JOHN ; Cappagh House, Cappagh, S.O., Co. Waterford, Ireland.
1890. VENOUR, STEPHEN ; Fern Bank, Altrincham, Cheshire.
1884. VEREY, ALFRED SAINSBURY ; Heronsgate, near Rickmansworth.
1881. VERNER, Lt.-Col. WILLIAM WILLOUGHBY COLE ; Hartford Bridge, Winchfield, Hants ; and United Service Club, S.W.
1902. WADE, EDWARD WALTER ; 325 Anlaby Road, Hull.
- 355 1886. WADE-DALTON, Col. H. D. ; Hauxwell Hall, Finghall, R.S.O., Yorkshire.
1895. WALLIS, HENRY MARRIAGE ; Hilliers, Bucklebury Common, South End, near Reading.
1881. WALSHINGHAM, THOMAS, Lord, F.R.S., F.Z.S. ; Merton Hall, Thetford, Norfolk.

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Election.

1899. WALTON, Capt. HERBERT JAMES, M.B., F.R.C.S.; c/o Messrs. King, King, & Co., Bombay.
1872. WARDLAW-RAMSAY, Lt.-Col. R. G., F.Z.S.; Whitehill, Rosewell, Midlothian, N.B.
- 360 1896. WATKINS, WATKIN; Highfield, Harrow; and Wellington Club, S.W.
1903. WATT, HUGH BOYD; 3 Victoria Drive, Mount Florida, Glasgow.
1900. WESTELL, WILLIAM PERCIVAL; 5 Glenferrie Road, St. Albans, Herts.
1891. WHITAKER, BENJAMIN INGHAM; Hesley Hall, Tickhill, Rotherham.
1891. WHITAKER, JOSEPH I. S., F.Z.S.; Malfitano, Palermo, Sicily.
- 365 1903. WHITE, STEPHEN JOSEPH; Oakwood, Crayford, Kent.
1903. WHITEHEAD, CHARLES HUGH TEMPEST; Deighton Grove, York; and 1st Durham Light Infantry, Wellington, India.
1887. WHITEHEAD, JEFFERY, F.Z.S.; Newstead, Wimbledon, Surrey.
1897. WHYMPER, CHARLES; 7 James Street, Haymarket, S.W.
1898. WIGLESWORTH, JOSEPH, M.D., F.R.C.P.; Rainhill, near Liverpool.
- 370 1894. WILKINSON, JOHNSON; St. George's Square, Huddersfield, Yorkshire.
1896. WILLIAMS, Capt. LIONEL ARTHUR; Llangarran, Salisbury; 91 Victoria Street, S.W.; and Isthmian Club, Piccadilly, W.
1897. WILSON, ALLAN REID; Easthill, East Bank Road, Sheffield.
1888. WILSON, CHARLES JOSEPH; 34 York Terrace, Regent's Park, N.W.
1900. WILSON, Dr. EDWARD ADRIAN, F.Z.S.; Suffolk Hall, Cheltenham.
- 375 1887. WILSON, SCOTT BARCHARD, F.Z.S.; Heatherbank, Weybridge Heath, Surrey.
1897. WITHERBY, HARRY FORBES, F.Z.S.; Holmehurst, Burley, New Forest.
1899. WOLLASTON, ALEXANDER FREDERICK RICHMOND, B.A.; 19 Upper Gloucester Place, Dorset Square, N.W.
1902. WORKMAN, WILLIAM HUGHES; Lismore, Windsor, Belfast.
1875. WRIGHT, CHARLES A., F.L.S., F.Z.S.; Kayhough, Kew-Gardens Road, Kew, S.W.
- 380 1871. WRIGHT, E. PERCEVAL, M.D., F.L.S., F.Z.S., Professor of Botany in the University of Dublin.

Date of
Election.

1891. WRIGHT, THOMAS, M.D.; Castle Place, Nottingham.
 1895. YERBURY, Lt.-Col. JOHN WILLIAM (late R.A.), F.Z.S.; 8 Duke Street, St. James's, S.W.; and Army and Navy Club, S.W.
 1889. YOUNG, Capt. JAMES B., R.N.; Ridgway House, Ottery St. Mary, Devon.
 384 1897. YOUNG, JOHN JOSEPH BALDWIN, M.A.; Richmond Park, near Sheffield.

Extra-Ordinary Members.

1899. GODWIN-AUSTEN, Lt.-Col. HENRY HAVERSHAM, F.R.S., F.Z.S.; Nore, Hascombe, Godalming.
 1860. WALLACE, ALFRED RUSSEL, F.R.S., F.Z.S.; Broadstone, Wimborne, Dorset.

Honorary Members.

1886. AYRES, THOMAS; Potchefstroom, Transvaal, South Africa.
 1890. BERLEPSCH, Graf HANS VON, C.M.Z.S.; Schloss Berlepsch, Post Gertenbach, Witzzenhausen, Germany.
 1860. CABANIS, Dr. JEAN, C.M.Z.S.; Friedrichshagen, bei Berlin.
 1900. COLLETT, Prof. ROBERT, F.M.Z.S.; University Museum, Christiania.
 5 1870. FINSCH, Dr. OTTO, C.M.Z.S.; Zoologisch Rijks Museum, Leiden.
 1894. GIGLIOLI, Dr. HENRY HILLYER, F.M.Z.S.; Reale Istituto di Studi Superiori, Florence.
 1898. GOELDI, Dr. EMIL A., C.M.Z.S.; Director of the Goeldi Museum, Pará, Brazil.
 1893. REICHENOW, Dr. ANTON, C.M.Z.S.; Museum für Naturkunde, Invalidenstrasse, Berlin.
 1903. RIDGWAY, ROBERT, C.M.Z.S.; Smithsonian Institution, Washington, D.C., U.S.A.
 10 1890. SALVADORI, Count TOMMASO, M.D., F.M.Z.S.; Royal Zoological Museum, Turin.

Colonial Members.

1903. HUTTON, Capt. FREDERICK W., F.R.S., C.M.Z.S.; Christchurch, New Zealand.
 1903. LEGGE, Col. W. VINCENT, F.Z.S.; Cullenswood House, St. Mary's, Tasmania.
 1903. NORTH, ALFRED J., C.M.Z.S.; Australian Museum, Sydney, N.S.W.

Foreign Members.

- Date of Election.
1890. ALLEN, JOEL ASAPH, Ph.D., F.M.Z.S.; American Museum of Natural History, Central Park, New York, U.S.A.
1900. BIANCHI, DR. VALENTINE; Imperial Zoological Museum, St. Petersburg.
1872. BOCAGE, Prof. J. V. BARBOZA DU, F.M.Z.S.; Royal Museum, Lisbon.
1880. BUREAU, LOUIS, M.D.; École de Médecine, Nantes.
- 5 1902. CHAPMAN, FRANK MICHLER; American Museum of Natural History, Central Park, New York, U.S.A.
1875. DORIA, Marchese GIACOMO, F.M.Z.S.; Strada Nuova, 6, Genoa, Italy.
1872. FATIO, DR. VICTOR, C.M.Z.S., Geneva.
1902. IHERING, DR. HERMAN VON; Museu Paulista, São Paulo, Brazil.
1886. MADARÁSZ, DR. JULIUS VON; National Museum, Buda-Pesth.
- 10 1903. MARTORELLI, DR. GIACINTO; Museo Civico di Storia Naturale, Milan, Italy.
1894. MENZBIER, Prof. Dr. MICHAEL, C.M.Z.S.; Imperial Society of Naturalists, Moscow.
1881. MEYER, DR. ADOLF BERNHARD, C.M.Z.S., Director of the Royal Museum, Dresden.
1890. OUSTALET, DR. EMILE, C.M.Z.S., Professeur au Muséum d'Histoire Naturelle, Jardin des Plantes, Paris.
1894. PLESKE, H.E. DR. THEODOR, F.M.Z.S.; Office of the Company "Nadeshda," St. Petersburg.
- 15 1900. REISER, DR. OTHMAR; Landes Museum, Sarajevo, Bosnia, Austro-Hungary.
1894. SCHALOW, HERMAN; 15 Schleswiger Ufer, Berlin, N.W.
1900. STEJNEGER, LEONHARD, C.M.Z.S.; Smithsonian Institution, Washington, D.C., U.S.A.
1902. SUSHKIN, DR. PETER, C.M.Z.S.; Imperial University, Moscow, Russia.
1896. WINGE, HERLUF; University Zoological Museum, Copenhagen.

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THE IBIS.

EIGHTH SERIES.

No. IX. JANUARY 1903.

I.—*The strange case of Athene chiaradiae.*

By HENRY HILLYER GIGLIOLI, H.M.B.O.U., &c. &c.

(Plate I.)

IN May 1900 I published a short descriptive note on a singular specimen of a small Owl belonging to the genus *Athene*, which I had received alive from my friend Comm. Emidio Chiaradia, M.P.* The bird had been captured in a nest in a loose stone wall, about sixty metres from a *casera* or *malga* † at Pizzocco on the Prealps of Friuli, at an elevation of 1003 metres. Pizzocco is not far from Caneva di Sacile, and is laid down on the Italian Military Ordnance Map of the province of Belluno in the lower right corner; the locality is, however, within the province of Udine (Friuli proper). I owe these minute and precise indications and many more, as will be seen further on, to my friend Signor Graziano Vallon, of Udine, who, being an enthusiastic and excellent ornithologist, took the case in hand at once, and, after residing in and carefully exploring the locality for

* Il. Il. Giglioli, "Intorno ad una presunta nuova specie di *Athene* trovata in Italia," in 'Avicula,' iv. fasc. 29-30, p. 57 (Siena, 1900). Reprinted in 'Ornis,' xi. p. 237 (Paris, 1901).

† In the Friulian Alps *malga* or *casera* is a rude low hut with loose stone walls and a high-peaked thatched roof. It is the residence of the shepherd or *malghere*, who sleeps there with his family on hay in a loft, each person rolled in a sack,

three consecutive years (1900, 1901, 1902), during the month of July, and bearing no small hardships, has been able to supply the materials for a complete history of the singular case on which I am now writing and the details for its elucidation as far as we can go. I here offer him my cordial thanks, and am sure that he will have those of all true ornithologists.

The nest from which my strange small Owl was taken was discovered by a shepherd-girl about twelve years old, not, as I had been previously informed, by a boy: as she was looking after her flock one afternoon towards the middle of July 1899, she noticed a small Owl carrying a big insect enter a hole in a wall hard by; on climbing up to the place she found, in a very rudimentary nest amongst the loose stones of the wall, four nestlings nearly fledged, which she carried away to her home and endeavoured to feed on insects. After a few days three of these nestlings managed to escape; the fourth was shortly after sold to a shoemaker at Caneva di Sacile, who used it, tied to a stick, a couple of months later, to attract Robins and Redstarts, which were caught with bird-lime; in this primitive sport the little Owl showed itself very proficient. Later still, my friend Comm. Chiaradia, a keen sportsman and good observer, saw the small Owl, and noticing its strange peculiarities, purchased it from the shoemaker and presented it to me.

This very singular small Owl came into my hands on the 13th of November, 1899; it was so wild that, after a careful examination, fearing that it might further damage its feathers, already in a rather dilapidated condition, I caused it to be killed, and had it mounted by one of my taxidermists. On dissection it proved to be a male.

What struck me at once in the aspect of this small Owl, and what attracted "*a prima vista*" the attention of all who saw it, was the colour of the eyes, the iris being of a deep brown, which looked black in the living bird. I may add here that the little girl who captured it with its fellow nestlings, on being closely questioned a year later by my friend Mr. Vallon, repeatedly asserted that the four nestlings she

had taken from the nest were perfectly similar, and that *all* had black eyes; and both she and her father and brothers repeated this assertion to Mr. Vallon when he met them again in July last. We shall see the importance of this assertion, as far as it can be accepted, further on.

Now it is well known that all the small Owls belonging to the genera *Athene*, *Nyctala*, *Surnia*, *Glaucidium*, and *Scops*, which include species found in Europe, have yellow irides. A singular exception, if proved, would be that of two non-European species of *Scops*: according to Hodgson, *Scops lettia* has yellow eyes when young, while the irides become brown in old birds. I will merely remark that this is very much against the rule. And in *Scops elegans* the iris is said to be black, *i. e.* dark brown. In the larger Owls a few similar exceptions in genera, in which the all but universal yellow or orange coloration of the irides is notorious, may be here mentioned. Thus, in the genus *Asio* two and perhaps three species, amongst which is *A. capensis*, have brown eyes; and in the genus *Bubo* we find *B. lacteus* and *B. shelleyi* with brown irides, and *B. cinerascens* with blue eyes.

I will here mention a case which has quite recently come to my knowledge, and which might have a closer interest for us were it not decidedly teratological, for it concerns a specimen of *Athene noctua*. This little Owl, an absolute albino, with snowy-white feathers, pink cere and toes, yellowish-white bill and claws, is interesting, because such cases of albinism are rare amongst Raptores, both nocturnal and diurnal. But the strange peculiarity of this specimen, which was captured in the nest, with four *normal* nestlings, at a place called Stagno, near Pisa, in July 1901, and which I have kept alive at the Museum since the end of January last, is the colour of the irides; these, instead of being pink—*i. e.* colourless, as in all cases of total albinism,—are of a dark greenish grey, quite different from the dark brown of the bird I have called *A. chiaradiæ*; the borders of the eyelids are pink. I know of only one other instance of a perfectly white Civetta (*A. noctua*), now in a private collection at Leghorn, but Mr. A. Carreras, an excellent observer and

first-rate field-ornithologist, who skinned it, assured me that it had pink eyes.

But if the most striking peculiarity to the casual observer in our *A. chiaradiæ* is the dark brown colour of the irides, to an ornithologist other and, perhaps, more important differences between it and *A. noctua* are obvious at a glance.

My specimen, the type of *A. chiaradiæ*, is, as I have already said, a male, hatched at the end of June or the beginning of July; it was, when I received it and had it killed and mounted (14 xi. 1899), in its first autumnal plumage with slight traces of the nestling garb. I should consider it all but fully grown. On comparing it with an adult male of *A. noctua* (12 i. 1888), from the same subalpine region, Pieve di Cadore (N. 3066 Cat. Birds Ital. Coll. R. Zool. Mus. Florence), careful measurements gave the following results:—

	<i>A. chiaradiæ.</i>	<i>A. noctua.</i>
Total length	m. 0·200	m. 0·220
Wing	„ 0·145	„ 0·165
Tail	„ 0·065	„ 0·075
Tarsus	„ 0·025	„ 0·035
Upper mandible (height)	„ 0·0085	„ 0·0075

Of course a slight difference in age and the condition of the feathers (in my *A. chiaradiæ* these were rather worn and spoilt) may partially account for the difference I found in the size of the two birds; and I may here remark that my friend Prof. G. Martorelli, who, as we shall see, carefully studied and compared the second specimen of *A. chiaradiæ* secured, a female, which was of about the same age as mine (having been captured as a nestling 7 vii. 1901, and killed and mounted 5 xi. 1901), found no appreciable difference in size between it and specimens of *A. noctua*. And yet both this and a subsequent comparison I was able to make between these two black-eyed Civette, the latter being yet alive, have not done away with the impression that *A. chiaradiæ* is a smaller bird than the average *A. noctua*. In the type specimen of the former the skull is narrower and less depressed than is usual in the common species. On dissection

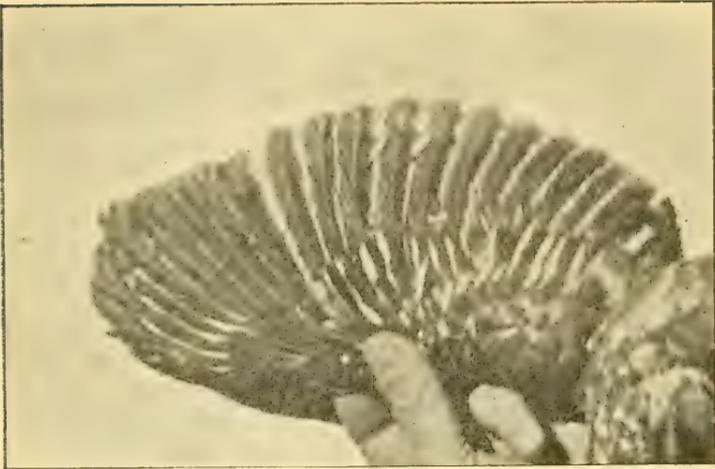
I noted nothing worthy of remark, except the large size of the testes, considering the time of the year and the age of the individual. My friend Prof. E. Regalia, one of the best comparative osteologists I know, on carefully comparing the limb-girdles and the sternum of this and the common *Civetta*, found no appreciable differences except slightly smaller dimensions in our bird.

I have nothing to add as to the colour of the irides in *A. chiaradiæ*, in which the palpebral edges are black, making the eyes look larger than in *A. noctua*. In my specimen the bill is notably larger and more robust, as shown in the measurements given above; it is, moreover, of a uniform greenish yellow, not darker towards the base, as is usually the case in *A. noctua*. The tarsi and toes are nearly bare in my type specimen, owing to its having been tied by the leg when used for catching small birds; the toes thus appear to be proportionately longer than is the case with the average *Civetta*, but I have noticed that the relative length of the toes is subject to individual variation in these small Owls. In my specimen the claws are somewhat thickened and obtuse, the natural consequence of life in captivity.

But what is more important, I think, than any of the previous differential characters noted, is the obvious fact that the tone and the pattern or style of the coloration of the plumage is absolutely different from that in *A. noctua*, and, I may add, in any other species of that and allied genera. Thus in *A. chiaradiæ* the light-coloured spots on both remiges and rectrices, which form *transverse* bands in other small Owls, are replaced by *longitudinal* bands formed by the white margin of the outer and inner webs of those feathers. This character is well shown in the figures (1 and 2, p. 6) of the outspread wings of the second example of *A. chiaradiæ* and of one of its co-nestlings, a normal *A. noctua*, which I owe to the kindness of Mr. Vallon.

In my first specimen of *A. chiaradiæ* the wing- and tail-feathers, especially the latter, are rather damaged; but the distinctive features are clear. These feathers are of a dark umber-brown and shew no trace of those lighter and darker

Fig. 1.



Wing of *Athene chiavadiæ*, from a living specimen about two months old. (7 ix. 1901.)

Fig. 2.



Wing of co-nestling of *Athene chiavadiæ* (ordinary *A. noctua*), about two months old. (7 ix. 1901.)

transverse bars, exclusive of the spots, which are conspicuous on the remiges of *A. noctua*, less so on the rectrices. On the outer web of the first primary in *A. chiaradiæ* the white marginal stripe is incomplete, being divided into two slight blotches, and on the next following feathers the longitudinal marginal band, though continuous, shews traces of division, bulging out at intervals representing the primitive and now confluent blotches. On the lower portion of the margin of the inner web of the remiges of *A. chiaradiæ*, the white blotches also run together so as to form a longitudinal band, shewing, however, more or less distinct traces of a division into spots, but these are never distinct and isolated, so as to form together transverse bands.

The tail-feathers are in a similar condition and shew a narrow longitudinal whitish stripe on the edge of the outer web; a broader one with indications of a division into blotches on the margin of the inner web. I fail to see here any divergence in my description from that made of the second specimen of *A. chiaradiæ* by my friend Prof. Martorelli, on which supposed divergence he mainly bases the supposition that the two specimens of the black-eyed *Civetta* are not, as I maintain, perfectly similar.

The ground-colour of all the upper parts in *A. chiaradiæ* is a fine dark brown, similar to that of the dorsal feathers in *Nyctala* and *Surnia*, and totally devoid of that rufous tinge which is more or less prevalent, but always present, in *A. noctua*. Again, the light blotches are apparently larger and more numerous, except on the top of the head—this is the case especially on the scapulars; certainly they are more conspicuous, but then they are of a pure white and not more or less veiled and tinged with rufous, as in *A. noctua*. In the type specimen of *A. chiaradiæ*, on the upper part of the back, between the scapulars and on the nape, are traces of the nestling plumage; these feathers are browner than those of the adult garb, but they are not rufous as in *A. noctua*, and the markings do not differ from those of the adult.

The ground-colour of all the lower parts in *A. chiaradiæ*

is pure white. The median longitudinal stripes on the feathers of the chest, abdomen, and flanks are of the same dark brown as the upper parts, and are narrow and well-defined, without a trace of that light rufous diffused washing always found on the lower parts of *A. noctua*, in which, moreover, the blotches are larger, more or less rufous, and less defined.

In my first specimen of *A. chiaradiæ* the facial disk is of a pure silky white in its lower portion, and only slightly darkened above by the black elongated rhachides of the modified feathers which surround the eyes and the base of the bill. The basal patch on each side, of a dark brown, is very conspicuous. I need hardly say that in *A. noctua* the facial disk, more or less tinged with grey, brown, and rufous, is very different.

The feathers on the vent and the under tail-coverts are pure white in *A. chiaradiæ*. In my specimen the tarsi and toes are well nigh bare; but when I examined the second specimen, which Mr. Vallon kindly brought to Florence in October last for my inspection, I noted that both tarsi and toes were better clothed than is usual in the ordinary Civetta.

This will, I think, suffice for a description of this strange new form of *Athene*, the excellent figure of which (Plate I.) I owe to the kindness of my friend Prof. Martorelli. It has been taken from a photograph of the second specimen of *A. chiaradiæ*, beautifully mounted by Prof. Martorelli himself, and perfectly similar to the type specimen, except that its plumage is in a perfect condition, and will go further in conveying an exact idea of the aspect of this singular bird than the most minute description.

When I wrote in May 1900 on this strange case, I had a very incomplete knowledge of the history thereof. I long hesitated to give a name to the new form before me, but having excluded the possibility of an explanation based on hybridism and on a teratological origin—possibilities which I persist in emphatically excluding even now,—and thus not being able to admit that the bird before me was a hybrid, and

less still a monstrosity, of *A. noctua*, I mooted the only hypothesis left me and named it, with due caution, *A. chiaradiæ*, dedicating it to the friend who had given it to me. To explain its isolated position in the genus *Athene*, to which it evidently belongs, and its extreme rarity, I may state that *A. noctua* is one of the commonest and best-known birds in Italy, and that no one had before mentioned the occurrence of black-eyed specimens in this country or elsewhere. I finally started the notion that my specimen might be one of the last of a species on the verge of extinction. Similar cases are known amongst birds; for have we not within the Italian region *Sitta whiteheadi*, utterly distinct, singularly isolated, and evidently on the verge of extinction?

Of course I was most anxious to learn more about *A. chiaradiæ*, and to secure, if possible, more specimens. Thus I closed my short paper in 'Avicula' with a warm appeal to my fellow ornithologists in Italy, and more especially to those residing in Friuli. I knew beforehand that there, at least, my appeal would not be in vain, for I have had the good fortune to know and appreciate Mr. Vallon, of Udine, for the last twenty years. Mr. Vallon responded nobly to the call, and the day after reading my paper (24th June, 1900) started from Udine for Caneva di Sacile and succeeded (but not without difficulty, for the shoemaker, whom he easily found, knew neither the name nor the residence of the little shepherd-girl from whom he had bought the black-eyed Civetta, and poor Comm. Chiaradia had been laid up with a stroke of paralysis) in tracing back my specimen of *A. chiaradiæ* to the exact locality of its birth and in correcting some details regarding its capture. He did not, however, succeed in getting more specimens, although he scoured the locality and the season was the right one. The mountaineers of Pizzoceo told him, however, that they knew well the kind of Civetta he sought, and that it was not rare in that locality, where it breeds, and they promised to let him know when a nest was found—assertions which, with one exception, can only be received *cum grano salis*. Nothing

daunted by his previous failure, early in July of the following year Mr. Vallon was again on the spot, and on the 7th of that month his pains were rewarded by the capture of a second specimen of the peculiar black-eyed Civetta. It was taken from the nest in a cavity of a rocky cliff, about 100 metres from the *malga* of Pizzocco, at an elevation of about 1100 metres, and thus in close proximity to the wall in which the first specimen of *A. chiaradiæ* was got two years before. It was no easy task to get at the youngsters, for several big stone blocks had to be moved; they lay on the bare rock. But what astonished Mr. Vallon was to find in the same nest from which he had taken the small black-eyed Civetta, three nestlings with the pale yellow irides of the young *A. noctua*, covered, moreover, with the reddish-brown down and growing feathers of that well-known species. The nestling *A. chiaradiæ*, still in down, with feathers partially emerging, has been minutely described by Mr. Vallon in his first paper, noticed further on; it is very different.

Mr. Vallon started several ingenious hypotheses to explain the presence of an *A. chiaradiæ* in the nest of an *A. noctua*; but these have been withdrawn, as we now know that thus far such is the ordinary case! Mr. Vallon, and a bird-catcher who was with him, sought without success to capture the parent birds. He published shortly after two interesting and complete accounts of the case and of the results of his excursions to Pizzocco*.

The young *A. chiaradiæ* and its three ordinary co-nestlings were taken to Udine and carefully reared. In the following October, when fully fledged, Mr. Vallon took the black-eyed Civetta and one of its brothers on a round of visits; thus the two living small Owls, so unlike each other and yet belonging to the same nest, were carefully inspected in succession by Prof. Martorelli at Milan, Count Salvadori at Turin, and myself at Florence. I had a certain advantage over

* G. Vallon, "Nota intorno alla nuova specie di Civetta scoperta nel Friuli," in *Atti Accad. di Udine*, ser. 3, viii. seduta 26 luglio 1901 (Udine, 1901).—*Id.* "Ueber *Athene chiaradiæ*, Giglioli, in Friaul," in *Orn. Jahrb.* xii. p. 217 (Hallein, 1901).

my friends, for I was able to compare the second specimen of *A. chiaradiæ* secured with the first one and type of the new form. I found them absolutely alike, and so did those who saw them with me on that occasion. Meanwhile Mr. Vallon had learnt that a third specimen of the black-eyed Civetta had been taken at Fregona, in the province of Belluno, by a forest guard named L. Barzotto; this was on the 19th of August, 1901. He hastened to the spot, but arrived too late, the little Owl, which was half fledged, had been devoured by a cat! He learnt, however, that it had fallen from the village *campanile* together with a co-nestling with pale yellow eyes; another one like the latter was found in the nest. Here we have a second instance of the black-eyed Civetta in the same nest with normal *A. noctua**.

As I have previously remarked, the second specimen of *A. chiaradiæ*, a splendid bird in perfect plumage, which proved to be a female, was killed on the 5th of November, 1901, and was beautifully mounted by Prof. Martorelli, who took the opportunity to produce the first and very fine picture of this Owl which we possess—the one which, with his kind permission, is here given. Prof. Martorelli has published it as a heliotype, with some very sagacious notes on the singular case of *A. chiaradiæ*, which I shall briefly examine on drawing up my conclusions †.

I now come to the last episode of this interesting history. Early last July, anxious to procure further information on the black-eyed Civetta, the indefatigable Mr. Vallon was again at Pizzocco, where he passed most of that month. On the 11th I received a pencil-written post-card from him, announcing that he had discovered two more specimens of *A. chiaradiæ* in identical circumstances to those of last year, viz. in a nest with normal nestlings of *A. noctua*; these were three, making up the usual number in a brood of these small Owls. But, what was of great importance,

* G. Vallon, "Fauna Ornitologica Friulana," in Boll. Soc. adriat. Sc. Nat. xxi. p. 109 (Trieste, 1902).

† G. Martorelli, "Ulteriori osservazioni sull' *Athene chiaradiæ*," in Atti Soc. ital. Sc. Nat. xl. tav. ii. (Milano, 1902).

he had succeeded that day in capturing with a noose one of the parent birds on the nest; it had yellow eyes, and proved on dissection to be the male. The next day he secured the female in the same way, likewise on the nest; she also had yellow irides!

The nest had been discovered by the shepherds at the end of June, about ten days before Mr. Vallon reached Pizzocco; it was amongst the loose stones of a wall forming an enclosure only about 15 metres from the spot where the little girl got the first nest in 1899, from which my type specimen came, and about 70 metres from the *malga* of the shepherds. The nest was well in amongst the loose stones, but quite bare. To my mind there can be little doubt that the adult couple captured on this nest are the parent birds of the clutch of nestlings taken last year with one *A. chiaradiæ* amongst them, and also of the first brood got in July 1899, from which my type came, and which, if the assertions of the girl who got them and her father and brothers are to be accepted, were all of the black-eyed kind.

On his way back Mr. Vallon was obliged to take shelter from the rain in a *malga* halfway between Pizzocco and the plain; the shepherd there assured him that four years ago he had himself used a black-eyed Civetta for capturing small birds; this would make the *ninth* specimen of this peculiar form, unless it were one of the wanderers of the first set.

The five nestlings of this year's catch are alive in the care of Mr. Vallon at Udine; he is bringing them up, and when fully grown they will complete the family group, which I intend keeping together in the Italian Collection of the Royal Zoological Museum here. From Mr. Vallon's description of the two young *A. chiaradiæ*, they in no way differ from the one he brought up last year; but I have not yet seen them. As to the parent birds, they are now before me, for Mr. Vallon kindly sent them as soon as he got back to Udine. As he himself remarked in his first letter to me after their capture, they are both singular, and although they cannot in any way be considered other than true *A. noctua*, yet they are

individually and in different ways distinct from the usual *A. noctua*. I have compared them carefully with a good series of adults of both sexes from different parts of Italy, and found none like them.

The male is a large bird, bigger than the average adult male *A. noctua*, whilst its head looks rather small, at least in the mounted specimen. The coloration of the brown upper parts and of the blotches on the lower parts is singularly light, nearly isabelline. For this reason I have compared it with a specimen of the so-called *A. glauæ* from Tunis; but it is quite different and much lighter: indeed I cannot consider the North-African bird distinct from our ordinary *Civetta*, and I have specimens from Tuscany that seem perfectly similar to that from Tunis on the most minute comparison. The male from Pizzocco has hardly any white on its facial disk, which is grey; and, lastly, it is remarkable for the great number, large size, and white colour of the blotches on the top of the head, and for the extraordinary width of the rectrices, the outer ones (not the broadest) measure 22 mm., the usual width being about 16 mm. in the adult males of *A. noctua*.

The female is not less remarkable, but quite different: she is small and very dark, but the brown of the upper parts and the big blotches of the ventral feathers are tinged with rufous, and differ from the dark umber brown of *A. chiaradiæ*, while they are considerably darker than in the average *A. noctua*: the facial disk is remarkably so—brown, greyish, with small light spots, but no white. The top of the head is as profusely spotted as in the male, more so than in the average *Civetta*, but the mesial light spots of each feather are narrow and elongated, and, although tinged with rufous, are very conspicuous on the dark brown ground-colour. Finally, the tail-feathers are not unusually broad.

Both these birds, from which a progeny of black-eyed *Civette* have sprung, had, as I have already mentioned, yellow irides. The cry was that of the well-known *A. noctua*, and from Mr. Vallon's observations the habits were similar; he noticed an extreme rapidity in their flight.

The following are the measurements he took on these two specimens when in the flesh:—

	♂.	♀.
Total length	m. 0·226	m. 0·212
Tail	„ 0·088	„ 0·088
Wing	„ 0·156	„ 0·152

The smaller size of the female is unusual in these Owls: for although the sexes do not differ much in size, the female is slightly the larger; this one is smaller than the average *A. noctua*. The two parent birds in no way resemble their black-eyed offspring, and at the same time they each differ in different ways from the average *A. noctua*, from which, however, they cannot be considered distinct, as I have already remarked.

I have not seen a specimen of *A. chiaradiæ* in down, but from Mr. Vallon's description it is very different from the nestling of the ordinary Civetta; besides having dark brown eyes, the down is whiter on the back and on the lower parts, and the nascent feathers are much darker, shewing no rufous tinge.

And now that I have given the up-to-date history, complete so far as possible, of this strange case, it is time to sum up the ascertained facts, and draw therefrom what conclusions may appear plausible. The facts are briefly these:—

A. *July 1899.*—Four nestlings of *Athene* taken from the nest in a loose stone wall at Pizzocco, all said to have had black eyes. One at least certainly had them of that colour; it became the type of *A. chiaradiæ*.

B. *July 1900.*—No specimens of the black-eyed Civetta seen at and about Pizzocco.

C. *7th July, 1901.*—A nestling *A. chiaradiæ* captured in the nest in a hole in a cliff at Pizzocco, not far from where the first was got, but with it were three co-nestlings undoubtedly belonging to the common *A. noctua*.

D. *August 1901.*—A small Owl's nest found in the belfry of the church of the village of Fregona in the adjoining province of Belluno, in which were two ordinary nestlings of

A. noctua and one nestling of *A. chiaradiæ*. Seen by reliable witnesses, but neither by Mr. Vallon nor by myself—the black-eyed *Civetta* having been devoured by a cat shortly after being found.

E. 11th–12th July, 1902.—A small Owl's nest found by Mr. Vallon at Pizzocco, quite close to where the first was got, and also placed in a loose stone wall; it contained five nestlings—two black-eyed *A. chiaradiæ* and three yellow-eyed common *A. noctua*. The two parent birds, captured on the nest, had yellow eyes, and although belonging to *A. noctua*, are each of them singular and different in various ways from the ordinary *A. noctua*.

F. July 1902.—News got of a specimen of *A. chiaradiæ* used for enticing small birds by a shepherd in the hills between Pizzocco and Caneva di Sacile, four years ago, viz. in 1899. This may easily have been a co-nestling of the first specimen of *A. chiaradiæ* obtained, if the account of the shepherd-girl who took it at Pizzocco be true.

And now for an attempt to explain the very strange and novel case. Of course, after what is now known, my first supposition that *A. chiaradiæ* might have been one of the last survivors of a species on the verge of extinction falls to the ground. But the opposite hypothesis, that we have in this singular small Owl a case of *neogenesis*—i. e. the *ex-abrupto* formation of a *new type* with sufficient differential characters to constitute, if maintained, a *new species*,—can, I believe, be upheld.

The term *neogenesis* was first used to explain this sudden origin of new forms from old-established species, if I am not mistaken, by my friend and colleague Prof. Paolo Mantegazza, many years ago; it has been since used, more or less in the same sense, by the late Prof. Cope and by others. I have no intention here of making any attempt to explain the causes which may bring forth such a result: they are necessarily various and usually occult. Suffice it to say that without a strong perturbation of the force of heredity such primary causes would give no result.

Now, if in the case of *A. chiaradiæ* we have indeed an

instance of true neogenesis—and the divergence of the parent birds from the normal type of *A. noctua* in different directions would go some way to prove that in them the force of heredity had been disturbed,—we have before us an *attempt* at the formation of a new species, a case of singular and intense interest. I cannot but consider it as an attempt, so far, for it is very possible that the couple of somewhat anomalous *A. noctua* now dead—which generated in all probability the *four* and perhaps *eight* *A. chiaradiæ* born at Pizzocco, and which possibly may also have been the parents of the couple from which the specimen at Fregona (at no great distance) was born—were *alone* endowed with the faculty of generating the black-eyed form, and they can do so no more. Again, should any of their black-eyed offspring have survived or should the occult primary causes leading to this singular case of neogenesis yet exist, and should in N.E. Italy or elsewhere individuals of *A. chiaradiæ* be again produced and be able to breed freely, we cannot guess whether or not the force of heredity, regaining its full sway, may fix, so to speak, the differential characters of specific value which suddenly emerged in the first specimens of *A. chiaradiæ*, or else, turning back to an easy atavism, alter the black-eyed form again to the original yellow-eyed *A. noctua*.

In the first case a *well-defined* and *remarkable species* would be established; in the second my *A. chiaradiæ* would disappear. In either case I opine that the name I have given to the black-eyed Civetta should be maintained, for it is of obvious scientific interest to save this important case from oblivion. It will require several generations, under the most favourable hypothesis, viz. that more *A. chiaradiæ* be produced, to enable us to decide whether or not a *new species* of *Athene* has been formed.

As to any other hypotheses to explain the formation of *A. chiaradiæ*, I can but repeat that I reject both that based on *hybridism*, and that of a *teratological* or *pathological* cause. Hybrids always shew traces of the characters of both parents, especially when, as would be the case in

Athene, of sheer necessity the connubium cannot but occur with a species of such very distinct genera as *Nyctala*, *Scops*, and possibly *Glaucidium*; now *A. chiaradiæ* is purely and simply an *Athene*, and shews no trace whatever of the characters, either specific or generic, of any of the forms quoted above. As to a teratological or pathological origin, a mere glance at one of the black-eyed Civette will shew that they cannot owe their origin to such a cause. Besides in such cases, as again in hybrids, the form produced varies, and in these black-eyed descendants of *A. noctua* the specimens thus far examined are perfectly alike. The only instance in which we find perfect similarity in pathological descendants is in cases of absolute *albinism* or *melanism*, or, to put it better, in *monocroic* varieties.

My friend Prof. Martorelli, in his elaborate paper quoted above, fully agrees with me in excluding the possibility of a hybrid origin for the form I have called *A. chiaradiæ*; but comes to the conclusion that the two specimens known when he wrote are merely *abnormal* individuals of *A. noctua*. He comes to such a conclusion by starting from a supposed difference in the two specimens, which does not exist, being merely based on a slight omission in my first description of the peculiar characters of the remiges and rectrices in the type specimen of the black-eyed Civetta; and more especially by attributing far too great importance to the traces shewing that the longitudinal whitish bands on those feathers are derived from spots and blotches; this is a natural consequence of an immediate descent from *A. noctua*, in which such light spots and blotches, forming transverse bands on the wing and tail-feathers, exist. My friend Prof. Martorelli is an able and ardent student of the pigmentation of feathers; he has published remarkable and peculiar views on the subject, and is an admirer of Bohn and his theories on the "*évolution du pigment*."

Prof. Martorelli sums up the results of his investigation with the following words:—"The examination of this second specimen, on account of its diversity from the first one

described, does not appear to me to strengthen the supposition that they belong to a new species; on the contrary, those very differences appear to me to furnish the key to explain how the strange anomaly has been produced—an anomaly which I am inclined to consider one of the many forms of *allocroism*, because whilst on one hand we have here *albinism* caused by the disappearance of pigment, on the other we have *melanism* by its condensation in other parts of the same feather.”

I am sorry not to be able to agree with my friend Prof. Martorelli, who has my full esteem as a very competent and conscientious ornithologist. But, as I have already remarked, the two first specimens of *A. chiaradiæ* do not differ and are perfectly alike; and although I do not profess to be a specialist as regards the evolution of pigment in the feathers of birds, I cannot see any traces of albinism or of melanism in the singular small Owl which I call *A. chiaradiæ*.

In this case the question of its being a *good species* or not is of second-rate importance, and besides, in my opinion, it cannot at present be either upheld or denied. The very remarkable new form generated deserves to be kept distinct in the interest of a scientific problem of much greater importance than the mere addition to the *Systema Avium* of a new species.

I believe that neogenesis gives a logical explanation of the strange case of *A. chiaradiæ*. But neogenesis, which appears to be of frequent occurrence amongst plants, has rarely been noted in animals, and I believe never before amongst Vertebrata in a wild state.

Finally, as I have said before, neogenesis may or may not lead to the establishment of a new species.

Royal Zoological Museum, Florence,
25th August, 1902.

II.—*Notes on the Birds of Peking.*

By Capt. H. A. WALTON, Indian Medical Service.

THE following notes are not intended to serve as a complete list of the birds of Peking; they are founded on a collection that I made there whilst a member of the British Contingent, China Field Force, from August 1900 to July 1901. In the early part of that period the country around Peking was in too disturbed a state, and for the last three months I had too much professional work on hand, to allow me to devote much time to ornithology; but during the winter I collected more or less regularly.

Quite a large proportion of the birds were obtained within the city, in the grounds surrounding the Temple of Heaven, where the regiment to which I was attached was quartered. These grounds form a large park-like enclosure of many acres, in which are several groves of trees. The place is much frequented by birds of all kinds, especially during the seasons of migration.

The country around Peking is a vast plain, and is practically all under cultivation. I found that the best spots for observing and collecting birds were the plantations round the numerous small cemeteries that are scattered among the fields. Another good place was a considerable area of marshy ground just inside the city wall, in the south-east corner of the Chinese city. Here there were a number of ponds surrounded by reed-beds, which were the resort of many Ducks and other water-birds, though the reeds were so thick and high that it was not always easy to retrieve the birds when shot. The best places for Ducks and Snipe within reach of Peking are the large lakes at the Summer Palace. The water is, however, very open and the birds most wary.

The climate of Peking presents great contrasts of heat and cold. During the march, in August, from Tientsin to the relief of the Legations, the temperature was frequently as much as 105° Fahr. in the shade. During December, January, and February the cold was intense; the rivers and

ponds were all frozen hard, and snow lay on the ground for about six weeks. The most unpleasant feature of the climate consists in the very frequent dust-storms and blizzards. These often last for several days at a time and make outdoor work very disagreeable.

The country from Peking to the sea is quite flat; to the west of the city, and distant from four to twelve miles, is a range of hills, to which, in ordinary times, the European residents go during the hot weather, and at the foot of which is the Summer Palace. I had hoped to pay a visit to these hills, but circumstances unfortunately prevented me from doing so.

In the immediate vicinity of Peking there are no rivers of any size. A small stream partly skirts and partly runs through the Hunting Park, and there is a neglected shallow canal between the city and the lakes at the Summer Palace. The Hunting Park is about three miles to the south of the Chinese city. It is all grass-land and there are some small lakes in it. The fact that there are no forests close to Peking accounts for the absence of many birds that one would have expected to meet with.

The Pekinese are great bird-fanciers. Like the Mussulman inhabitants of India, with their Partridges and Quails, the Chinese are fond of carrying their birds about out of doors, either in small cages or tethered by a string to a twig. The favourite cage-birds are Calandra Larks, Ruby-throats, Blue-throated Robins, Siskins, and a species of *Dryonastes*. Some of the birds in my collection were obtained from the professional bird-catchers. These men take very large numbers of small birds of all kinds, both with small bow-nets of a very simple design and with bird-lime; many of their captures are sold for cage-birds, and the remainder, no matter how small the size may be, are eaten. I also purchased a few dead birds—mostly Ducks—in the markets during the winter. The only drawback to the latter method of collecting was that, as most of the birds were frozen hard, possibly some of them had not been obtained in the neighbourhood of Peking, but had been brought from

a distance. However, I checked this as far as possible by inquiry made through an interpreter.

The nomenclature adopted in the following list is mainly that which is employed by Messrs. Oates and Blanford in the 'Fauna of British India.' In the case of birds which do not occur in India I have used the classification of the British Museum Catalogue.

I am glad to take this opportunity of thanking Mr. Frank Finn, of the Indian Museum, Calcutta, for much help in the identification of my specimens.

1. *CORVUS TORQUATUS.*

In the middle of August, when I reached Peking, there were very few of these handsome Crows; from October onwards they arrived in large numbers, and were quite common during the winter. Most of them had left by the middle of May, but I still saw an occasional specimen up to the middle of July, when I went away from Peking. They are very wary birds and unusually silent for Crows, though they have the usual deep harsh "caw." One call, which is often uttered on the wing, consists of three notes, with an interval of a fifth between the first and second, the third note being the same as the second.

2. *CORVUS MACRORHYNCHUS.*

Common, but less so than *C. pastinator*. The specimens that I got in Peking are identical with Indian birds.

3. *CORVUS PASTINATOR.*

A very common resident. Nearly all the Rooks and Crows leave Peking in the early morning, large mixed flocks of the various species going off to feed in the Hunting Park and in the fields round the city. They come back at sunset to roost.

4. *CORVUS DAURICUS.*

This bird comes to Peking at about the same time as *C. torquatus*. It was especially numerous during the very cold weather in December and January. Its voice is very like that of the English Jackdaw.

5. *PICA RUSTICA*.

This is one of the commonest birds in the province of Chi Li, and is very plentiful and tame in the city itself.

6. *UROCISSA ERYTHORHYNCHA*.

I did not see this bird wild, but bought some dead specimens in the market in February. The Chinese keep a few in captivity.

7. *CYANOPOLIUS CYANUS*.

Very common near Peking. The birds go about in flocks of from ten to twenty, feeding mostly on the ground. They are noisy, and have very varied hissing and metallic-sounding notes. The members of a flock follow one another about like Babblers.

8. *PARUS MINOR*.

I purchased one caged specimen, but saw no wild birds, nor did the bird-catchers bring me any. Père David says that this species is found in the mountains near Peking.

9. *PARUS PALUSTRIS*.

A common resident, very numerous in the Temple of Heaven Park.

10. *ZOSTEROPS ERYTHROPLEURA*.

Several live specimens of this White-eye were brought in by the bird-catchers at the end of May.

11. *CERTHIA FAMILIARIS*.

I shot two specimens during a very severe frost in January. I saw no others. Père David (quoted by Swinhoe, Proc. Zool. Soc. 1871, p. 350) says that the Tree-creeper is a rare visitant to Peking in winter.

12. *REGULUS CRISTATUS*.

I saw and shot a few Goldcrests in the first fortnight of January.

13. *LOCUSTELLA CERTHIOLA*.

Pallas's Grasshopper-Warbler occurred in small numbers at the end of May. David and Oustalet ('Oiseaux de la Chine') did not meet with it at Peking.

14. *ACROCEPHALUS ORIENTALIS.*

This species arrived at the end of May and was very common during the summer. It is a very noisy bird, and frequents thick reed-beds over water, where, perched at the top of a high stem and singing a loud harsh song almost continuously, it is a very conspicuous object.

15. *ACROCEPHALUS BISTRIGICEPS.*

Schrenck's Reed-Warbler was also common. It arrives at the same time and has much the same habits as the preceding species.

16. *ACROCEPHALUS AGRICOLA.*

Common at the same time as the last two species. It is found further away from water than the latter.

17. *ARUNDINAX AËDON.*

A summer visitor to Peking. This bird is often kept in captivity by the Chinese, who carry it about the streets tethered to a twig by a fine silk thread fastened round the neck. It seems to become tame within a day or two of its capture.

18. *PHYLLOSCOPUS FUSCATUS.*

The Dusky Willow-Warbler was common for about a month, from the middle of April. I did not notice it after the middle of May, by which time the reproductive organs were still very little developed. It probably does not breed at Peking.

19. *PHYLLOSCOPUS PROREGULUS.*

Large numbers of this species passed through Peking on migration in April and October. I saw none in the intervening months. This was the earliest of the Warblers to arrive. I shot the first specimen on April 6th.

20. *PHYLLOSCOPUS SUPERCILIOSUS.*

Common for about four weeks in May, arriving at the beginning of the month. Also fairly common at the beginning of September. This bird keeps to the tops of the trees and has a dissyllabic call-note—very loud for such a small bird.

21. ACANTHOPNEUSTE CORONATA.

I did not notice this bird before the end of May, when the sexual organs were well developed.

† 22. ACANTHOPNEUSTE BOREALIS.

This was the latest of the Warblers to arrive at Peking, which it did at the very end of May.

23. LANIUS SUPERCILIOSUS. }

24. LANIUS LUCIONENSIS. }

These two Shrikes were first seen about the middle of May. They are very shy, but reconcile themselves readily to captivity.

25. LANIUS TIGRINUS.

Arrived at Peking in June. It was never very numerous.

26. AMPELIS GARRULUS.

Waxwings were fairly numerous for about three weeks from the middle of January onwards, during very cold weather. They occurred in flocks of ten or twelve and were very shy. I shot several inside the city, in the Temple of Heaven Park.

I did not see *A. phænicopterus*.

27. ORIOLUS CHINENSIS.

Fairly common. Orioles arrived at the beginning of June, and commenced to nest almost at once.

28. MUSCICAPA GRISEO-STICTA.

Common at the end of May and beginning of June.

29. SIPHIA ALBICILLA.

This Flycatcher passed through Peking at the beginning of September and returned at the beginning of May. It keeps to the very lowest branches, two or three feet from the ground, whence it takes short flights, returning to the same perch. It frequently alights on the ground and is distinctly crepuscular in its habits. It has a very harsh, loud note.

30. ALSEONAX LATIROSTRIS.

Both adults and young birds were common during August

and the early part of September. They returned to Peking about the middle of May.

31. TERPSIPHONE INCII.

I first saw a bird of this species, a male in the white plumage, on May 21st. Mr. Oates ('Fauna Brit. India,' Birds, vol. ii. p. 47) considers that *T. incii* never assumes the white plumage. I was unable to shoot the bird mentioned above, but a few days afterwards *T. incii* became fairly common; unfortunately, I only managed to secure specimens in the chestnut plumage, which, however, were all *T. incii*. It seems unlikely that the first bird was of a different species.

32. PRATINCOLA MAURA.

This Bush-Chat was very common for about ten days at the beginning of May, on some waste land inside the Chinese city. I did not see it afterwards.

33. RUTICILLA AUROREA.

I shot a few Redstarts of this species during October, and again early in April. I saw none after about the middle of the latter month.

34. CYANECULA SUECICA.

A very favourite cage-bird. The Chinese bird-catchers caught a great many during the month of May.

35. ERITHACUS CYANEUS.

Several specimens of the Siberian Blue Robin were brought to me by the bird-catchers at the end of May. I did not see it wild.

36. CALLIOPE CAMTSCHATKENSIS.

Many Ruby-throats were caught during May. They seem to thrive well, for a time at least, on a mixture of finely chopped up raw meat and bean-flour paste; but a bird that has passed safely through the winter in captivity commands a good price.

37. TARSIGER CYANURUS.

This was the earliest of the spring migrants at Peking. Many cock birds arrived in the middle of March, the hens

coming about a fortnight later. This species feeds a good deal on the ground, like a Robin, but is also somewhat Muscicapine in its habits, catching insects in the air, and returning after a short flight to its original perch. It frequently moves its wings and tail like a Redstart. I only heard it utter a harsh call-note.

38. XANTHOPYGIA TRICOLOR.

I obtained a few specimens at the end of May. The bird appears to be uncommon at Peking.

39. TURDUS NAUMANNI.

I saw no Ouzels until the beginning of November, when a few individuals of this species appeared in the Temple of Heaven Park, and in small plantations outside the city. By the middle of November *T. naumanni* had become quite common, and it increased in numbers as the winter went on. For about a month this was the only Ouzel that I obtained; then *T. ruficollis* arrived, and soon became equally numerous. The two species associated freely with one another. At first the birds were met with singly or in small parties, but when the cold became severe and the ground was covered with snow they formed flocks of twenty or more individuals. I did not see *T. naumanni* after the beginning of June. It has a very loud alarm-note.

40. TURDUS RUFICOLLIS.

The Red-throated Ouzel arrived at about the beginning of December, and was common until the beginning of May. David and Oustalet ('Oiseaux de la Chine') say that it is rare at Peking. This was not my experience, though it was never so abundant as the preceding species.

41. TURDUS FUSCATUS.

I obtained specimens of the Dusky Ouzel at Peking in April and May, but did not see it during the winter. It associated with the two preceding species, which, by the time that *T. fuscatus* appeared, had become much reduced in numbers.

42. *TURDUS OBSCURUS.*

I shot two birds of this species in the last week of May. They were with a small party of *T. naumanni*, and seemed to be rather wilder, flying up to the topmost branches of high trees when alarmed.

43. *TURDUS ATRIGULARIS.*

A few Black-throated Ouzels passed through Peking in the end of April.

44. *COCCOTHRAUSTES JAPONICUS.*

Hawfinches were very common in and about Peking, from the beginning of November until the end of April.

45. *LOXIA*, sp. inc.

I did not see any wild Crossbills. The bird-fanciers had a few (probably *L. japonica*) in the early spring. They asked such high prices for them that I think that they must either be very rare or else be brought from some distance.

46. *CARPODACUS ERYTHRINUS.*

Not very common, and only seen during May.

47. *CHRYSOMITRIS SPINUS.*

I saw a few Siskins in the autumn. The Chinese bird-fanciers keep large numbers in captivity.

48. *LINOTA LINARIA.*

Very common from November until the beginning of April.

49. *CHLORIS SINICA.*

This species occurred in large flocks in the Temple of Heaven Park, for a few days at the end of January. They were very wild and kept to the tops of the trees.

50. *FRINGILLA MONTIFRINGILLA.*

Very common all through the winter, but disappeared about the middle of April.

51. *PASSER MONTANUS.*

This is the Common Sparrow of Peking. It is quite as familiar as *P. domesticus* elsewhere.

52. *EMBERIZA AUREOLA*.

Common in the reed-beds up to the beginning of November. After that it was absent from Peking until the middle of May, from which time it became plentiful, but only stayed for about a month.

53. *EMBERIZA PUSILLA*.

I did not see the Dwarf Bunting until early in October. It was excessively common all through the winter, and remained, but in diminished numbers, until the middle of July, when I left Peking. It has a long, rather pretty, but weak song.

54. *EMBERIZA RUSTICA*.

I shot a few specimens of this Bunting in the middle of October, but did not see it again.

55. *EMBERIZA SCHENICLUS*.

Very common, from December onwards, through the winter.

56. *EMBERIZA LEUCOCEPHALA*.

I saw a few small flocks of the Pine-Bunting, and shot some specimens, during very severe weather, at the end of February.

57. *EMBERIZA RUTILA*.

The Chestnut Bunting arrived about the middle of May. It has a single loud call-note.

58. *EMBERIZA SPODOCEPHALA*.

Common during the spring migration in May. My specimens quite bear out Mr. Hume's observations ('Stray Feathers,' vol. xi. p. 276) that Chinese specimens of this Bunting have the throat and breast much more grey than those from India.

59. *EMBERIZA ELEGANS*.

A few examples of this species were brought to me by a bird-catcher at the end of May. I did not see it wild myself.

60. *EMBERIZA CASTANEICEPS*.

I shot a few specimens at the end of May.

61. *EMBERIZA FUCATA.*

This Bunting arrived at the same time as the preceding species. It was not at all common.

- +62. *HIRUNDO RUSTICA.* }
63. *HIRUNDO GUTTURALIS.* }

A few of my skins appear to be typical specimens of each of these species, but the majority are quite intermediate. I omitted to record the date of departure of the Swallows in the autumn. In the spring I saw the first one, in the Hunting Park, on March 31st. Then came a short spell of cold weather, and it was not until a fortnight later that the Swallows became at all numerous.

64. *MOTACILLA OCULARIS.* }
65. *MOTACILLA CITREOLA.* }
66. *MOTACILLA BOREALIS.* }

These three Wagtails reached Peking at the beginning of May, and were about equally plentiful.

67. *LIMONIDROMUS INDICUS.*

I first saw the Forest-Wagtail at the end of May. It was never very common. It frequented small groves of trees, and was very like a Tree-Pipit in its habits. It feeds on the ground and flies up to a branch when disturbed.

68. *ANTHUS MACULATUS.*

Common, apparently, throughout the year.

69. *ANTHUS SPINOLETTA.*

Very common during the winter.

70. *MELANOCORYPHA MONGOLICA.*

According to Swinhoe (Proc. Zool. Soc. 1871, p. 390) this Lark occurs on the Peking plains in winter; but, although on the look-out for it, I never saw it wild. It is one of the commonest and most popular cage-birds of the Chinese, as it thrives in captivity and is an indefatigable songster. Its notes, however, are unpleasantly loud and shrill.

71. *ALAUDA ARVENSIS*.

Very common during the winter, when many are caught and eaten by the Chinese. It is probably a resident at Peking.

72. *GALERITA CRISTATA*.

Not common. I shot a few in the autumn.

73. *GECCINUS CANUS*.

A very common resident. This Woodpecker was especially plentiful in the Temple of Heaven Park. It feeds a great deal on the ground.

74. *DENDROCOPUS CABANISI*.

Common. Makes a very loud noise when tapping on a tree. The sound is equally sonorous whether the branch is large or small, and must be produced by the bird itself, irrespectively of the degree of hollowness of the bough. This species has a very loud, constantly repeated, "clucking" call.

75. *IYNGIPICUS SCINTILLICEPS*.

Common and resident. One of my specimens, a male, shot in the middle of December, has the under parts uniform buffy white, with no trace of longitudinal stripes; the amount of white on the back is more extensive than in any of the other skins.

76. *ALCEDO ISPIDA*.

Not at all common near Peking.

77. *UPUPA EPOPS*.

Very common and breeding in the spring. David and Oustalet ('Oiseaux de la Chine') mention that it sometimes occurs in Peking in the coldest weather of winter. I shot one, which shewed no signs of having been in confinement, on December 9th, during a week of very hard frost. After that I saw no more Hoopoes until the middle of March.

78. *CYPSELUS APUS*.

Very common all through the summer. It arrived at the end of April.

79. CUCULUS CANORUS.

Cuckoos arrived about the middle of May and were very numerous for about a fortnight in the grounds surrounding the Temple of Heaven. They avoided the higher trees, and perched on very low branches, feeding frequently on the ground. At the beginning of June they dispersed about the district.

80. ASIO OTUS.

This was the only Owl that I saw. It was rather common, especially in the groves of trees round the Chinese cemeteries.

81. AQUILA sp. inc.

I saw a large Eagle, which I could not identify, hanging up at a stall in the market during the winter. I think that it was probably *A. bifasciata*, in immature plumage.

82. CIRCUS MELANOLEUCUS. }

83. CIRCUS CYANEUS. }

These two Harriers are very common residents, and are constantly to be seen hunting over the grass plains to the south of the city.

84. ACCIPITER NISUS.

Rather common and resident.

85. FALCO PEREGRINUS.

Not uncommon. I shot one inside the Temple of Heaven Park and saw another in the south-east corner of the Chinese city. The latter bird made a fine swoop at a Mallard, which it just missed.

86. ÆSALON REGULUS.

Very common, especially in winter.

+87. TINNUNCULUS ALAUDARIUS.

Also very common. Although I saw and shot a good many Kestrels I did not recognise or obtain an example of *T. cenchris*.

88. COLUMBA LIVIA.

Common, in a semi-domesticated state, in and about Peking.

89. *TURTUR RISORIUS*.

During November I saw two individuals of this species, and shot one, a few miles south of Peking. I never saw it again; there certainly were none during the winter, and in the spring I had very few opportunities of collecting at any distance from the city.

90. *TURTUR ORIENTALIS*.

Very common after March. I think that a few individuals of this species remained at Peking during the winter. On several occasions during the severe weather I saw a Dove that looked like *T. orientalis*, but was unable at the time to procure a specimen.

91. *PUCRASIA XANTHOSPILA*.

A few of these Pheasants were exposed for sale in the market in January and February.

+92. *PHASIANUS TORQUATUS*.

There were very many of these birds in the markets during the winter. Most of them came from the "Western Hills." I saw one wild at a place about ten miles from the city.

93. *COTURNIX JAPONICA*.

Very common during the whole time that I was at Peking, except for about four weeks in the middle of winter, when the ground was covered with snow. I shot several examples in the Temple of Heaven Park. I kept one in a cage for some time, but never heard it utter a sound.

94. *CACCABIS CHUKAR*.

I saw two or three Chukors in the market during the winter.

95. *TURNIX BLANFORDI*.

I shot two specimens of the Burmese Button-Quail in the Temple of Heaven Park in June.

96. *PORZANA PUSILLA*.

I obtained one specimen, in May, of the Eastern Baillon's Crake. This bird, like its congeners, is such an inveterate skulker that it is hard to say whether it is common or not.

97. *GALLINULA CHLOROPUS.*

Common about all the ponds as long as they remained unfrozen.

+98. *FULICA ATRA.*

Equally common.

99. *GRUS, sp. inc.*

On two occasions in the spring I saw small flocks of Cranes, high up in the air, flying northwards. The Manchurian Crane is sometimes kept in captivity in Peking.

100. *MICROSARCOPS CINEREUS* (Cat. B. xxiv. p. 133).

I had one specimen sent to me from the Summer Palace on April 1st. It was a hen, with a moderately developed ovary. I saw no others.

+101. *VANELLUS VULGARIS.*

There were large flocks of Lapwings in the Hunting Park at the end of March. They were very wild, and I only managed to shoot one.

102. *ÆGIALITIS ALEXANDRINA.*

I shot a single bird of this species at Tientsin in August, but did not see it alive at Peking, though there were several examples in a frozen state in the market during the winter.

103. *IBIDORHYNCHUS STRUTHERSI.*

I bought the only specimen which I saw in the market at the beginning of February.

+104. *NUMENIUS ARQUATA.*

Curlews were common in the early spring, especially in the Hunting Park.

+105. *TOTANUS OCHROPUS.*

Fairly common.

106. *TOTANUS GLAREOLA.*

I shot a few specimens in the spring.

107. *TRINGA TEMMINCKI.*

Common at Tientsin in August—uncommon at Peking.

108. GALLINAGO MEGALA.

I shot one of these large Snipes in the Temple of Heaven Park in May, and saw other birds, doubtless of this species, in the same place, at the end of September. It frequents dry spots, and has a rather slow, very direct flight, skimming along among the trees, a few feet from the ground, for twenty yards or so. It can be flushed several times before it becomes really alarmed.

+109. GALLINAGO CÆLESTIS.

Common, especially on the swampy lakes at the Summer Palace.

I did not happen to shoot any specimens of *G. stenura*, though David and Oustalet say that it is common in the neighbourhood of Peking.

+110. HYDROCHELIDON HYBRIDA.

I shot a Tern of this species at Tientsin in August.

+111. PHALACROCORAX CARBO.

Common on the large lake in front of the Summer Palace. A specimen obtained on March 21st was in full breeding-plumage.

+112. ARDEA CINEREA.

Common.

113. HERODIAS, sp. inc.

A large white Egret, of which I did not obtain a specimen, was fairly common in the spring. It was probably *H. alba*.

114. NYCTICORAX GRISEUS.

Commonly met with in the spring and summer: it is possibly a permanent resident.

115. BOTAURUS STELLARIS.

There were a few Bitterns in the market in the early spring.

116. CYGNUS OLOR.

I saw a dead Mute Swan in the market in winter. It had possibly been in captivity.

+117. *CYGNUS MUSICUS.*

Common all through the winter.

118. *ANSER*, sp. inc.

A Goose that I took to be a Bean - Goose — probably *A. serrirostris* (Cat. B. xxvii. p. 101)—was for sale in the market occasionally during the winter.

+119. *CASARCA RUTILA.*

Not uncommon.

+120. *ANAS BOSCAS.*

Very common all through the winter; probably the most abundant Duck about Peking.

121. *EUNETTA FALCATA.*

Common. The drake has a short, low, trilling whistle. This is an excellent bird for the table.

122. *NETTIUM FORMOSUM.*

Common. Blanford ('Fauna Brit. India,' Birds, vol. iv. p. 442) does not mention the fact that all the black parts of the head and neck of this species have a well-marked reddish-bronze metallic lustre. This is also a very good bird for the table.

+123. *NETTIUM CRECCA.*

The Common Teal was plentiful all through the winter.

+124. *MARECA PENELOPE.*

Rather common.

125. *NYROCA BAERI.*

Baer's Pochard was very common.

+126. *MERGUS ALBELLUS.*

Common during the winter.

127. *MERGANSER CASTOR.*

Common.

128. *PODICIPES CRISTATUS.*

Great Crested Grebes were common on the lakes at the Summer Palace in spring.

129. *PODICIPES PHILIPPENSIS.*

Common on all the ponds, except during very severe frosts.

III.—On the Pterylography of *Photodilus*.

By W. P. PYCRAFT, A.L.S., F.Z.S.

(Plate II.)

THE following paper gives the result of a careful study of the pterylosis of an adult specimen of *Photodilus badius* received recently by the Natural History Museum from Dr. C. Hose, F.Z.S., the Resident at Baram, Borneo.

Observations on this subject have been made before, but no thoroughly detailed account of the pterylosis of *Photodilus* has hitherto been given. Although this article claims to be the most nearly complete account of the subject up to the present time, yet one or two small points still remain to be recorded. These concern the overlap and the relative lengths of the feathers forming the coverts of the dorsal aspect of the wing, which could not well be made out in the specimen to hand.

In the general form and distribution of the pteryllæ *Photodilus* is distinctly Asionine in character, but in the form of the external ear it is unique.

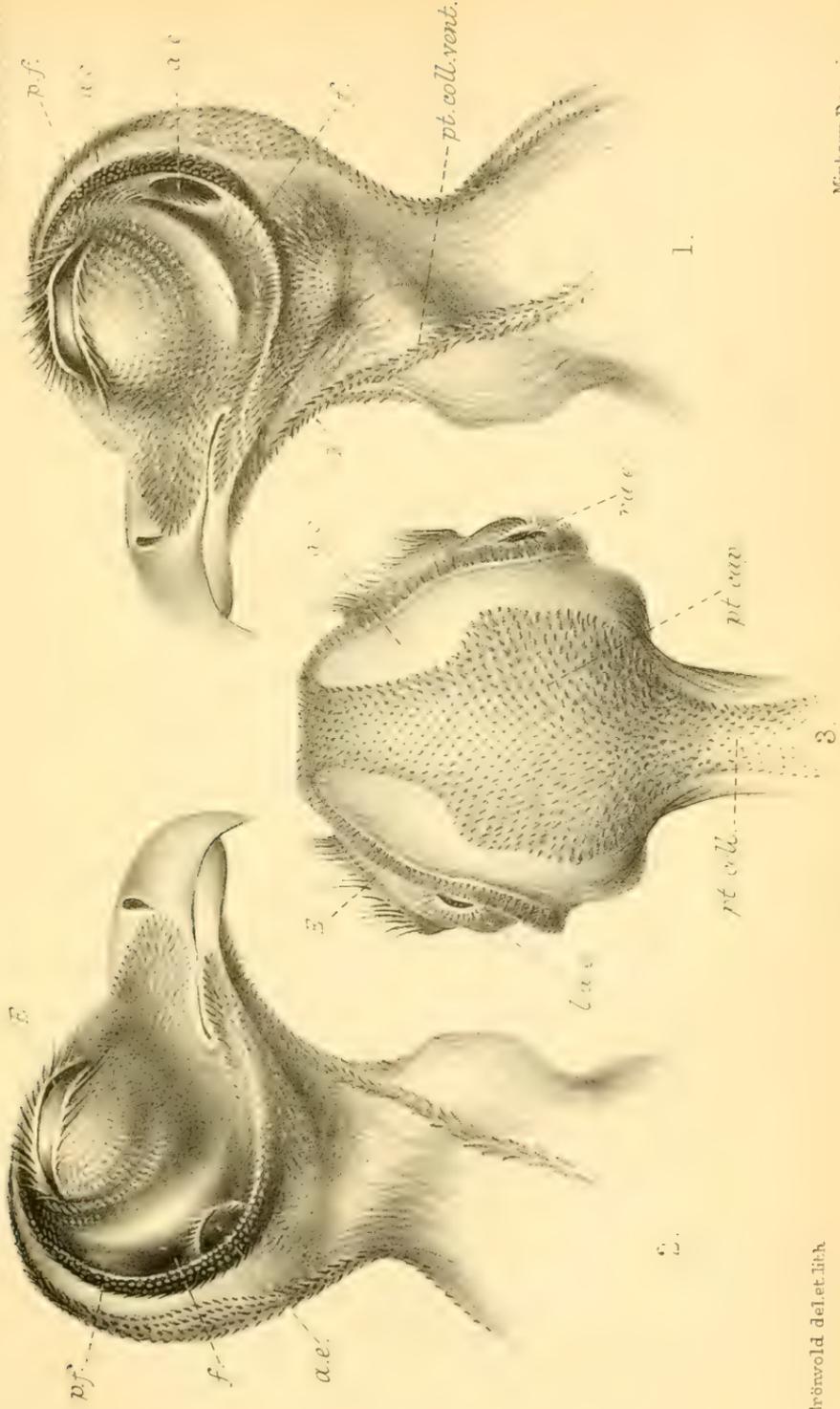
I hope, ere long, to have the good fortune to be able to study the pterylosis of *Heliodinus*. This is now one of the most important forms of the Striges awaiting a detailed description.

I. Description of the Pteryllæ.

Pterylla capitis (Pl. II.) :—

Fronto-parietal area.—This extends from the base of the beak to the crown of the head, and passing backwards merges into the occipital area. Traced from the beak it commences in the form of a broad band bounded on either side by the upper horns of the crescentic loreal area. On the crown of the head the band narrows somewhat, widening again before passing into the occipital area, while it is bounded on either side by a well-marked apterium.

Occipital area (Pl. II. fig. 3).—This may be said to commence at a point corresponding to the level of the aperture of the left ear as a sudden widening of the fronto-parietal



HEAD OF PHOTODILUS BADIUS.

area. The lateral borders of this tract are semicircular in outline, the tract itself suddenly narrowing at the base of the neck to pass into the *pteryla colli dorsalis*. The feathers in this area radiate outwards from the middle line on either side.

Loral area (Pl. II. fig. 1).—This is represented by a densely packed crescentic patch of feathers in front of the eye, and is continued forwards on the beak to terminate as a cone-shaped area just below the external narial aperture. This cone-shaped area thus comes to be divided in the middle line from its fellow of the opposite side by the cere, whilst its inferior border runs along the basal portion of the beak, but some distance above the tomium. It then passes backwards behind the gape as a narrow band of feathers to join the circum-aural area.

Ocular area.—This area, as in other Owls, is of great size, owing to the lateral projection of the eyes. The lower lid is clothed by numerous rows of concentrically arranged feathers, which pass upwards at the posterior canthus to form a broad band running to the circum-aural area, but first sending forwards a branch to clothe the upper lid. The feathers there differ from those of the lower lid in their greater length. By reason of the feeble development of the vanes they resemble filoplumes; the outermost row performs the function of eyelashes along both eyelids.

Circum-aural area (Pl. II. fig. 1).—This is delimited by a number of closely set stiff feathers forming the periphery of the disc, and corresponding to the feathers of the post-aural folds described by me in *Asio accipitrinus* (3). It may be traced from the ramal area backwards, upwards, and forwards, till it ultimately fuses with the loral area. Immediately behind the eye it is joined by a broad band from the ocular area. Distinct pre- and post-aural skin-folds are wanting.

Ramal area.—This is partly occupied by the post-aural section of the circum-aural area.

Inter-ramal area.—This is filled by a truncated-conical patch of feathers lying between the symphysis of the mandible and the convergent limbs of the circum-aural disc-

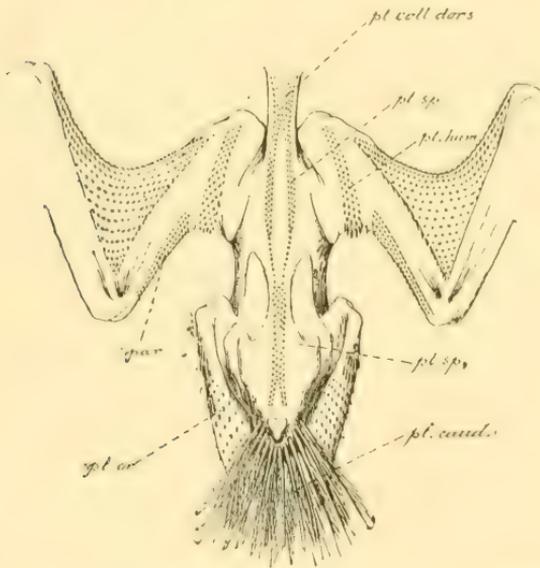
feathers, which may be said to meet below the jaw at this point.

The facial disc is formed by the feathers of the loreal and post-aural section of the circum-aural area.

Pt. colli dorsalis (text-fig. 3).—This is a densely feathered tract not closely investing the neck, but throughout the greater part of its length supported on a vertical fold of skin. This fold serves to fill up the U-shaped curve formed by the folding of the neck on the body in repose, whilst the feather-tract forms a bridge across the top of the loop. The tract is widest at its confluence with the *pteryla capitis*, and passes insensibly backwards into the *pt. spinalis*.

Pt. spinalis (text-fig. 3).—It is not possible to draw a hard-

Text-fig. 3.



Dorsal aspect of *Photodilus badius*, showing the arrangement of the pterylae.

par. = parapteron.

pt. caud. = pteryla caudalis.

pt. coll. dors. = pteryla colli dorsalis.

pt. cr. = pteryla cruralis.

pt. sp. = " spinalis.

pt. hum. = " humeralis.

and-fast line between the upper end of this tract and the *pt. colli dorsalis*. The interscapular and lumbar forks are

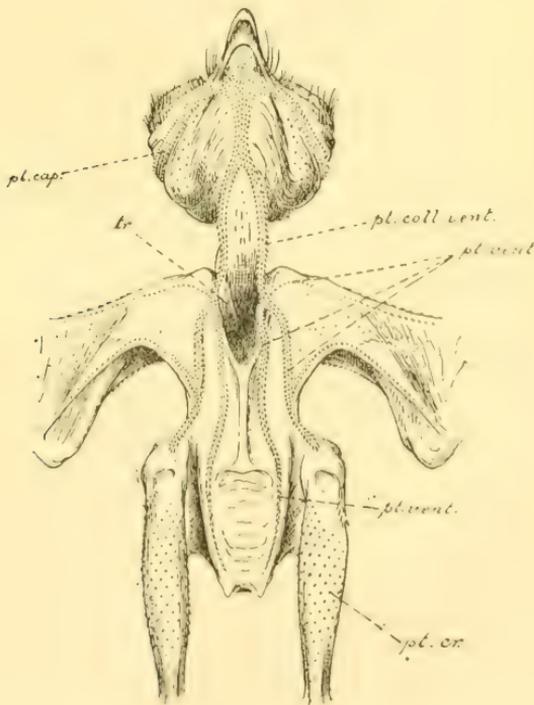
both present. The arms of the former are conspicuous, arising at the root of the neck, and terminating on a level with the free end of the scapula. The arms of the latter are feebly developed, and are represented only by a feeble and ill-defined row of feathers, which, running up to join the interscapular fork, enclose a space.

The stem of the lumbar fork is strong, and extends from the convergence of the pre-acetabular ilia backwards to the uropygium, in front of which it terminates in a long fork.

Pt. caudæ.—There are twelve rectrices.

Pt. colli ventralis (text-fig. 4).—This may be described as a

Text-fig. 4.



Ventral aspect of *Photodilus badius*, showing the arrangement of the pterylae.

pt. cap. = pteryla capitis.

pt. coll. vent. = pteryla colli ventralis.

pt. vent. = pteryla ventralis.

pt. cr. = " cruralis.

tr. = trachea.

backward continuation of the inter-ramal tract. Near the middle of the neck it forks to accommodate the U-shaped neck, the branches passing, one on either side of the curve, to terminate on the *pt. ventralis*.

Pt. ventralis (text-figs. 4 & 5, pp. 39 & 41).—This tract in its general features recalls that of the Nyctalinæ. The outer branch of the two rows of feathers is distinct, and runs outward from a little below the summit of the shoulder to the free edge of the patagium. The middle and inner branches divide near the upper third of the furcula, at the point where the inner branch is joined by the *pt. colli ventralis*. The middle branch is quite distinct, and runs downwards as far as the posterior $\frac{1}{5}$ of the sternum. At a point corresponding with a line drawn across the middle of the sternum this branch gives off the characteristic "hook," which turns abruptly upwards, forwards, and outwards on the hypopteron. The area between the hook and its stem is sparsely covered with semiplumous feathers. The inner, in common with the middle, branch arises at the summit of the shoulder, the two branches being given off at the point of contact with the *pt. colli ventralis*: from this point backwards the inner branch runs, first slightly inwards and downwards towards the carina, then slightly upwards till the right and left tracts are divided by nearly the whole width of the sternal plate; from this point backwards they slowly converge again to terminate in a line with the pubic extremities, but some distance from the cloaca (see text-fig. 4, p. 39).

Pt. femoralis (text-fig. 5, p. 41).—This tract is ill defined and small in extent. The feathers of which it is composed are semiplumous in nature. The *femoro-crural* band is, however, very distinct, the crural portion terminating some distance below the knee-joint.

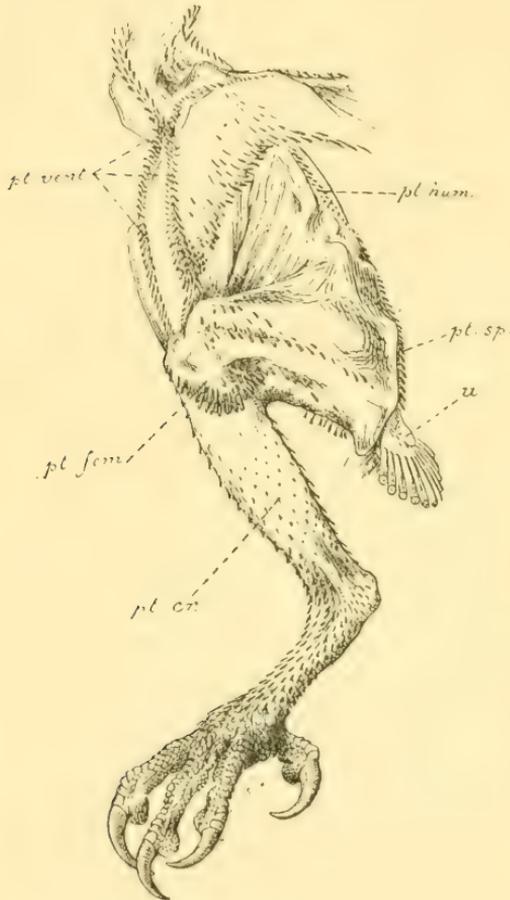
Pt. cruralis.—This tract is well defined and invests the whole leg. It is continued downwards over the acrotarsium, and, feebly, in the shape of a few bristles, to the acropodium. The planta is feathered.

Pt. alaris (text-fig. 6, p. 42).

Metacarpo-digitals (primaries) 10; 6th longest (reckoning

from within outwards). Vanes neither serrated nor emarginated. The remicle, or reduced 11th remex, is entirely

Text-fig. 5.



Lateral aspect of *Photodilus badius*, showing the arrangement of the pterylae.

pt. fem. = pteryla femoralis.

u. = uropygium. Other letters as before.

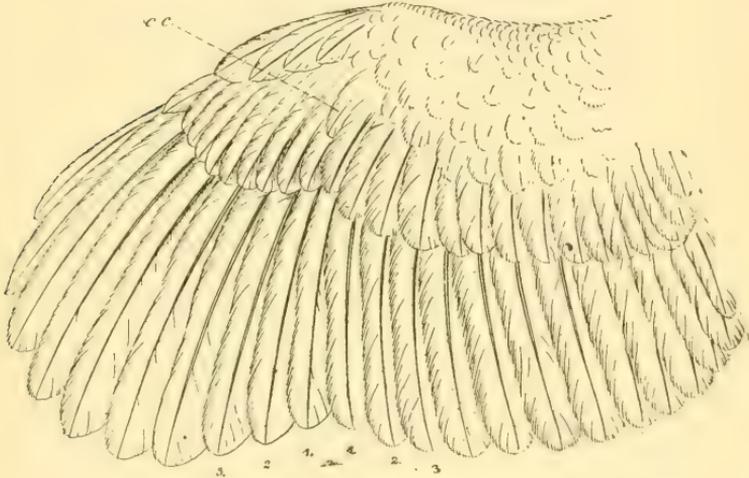
wanting. The 8th, 9th, and 10th form a series of progressively shorter feathers, so that the wing has a conspicuously rounded appearance. Secondaries 13, the

innermost (13th) scarcely distinguishable from its major covert. The wing is diastataxic.

The *carpal covert* (text-fig. 4, p. 39) is large, and directed forward so that the distal end crosses over the shafts of primaries 1-2.

The carpal remex is much smaller than its covert, but has preserved its pennaceous character.

Text-fig. 6.



Dorsal aspect of left wing of *Photodilus badius*, to show the contour when extended.

c.c. = carpal covert.

3, 2, 1 show the first three primaries.

1, 2, 3 " " secondaries.

Tectrices :—

T. majores.—The major coverts of the dorsal surface of the manus are small. It is extremely interesting to note that the covert of the 10th remex has taken on the characters of a quill—the remicle—being longer than the coverts proximad. Its pattern of coloration differs from that of the remaining coverts of the row; but in this particular it resembles its remex, which differs from the other remiges in having the outer web conspicuously barred with black and chestnut on a white ground.

The dorsal major coverts of the secondary remiges are of

uniform length throughout, save only the 6th covert, which is distinctly shorter than the 5th and 7th.

The major coverts of the ventral surface are small, and gradually decrease in length from without inwards. The reverse is the case in *Asio*, to take an example.

T. medice.—On the dorsal surface of the manus this row commences at the 2nd metacarpal remex. On the ventral surface of the manus this row of feathers terminates at the base of the 4th remex, not the 6th, as in *Asio*. On the forearm they are fairly long, and not concealed by the minor coverts.

T. minores.—On the dorsal surface these coverts are wanting on the manus. There appear to be three cubital rows. On the ventral surface of the manus the first row replaces the *t. medice* after the 5th metacarpal remex. There appear to be but two complete rows. Distad of the 2nd or more preaxial row, the wing-surface is but sparsely clothed by small semiplumous coverts belonging to this series.

T. marginales.—On the dorsal surface there are two rows running along the preaxial border of the manus. The greater part of the surface of the patagium is clothed by some four or five rows. The preaxial patagial border is clothed by a closely set band of these feathers which runs inwards to join the *pt. humeralis*.

On the ventral surface these feathers are small and semiplumous; the postaxial row overlap the *t. minores*, whilst the feathers of the preaxial border are very closely set and directed outwards, to form, with those of the dorsal aspect, a clean patagial edge.

Parapteron.—This is made up of about 8 rows, or rather bundles, of three feathers in each bundle. The distal bundles pass gently into the feathering of the forearm, the proximal into the *pt. humeralis*.

Hypopteron.—The hypopteron is represented only by a few weak semiplumous feathers, which form but a single row, running along the biceps muscle and merging proximally with the median branch of the *pt. ventralis*.

Ala spuria.—Four strong feathers take part in the formation of the *ala spuria*.

The distribution of the coverts of the dorsal aspect of the wing agrees with that in other Owls; they form obliquely transverse rows sloping from without inwards instead of being arranged in quincunx.

The rounded form of the expanded wing shews this bird to be a wood-haunting species.

Semiplumæ, Plumæ, and Filoplumæ :—

All these agree in their general distribution with what obtains in Owls generally.

Podotheca.—Clothed with feathers down to the acropodium, which is invested with reticulated scales, among which filoplume-like feathers are scattered.

Claws.—There are no claws on the wing; those of the foot are large, rounded, and curved. The mesial border of the claw of the third digit is produced into a flat, cutting, and slightly serrated edge.

Uropygium napiform, and not tufted.

Apteria :—

Apterium capitis (Pl. II. fig. 3).—The apteria of the head are represented by the bare spaces surrounding the cyclids, the spaces on the sclerotic ring of the eye, and a very broad conspicuous space extending on either side of the head from the *apt. colli laterale*, and terminating on the crown of the head above the middle of the eye.

Apt. colli laterale.—Traced from the base of the neck this may be followed forwards to the symphysis of the lower jaw, and upwards to the region of the middle of the eye.

Apt. trunci laterale, spinale, mesogastræi, crurale, and ala superioris and inferioris do not differ materially from those of *Asio*, and may be studied in the accompanying figures.

II. Description of the external Ear.

As will be seen by the figures (Pl. II. figs. 1-3), the aperture of the ear (*a.e.*) is small, oval in outline, and markedly asymmetrical with regard to the aperture on the opposite side of the head.

On the right side (Pl. II. fig. 2) this aperture lies

immediately above the articulation of the mandible with the quadrate, its long axis pointing obliquely backwards. It leads into a spacious chamber extending upwards and backwards for a considerable distance. The passage to the middle ear lies at the bottom of this chamber.

Immediately *above* the mouth of the external ear lies a deep fossa (*f.*). This fossa is entirely open laterally, but is bounded in front by the eye, behind by the post-aural section of the peripheral disc-feathers, above by the base of the post-orbital process, and below by a thin fold of skin, which serves also as the roof of the external aperture of the ear (see Pl. II. fig. 2). It appears to correspond to the diverticulum of *Asio accipitrinus*.

On the left side (Pl. II. fig. 1) the aural aperture will be found to occupy a position exactly corresponding to the position of the diverticulum of the right side, whilst the latter is represented by a very shallow trough or groove lying immediately *below* the aural aperture. The superior angle of the mouth of this aperture will be found to lie on a level with a line drawn backwards and very slightly downwards from the posterior canthus of the eyelid, whilst its long axis is nearly at right angles to the long axis of the skull. The extension upwards and backwards of the aural chamber is much less than in its fellow of the opposite side. The chamber, indeed, on this left side leads almost directly downwards to the tympanum.

If a comparison be made between the apertures of the ears of *Photodilus* and of *Asio*, a point of considerable interest and of not a little significance, will at once become apparent. This is that the relation between the diverticulum and the aperture on the two sides of the head is the same in both genera. That is to say, in both genera the diverticulum will be found *above* the aperture on the right side, *below* it on the left. This suggests that the fold of skin which divides the diverticulum from the aural aperture on the two sides of the head in *Photodilus* is the homologue of that more extensive fold performing the same office and running from the opereulum backwards in *Otus*.

III. *Summary of Conclusions.*

Judged by pterylogical characters alone, the position of *Photodilus*, in the scheme proposed in my earlier paper, seems to be most naturally along with the genera which make up the subfamily Asioninæ, among which it stands as a somewhat aberrant genus with leanings towards *Asio*. The general conformation of the external ear is quite different from that of any other Owl, but, externally, it may possibly be regarded as more nearly like that of *Asio* than that of any other genus. It is, indeed, possible that the external ear of *Photodilus* approximately represents the primitive stage from which the complex external ear of *Asio* has been derived. The voluminous post-aural fold of the latter may very well have arisen by the development of a fold of skin such as that which supports the peripheral disc-feathers of *Photodilus*; but it is not easy to see how the operculum can have arisen. It may be remarked, however, that even in the nearly ripe embryo of *Asio* there is no suggestion either of the post-aural fold or of the operculum.

In *Photodilus*, as will be seen in Pl. II. figs. 1, 2, there is little or nothing apparent which could give rise to such a fold. It is possible, of course, that the operculum had its origin in a raised fold such as that which forms the anterior boundary of the auditory aperture in *Photodilus*. If we assume this to be so, then it is possible that the membranous rim bounding the aperture superiorly represents the membranous fold which in *Asio* runs from the post-aural fold to the operculum and divides the "cavernum" into upper and lower moieties. The transformation in the skull necessary to convert the aural region of a bird like *Photodilus* into that of *Asio* is not great, inasmuch as it could be accomplished by the shifting forwards and reduction of the post-orbital process and the vertical extension of the bony "cavernum."

In the general pterylosis of the body, *Photodilus* perhaps comes nearest to *Asio* *. It differs therefrom in the

* There is nothing whatever in the pterylosis of this bird which in any way resembles that of *Strix*. Nitzsch, as Beddard has pointed out, seems to have imagined that a resemblance of the kind existed.

narrower median branch of the *pt. ventralis* and in the extension upwards to the crown of the head of the *apt. trunci laterale*. In the latter respect it agrees with *Bubo maculosus*.

I do not propose to enter further upon the discussion of the question of the systematic position of *Photodilus* at the present time, as I hope to return to this subject in a future paper, wherein the osteology and the anatomy of the soft parts will be dealt with, together with a general summary of the literature of the subject. I will only remark that, as Beddard has already conclusively shown, *Photodilus* is not a near ally of *Strix*, as has been contended on more than one occasion.

IV. *Revised Key to the Subfamilies and Genera of the Family Asionidæ.*

The remarkable character of the external ear of *Photodilus* has rendered necessary a slight revision of the first portion of the "Key to the Families, Subfamilies, and Genera" given in my former paper (3).

The revised portion stands as follows :—

- A. The median branch of the ventral tract free posteriorly; the feathers of the hinder border of the acrotarsium directed downwards; no filoplumes at the end of the oil-gland I. ASIONIDÆ.
- a. Interscapular region of *pt. spinalis* with a long bifurcation Subfamily 1. *Asioninae*.
- a'. Membranous aperture of ear of great size, extending from gape backwards, upwards, and forwards to terminate above the middle of eye; aperture covered with a large operculum and divided into upper and lower moieties by a fleshy fold *Asio*.
- b'. Membranous aperture of ear large, but its vertical axis not exceeding the horizontal axis of the eyelid; aperture closed by a large operculum and not divided by a fleshy fold *Syrnium*.
- c'. Membranous aperture of ear small, oval, that of right side bounded above, and that of left side below, by a deep crescentic channel; aperture not closed by an operculum *Photodilus*.

- d'*. Membranous aperture of ear variable in size, but its vertical axis never exceeding the horizontal axis of the eyelid; aperture not closed by an operculum.
- a''*. Oil-gland conical; cere not inflated, but closely investing the base of the beak; posterior half the height of the anterior division of the cavernum *Bubo*.
- b''*. Cere laterally inflated; anterior and posterior divisions of the cavernum of equal height. *Scops.*
Ninox.
Sceloglaux.

V. *Titles of the Papers referred to.*

1. BEDDARD, F. E. On *Photodilus badius*, with Remarks on its Systematic Position. *Ibis*, ser. 6, vol. ii. p. 239 1890.
2. NITZSCH. *Pterylography*. English Transl. 1866.
3. PYCRAFT, W. P. A Contribution towards our Knowledge of the Morphology of the Owls. *Trans. Linn. Soc.* 2nd ser. *Zool.* vol. vii. 1898.

VI. EXPLANATION OF PLATE II.

Fig. 1. Left side view of the head of an adult *Photodilus badius*, to shew the form of the external ear. This should be compared with fig. 2—the right side of the same head—to shew the asymmetry of the two sides.

a.e. = external aperture of ear.

a.c. = apterium capitis.

E. = eye.

f. = fossa—the deep trench below the aperture of the ear.

p.f. = the cut bases of the peripheral disc-feathers, seated in a feebly developed postaural fold.

pt.coll.vent. = pteryla colli ventralis.

Fig. 2. Right side view of the same head. Letters as before.

Fig. 3. Back view of the same head, to shew the different levels of the right and left external apertures of the ear and the form of the apterium capitis.

r.a.e. = right aperture of ear.

l.a.e. = left „ „

pt.coll. = pteryla colli dorsalis.

pt.cap. = „ capitis.

IV.—*A List of the Birds of Lucknow.* By WILLIAM JESSE, M.A., F.Z.S., M.B.O.U. (Member of the Bombay Natural History Society).—Part III.

[Continued from 'The Ibis,' 1902, p. 566.]

No. 972. LIOPICUS MAHRATTENSIS. *Yellow-fronted Pied Woodpecker.*

Kutpurwa* [H.]. Small-caste Woodpecker [Martinière boys].

A fairly common and permanent resident, frequenting the better-wooded parts of the district. Reid wrote:—"It generally moves about in pairs, and breeds from February to April in holes, artificially made, in decayed trees. I have frequently found its nest, but could never get at the eggs." The only specimen that I possess was one of a clutch of three taken by L. Jackson and two companions from a hole in the rotten branch of a babool-tree. I was shown the nest about an hour after the eggs had been taken. It was a small tunnel in a horizontal branch, with a neat circular opening on the lower side. The egg is glossy white, and measures '85" × '67".

No. 976. IYNGIPICUS HARDWICKII. *Indian Pigmy Woodpecker.*

A fairly common and permanent resident. Reid wrote:—"I have met with it singly, in pairs, and often in small parties, generally in mango-groves. It keeps well to the tops of trees, where it may be seen flying from branch to branch, and even hopping about like a Sparrow from bough to bough.

"I found a nest of this species with two fresh eggs on the 24th of March. The nest was placed about eight feet from the ground, in a horizontal and internally decayed (but not hollow) bough of a mango-tree in a neglected garden in the native city of Lucknow. The aperture, on the under side of the bough, was about seven-eighths of an inch in diameter, and gradually widened out to the egg-cavity about ten inches away towards the trunk of the tree. The eggs

* Applied to all Woodpeckers and Barbets.

were white and measured respectively $\cdot 70'' \times \cdot 53''$ and $\cdot 70'' \times \cdot 52''$.

No. 986. BRACHYPTERNUS AURANTIUS. *Golden-backed Woodpecker.*

Golden Woodpecker [Martinière boys].

A common and permanent resident, frequenting gardens, avenues, and topes. Its shrill scream is a familiar sound and is uttered as it flies. The bird is said to breed twice a year—once in March and April, and again in the rains. I have no proof of the second nesting-season. I have only found the nest on two or three occasions—March 23rd and April 1st, with eggs; and late in May, with young. The college boys apparently never get the eggs in the “rains.” The nest-hole may be excavated by the bird or may be a natural hollow. On one occasion the eggs were laid in a hollow of a decayed branch exposed to the sky, nevertheless the bird had cut a hole on the under side, though it was quite unnecessary.

The eggs are, of course, pure glossy white, and are usually three in number.

Average of 4 Lucknow eggs	$\cdot 99'' \times \cdot 77''$
Measurement of largest egg	$1\cdot 05'' \times \cdot 80''$
„ smallest egg	$\cdot 97'' \times \cdot 75''$

No. 1003. IYNX TORQUILLA. *Common Wryneck.*

Reid stated that this bird was fairly common during the cold weather. I have only seen it on two or three occasions, once in a mango-grove and again in some babool-trees near the river. Possibly it may be sometimes overlooked.

No. 1008. THEREOCERYX ZEYLONICUS. *Common Indian Green Barbet.*

Large-caste Woodpecker [Martinière boys].

This bird is a permanent and common resident, particularly where banian and pipal trees abound. It is rather a silent bird during the cold weather, but on the approach of spring recovers its voice and makes excellent use of it—the notes being perhaps expressed by the syllables “kotùr, kotùr, kotùr, koturúk, koturúk, koturúk”—until the iron enters into your soul and you dream of murder.

It breeds from March to May, making a hole in a decayed tree, and usually laying four white eggs, which are glossless and rather thin in the shell. The tree selected may be a pipal, mango, babool, sheshum, or any that is sufficiently decayed.

Average of 14 Lucknow eggs	1·18" × ·88"
Measurement of largest egg	1·21" × ·89"
„ smallest egg	1·12" × ·84"

No. 1019. *XANTHOLEMA HÆMATOCEPHALA*. *Crimson-breasted Barbet or Coppersmith*.

Basunta [H.]. Small-caste Green Woodpecker [Anglo-Indian boys].

The Crimson-breasted Barbet is a very common and permanent resident, inhabiting every grove and garden. Its monotonous "tonk, tonk, tonk," like the stroke of a mallet on a piece of copper, is one of our most familiar sounds. It feeds, like the last species, on fruit and berries, and probably on insects as well. It breeds from the end of February to the beginning of June, but most eggs are to be got in March and early April. It excavates its own nest-hole, like other Barbets and Woodpeckers, in a decayed branch. The eggs are three in number, glossless, white, and fragile.

Average of 15 Lucknow eggs	·92" × ·66"
Measurement of largest egg	·97" × ·70"
„ smallest egg	·75" × ·61"

No. 1022. *CORACIAS INDICUS*. *Indian Roller*.

Nilkant [H.]. Blue Jay [Anglo-Indian boys].

One of our commonest birds and a permanent resident. It frequents by preference gardens, groves, and thickly wooded places, but is common enough in the open fields, and even on the bare maidāns. It is very noisy, particularly during the pairing-season. Its evolutions in the air are familiar to everyone who has been in India, and the screaming that goes on during the performance is anything but soothing. It nests in holes of trees or buildings during March, April, and May, laying four glossy white eggs. I once, however, found five. Sometimes the hole is lined with

grass, feathers, paper, &c., at other times the eggs are laid on the bare wood. There seems to be no rule. This bird is sacred to Shiva, but in Lucknow no special sanctity seems to be attached to it.

Average of 12 Lucknow eggs	.....	1·27" × 1·06"
Measurement of largest egg	.....	1·37" × 1·06"
„ smallest egg	.....	1·22" × 1·05"

No. 1024. *CORACIAS GARRULUS. *European Roller.*

I shot a single specimen (adult ♂) on the 25th of October, 1899. The bird was flying about a snipe-jheel, perching on the dry clods amongst the rushes. The jheel was right out in the centre of an "usár" maidán surrounded by high grass. The bird kept making darts into the air after insects, returning immediately afterwards to its perch. Lt.-Col. Thornhill tells me that he has come across this species in Barcilly, and, shortly before his death, Mr. George Reid wrote that he fancied that he had seen the European Roller on one or two occasions, though he had never obtained a specimen.

No. 1026. MEROPS VIRIDIS. *Common Indian Bee-eater.*

Patana, Harrial [H.]. Mango-bird [Anglo-Indian boys].

These pretty little Bee-eaters are very common and permanent residents, being found almost everywhere, in gardens, fields, nullahs, and even on the open maidáns. They are very fond of perching on the telegraph-wires along the railway, in company with Rollers, King-Crows, Shrikes, and Doves. In the evenings they are very fond of collecting together in some dusty locality and taking a sand-bath. "Their sand-bath over, they usually take wing together, and, after indulging in a few circular and other evolutions, during which they keep up an incessant chattering, they separate into small parties for the night." They breed in holes, which they excavate for themselves, in banks, mud-walls, nullahs, hillocks, and similar places, in March, April, and May, but chiefly in April. The usual clutch consists of 5 or 6 almost spherical alabaster-like eggs. These are laid on

the bare ground, and I have never found lining of any sort.

Average of 29 Lucknow eggs	.....	·77" × ·67"
Measurement of largest egg	.....	·83" × ·70"
„ smallest egg	.....	·70" × ·65"

No. 1027. *MEROPS PHILIPPINUS*. *Blue-tailed Bee-eater*.

Large-caste Mango-bird [Martinière boys].

By no means so common as the last bird, and very locally distributed. It is very fond of water, and colonies occur here and there on the banks of the Goomti. I found this species breeding in a colony (May 12 and 19) in a railway-cutting near Mulhaur station, about four miles from the College. The nests were, of course, holes in the sand, and from four to six feet in depth. The number of eggs (glossy white and not so round as those of *M. viridis*) varied from 4 to 6.

Average of 16 Lucknow eggs	.....	·91" × ·78"
Measurement of largest egg	.....	·96" × ·81"
„ smallest egg	.....	·89" × ·75"

No. 1033. *CERYLE VARIA*. *Indian Pied Kingfisher*.

Kowrilla* [H.].

A very common and permanent resident. This Kingfisher always hovers over the water when looking for fishes, and is said never to plunge from a fixed perch. I once, however, watched it diving into a jheel from an overhanging bank, but this is the only instance which I can recollect of it doing so.

It breeds in holes in the river-banks from January to the end of April, but most eggs are found between February 15th and April 1st. They are 4 to 6 in number, glossy white, and oval; and are laid on the bare sand, which is more or less mixed with tiny fish-bones.

Average of 10 Lucknow eggs	.....	1·17" × ·92"
Measurement of largest egg	.....	1·22" × ·94"
„ smallest egg	.....	1·10" × ·89"

No. 1035. *ALCEDO ISPIDA*. *Common Kingfisher*.

The European Kingfisher is not very common, but a few

* Generally applied to all Kingfishers.

individuals occur on the streams and rivers of the Division. It must breed here, but I have never found the nest. I once saw this bird hovering over the water before diving, after the manner of *Ceryle varia*.

No. 1043. PELARGOPSIS GURIAL. *Brown-headed Stork-billed Kingfisher*.

Badami Kowrilla [H.].

“The Brown-headed Kingfisher is by no means abundant and never, I think, frequents water that is not well shaded by trees. One that I shot, and, with an exception or two, the only one which I have ever seen, was dodging about a tank surrounded on all sides by dense bamboo-jungle. I know nothing regarding the bird’s habits or nidification, and cannot say whether it is a permanent resident or not. It probably is.”—*G. Reid*.

I fancy that it is a mere straggler from the Bengal side. I have never come across it.

No. 1044. HALCYON SMYRNENSIS. *White-breasted Kingfisher*.

Reid remarked that this Kingfisher was fairly abundant, but, though not rare, I consider it to be far from common. It is much less aquatic than the other Kingfishers, and is often to be met with in mango-topes, where it doubtless goes in search of insects. On most of the occasions when I have seen it, my attention has been attracted by hearing its characteristic scream as it was flying from one grove to another. No doubt it breeds in the Division, but I have never found the nest.

“During the rainy season, and as long as there is water in the side cuttings, it may be seen along the railways, sitting occasionally on the telegraph wires or posts, but usually on the babool-trees (planted as a line fence) overlooking the pools. It does not dive for fishes—habitually, at least; and though it may catch them occasionally, it appears to depend more upon grasshoppers, &c. for food.”—*G. Reid*.

No. 1062. *LOPHOCEROS BIROSTRIS*. *Common Grey Hornbill*.

Chakotra [H.].

The Common Grey Hornbill is very rarely seen in Lucknow itself, but is fairly numerous in those parts of the Division where pipal and other fig-trees—upon the fruit of which it feeds—abound. It is generally found in pairs, or, at the most, three or four together. I have never found its nest, though it undoubtedly breeds in those localities where it occurs.

No. 1066. *UPUPA EPOPS*. *European Hoopoe*.

A cold-weather visitor only. This species and the next are commonly found together.

No. 1067. *UPUPA INDICA*. *Indian Hoopoe*.

Hud-hud [H.].

The bird that occurs in Lucknow has almost always more or less white on the crest, and I think that it is probably a cross with *U. epops*. In the case of many skins I have had considerable difficulty in assigning them to either species with certainty. One bird, from under which I took four eggs, had a considerable amount of white on the crest.

The breeding-season extends from the end of February to about the end of April. The eggs are as many as seven, pale glossless blue or unspotted brown. The nest is a shapeless bundle of tow, rags, feathers, and similar materials, and is invariably dirty and odoriferous, particularly after the young are hatched. In one nest I found a dead Hoopoe worked into the structure.

Average of 17 Lucknow eggs	·95" × ·67"
Measurement of largest egg	1·01" × ·68"
„ smallest egg	·83" × ·60"

No. 1073. *CYPSELUS AFFINIS*. *Common Indian Swift*.

Ababil [H.]. House-Martin [Martinière boys].

The Indian Swift is very common all over the Division. It breeds, I think, twice a year—at least I have taken eggs from March to July, and Reid took them in February and August. The nests are saucers, having the edge glued to

the roof of some hall or outhouse. Often inside great gateways and such places numbers will be found cemented together. The materials are feathers, straw, &c., worked into a parchment-like substance by means of saliva. Eggs two, rarely three, pure white and elongated.

Average of 12 Lucknow eggs	.....	·86" × ·56"
Measurement of largest egg	.....	·90" × ·57"
„ smallest egg	.....	·84" × ·54"

No. 1075. *TACHORNIS BATASSIENSIS*. *Palm-Swift*.

This Swift is almost entirely confined to localities where the toddy-palm is found. In the leaves of the palm the bird breeds, but I have not as yet taken the eggs.

No. 1091. *CAPRIMULGUS ASIATICUS*. *Common Indian Nightjar*.

I have not often come across this bird. "The Common Indian Nightjar is by no means so abundant here as *C. albonotatus* (*C. macrurus*). Indeed, I have rarely or never seen it, except when the 'shades of evening' have so far advanced as to render shooting it next to impossible. It feeds, I think by preference, on the mud by the water's edge, where I have often, when waiting for Geese, seen it flitting actively about."—*G. Reid*.

No. 1093. *CAPRIMULGUS MACRURUS*. *Horsfield's Nightjar*.

"The Large Indian Nightjar is fairly common and a permanent resident. As many as twenty may at times be flushed in some favourite spot, but, as a rule, it is found singly or in pairs, generally in thick brushwood under the shade of the trees, while it is also very partial to bamboo-brakes and thick dhak-jungle. When flushed it usually flies but a short distance and squats again, either on the ground or on the low and spacious arm of some tree. Occasionally it may be found resting during the day high up in thick bamboos, and in clumps of these it probably breeds, though I have never found its nest. But, in whatever tangled thickets it may rest for the day, it sallies forth at dusk to fields and open glades, where it may be seen flying noiselessly along, or feeding and shuffling about with great

activity on the ground, changing the scene of its operations every minute or so, while at intervals its familiar call—chuk, chuk, chuk,—slowly and monotonously repeated, ‘is a welcome and pleasing addition’ to the ‘voices of the night.’”—*G. Reid*. I have nothing further to add beyond that I have not found the bird nearly so common as Reid seems to have done.

No. 1104. *CUCULUS CANORUS*. *Cuckoo*.

I have never met with the European Cuckoo in Lucknow, though the Rev. Harry Menzies, the Civil Chaplain, on one occasion told me that he had heard it at the beginning of the hot weather. The late George Reid came across it on two occasions—once amidst the ruins of the Bailey Guard in the Residency grounds, apparently in the spring, and again on the 29th of May, at a spot two miles to the north of the city.

No. 1105. **CUCULUS SATURATUS*. *Himalayan Cuckoo*.

In the “Birds” of the ‘Fauna of British India’ this species is recorded as having “been shot in the cold season at Lucknow.” Beyond this I can find no other instance of its having occurred here.

[?] No. 1107. **CUCULUS MICROPTERUS*. *Indian Cuckoo*.

In the early spring of 1895 I shot a bird in the Martinière College park, which at the time I identified with the present species. Unfortunately the skin has been lost, and as I was only just commencing the study of Indian birds, and, furthermore, as I have never come across it again, I mark it with a query.

No. 1109. *HIEROCOCYX VARIUS*. *Common Hawk-Cuckoo*.

Popiya [H.]. Brain-fever Bird [Anglo-Indian boys].

I think that the Common Hawk-Cuckoo remains all the year round, but of this I am not quite sure. It commences its delightful (?) call early in January and stops it at the beginning of the cold weather. On March 23, 1896, I found an egg, which I am morally certain belonged to this bird, in the nest of *Argya malcolmi*.

[?] No. 1112. *CACOMANTIS PASSERINUS*. *Indian Plaintive Cuckoo*.

I doubt if this bird occurs in Lucknow. Reid apparently never got it. Mr. Adam, as Reid remarked, appeared to imply that the bird not only occurred, but bred there—*vide* Hume's 'Nests and Eggs,' 1st edition, p. 137; but it seems almost certain that a mistake has been made.

No. 1118. *COCCYTES JACOBINUS*. *Pied Crested Cuckoo*.

Popiya, Kala Popiya [H.]. Shah-Bulbul [Martinière boys].

Reid seemed to imagine that this bird occurred throughout the year. It may do so, but, if it does, it is strange that so striking an object should have escaped my eye year by year from October to May. I cannot recollect ever seeing it until the beginning of June, or after September, except *once*—in November 1901. It lays its round glossy blue eggs in Babblers' nests, but, though they have been shown to me, I have never taken them myself.

No. 1120. *EUDYNAMIS HONORATA*. *Indian Koel*.

Koel, Koéli [H.]. Quailie [Anglo-Indian boys].

According to Reid the Koel is a permanent resident, but I fancy that it migrates, at any rate to a very great extent, in the cold weather. "It feeds principally on fruit, being very fond of the small berries of the banyan and other Fici" (*Reid*).

As the same authority has remarked, more than one male may be seen chasing a female, from which it may be inferred that they do not pair. In some parts of India this bird is called the Brain-fever Bird, a name much more rightly bestowed on *Hierococcyx varius*. The Koel lays its eggs in the nest of *Corvus splendens*, and possibly at times in that of *C. macrorhynchus*. June and July are the months for eggs. I have found 2 Koel's and no Crow's eggs in a nest, 3 Crow's and 2 Koel's, 4 Crow's and 1 Koel's, and so on. Reid records 1 Koel's and no Crow's (3 times), 1 hard-set Crow's and 2 Koel's, 3 hard-set Crow's and 1 Koel's, 1 fresh Crow's and 3 Koel's. Reid argued that this went to prove that the female Koel ejected the Crow's eggs from the nest while depositing her own. I have an open mind on the subject,

but I have never found broken eggs underneath a nest from which Koel's eggs have been taken.

"I may also add that at Chinhut, on the 25th of August, I saw a Crow feeding a young Koel. The youngster, to attract the attention of the Crow, occasionally indulged in a continuous 'cawing,' for all the world like a young Crow. It was fully fledged, and flew from tree to tree after its foster parents. On another and more recent occasion, I saw a batch of three young Koels being led about and fed by a pair of Crows, the young birds making very fair attempts to 'caw.'"—*G. Reid.*

Average of 11 Lucknow eggs	.....	1·18" × 89"
Measurement of largest egg	.....	1·28" × 94"
" smallest egg	.....	1·14" × 86"
		1·11" × 89"

No. 1129. *TACCOCUA LESCHENAULTI.* *Sirkeer Cuckoo.*

Brown-bird [Martinière boys].

The Sirkeer Cuckoo is a permanent resident, and, though not numerically abundant, is fairly common. It is most frequently met with in dhak-jungle in which there is a good deal of grass and undergrowth, through which it runs almost exactly like a huge rat or mungoose. It also occurs in mango-topes, and in these I have taken its nest, as well as in babool-trees. The breeding-season commences in April, or possibly earlier, and lasts until August. Most of my eggs have been taken in July. The nest is a rough cup of sticks lined with green leaves, sometimes large and deep, at other times little better than a platform. The full clutch is three, or sometimes four, white eggs with a chalky covering.

Average of 7 Lucknow eggs	.....	1·43" × 1·09"
Measurement of largest egg	.....	1·48" × 1·10"
" smallest egg	.....	1·37" × 1·03"

No. 1130. *CENTROPUS SINENSIS.* *Common Coucal.*

Mohok [H.]. Crow-Pheasant or Mohawk [Anglo-Indian boys].

The Crow-Pheasant, with its rich black and chestnut plumage, and its sonorous "hoop, hoop, hoop," is a common and permanent resident. It inhabits groves, dhak-jungle,

bamboo-brakes, and patowal grass, and is usually seen not far from water. It breeds in June, July, and August, or possibly later, making a huge globular nest of sticks, grass, and leaves, with a hole at the side, which is placed in some thick tree or in long patowal grass. The eggs, usually four in number and chalky white (more spherical than those of the Sirkeer Cuckoo), get discoloured as incubation proceeds. Possibly this bird and *T. leschenaulti* have two broods in the year. At any rate, Reid found very young birds of both species as late as November. I think myself, however, that these were the produce of abnormally late nests.

Average of 15 Lucknow eggs	.....	1·38" × 1·14"
Measurement of largest egg	.....	1·41" × 1·17"
" smallest egg	.....	1·37" × 1·12"

NO. 1136. *PALÆORNIS INDOBURMANICUS*. *Large Burmese Paroquet*.

Pahari tota [H.].

Reid has noticed this bird as appearing in flocks for a few weeks during August and September. Undoubtedly a large Paroquet does arrive at that time and is caught by the chirri-mars, but, as I am always away during the two months in question, I have never myself obtained it. I have none of Reid's skins with me in England, but I cannot help thinking that they are more likely to belong to *P. nipalensis*.

NO. 1138. *PALÆORNIS TORQUATUS*. *Rose-ringed Paroquet*.
Tota [H.]. Parrot [Anglo-Indian boys].

A common and permanent resident, doing considerable damage to wheat and other crops. Large numbers have, however, been captured during the last few years to meet the demand of the millinery market in England, and in some parts of the Division I am told that it has been almost exterminated. March is the chief month for eggs, but the birds begin to lay in February and a few as late as April. I have, curiously, not found many nests, and those that I have met with have always contained young or eggs just hatching. The hole is cut by the bird, and the white eggs, four in number, as a rule, are laid on the bare wood. Reid gives

jamin-trees the preference, but I have found them in neem, sheshum, mango, and pipal.

Average of 11 Lucknow eggs	1·19" × ·91"
Measurement of largest egg	1·24" × ·98"
„ smallest egg	1·14" × ·90"

No. 1139. *PALÆORNIS CYANOCEPHALUS*. *Western Blossom-headed Paroquet*.

Lalsira-Tota [H.].

A permanent resident, but not nearly so numerous as *P. torquatus*. It is more abundant in the "rains," from which I fancy that it must be locally migratory. I have never taken the eggs, but Reid got four fresh specimens in a pipal-tree on the 15th of April which averaged ·98" × ·80". The cry of this bird is less harsh and far more pleasing than that of *P. torquatus*.

No. 1152. *STRIX FLAMMEA*. *Barn-Owl*.

Ulu* [H.].

Fairly common in the old buildings and mosques in and round Lucknow. It breeds, I know, in Dilkusha and in the Kaisor-bagh, but I have never been able to get at the nests.

No. 1153. *STRIX CANDIDA*. *Grass-Owl*.

"On one occasion I flushed a solitary Owl, which I took to be the Grass-Owl, in grass- and scrub-jungle near Rahimabad, but, though I followed it from place to place, the Crows kept bothering it, so that it never rested in one spot long enough to allow me to get a shot. Capt. Irby mentions it under the name of *Glaux javanica*, and I have little doubt that it occurs, though sparingly, in suitable localities—for instance, in the jungles about the Chowka and Gogra, where Mr. Anderson seems to have met with it (see 'Stray Feathers,' vol. iii. p. 338)."—*G. Reid*.

† No. 1157. *ASIO ACCIPITRINUS*. *Short-eared Owl*.

The Short-eared Owl is, of course, only a cold-weather visitor, but is then very common in certain localities. It appears to prefer dhak- and grass-jungle, but I have often flushed it in gram-fields. It is gregarious, often as many

* Commonly applied to all Owls.

as eight or ten being found together. It seems less troubled by light than most Owls, and flies well even in broad daylight.

No. 1161. *SYRNIUM OCELLATUM. Mottled Wood-Owl.*

Khuska (?) [H.].

The Mottled Wood-Owl is not common, but every now and then one comes across it, singly or in pairs. I have only found it in mango-groves. It is a permanent resident, but I have not found the nest.

No. 1164. *KETUPA ZEYLONENSIS. Brown Fish-Owl.*

Ghughu * [H.].

The Brown Fish-Owl is not very common. I once found its nest—an old hole at the top of a pipal-tree, containing one young bird—about New Year's day near a big jheel in the Rae Bareli district. In the nest were the remains of a dead Teal, probably a wounded bird.

No. 1168. *BUBO BENGALENSIS. Rock Horned Owl.*

A fairly common bird in suitable places, particularly ravines and nullahs. It breeds here, and eggs have been brought to me belonging either to this or to the next species, but I have never got the nest myself.

No. 1169. *BUBO COROMANDUS. Dusky Horned Owl.*

A fairly common and permanent resident, frequenting mango-topes and, according to Reid, having a special preference for big tamarind-trees. All these large Owls fly comparatively well during the day, and sometimes two or three may be aroused at the same time, when they never seem to have any difficulty in making their way through the trees. On one occasion Reid found quite a collection of these three species of Owls inhabiting some pipal- and tamarind-trees in a dense bamboo-clump, which had once apparently been a fort, but had since become a jungle. The natives believe that the hooting of this Owl round a dwelling foretells death to one of the inhabitants.

* Applied to all the bigger Owls.

No. 1173. SCOPS GIU. *Scops Owl.*

Not very numerous, but possibly this Owl, which hides a great deal, is often overlooked. I have never found the nest, but I have been told by Martinière boys that its eggs, or more probably those of the next species, are occasionally taken.

No. 1178. SCOPS BAKKAMÆNA. *Collared Scops Owl.*

This pretty little Owl is, I think, a permanent resident, and is perhaps commoner than it seems. It appears very stupid and difficult to flush in the daylight. I once stood and looked right into the face of one of these Owls for some moments. It was perched on a branch of a tree about two feet from my nose, but never flew away, and I left it sitting. I have never found the nest, but the eggs to which I have referred above probably belonged to this species.

The Striated Scops Owl (*Scops brucei*) has been recorded from Sultanpur just beyond our borders. *Vide* vol. iii. (Birds) of the 'Fauna of British India,' p. 294.

No. 1180. ATHENE BRAMA. *Spotted Owlet.*

Khukúsat, Kasuttea (*teste* Reid), Ulu [H.].

This little Owl is very common and a perfect nuisance on a moonlight night in the breeding-season. It keeps up a succession of street-fights, and the squabblings and screechings are worse than those of a whole parish of cats collected in one back area. It breeds in holes of trees—mangos, perhaps, for preference—in March and April, laying four round white eggs. Sometimes the hole is unlined, but usually I think there is more or less of a lining of grass, feathers, or leaves.

Average of 19 Lucknow eggs	.....	1·25" × 1·04"
Measurement of largest egg	..... }	1·34" × 1·12"
		1·50" × 1·02"
„ smallest egg	.....	1·14" × 1·00"

No. 1184. GLAUCIDIUM RADIATUM. *Jungle Owlet.*

Kalakasut [H., *teste* Reid].

According to Reid this is a very common bird, but I have hardly ever met with it. As it is a terrible skulker, it is

probably constantly overlooked; but, even then, it is strange that out of the numbers of holes in which I have searched for, and found, nests of *A. brama*, I have never come across that of *G. radiatum*. Yet Reid seems to have found a pair, or more, in almost every mango-grove.

No. 1187. *NINOX SCUTULATA*. *Brown Hawk-Owl*.

This is another Owl which is "common and a permanent resident," according to Reid, but which I have only come across once or twice at most. It is, however, quite nocturnal in its habits, and probably requires to be specially looked for. One that Reid shot cried like a hare. I have never found its nest, nor do I know anything of its breeding with us.

No. 1189. *PANDION HALIAËTUS*. *Osprey*.

Machariya; Machi-mar [H.].

The Osprey, though not numerous, is usually to be seen on every large jheel, and Reid stated that it was common on the big rivers. It departs at the approach of hot weather. On one occasion I owed my evening meal to this bird. A party of us were staying at Milkipur, near Fyzabad, for the usual Christmas "shoot." Two of us, with our host, Mr. A. C. Bryson, of the Opium Department, went away early in the morning to inspect a big jheel some five miles off, but the fourth, Mr. A. E. Pierpoint, remained behind at the camp to write letters. By tiffin time these were finished, and, having nothing to do, he picked up his gun and strolled off to a jheel about half a mile away.

The Duck and Teal kept well out of shot in the centre, and, having no boat, he was unable to get on terms, and so stood watching them. Suddenly an Osprey came sailing over the water, and, making a plunge, rose with a "rohu" some 2 lbs. or more in weight, which it proceeded to carry off to a neighbouring tree. In doing so it passed Pierpoint, who shot it, and bore the fish home in triumph. Needless to say we were totally unable to guess how he had come by his scaly prey, when he asked us the question that night at dinner.

No. 1190. *VULTUR MONACHUS.* *Cinereous Vulture.*

A specimen was shot many years ago at Ajgaen near Unao, and is in the Lucknow Museum. My friend, Major A. Newnham, I.S.C., Cantonment Magistrate, Lucknow, writes to me that, in the spring of this year (1902), he shot one of these birds on the Grass Farm. Beyond these two instances, I can find no record of occurrence here.

No. 1191. *OTOGYPS CALVUS.* *Black Vulture.*

Lat-sir Gidh* [H.]. King or Red-headed Vulture [Europeans and Anglo-Indians].

Widely spread over the Division, but not in great numbers. "Wheresoever the carcass is, thither will the Eagles [Vultures] be gathered together," and amongst the wrangling crew there is sure to be one, if not two, of these fine birds. Often I have been watching the vulgar white-backed herd, with a disreputable following of Kites and Crows, tearing and fighting over a body, when one of these aristocrats, in his red cap, black coat, and white waistcoat, has made his appearance. Way is immediately made for him, the plebeian herd slinking back as if ashamed or afraid, and I can never recollect the last comer ever being obliged to assert his authority.

The breeding-season appears to be in February and March, though it is possibly earlier. I have found nests on several occasions, but, whether it has been merely bad luck or not, those that I have found were either most dangerously placed or empty. To one, at the end of a bare branch of a lofty poplar, my boy-friend Green offered to climb, but I refused to allow him. The next day the egg was abstracted by a daring rival. My shikari Dwarka brought me a very hard-set Vulture's egg from Nilgaum, near Ataria, on Dec. 6, 1900. He declared that he saw the bird on the nest before climbing the tree, and, as I have never caught him deceiving me about an egg, I am disposed to pass the fact, though I must own that the date is exceptionally early for Oudh. This, like all Vultures' eggs, is dirty white, with

* "Gidh" is applied to all Vultures.

a few *very faint* mauve and reddish markings, and measures $3\cdot16'' \times 2\cdot56''$.

No. 1194. GYPS INDICUS. *Indian Long-billed Vulture.*

Reid, in his 'Birds of the Lucknow Civil Division,' has written as follows:—

"I include the Long-billed Brown Vulture with some hesitation, though Capt. Irby, in his paper on the Birds of Oudh and Kumaon, *vide* 'The Ibis,' vol. iii. 1861, p. 217, states that it is just as common as *Pseudogyys bengalensis*; and that one was 'caught inside a horse's belly at Alumbagh.' Now there is no Vulture here as common as *P. bengalensis*; if there is, it is certainly singular that I have not obtained specimens. On the other hand, I have occasionally seen a Vulture that I thought could not be *G. bengalensis*, but whether it was *G. indicus* or *G. fulvescens*—not to mention the probability of *G. pallescens* or *G. tenuirostris* occurring—I cannot say, but should think that it was *G. indicus*." To this I have nothing to add, save to say that, like Reid, I have occasionally seen what I believe to have been *G. indicus*, but, like him, I have not yet obtained a specimen.

No. 1196. PSEUDOGYPS BENGALENSIS. *Indian White-backed Vulture.*

Chamar Gidh [H.].

This Vulture is very common and a permanent resident. Though slow in rising from the ground, when once aloft it sails like a majestic man-of-war. High up in the air, this species and *Otogyys calvus* can be readily distinguished, as, even if too far off to make out the white waistcoat, the more pointed pinions of the latter serve to identify it. The power of the Vulture's beak and the rapidity with which it feeds must be seen to be realized. On one occasion my servants knocked over a mad jackal and did not quite kill it. Immediately some Vultures made their appearance, and, despite the fact that the poor brute was still alive, commenced their horrid meal. The cries of the victim dis-

turbed a friend and myself, who were indoors, and, on learning the cause, we got a gun and put an end to its sufferings. We then placed two chairs about fifty yards from the jackal and timed the Vultures. At the end of an hour it was too dark to see any longer, so we went to find out what was left. The total remains were the shank of one fore leg and a bit of skin about as big as the palm of one's hand. Beyond this not a vestige was to be seen, flesh, skin, bones, *everything* had disappeared down the gullets of two voracious Black and three White-backed Vultures, aided by the usual rag-tag and bob-tail of Kites and Crows.

Pseudogyps bengalensis breeds chiefly in November and December, most of the young being hatched by January. Occasionally nests with eggs may be obtained both earlier and later. I took one egg on March 11, 1901. Where there is one nest, there will usually be two or three others at least—large bulky structures of sticks lined with green leaves. I have found them on mango, tamarind, poplar, neem, and sheshum trees, often at great heights from the ground. Solitary nests are, I think, more often on mango-trees, though there is no well-defined rule in the matter. Both *O. calvus* and *P. bengalensis* often nest on trees in the centre of villages, and, in my early days in India, I once got seriously assaulted by villagers for trying to examine one of these. In justice to myself, I may say it was not altogether my fault, as I understood that there was no objection, but, while my climbers were up the tree, the onlookers suddenly rushed upon me. Seeing that they tried to pull away my gun (which was loaded) *by the muzzle*, it was providential that there was no accident.

Only one egg, of course, is laid, pure white as a rule when fresh, but sometimes fairly spotted and freckled with red. My second largest egg has quite a respectable crimson cap at the broad end.

Average of 14 Lucknow eggs	.....	3.26" × 2.46"
Measurement of largest egg	.....	3.52" × 2.65"
„	smallest egg (abnormal).	2.54" × 2.00"

No. 1197. NEOPHRON GINGINIANUS. *Small White Scavenger Vulture.*

Saféd Gidh, Kal Murgh [II.]. White Hawk [Martinière boys].

This eminently useful but exceedingly low-caste bird is very common. To Thomas Atkins and his *confrères* it is invariably known as the "Shork," the derivation of which name hardly bears investigation. Its principal food is human excrement, whence it gets the second native appellation. The trenching-grounds, and all conservancy or slaughter-quarters, are frequented by numbers of these birds. By the uninitiated, the brown young and the white adult are looked upon as distinct species. The breeding-season is from March to May or possibly earlier. The nest, an evil-smelling pile of rags, refuse, and filth of every description, is placed either in a tree—mango, for choice—or on some building. I have taken the eggs—two, or sometimes only one in number—between the first two great arms of a mango in cantonments standing close by the carriage-road and not ten feet from the ground; on the top of a native house in the city; from the face of the United Service Club [Chutter Munzil]; and from what appeared to be the deserted nest of *Pseudogyps bengalensis* in a solitary pepul-tree, as well as in many other similar places. On the second occasion the bird refused to budge from her charge and we had to poke her off with a stick. The eggs are white in ground-colour, but, as a rule, so thickly blotched with russet and red that they are like huge Falcon's. The colouring-matter easily washes off, a fact to be remembered when cleaning handsome specimens.

Average of 8 Lucknow eggs	2.50" × 1.94"
Measurement of largest egg	2.80" × 2.20"
„ smallest egg	2.30" × 1.84"

No. 1201. AQUILA HELIACA. *Imperial Eagle.*

Bara Jumiz*. Satangal [H., *teste* Reid]. Báz †.

Not uncommon, especially in dhák-jungle studded here

* "Jumiz" is applied to all large Eagles.

† "Báz" is applied indifferently to Eagles, Kites (except *M. govinda*), Harriers, and Falcons.

and there with solitary peepul or banian trees. A few years ago some Martinière boys brought me the claws of an individual of this species, which they had killed on their cricket-ground. Major Newnham, I.S.C., shot a magnificent specimen of the bird on the Bangla Bazar Tank, and since then has noticed it fairly often. According to Reid, he has found it on "the dry beds of jheels, devouring crabs and on one or two occasions eating carrion."

No. 1202. *AQUILA BIFASCIATA*. *Steppe-Eagle*.

The Bifasciated or Steppe-Eagle is not very common. Reid shot a male on January 1st feeding on the carcase of a sheep, so that it is a carrion-eater like *A. heliaca*, an example of which was also shot when engaged on a similar repast. My experience of Eagles forces me to the conclusion that the *majority* are anything but the "noble" birds described in song and fable. Bonelli's and the Dwarf Eagle are sporting gentlemen, but many of the bigger kinds are little better than Vultures. One of these Eagles was captured alive on a maidán close to the College by a little native boy, who found it disabled.

These two species are apparently cold-weather visitors only.

No. 1203. *AQUILA VINDHIANA*. *Indian Tawny Eagle*.

Wokháb, Ragar, Báaz [H.]. Lugger [Martinière boys].

By far our commonest Eagle, and, of course, a permanent resident. It is to be seen almost anywhere, and a pair reared a young bird at the top of a "cork"-tree, not 200 yards from the United Service Club. I have found the nest on several occasions. It is a large structure of sticks, lined with grass or straw and a few feathers or leaves, and placed at the very top of some high tree. Unlike *Milvus gorinda*, this Eagle rarely chooses a thick fork, but prefers the smaller branches at the summit. It is fond of babool-trees. The eggs are two in number, but usually only one is hatched. Most are to be found in December and January, but they have been brought to me as late as the 15th of May. On two occasions only have I found eggs myself, at other

No. 1207. *HIERAËTUS FASCIATUS*. *Bonelli's Eagle*.

Churwa (?) [H., *teste* Reid].

The Museum contains several good skins of this fine Eagle, so that it cannot be rare here. Nevertheless, I know nothing of it from personal observation. Mr. Pyne, Opium Department, very kindly sent me a splendid specimen from Rae Baréli, where it had been doing much damage in the pigeon-lofts and poultry-yards and was described as "a perfect Cronje amongst the Hawks."

No. 1208. **HIERAËTUS PENNATUS*. *Booted Eagle*.

I have nothing to add beyond what I have already written and here reproduce:—

"This bird is not included by Reid in his list of the birds of the Lucknow Civil Division, although it is true that he remarks that it is 'almost certain to be found.' In the latest catalogue (1890) of the Lucknow Provincial Museum there are three specimens entered as obtained in Lucknow, viz.: ad. sex?, ad. ♂, juv. ♂. I have come across this handsome little Eagle on two or three occasions in the large park of La Martinière College. The first example was a female, which I shot. I was attracted to it by the cries of a party of *Argya malcolmi*, which were flying all round, evidently in a perfect fever of excitement. This was on Dec. 17, 1897. Several times after this I saw another bird, which I concluded was the mate of the former. My second specimen was also obtained in the Martinière Park, while sitting in a sheshum-tree, in the middle of March 1899. On examining the label I find that I did not determine the sex, but, judging from its small size, I fancy that it was a male. The feet, legs, and cere in this example were lemon-yellow; in the female I noted the bill as yellowish grey at the base and bluish black at the tip. Since that time I have on two or three occasions come across birds which I believe to have been individuals of this Eagle, but was unable to secure them."

No. 1216. *CIRCAËTUS GALLICUS*. *Short-toed Eagle*.

Jallar (?) [H., *teste* Reid].

The Short-toed Eagle is a permanent resident and fairly

common. I have never found the nest, but one from which an egg had been taken in April was shown to me, and I fancy that it may have belonged to this species. It was in a babool-tree.

As Reid has remarked, this species is much more sluggish and easy to approach during the middle of the day.

No. 1217. *SPILORNIS CHEELA*. *Crested Serpent-Eagle*.

Common during the cold weather, after which it leaves for the hills or the sub-montane districts. During the day it conceals itself more or less in some tree, much after the fashion of the Honey-Buzzard, but in the mornings and evenings it is often to be seen sailing high in the air. It seems to prefer the more wooded localities, but I once came across the bird feeding on something—I could not see what—on a bund by the side of a jheel.

No. 1220. *BUTASTUR TEESA*. *White-eyed Buzzard-Eagle*.

Teesa [H.]. Rat-Hawk [? Martinière boys].

A common and permanent resident, yet, curiously enough, I have never found its nest, and have only once had it reported. The eggs, which are skim-milk colour, are common enough, I am told, in the Hardoi and Shajahanpur districts. It is frequently to be seen hawking over “usar” plains, singly or in pairs, or sitting on a bit of dried kunker. Telegraph-posts are also favourite perches.

No. 1223. *HALIAËTUS LEUCORYPHUS*. *Pallas's Fishing-Eagle*.

Chatangal, Macharang, Mardum, Machakool [H.].

This fine Eagle is a common and permanent resident, and almost every jheel of any size is tenanted by one or two pairs. Reid considered it to be anything but a Fishing-Eagle. “It seldom, as a rule, attempts to catch the finny tribe, but acts the part of a pirate in robbing the Osprey, Kites, Marsh-Harriers, &c., of their prey, while sportsmen recognise it as the poacher which never loses an opportunity of carrying off a dead or wounded Duck, often from under their very noses. It will feed on almost anything—birds,

snakes, rats, frogs, crabs, turtles—anything, in fact, but fishes, unless, of course, it can get them without much trouble. I may be hard on this otherwise magnificent Eagle, but, if so, it is because I have had ample opportunities of gauging his capabilities.”

My friend Mr. Edgar Hill, of the Court of Wards, wrote to protest against this slanderous attack on the Chatangal's character, but, nevertheless, I fear that Reid's statement was not far from the truth.

I fancy that the Fishing-Eagle pairs for life. The nest is a huge structure of sticks, placed in some lofty solitary pekul or mango, not far from water. Though I have often seen the fabrics, I have only twice searched them. One was empty, but the three eggs were brought me ten days afterwards, on Nov. 23rd, 1896. The other I took on Nov. 20th, 1898, when it contained four eggs. Reid, who took several nests, never got eggs after November, but my friend Mr. P. S. Lucas found a pair in January. From the end of October to the beginning of December is the most likely period to get them. The size of my second nest can be imagined, when I remark that the native climber sat in the nest—it was built *on* the branch, *not* in a fork—and lowered the contents. I have never known these birds shew any signs of fight when I went near their nests, but the late Captain Hutton told a different story concerning a pair with young.

Average of 5 Lucknow eggs	2.87" × 2.21"
Measurement of largest egg	3.05" × 2.21"
„ smallest egg	2.72" × 2.18"

No. 1226. *POLIOAËTUS ICHTHYAËTUS*. *Large Grey-headed Fishing-Eagle*.

Reid came across this bird on two or three occasions. According to him, it occurs now and then, during the cold weather, on the large jheels, and more frequently on the big rivers. An adult ♂, stuffed by Reid, is in the Museum.

No. 1227. *POLIOAËTUS HUMILIS*. *Hodgson's Fishing-Eagle*.
An exceedingly rare cold-weather visitor. The only

specimen that I have seen is an adult ♀, shot by Reid in the district.

No. 1228. HALIASTUR INDUS. *Brahminy Kite.*

Bahmini chil [H.]. Fish-Hawk [Martinière boys].

This Kite, with its handsome maroon plumage and white head and shoulders, is common during the cold weather, but seems to migrate to a certain extent between April and July, probably to wetter localities. A few remain to breed, but I appear to be almost the only person who has been lucky enough to get authentic eggs in Lucknow. On April 16, 1898, I took one addled egg from a nest in which there was a young bird. The structure was much like that of *Milvus govinda*, a rough mass of sticks lined with mud. It was situated about three-quarters way up a bare mango-tree, in a tope near the Aishbagh station. The parents were greatly perturbed, but I did not touch them. On March 24, 1900, I got two more fresh eggs from the same tope, but the nest was on another tree, and was, if my memory serves me, lined with straw. These eggs are dirty white, one having a very few faint red specks. They measure 1.95'' × 1.57'', 2.00'' × 1.62'', 1.94'' × 1.62'' respectively. According to Reid, this bird is particularly partial to crabs.

No. 1229. MILVUS GOVINDA. *Common Pariah Kite.*

Chil [H.]. Hawk [Martinière boys].

Kites swarm in Lucknow, as they do in all Indian towns. They seem rarely to trouble the poultry-yard, though no doubt they occasionally carry off a chicken. Their principal food is offal of all sorts, and, with the Vultures and Crows, they act as scavengers. They are very bold. On one occasion my khansaman was walking across the compound with a bone on a plate, when down swooped a Kite and seized the bone, which, however, it dropped, knocking off the man's turban. On another occasion a Kite carried off a tame squirrel from the shelter of its master's arms.

The breeding-season lasts from December to May, but most eggs are taken in March and early April. At this season they are especially daring, and readily attack those

who go near their nests. On two or three occasions they have knocked off my climber's cap, and once a pair gave me much trouble, even chasing me after I had descended the tree. Another Kite was reported to have stuck its claws into a boy. Whether correct or not, the fact remained that the Kite hatched her eggs undisturbed.

All the nests that I have seen, and I have seen hundreds, have been placed on trees, in some thick fork and usually not at the very top, by which fact they may easily be distinguished from those of Eagles. They are bulky stick structures, lined with mud and rags, and, in more than one instance, I have found large bits of brick and kunker alongside of the eggs. These are nearly always two in number, though I have taken four. In colour they are white, sometimes but little marked, but usually more or less heavily blotched and splashed with varying shades of red and brown.

Average of 12 † Lucknow eggs.....	2.19" × 1.70"
Measurement of largest egg	2.30" × 1.74"
" smallest egg	1.99" × 1.68"

Reid speaks of this bird breeding indiscriminately on "trees, mosques, minarets, old buildings, &c.," but I have never seen a nest that was not on the first-named.

No. 1230. **MILVUS MELANOTIS*. *Large Indian Kite*.

An occasional winter visitor, but I think very rare. Its larger size and the conspicuous white patch on the inner webs of the quills near the base serve to distinguish it from *M. govinda*. The only specimen that I secured was a female, which I shot as it rose from a low dhák-tree by the Mohan-laganj jheel, Jan. 18, 1900. There is also a skin in the Museum from Hardoi.

No. 1232. *ELANUS CÆRULEUS*. *Black-winged Kite*.

Masunwa [H.].

Not numerous, but a permanent resident. I have chiefly seen it in the neighbourhood of those jheels which are more or less surrounded with heavy grass and dhák-jungle. Reid

† Reid's measurements have evidently been misread by the printers.

found it nesting in a mango in November, and I flushed a bird off an empty nest in a palm in early June. All the eggs in my collection are from Guzerat, and I have seen none from this part of India.

No. 1233. *CIRCUS MACRURUS. Pale Harrier.*

A very common winter visitor. It flies low, gliding sometimes slowly, sometimes swiftly, over the fields, and it is astonishing to see how suddenly it stops itself dead with a quick turn, and drops instantly on its prey.

No. 1234. *CIRCUS CINERACEUS. Montagu's Harrier.*

According to Captain Irby, this Harrier is "found in the same localities as the Pale Harrier, and is perhaps more numerous." Reid, however, never got it, and I have only one skin, of an example (♀) which I shot during the cold weather of 1898.

No. 1236. *CIRCUS MELANOLEUCUS. Pied Harrier.*

The same authority (Captain Irby) gives this species as being "very abundant near the rivers Chowka and Gogra, on the plains covered with thick grass about two feet high. I have never seen it far away from grass-jungle, where it appears to replace the preceding species and the Pale Harrier, although they are now and then seen there also."

If Captain Irby's account is correct, it is strange that neither Reid nor I have ever met with it.

No. 1237. *CIRCUS ÆRUGINOSUS. Marsh-Harrier.*

Kutar [H.].

The Marsh-Harrier is very abundant during the cold weather, and I have once or twice seen it during the hot season and "rains." For this reason I am inclined to believe, with Reid, that a few pairs breed in the moister parts of Oudh. The chirri-mars declare they do, making their nests on the ground in some marshy spot. Their chief food consists of frogs, snakes, and other reptiles, but rats, mice, and birds are equally prized. Out shooting they are a perfect nuisance to the sportsman. They will beat up and down over the "snipey" bits, putting up bird after bird for no reason, as

they never stoop at them. Teal and Duck of all sorts they harry, and Coots they drive into a perfect frenzy, though I have never seen them strike home. Possibly this is because, if a bird be killed or wounded, one of these Harriers immediately bears it off to some elevated ridge or bank, and devours it before the eyes of its disconsolate brethren.

No. 1239. *BUTEO FEROX. *Long-legged Buzzard.*

A winter visitor to Lucknow, and, I think, rare. In the Museum are four examples shot by myself, the Collector, and Reid, though the last-named did not include the species in his "List." I have also seen one or two specimens which I could not procure. All that I have observed were on more or less cultivated maidáns interspersed with babool-jungle.

No. 1241. BUTEO DESERTORUM. *Common Buzzard.*

A winter visitor and by no means common. Appears chiefly to affect ravines and dhák-jungle.

No. 1244. ASTUR BADIUS. *Shikra.*

Shikra [H.]. Sparrow-Hawk [Martinière boys].

This is our commonest Hawk, and is to be found in almost every part of the district. It is by no means a shy bird, and, like the Tawny Eagle, builds its nest in the Station close to human dwellings. I have found several, but, until last season, I had bad luck as regards eggs. Both this bird and *Aquila vindhiana* seem to desert them on the slightest pretext. The nest is a rough structure of sticks high up in some tree—the mango in nine cases out of ten—and the eggs, skim-milk † in colour and usually three in number, are laid from the end of March to the middle of May.

Average of 23 Lucknow eggs	.....	1.53" × 1.22"
Measurement of largest egg	.....	1.62" × 1.25"
„ smallest egg	.....	1.42" × 1.18"

The Shikra is much prized by those natives who still indulge in falconry. The Hawk is thrown from the hand at Mynas, Quails, Larks, and such small fry. Reid on one

† I took one clutch slightly marked with large faint blotches of brownish yellow.

occasion watched a pair catch and devour a squirrel (*Sciurus palmarum*).

No. 1247. ACCIPITER NISUS. *Sparrow-Hawk*.

Basha [H.].

A fairly common winter visitor. By those who do not know the simple way of distinguishing the two genera—viz., the much greater length and slenderness of the tarsi and toes in *Accipiter*—this and the preceding species are often confounded.

No. 1248. ACCIPITER VIRGATUS. *Besra Sparrow-Hawk*.

Besra [H.].

A cold-weather visitor, very locally distributed. Chiefly met with in dense bamboo-brakes, through which it moves with rapidity and ease. It is far from common, and I know nothing about it, save what Reid has written in his notes.

No. 1249. PERNIS CRISTATUS. *Crested Honey-Buzzard*.

The Honey-Buzzard is not uncommon, but is very fond of concealing itself in thick trees and hence is not very often seen. I came upon one with a huge piece of comb in its beak, and from one which Reid shot there flowed enough honey to fill a tea-cup. Another that I shot in June 1901 got into a dreadful mess from the same cause. A few individuals may remain to breed, but I think that most of them migrate locally to the sub-montane tracts for that purpose. They nest, or at any rate did so years ago, in the avenues and compounds of Saharanpur, which is just south of Dehra Dún.

+ No. 1254. FALCO PEREGRINUS. *Peregrine Falcon*.

Bhyri [H.].

The Peregrine is a cold-weather visitor and is looked upon with great favour by falconers. It is generally to be seen near jheel-sides, and Reid has remarked upon the way in which the bird seems to know the purpose of a gun, sallying forth from its perch after each shot to scan the locality for a dead or wounded bird. Of late years, possibly because much marsh-land has been brought under cultivation, the Peregrine has become rather scarce.

No. 1255. *FALCO PEREGRINATOR.* *Sháhin Falcon.*

Kohi [H.].

Reid got a single specimen (adult ♂) at Unao, and now and then birds may be seen in the possession of falconers, but I doubt whether these are procured anywhere in the vicinity of Lucknow.

No. 1256. *FALCO BARBARUS.* *Barbary Falcon.*

I include this species on the strength of Captain Irby's specimen obtained at Barabanki in 1858.

Major Cock, in the 'Gazetteer of Oudh,' gives it as one of the birds of the Kheri district; so, as Reid remarked, it is probably a more or less frequent visitor to the Terai.

No. 1257. *FALCO JUGGER.* *Lugger Falcon.*

Laggar, Bhyri [H.]. Pigeon-Hawk [Anglo-Indians].

The Lugger is a permanent resident and fairly common. It is found almost anywhere, but principally in the more open country. It preys upon Pigeons in the city, where it often does much mischief. A pair breed every year, and have done—or their ancestors before them—for thirty years at least, on the top of the monument standing in the middle of the Martinière tank. These birds never seem to interfere with the Pigeons which live about the College, but the Estate Superintendent has, on more than one occasion, received letters complaining of them from persons in distant parts of the city. More than one enraged and blood-thirsty pigeon-owner has obtained leave to bring a gun, but the position of the monument, and its great height, put any idea of slaughter out of the question. Though nests have been shown me on high trees, during the month of March, I have never yet got the eggs. Reid, who found three half-fledged young birds in that month, states that the Lugger begins to lay as early as December. Though capable of great speed, I fancy that it is less dashing and pertinacious than the Peregrine, and is inclined to get sulky if it misses its quarry. At any rate, though sought after by sporting Nawabs, falconers do not prize it nearly as much as they do the "pukka" Bhyri.

No. 1260. *FALCO SUBBUTEO. Hobby.*

Morassani [H., *teste* Reid].

A somewhat rare cold-weather visitor, coming about November and leaving in March. It is generally found in pairs or small parties in the better-wooded and more marshy parts. An almost illegible pencil note which I have just come across gives "Pyehan" as another name for this bird.

No. 1261. *FALCO SEVERUS. Indian Hobby.*

Neither Reid nor I have ever met with this bird in the wild state, but, as recently caught specimens are sometimes to be seen in the bazaars, it must occur here occasionally.

No. 1264. *ÆSALON CHICQUERA. Red-headed Merlin.*

Turmooti, Turumti [H.].

In Oudh this bird is invariably known as the Turmooti, and, though occasionally one hears it called Turumti, it is generally by the European who is making enquiries regarding it. Elsewhere, no doubt, the second spelling may be correct, but not with us.

This game little Falcon is fairly common and a permanent resident, making a stick nest in some high tree about February or March. I have seen only one or two of these nests, and, unfortunately, have not got the eggs. In one case, after the bird had laid two, a youngster broke out of bounds and forestalled me. Some years ago five red eggs, handsomely blotched with deep red-brown, were taken from a nest at the top of a "cork"-tree near the Kurshaed Munzil. Reid took three fledged young from a nest at the top of a mango on the 21st of April. The Turmooti preys largely on the numerous Larks that swarm on the maidáns, and often I have witnessed some of the prettiest hawking imaginable.

—No. 1265. *TINNUNCULUS ALAUDARIUS. Kestrel.*

Koruttia, Kursuttia [H.].

Very common during the cold weather. It departs to the hills to breed, and the only egg that I have was kindly taken for me by Mr. P. S. Lucas from a nest which he showed me on a cliff near Solon below Simla. I know a nest of the

Lammergeier [*Gypæëtus barbatus*] on a cliff just below the Simla cart-road which is appropriated during the summer by a pair of Kestrels. Reid found the bird breeding in company between Almora and Naini Tal in May. Its food consists of insects, frogs, and small mammals, while once the above-named authority found it feasting on a Dove (*Turtur suratensis*).

No. 1265. TINNUNCULUS CENCHIRIS. *Lesser Kestrel.*

Apparently a rare winter visitor. Possibly it has been overlooked. Its smaller size and whitish or pale horny claws—instead of black, as in *T. alaudarius*—distinguish it at once. Two local skins—of which I can find only one—are in the Museum, and two more specimens are said to have been obtained here by the late Mr. Anderson.

[To be continued.]

V.—Remarks on the Flight of Albatrosses.

By Captain F. W. HUTTON, F.R.S.

SAILORS apply the name "Albatross" to the large species with white backs, and distinguish the smaller forms of the Southern Ocean—with black backs and a dark border to the anterior edge of the lower surface of the wing—as "Mollymawks." The breeding-habits in these two groups are very different; the Albatrosses choosing grassy flats, the Mollymawks rocky cliffs, on which to make their nests. The British Museum Catalogue, however, takes the shape of the bill as a character by which to separate the birds; thus placing *Diomedea melanophrys*, which is the typical Mollymawk, among the Albatrosses.

In the Pliocene Period Albatrosses inhabited the North Atlantic Ocean; but at the present time they are practically limited to the North Pacific, as far south as 20° N., the coast of Peru, and the Southern Ocean between 30° S. and 60° S. Several are dark in colour when they are young and get whiter as they grow old; and this points to the probability of *D. nigripes*, of the North Pacific, which remains dark throughout life, being nearer to the prototype Albatross than any other species now living.

Starting from *D. nigripes* we have three groups:—The first includes *D. irrorata*, *D. immutabilis*, and *D. albatrus*, of the North Pacific, which have mottled under wing-coverts and the culmicorn in contact with the latericorn for a considerable distance behind the base of the nasal tube. The second group consists of the three species of true Southern Albatrosses—*D. exulans*, *D. regia*, and *D. chionoptera*—clearly linked together by their white under wing-coverts and the shape of the culmicorn, which has a very short, almost punctiform, contact with the latericorn behind the base of the nasal tube. The third group contains *D. melanophrys* alone, which has a bill resembling that of the northern Albatrosses, but with different colouring.

The genus *Thalassogeron*, which is entirely southern, is connected through *D. melanophrys* with the northern Albatrosses, *D. irrorata* and *D. immutabilis*. It seems, therefore, probable that Albatrosses originated in the Northern Hemisphere and passed south through the Pacific Ocean.

No two species of Albatross or Mollymawk are known to breed in the same locality. Even when two different kinds are found on the same island—as *D. exulans* and *D. regia* on Adam's Island of the Auckland group—they occupy widely separated sites. So far as I know, *Thalassogeron salvini*, of the Bounty Islands, is the earliest species to breed, for it commences at the end of August. *D. melanophrys*, on Campbell Island, comes next, in the middle of September; then the Sooty Albatross, *Phæbetria juliginosa*, in the end of October at the Antipodes and Auckland Islands, and a little later at Kerguelen Island. *D. regia* commences at Campbell Island in the middle of November; *D. chionoptera* at Kerguelen in the middle or end of December; *D. exulans* in the first week of January at Adam's Island and the middle of January at Antipodes Island; and last comes *T. culminatus* at the Snares Islands in the end of January. So that there is no less than five months' difference between the first and the last.

As these birds all live on the same food and have the same simple habits when they are at sea, we cannot suppose that their distinctive specific characters are due to natural

selection, for that which would favour one would favour all. Nor can we suppose that they are due to the action of external conditions, because what would affect one would affect all. Nor can we suppose them to be recognition-marks, for, when the breeding-time is drawing near, each bird goes separately to its old nest before courtship begins. The pink feathers on the sides of the neck of *D. chionoptera* may possibly be due to sexual selection, but we cannot suppose that all the differences between the species have such an origin; for the birds appear to mate for life, so that there is very little opportunity for choice. It cannot, therefore, be that the species of Albatrosses were formed by competition on the ocean, and subsequently chose separate breeding-grounds. We must believe that isolation preceded the development of their specific characters.

Now it is not difficult to imagine that those birds to which the breeding impulse came first should retire to their breeding-grounds and there mate; while those in which the impulse was delayed might find their old breeding-grounds fully occupied and would have to choose others. Thus, owing to physiological isolation, a small number of birds would become physically isolated and new specific characters might arise and be preserved. I believe that this method of physiological isolation has often played an important part in the origin of species without any help from natural selection, not only in birds, but also in insects. It is evident that in an equable climate, where the exact time of breeding was not very important, many variations might be preserved by this means; while in more rigorous climates, where the breeding-season must necessarily be short, this kind of physiological isolation could not occur. And this may account for the greater number of species in tropical countries, especially on islands, as contrasted with the enormous number of individuals belonging to very few species which is characteristic of temperate regions with continental climates.

One of the most peculiar and characteristic habits of the Albatrosses—as well as of all the larger Petrels—is their so-called “sailing” method of flight, which enables the birds to

Fig. 7.



Albatross turning sharply to the left.

keep on the wing all day with very little exertion. Of course, it is not true sailing, but some word is wanted to distinguish it from the soaring of Vultures, Pelicans, and other birds. For the flight of the Petrels is performed near the surface of the sea and the birds make irregular curves with such sharp turns that their outstretched wings are, when turning, in an almost perpendicular position (see fig. 7). Vultures, when soaring, ascend to a considerable height, and then wheel

Fig. 8.



Albatross rising and turning to the right.

round and round in great circles, always keeping their wings horizontal.

Sailing flight depends, of course, upon the principle of the inclined plane. The bird acquires momentum by flapping its wings and then, holding them extended and motionless, waits until its momentum is nearly exhausted, when it once more propels itself forward as before. In the case of the Sooty Albatross the interval may, under favourable conditions, be about half an hour, and the difficulty is to explain why the friction of the air does not sooner bring the

bird to a standstill. It was pointed out in 1889 by Mr. A. C. Baines* that the birds usually rise in a slanting direction against the wind (fig. 9), turn round in a rather large circle, and make a rapid descent (fig. 10) down the wind. They subsequently take a longer or shorter flight in various directions, almost touching the water. After that comes another ascent in the same manner, followed by another series of

Fig. 9.



Albatross commencing to rise.

movements. Now, as the velocity of the wind near the surface of the sea is diminished by the friction of the waves, when the bird ascends into the more rapidly moving upper current its *vis inertiae* makes the wind blow past it, and so its stock of energy is increased. When it descends it will be

* 'Nature,' vol. xi. p. 9; and Lord Rayleigh, *t. c.* p. 34.

moving faster than the lower stratum of wind and will again develop new energy if its *inertia* is sufficient to prevent its attaining the new velocity of the wind at once. So that the bird must fly against the wind when ascending and with it when descending. Thus the energy constantly lost by the friction of the air is partially renewed by these manœuvres. This explains why the birds can sail longer in a high wind than in a calm. It is because in a high wind and with a high

Fig. 10.



Albatross descending and making a broad curve to the left.

sea there is much greater difference between the velocities of the wind near the surface and a short distance above it; and this, again, is an explanation of why an Albatross keeps so close to the surface of the sea, only just topping the waves and occasionally rising high in the air.

The foregoing sketches (figs. 7-10) are copied from enlarged photographs, the only good ones out of many failures. The

difficulty of photographing flying birds from the deck of a rolling ship, often vibrating considerably, is great, and I have also found that the sea makes a very bad background; my most successful attempts were therefore made at birds above the horizon.

VI.—*On some rare or unfigured Eggs of Palæarctic Birds.*

By H. E. DRESSER, F.Z.S.

(Plate III.)

WHEN selecting specimens for my former article on the eggs of certain Siberian Thrushes (Ibis, 1901, p. 445), I noticed one clutch, stated to belong to *Turdus dubius*, which differed somewhat from the rest, and on examining the parent bird, which had been shot at the nest, I found it to be undoubtedly a female *Turdus naumanni*.

As the eggs of this species have been hitherto quite unknown, I have thought it advisable to figure four out of the clutch, to shew what little variation is noticeable in them (see Pl. III. figs. 1, 2, 3, 6). Mr. Popham informs me that they were taken on the Yenesei River in 1900. He has also sent me another clutch, along with the parent bird, which, however, on examination proves to be a hybrid between *Turdus naumanni* and *T. dubius*. It would seem, therefore, that the breeding-range of these two species meets somewhere about the Yenesei, and that they occasionally interbreed, as is known to be the case with *T. atrigularis* and *T. ruficollis*.

Although the Mongolian Song-Thrush (*Turdus auritus* Verreaux) much resembles *T. musicus*, its eggs differ considerably from those of that species, being, as will be seen by the figures (Pl. III. figs. 4, 5), much more of the Mistletoe-Thrush type. This Thrush inhabits Mongolia and Northern China. Prjévalsky found two nests in Kan-su in the middle of May—one on a broken tree-stump, and the other on the branch of a willow, about seven feet from the ground. One of the eggs now figured was obtained by Mr. Berezovski near Mindjcon, in Kan-su, while the other is from the collection of Mr. Goebel of St. Petersburg.



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12.

EGGS OF PALÆARCTIC THRUSHES.

Swinhoe's Thrush (*Turdus hortulorum* Selater) breeds in Eastern Siberia, but, so far as I can ascertain, its eggs have not hitherto been figured. Its nest is constructed of grass-bents, plant-stems, and rootlets, lined with similar but finer materials, and is placed on a tree. The eggs figured (Pl. III. figs. 7, 8, 9) are from a clutch of five, obtained near Amur Bay, Eastern Siberia, by Messrs. Dörries.

The Pale Thrush (*Turdus pallidus* Gmel.) likewise breeds in Eastern Siberia, and possibly also in Japan; it occurs in Mongolia, Manchuria, and Corea on passage, and winters in China. Its nest is placed on the branch of a tree, and is constructed of roots of *Vaccinium*, dry herbs, grass, moss, and pine-needles; it is lined with fine grass-bents, and four or five eggs are deposited in June. Those figured (Pl. III. figs. 10, 11, 12) are from a clutch of five obtained near Amur Bay by Messrs. Dörries on the 3rd of June. The eggs of this Thrush have been described by Taczanowski, but do not appear to have been figured.

The eggs of *Turdus naumanni* which I have figured are from the collection of Mr. Hugh L. Popham; for the loan of all the rest I have to thank Dr. Bianchi, of the Museum of St. Petersburg.

EXPLANATION OF PLATE III.

Figs. 1, 2, 3, 6.	Eggs of <i>Turdus naumanni</i> , p. 88.
„ 4, 5.	„ „ <i>auritus</i> , p. 88.
„ 7, 8, 9.	„ „ <i>hortulorum</i> , p. 89.
„ 10, 11, 12.	„ „ <i>pallidus</i> , p. 89.

VII.—*Notes on the Synonymy of some Palæarctic Birds.*

By H. E. DRESSER, F.Z.S.

WHEN I was recently at Sarajevo, in Bosnia, Mr. Othmar Reiser called my attention to a work on the Balkans, by the late Johan von Frivaldsky, entitled 'Balkányi Természettudományi Utazásról, Budan, 1838,' in which the following description is given of the Collared Turtle-Dove (p. 30,

Tafel viii.), under the name "*Columba decaocta*," viz.:— "*C. supra pallide fusca, subtus ex roseo cinerascens, remigibus fusco-nigricantibus pallide marginatis, tectricibus marginalibus albo-cærulescentibus, rectricibus obscure cinerascens, subtus basi nigris versus apicem albis; lunula cervicali nigra, supra albo, infra fusco marginata; tectricibus caudæ superioribus pallide fuscis, inferioribus cæruleo-cinerascens.*" The plate accompanying this description gives an excellent representation of the bird.

In the 'Catalogue of Birds in the British Museum' (xxi. p. 430), Count Salvadori terms this Dove *Turtur douraca*, from Hodgson in Gray's 'Zool. Misc.' p. 85 (1844); but the specific name mentioned above antedates that of Hodgson by six years, and this species should therefore stand as *Turtur decaocta* (Frisvaldsky).

When I was in Bosnia and Herzegovina in the spring of 1902, I saw this Dove in the Turkish quarter at Mostar, as well as at Sarajevo.

As pointed out by Professor Newton (Diet. of B. p. 509, foot-note), the generic title *Galerita* cannot be used for the Crested Larks, having been preoccupied in Entomology; and it will therefore be necessary either to relegate these Larks to the genus *Alauda* or to select a new generic name. Consequently, in my 'Manual of Palearctic Birds,' which is now in the press, I have proposed to use the generic name *Corydus* (*κορυδὸς* of Aristotle) for this group. It has, however, been pointed out to me (too late, unfortunately, to correct my error, as that part of the 'Manual' has been printed off) that Dr. von Madarász has already made a new genus for the Crested Larks, viz. *Ptilocorys*, type *Alauda cristata* Linn. ('Magyarország Madarai a hazai Madárvilág megismerésének vezérfonala,' ii^{dik} Füzet, p. 48, 1899). This work, being in Hungarian, I had not consulted, and therefore was unaware that such a generic name had been published.

Mr. Whitaker (Ibis, 1898, p. 625) and Mr. Reiser ('Aquila,' v. p. 293, 1898) have pointed out that the Black-

eared Wheatear (*Enanthe albicollis* Vieill. 1818, not *Saxicola aurita* Temm. 1820, as cited by the former writer) may be separated into two forms, an eastern and a western representative, and Mr. Whitaker has proposed the name *Saxicola catarinæ* for the latter or western form. It is quite true that eastern examples may be distinguished from those of the western portion of this Wheatear's range, and the differences as given by him are correct, as I have ascertained by the examination of a large series in the National Museum at Buda-Pest; but as both forms have already received names, Mr. Whitaker's name is merely a synonym.

Vieillot's *Enanthe albicollis* inhabits, he states, the southern provinces of France, Italy, and Spain, and is clearly the western form, whereas Hemprich & Ehrenberg describe the eastern form under the name *Saxicola amphileuca* (Symb. Phys., Aves, fol. bb, footnote 4, 1829) from the Lebanon. The eastern form will therefore stand as *Saxicola amphileuca* Hempr. & Ehrenb., and the western as *Saxicola albicollis* (Vieill.).

I may here also remark that the Pied Wheatear may be separated into two forms or races by those ornithologists who elect to recognise subspecies, as the western form is, as a rule, somewhat smaller, has the black band on the back narrower, and the outer tail-feathers, as a rule, quite white. If, however, Mr. Whitaker is correct in his statement (Bull. B. O. Club, xiii. p. 15) that in the eastern form the sexes are alike, whereas in the western form they differ in plumage, the two must be recognised as good species, and in such case the eastern will stand as *Saxicola lugens* Licht. and the western as *Saxicola halophila* Tristram.

VIII.—*Remarks on Pitta longipennis Reichenow and Pitta reichenowi Madarász.* By R. BOWDLER SHARPE, LL.D.

(Plate IV.)

DR. VON MADARÁSZ has very kindly sent over to England for my examination the type of the *Pitta* described by him

in 1901 from the Central Congo district, and named (Orn. MB. ix. p. 133) *Pitta reichenowi*. It is certainly a remarkable-looking bird, differing from *P. angolensis* and *P. longipennis* in the green chest, which is slightly mixed with dull ochre on the upper breast.

In *P. angolensis* there is a double pale eyebrow, a narrower one above the black sides of the face and a superior broad one of dark ochreous brown. In the other two species there is but one eyebrow, very broad, light ochreous, and turning paler towards the posterior end of the superciliary band along each side of the nape.

The blue spangles on the wings are of a deeper cobalt-blue in *P. reichenowi* and *P. longipennis*, and there is a shade of purple or ultramarine on the spots of the median and greater wing-coverts, as well as on the inner secondaries, especially in the last-named species.

The white alar speculum in *P. reichenowi* is of about the same size as in *P. angolensis*, and the amount of whitish shade at the end of the outer secondaries is indistinct and not so great as in *P. longipennis*.

The characters for the three species seem to be as follows:—

	Blue patch on lesser wing-coverts	Blue spots on median and greater wing-coverts	Ochreous superciliary stripe
1. <i>P. angolensis</i>	eau-de-nil.	eau-de-nil or cobalt.	double.
2. <i>P. longipennis</i>	cobalt.	purplish blue or ultramarine.	single.
3. <i>P. reichenowi</i>	cobalt.	cobalt or dull ultramarine.	single.

	Light spots at end of outer secondaries	Fore-neck and chest
1. <i>P. angolensis</i>	obsolete, greyish white.	pale ochreous.
2. <i>P. longipennis</i>	white and distinct.	pale ochreous.
3. <i>P. reichenowi</i>	obsolete, greyish white.	dull greenish.



2.

1

H. Goodchild, del. et lith.

Bale & Danielsson, imp.

1. PITTA REICHENOWI .

2. PITTA LONGIPENNIS .

The dimensions of the three species are as follows:—

	Total length.	Culmen.	Wing.	Tail.	Tarsus.
	in.	in.	in.	in.	in.
<i>P. angolensis</i>	7·4	1·0	4·4	1·5	1·3
<i>P. longipennis</i>	7·8	1·1	5·3	1·7	1·6
<i>P. reichenowi</i>	7·3	0·45	4·7	1·8	1·35

The specimen of *P. longipennis* here considered is that procured by Mr. J. ffolliott Darling, near Salisbury, in Rhodesia (*cf.* Sharpe, Bull. B. O. C. xii. p. 49). The type-specimen in Berlin was obtained in Northern Nyasaland.

EXPLANATION OF PLATE IV.

Fig. 1. *Pitta reichenowi*, from the typical specimen.

2. *Pitta longipennis*, from the specimen procured by Mr. J. ffolliott Darling, near Salisbury, in Rhodesia.

Both the figures are reduced to $\frac{3}{4}$ ths of the natural size.

IX.—On the Silver-Pheasants of Burma.

By EUGENE W. OATES, F.Z.S.

WHEN I wrote the first part of the 'Manual of the Game-Birds of India' in 1898, the material for dealing with the Silver-Pheasants was very scanty. Now, owing to the assistance of numerous kind friends, whose names will be found in the following notes, the number of specimens of these Pheasants in the Natural History Museum has been much augmented and some rare forms have been acquired. I wish, therefore, to revise my account of the Burmese species and to correct some mistakes into which I have fallen.

The old notion that these birds interbreed in a wild state and produce a confusion of forms must now be abandoned. There is nothing to support this view. The larger the series of these Pheasants becomes, the more clearly and distinctly does it appear that they are well-defined species, bearing no particular resemblance to any other Pheasants the range of which they overlap.

There is a point about these Pheasants which is very

interesting. Where the males of two species are superficially alike and might be confounded, as in *G. sharpii* and *G. rufipes*, we find that the females are totally different. Again, where the females of two species are so alike as to be barely distinguishable from each other, as in *G. sharpii* and *G. lineatus*, we find that the males are wide apart. The same holds good with the four Himalayan species, viz., *G. albicristatus*, *G. leucomelanus*, *G. melanonotus*, and *G. horsfieldi*, in which the males can be recognised at a glance, but the females cannot be separated with any certainty.

Many persons examining the males of *G. nycthemerus* and my new species, *G. jonesi*, might refuse to consider them as distinct. The great difference in the females of the two species would, however, speedily convince them to the contrary.

Of the numerous species of *Gennæus* now recognised, I do not know any two which resemble each other as regards both sexes. Either the males or the females are strikingly different.

I now proceed to give a key to the males of all the Burmese Silver-Pheasants, twelve in number, and a sufficiently detailed account of each species. I do not attempt to give a key to the females, as some of them are not known.

Key to the Males.

a. Legs deep red.

a'. Upper plumage marked throughout with lines parallel to the margins of the feathers, each pair wide apart at the base and meeting on the shaft, forming a spoon-shaped figure.

a''. Ear-coverts and the whole of the sides of the neck heavily pencilled with scale-like marks.

a'''. Tail up to 12 inches. Either two or three pairs of black lines on each feather of the upper plumage, these being broader than the white interspaces *G. andersoni.*

b'''. Tail up to 20 inches. Either four or five pairs of black lines on each feather of the upper plumage, these being about equal to the white interspaces *G. rufipes.*

- b''*. Tail up to 25 inches. Ear-coverts and adjacent parts of the sides of the neck, for a space of about 2 inches, pure white *G. jonesi*.
- b'*. Upper plumage black, vermiculated transversely with white, each feather marked with a sub-terminal pale blue band and a white fringe .. *G. nisibetti*.
- b*. Legs brown, horn-coloured, flesh-coloured, or greenish, never red.
- c'*. Rump-feathers not fringed with white.
- c''*. Whole upper plumage uniformly and more or less transversely vermiculated with fine close black and white lines *G. lineatus*.
- d''*. Whole upper plumage marked with black and white lines, which run parallel to the margins of the feathers, each pair forming a spoon-shaped figure *G. sharpii*.
- d'*. Rump-feathers fringed with white.
- e''*. Rump-feathers merely fringed, not vermiculated.
- e'''*. Mantle and back plain black *G. horsfieldi*.
- d'''*. Mantle and back transversely vermiculated. *G. wilkhami*.
- f''*. Rump-feathers not only fringed, but also vermiculated.
- e'''*. Mantle and back more or less transversely vermiculated.
- a¹*. Fringe and vermiculation next to it almost, if not quite, in contact.
- a²*. Lower plumage streaked with white.. *G. oatesi*.
- b¹*. Lower plumage entirely black *G. cuvieri*.
- b¹*. Fringe and vermiculation next to it divided by a black band as broad as the fringe *G. williamsi*.
- f'''*. Mantle and back marked with curved lines parallel to the margins of the feathers, each pair forming a spoon-shaped figure *G. davisoni*.

I. GENNÆUS ANDERSONI.

Euplocamus andersoni Elliot, P. Z. S. 1871, p. 137; id. Monogr. Phasianidæ, ii. pl. xxii. (1870-72); Anderson, Yunnan Exped., Aves, p. 678, pl. liii. (1878).

In my 'Manual' (pt. i. p. 338) I pointed out that Dr. Elliot had described this species in two perfectly irreconcilable ways—the description in the P. Z. S. and the

plate in the Monograph being based on a native drawing sent by Anderson, and the description in the Monograph on a skin also sent by him.

I also pointed out that Anderson had sent to the British Museum the skin of a Pheasant, of which he remarked:—"On the second expedition of 1875, I procured another male, somewhat younger than the type, but agreeing with it in all essential details, and this specimen is now in the British Museum." Under these circumstances I accepted Anderson's specimen as representing *G. andersoni*.

The acquisition, however, of a skin of the Pheasant sent by Colonel G. Rippon to the British Museum has now cleared up the matter. This skin agrees exactly with Elliot's description in the P. Z. S., with his plate in the Monograph, and with Anderson's plate of the type specimen. It proves that the specimen sent by Anderson to the British Museum is not one of *G. andersoni*, as I had supposed it to be, but of a species which Mr. Ogilvie-Grant has rightly considered to be distinct, and has named *G. davisoni*.

In the male of *G. andersoni* the legs are deep red. The feathers of the upper plumage throughout are black, marked with white bands, which run parallel to the margins of the feathers, and form from two to four spoon-shaped figures on each feather, the black bands being much broader than the white interspaces. The sides of the neck are covered with scale-like markings. The whole lower plumage is black, with the exception of some white streaks on the sides of the breast. The wings and tail are black, obliquely marked with white, the three outer pairs of tail-feathers being almost entirely black. Tail 12 inches; wing nearly 10 inches.

The exact locality from which Anderson's type specimen (a live bird) was brought is not known. The specimen sent by Colonel Rippon was shot on the Kachin Hills, thirty miles east of Bhamo, at a police post called Warar Bum, which is situated at an elevation of 6000 feet, in May. The female of this species is unknown.

2. GENNÆUS RUFIPES.

Gennæus andersoni apud Oates, Journ. Bomb. Nat. Hist. Soc. x. p. 112 (1895).

Gennæus rufipes Oates, Manual Game-Birds India, pt. i. p. 363 (1898).

This Pheasant appears to be confined to the Ruby-Mines district and to be abundant round the town of Mogok. In addition to the type specimen, which I myself procured at Mogok, I have examined others from the same neighbourhood, lent me by the Hon. Walter Rothschild.

The male has the legs deep red. The feathers of the upper plumage throughout are white, marked with four or five black lines, which run parallel to the margins of the webs and form spoon-shaped figures on each feather, the black and white bands being about equal in width. The sides of the head and neck are covered with scale-like markings. The wings and tail are black, obliquely banded with white, the inner webs of the middle pair of tail-feathers being almost entirely white. The lower plumage is deep black, with some white streaks on the sides of the breast. The tail in adults reaches a length of 20 inches. The wing measures 10·5 inches.

The female, for a specimen of which I am indebted to Mr. Rothschild, has the legs deep red, the upper plumage and wings umber-brown with paler margins, the outer webs of the primaries mottled with pale brown. The lower plumage is dark umber-brown, each feather having two or three large irregular and somewhat V-shaped ochraceous bands. The tail is irregularly and obliquely banded with rufous, ochraceous, and black. Length of tail 10 inches, of wing 9 inches.

The females in this species and the next are of the same type, but in the female of *G. jonesi* the lower plumage is black and the V-shaped marks are white.

3. GENNÆUS JONESI, sp. nov.

Gennæus nycthemerus apud Ogilvie-Grant, Ibis, 1900, p. 606.

I have much pleasure in naming this handsome species

after my friend Major Henry Jones, who has greatly assisted me in studying and discriminating the various forms of Silver-Pheasants.

This species is found in the Shan States and Yunnan. The Natural History Museum now possesses a large series. The type specimen was sent to me by Capt. J. H. Whitehead, who shot it at a place twenty miles east of Kengtung (N. lat. $21^{\circ} 30'$ and E. long. $99^{\circ} 45'$). He remarks that it is not uncommon on the hill-ranges between the Salween and Mekong Rivers. Colonel Rippon has sent five specimens that he procured at an elevation of 5000–7000 feet on Loi-Mai, a mountain situated in N. lat. $20^{\circ} 30'$ and E. long. $97^{\circ} 30'$. He has also sent three skins obtained by Mr. H. N. Thompson at Trans-Salween Moukmai, which is approximately in N. lat. 20° and E. long. $98^{\circ} 30'$. Capt. W. G. Nisbett has recently presented a specimen to the Natural History Museum which he shot at Pansibum, about forty-five miles east of Bhamo, at an elevation of 7000 feet, while he also notes that this bird occurs at Pumbum, about a hundred and fifty miles north of Bhamo, on the frontier of Yunnan, at an elevation of 7000 feet. Lastly, a Pheasant brought home by Capt. A. W. S. Wingate from Yunnan, south-cast of Bhamo, is referable to this species.

The male resembles that of *G. nycthemerus*, but differs in the following respects:—The primaries are black, marked with diagonal zigzag white bands, which are narrower than the intervening black spaces. The secondaries are diagonally banded with black and white in about equal proportions. The inner webs and the terminal half of the outer webs of the middle pair of tail-feathers are plain white, with the exception of a few black specks under the coverts; the basal half of the outer web is marked with narrow wavy black lines, nearly parallel to the shaft. The bands on the upper plumage are much heavier, being of about the thickness of a stout hair-pin.

In the male of *G. nycthemerus* the first primary is white, marked on the inner web with three broad firm black lines

parallel to the shaft. The black marks on the other primaries are oblique and broken, and occupy only one-third of the feather, the remaining two-thirds being white. On the secondaries the black markings occupy only one-quarter of the feather, the remaining three-quarters being white. The two middle tail-feathers are entirely white, with the exception of a few narrow black bars under the coverts. The bands on the upper plumage are much finer, being of about the thickness of a small pin.

The females of the two species are totally different. In *G. jonesi* each feather of the lower plumage is black and has a spearhead-shaped white shaft-streak and a submarginal, somewhat V-shaped, white band near to, and following, the margin of the web. The tail-feathers are banded with coarse oblique bars of black, brown, and pale buff.

In *G. nycthemerus* the whole plumage of the female, both above and below, is umber-brown with pale shafts to the feathers; there are none of the conspicuous white marks on the lower plumage which are to be found in *G. jonesi*. The tail-feathers are finely vermiculated, not banded, with black, brown, and white.

A fine male of *G. jonesi* measures 40 inches in length; wing 11·5 inches; tail 25 inches. The legs are bright red; the skin of the face is scarlet; the irides are hazel and the bill is of a greenish colour.

A female measures about 25 inches in length; wing 10 inches; tail 11 inches.

4. *GENNÆUS NISBETTI*, sp. nov.

It is not always safe to describe a new species from an incomplete skin, but in this particular instance a specimen of a Silver-Pheasant, consisting of the skin of the back and rump, the wings, tail, and feet, sent by Capt. W. G. Nisbett, indicates a species totally different from any known to me.

This bird, a male, was procured in the Kachin Hills, five miles east of Sadon, at an elevation of 2500 feet. Sadon is a police-post close to the Chinese frontier and some forty

miles east of Myitkyina. I name this species after its discoverer, Capt. Nisbett.

The characters which render this species so distinct are the deep red legs and the white-fringed plumage of the back and rump. The feathers of these parts are black, finely and transversely vermiculated with from eight to ten fine zigzag white lines, the lowest vermiculation being separated from the white fringe by a beautiful pale blue band. The wings are black vermiculated with white. The four outer pairs of tail-feathers are almost entirely black; the others are black diagonally vermiculated with white, the inner web of the central pair being mostly white.

The irides are hazel; the soft skin of the face is scarlet; the bill yellowish. The specimen has the tail 14 inches in length; the wing 10 inches; the tarsus 3.3 inches.

5. GENNÆUS LINEATUS.

Phasianus lineatus Vigors, P. Z. S. 1831, p. 24.

Euplocamus lineatus Elliot, Monogr. Phasianidæ, ii. pl. xxiii. (1870-72); Hume & Oates, Stray Feathers, iii. p. 165 (1875); Hume & Marshall, Game-Birds India, i. p. 206 (1878).

Gennæus lineatus Ogilvie-Grant, Cat. Birds B. M. xxii. p. 304 (1893); Oates, Manual Game-Birds India, i. p. 351 (1898); Blanford, Fauna Brit. India, Birds, iv. p. 92 (1898).

This well-known Pheasant occurs throughout the country east of the Irrawaddy River from the coast-line to a little above Mandalay. To the east this species is found in Northern Tenasserim and in the lower hills which divide Burma from the Shan States up to the Fort-Stedman road. I have recently seen a specimen in Colonel Bingham's collection which was shot by Mr. H. N. Thompson at Trans-Salween Moukmai (N. lat. 20° and E. long. 98° 30') at an elevation of 2000 feet. This Pheasant does not appear to occur higher.

The male may be recognised by its upper plumage, the whole of which is very densely and more or less transversely vermiculated with black and white, without a trace of fringes.

The legs are brown and the lower plumage is black streaked with white.

The female is of an umber-brown colour strongly tinged with rufous. On the back of the neck and on the mantle are numerous arrowhead-shaped white marks, while the lower plumage is streaked with white, the streaks being not more than one-sixth of an inch wide. Wing about 8·5 inches in length; tail about 7·5 inches.

6. GENNÆUS SHARPII.

Euplocamus crawfurdi apud Hume & Davison, Stray Feathers, vi. p. 437 (1878); Hume & Marshall, Game-Birds India, i. p. 204 (1878).

Gennæus andersoni Ogilvie-Grant, Cat. Birds B. M. xxii. p. 306 (1893).

Gennæus sharpii Oates, Manual Game-Birds India, pt. i. p. 357 (1898).

This species has a range which extends for fully four hundred miles from north to south. Davison procured it near Papun in Northern Tenasserim, Colonel Wardlaw Ramsay in Karenee. Colonel G. Rippon has lately sent to the Natural History Museum a male shot on Loi-Mai Mountain (N. lat. 20° 30', E. long. 97° 30') at an elevation of 6000 feet. Colonel Bingham has quite recently shown me a skin procured by Mr. H. N. Thompson at Kengtung, and Mr. Walter Rothschild has kindly sent me for inspection a fine male obtained at Mogok, in the Ruby-Mines district.

The male of this species requires no separate description, inasmuch as it very closely resembles that of *G. rufipes*. It differs in having the legs flesh-coloured, not red; in having the tail very much shorter, not exceeding 14 inches in length; and in having the inner webs of the primaries mottled, not barred, with white. Wing about 10 inches in length.

The female, however, is of quite a different type to that of *G. rufipes*, and closely resembles the female of *G. lineatus*, from which it differs merely in being larger, in having the

streaks on the lower plumage in adults much wider (about a quarter of an inch wide); and in having the inner quills narrowly and obliquely barred with buff. Wing about 9 inches in length; tail 9·5 inches.

The male of *G. beli* (Oustalet, Bull. Mus. d'Hist. Nat. 1898, p. 258) appears to resemble the male of *G. sharpii*, but to have red legs. The females of the two species probably differ in a conspicuous manner.

7. GENNÆUS HORSFIELDI.

Gallophysis horsfieldi Gray, Gen. Birds, iii. p. 498, pl. cxxvi. (1845).

Euplocamus horsfieldi Elliot, Monogr. Phasianidæ, ii. pl. xx. (1870-72); Hume & Marshall, Game-Birds India, i. p. 197 (1878).

Gennæus horsfieldi Ogilvie-Grant, Cat. Birds B. M. xxii. p. 302 (1893); Oates, Manual Game-Birds India, pt. i. p. 334 (1898); Blanf. Fauna Brit. India, Birds, iv. p. 92 (1898).

This Pheasant inhabits a wide area, being found from Bhutan and Assam down to Chittagong, Manipur, and Upper Burma. I procured it at Bhamo and near Katha, and Capt. W. G. Nisbett has sent specimens from the Namli River, near Sadon, east of Myitkyina. These places probably indicate the line of its southern and eastern limits. It appears to occur up to an elevation not exceeding 4000 feet.

The whole plumage is black, with a bluish gloss at the tips of the feathers. Those of the rump and upper tail-coverts are conspicuously fringed with white, and there are no vermiculated lines on any part of the plumage. The fringes in some specimens are very narrow, in others very broad, but the reason of this is not apparent. The legs seem to vary considerably in colour, being dirty white, greenish, or some shade of brown.

8. GENNÆUS WICKHAMI.

Gennæus wickhami Oates, Manual Game-Birds India, pt. ii. p. 495 (1899).

The type specimen of this species was sent to me by

Mr. P. F. Wickham, who procured it at Minken, about ten miles south of Falam, in the Chin Hills, at an elevation of some 5000 feet. This locality is in about 23° N. lat. and 94° E. long.

The male bird (the female is unknown) has the legs brown and the whole lower plumage deep black. The mantle, back, scapulars, and wing-coverts are black, finely but irregularly vermiculated and speckled with pale buff, while the feathers of the rump and upper tail-coverts are plain black, broadly fringed with white. Wing 9·5 inches; tail 11 inches.

9. GENNÆUS OATESI.

Gennæus oatesi Ogilvie-Grant, Cat. Birds B. M. xxii. p. 303 (1893).

The type of this species, a unique specimen, has the lower plumage of *G. lineatus* and the entire upper plumage finely vermiculated with black and white, the feathers of the rump and upper tail-coverts being fringed with white.

This specimen came to the British Museum from the Zoological Society of London, and is said to have been sent from Arrakan by Capt. Bogle.

When writing my 'Manual,' I carelessly omitted to notice this type, and described in its place two Silver-Pheasants that my collectors had obtained in the Arrakan Hills, which must be assigned to *G. cuvieri*. My article on *G. oatesi* in the 'Manual' (pt. i. p. 348) must therefore be cancelled and the present note substituted for it.

10. GENNÆUS CUVIERI.

Lophophorus cuvieri Temm. Pl. Col. v. pl. 10 [no. 1] (1820).

Euplocamus cuvieri Hume & Oates, Stray Feathers, iii. p. 166 (footnote, 1875); Hume & Marshall, Game-Birds India, i. p. 201 (1878).

Gennæus cuvieri Ogilvie-Grant, Cat. Birds B. M. xxii. p. 303 (1893).

I wrote on this species with much doubt in my 'Manual,' and I am now fully convinced that the Pheasants that my

collectors procured in the Arrakan Hills, which Mr. Ogilvie-Grant assigned to *G. oatesi*, were correctly identified with *G. cvieri* by Mr. Hume when we wrote our joint account of the birds of Pegu in 1875. Consequently my article on *G. cvieri* in the 'Manual' (pt. i. p. 345) must be cancelled.

Besides the two specimens above referred to, which were shot on the Arrakan Hills in the latitude of Prome, there is a third example of this species in the Natural History Museum without any particular history, except that it is said to have come from Arrakan.

The male has the whole upper plumage black, transversely vermiculated with white. The rump-feathers are rather narrowly fringed with white, the vermiculation next the fringe being so near to it as almost, if not quite, to touch it. The lower plumage is black throughout. The wings and tail are black, more or less barred with white.

The female has the whole body-plumage of a rich umber-brown, the upper parts freckled with blackish brown, the breast-feathers marked with yellowish shaft-streaks. The middle three pairs of tail-feathers are pale chestnut, closely and obliquely barred with black; the others are deep chestnut mottled with black, chiefly on the inner web.

11. GENNÆUS WILLIAMSI.

Gennæus williamsi Oates, Manual Game-Birds India, pt. i. p. 342 (1898).

Gennæus turneri Finn, Journ. Asiat. Soc. Beng. lxxix. pt. ii. p. 146 (1901).

This species has a wide range. The type specimens were shot by Capt. F. T. Williams at Kalewa, on the Chindwin River. Mr. Finn's types were procured about twelve miles south of the same place. Captain W. G. Nisbett has recently sent me some examples from Upper Burma, namely, two males from Moukkadoug Hill, 3000-4000 feet, in the Upper Chindwin district; one male from Pinlabu; one from Kyatthin; and another from Wela—the last three localities being all in the Wuntho district. Mr. P. F. Wickham has also sent me a male bird from Yaw, in the Pakokku district.

This bird may therefore be said to inhabit the tract of country lying between the Chin Hills and the Irrawaddy River and between the 21st and 24th degrees of north latitude.

A male and female of this species are in the British Museum, catalogued under the name of *G. cuvieri*. They were sent, probably alive, to the Zoological Society of London by Capt. Bogle many years ago, and are said to have been taken in Arrakan. The locality requires confirmation.

The male has the whole upper plumage black, rather coarsely vermiculated with pale buff in younger birds, finely and sparingly with white in older birds. The feathers of the rump are very broadly fringed with white, the black space between the first vermiculation and the fringe being as broad as the latter. The inner webs of the primaries are almost plain black in old birds, vermiculated with buff in those that are younger. The tail-feathers are black, marked with narrow oblique lines of pale buff, the three outer pairs being almost entirely black. The lower plumage is wholly black. Tail about 10 inches in length.

The female has the general colour of the upper plumage umber-brown, minutely freckled with black. The lower plumage is brown, each feather edged with greyish white and with a conspicuous greyish white shaft-streak. The two middle tail-feathers are chestnut, mottled with black; the others are black obliquely barred with white, the outermost becoming almost entirely black. Tail about 8 inches in length.

12. GENNÆUS DAVISONI.

Gennæus davisoni Ogilvie-Grant, Cat. Birds B. M. xxii. p. 304 (1893).

Gennæus andersoni (Elliot); Oates, Manual Game-Birds India, pt. i. p. 337 (1898).

The type specimen of this species was sent to the British Museum by the late Dr. John Anderson, and I have already explained the reasons which led me to treat it as a specimen of *G. andersoni* and to suppress the name *G. davisoni*.

By the acquisition of an undoubted specimen of *G. under-*

soni, sent by Colonel G. Rippon, the specific distinctness of *G. davisoni* has been fully established.

The type specimen was procured to the north-east of Bhamo, and we know nothing more about the distribution of this species. The female is unknown.

The male has the hind-neck, mantle, back, wing-coverts, and scapulars black, each feather rather finely marked with zigzag white lines parallel to the margins of the webs, and each pair of such lines forming a spoon-shaped pattern. The rump and upper tail-coverts are black, with more or less transverse zigzag vermiculations, while each feather is fringed with white, the first vermiculation and the white fringe being separated by a black band. The lower plumage is entirely black. The middle tail-feathers are black, with white lines parallel to the shaft; the three outer pairs are almost entirely black, and the intermediate pairs are progressively less marked with white lines than the middle feathers. The wings are black obliquely barred with white. The wing measures 9·5 inches; the tail about 11 inches.

X.—*On the Genera Xenerpestes and Metopothrix.*

By HANS, Graf von BERLEPSCH.

I. XENERPESTES.

In a third article on the birds collected by Mr. J. Stolzmann in Ecuador, published in the 'Proceedings of the Zoological Society' for 1885, the late Dr. L. Taczanowski, in concert with me, has described and figured a curious bird under the name of *Synallaxis singularis* *.

Unfortunately my friend Taczanowski did not at that time send me the bird itself for examination, but merely a description of it, from which I satisfied myself that it belonged to an undescribed species quite unknown to me. Taczanowski placed it in the genus *Synallaxis*, admitting at the same time that it was an abnormal species of that genus.

Through the kindness of Mr. Stolzmann, I have lately

* Tacz. & Berl. P. Z. S. 1885, p. 96, pl. vii. fig. 2.

had an opportunity of examining the type of *Synallaxis singularis*, belonging to the Branicki Museum at Warsaw, and I am now in a position to affirm positively that it is no *Synallaxis* at all, but belongs to *Xenerpestes*—a genus proposed by me in 'The Ibis' (1886, p. 54) for a strange-looking bird from Bucaramanga, Colombia, viz. *X. minlosi* Berl.—of which genus it forms a second species.

In fact, *S. singularis* agrees with *X. minlosi* in all essential generic characters. The form of the bill is nearly the same, being but a little shorter and broader and less curved in its apical portion. There is hardly any difference in the form of the wings and the tail. The legs and the toes, with their claws, are quite of the same structure.

Regarding coloration, there is at least a great analogy in the general distribution of colours to be observed when the two species are compared closely together.

The frontal feathers in *S. singularis* are short and stiff, as in *X. minlosi*, but while in *X. minlosi* they are blackish, like the rest of the pileum, with narrow whitish shaft-stripes, they are of a bright uniform rufous in *S. singularis*. The posterior part of the crown and all the remaining upper parts are of a uniform olivaceous grey in the latter species, while in the former the back is of a darker and purer ashy grey, without any olivaceous suffusion.

The tail-feathers are nearly the same colour in the two species.

The broad white wing-bands of *X. minlosi*, formed by the white tips of the longest and middle wing-coverts, are wanting in *S. singularis*; nevertheless they are indicated by slight whitish margins or apical points to be observed on several of the larger and middle wing-coverts. Unfortunately this feature is not indicated in the coloured figure of *S. singularis*.

The blackish spots on the under parts of the body in *S. singularis* are also indicated in the young of the other species (see description in 'Ibis,' 1886, p. 54). The white superciliary stripe and the white ground-colour of the under parts are slightly tinged with yellowish, but not so much as would appear from the coloured figure. In *X. minlosi* these

parts are certainly of a purer white, without the yellowish tinge to be found in the other species.

The white margins to the inner webs of the outer tail-feathers noticeable in *X. minlosi* are wanting in *S. singularis*. On the other hand, the white apical margins to the tertiaries, well represented in the latter bird, are not to be found in *X. minlosi* or are but slightly indicated.

Thus we have now two species of *Xenerpestes*, viz. :—

1. *X. minlosi* Berl. *Hab.* Bucaramanga (Colombia).
2. *X. singularis* (Tacz. & Berl.). *Hab.* Mapoto (Ecuador).

II. METOPOTHRIX.

Having lately found in a collection made on the Rio Putumayo, S.E. Colombia, by the late Mr. Gustav Hopke a specimen of *Metopothrix aurantiacus* Sel. & Salv. (a bird hitherto unknown to me), I have made what I regard to be another important discovery, viz., that this bird is not a *Piprine* form, as was believed by its describers, but a *Dendrocolaptine*, closely allied to *Xenerpestes*, and agreeing with it in general characters of structure, viz., in having the same curved bill, *with prominent swollen tomia at the base of the upper mandible**, and also in exhibiting short stiff frontal feathers, though differing, of course, very much in the style of coloration.

I think that there can be no longer any question as to *Metopothrix* being removed from the *Pipridæ* and placed in the family *Dendrocolaptidæ* not far from *Xenerpestes*.

Schloss Berlepsch, November 1902.

XI.—Additional Remarks on certain Species of American Gallinæ. By W. R. OGILVIE-GRANT.

IN the July number of the 'Auk' (1902, pp. 309-311) Mr. J. A. Allen has criticized my identifications of certain recently described North-American Game-Birds (*cf.* Ibis, 1902, pp. 233-245).

* This character is to be found in nearly all *Dendrocolaptidæ*, being especially conspicuous in the species of the genus *Synallaxis*.

Firstly, as regards *Lagopus leucurus altipetens* Osgood, a supposed new subspecies from Colorado, shown to be identical with typical *L. leucurus* Swains. & Rich. Mr. Allen apparently admits the correctness of this identification; for he doubts whether birds from latitude 54° in the Rocky Mountains, the type-region of *L. leucurus*, are separable from the Colorado bird. This was the only point entered into in my notes. Mr. Allen, however, for some unaccountable reason, says that my "comparison of specimens from Colorado and the Cascade Mountains has no bearing on the case. The status of the Alaskan form, which is the question at issue, is not touched. . . . Mr. Osgood should probably have named the Alaskan form instead of that from Colorado." The fact remains that he did *not* do so; and Mr. Allen's half-page of criticism is therefore somewhat superfluous. It is almost unnecessary to add that the White-tailed Ptarmigan from Alaska, though only one female specimen in autumn plumage was available for comparison, was named without loss of time, and now appears as *L. l. peninsularis* (cf. Chapman, Bull. Am. Mus. N. H. xvi. p. 236). As a subspecies it will no doubt compare favourably with the various forms of *L. rupestris* recognised by American ornithologists.

As regards the discussion about the Canada Grouse and the Turkeys, it would be a waste of space to continue so unprofitable a controversy; but I should like to acknowledge Mr. Allen's apologies respecting Vicillot's name of the North-American Turkey (cf. Auk, 1902, p. 420), and to thank him for them.

In the October number of the 'Auk' (1902, pp. 336-391, pls. xiv. & xv.) Mr. E. W. Nelson has published a series of notes in which he attempts to justify his belief in the existence of other North-American and Mexican species of Game-Birds which I was unable to recognise as distinct. Having already given my reasons for proposing to suppress a number of these names, it is unnecessary to repeat them. There are, however, certain points in Mr. Nelson's paper which cannot be allowed to pass without remark.

†COLINUS VIRGINIANUS MACULATUS Nelson.

I have again looked over our series of *C. texanus*, and compared typical male examples from Western Texas with males from Tamaulipas obtained at Xicotencal, Sota la Marina, and Sierra Madre, above Ciudad Victoria, which must be typical of Mr. Nelson's *C. v. maculatus*, and again I fail to see any differences whatever between them. The male from Alta Mira (*cf.* Auk, xix. pl. xiv. fig. 6) is apparently an abnormally dark specimen, while the photograph of the typical *C. texanus* (fig. 5) must have been taken from an unusually light bird.

In the original description of *C. v. maculatus* (*cf.* Auk, xvi. p. 26) we read:—

“Lower neck and fore part of breast usually *plain dull rufous*; rest of lower parts, including lower tail-coverts, of the same colour, heavily marked on borders of feathers with black and white spots on sides of feathers near tips.”

In the description of plate xiv. we find the same specimen described as having:—

“Breast and rest of under parts to crissum *dark rufous*, spotted and mottled more or less sparingly with black and white.”

Which of these two descriptions are we to accept as correct?

It is evident from the “Remarks” added to the original description that Mr. Nelson's series of *C. v. maculatus* exhibits considerable variation *inter se*, for he writes:—

“The series at hand shews conclusively that *C. v. texanus* grades through the present bird directly into *O. (sic) graysoni*, thus reducing the latter to a subspecies of *O. (sic) virginianus*.” Mr. Nelson can hardly expect ornithologists to accept this extraordinary statement! *C. graysoni* belongs to an entirely different section of the genus.

‡COLINUS GRAYSONI NIGRIPECTUS Nelson.

Mr. Nelson now finds that the type of this “subspecies” has nothing to do with *C. graysoni*, but differs from *C. pectoralis*, to which I referred it, in being decidedly larger.

Both Dr. Sharpe and I examined the typical specimen of *C. g. nigripictus* sent to the British Museum for comparison, and were unable to distinguish it from the type of *C. pectoralis*. Dr. Sharpe subsequently wrote to Mr. Nelson to that effect.

+ COLINUS MINOR Nelson.

In the original description of this species (*cf.* Auk, xviii. p. 47) we read :—

“Rest of head and *broad collar* around lower border of white throat-patch *black*.”

In ‘Auk,’ xix., in the description of plate xiv., we find the type has a

“*Narrow, poorly-defined black collar* below white throat-patch, &c.”

How are we to reconcile these two statements? Can the Quail change its collar?

+ CYRTONYX MONTEZUMÆ MEARNSEI Nelson.

As regards *C. m. mearnsi*, I may remark that, while admitting that the size of the white spots on the sides and flanks varies in different individuals of *C. montezumæ*, I would point out that this cannot be of any geographical significance, since a large-spotted male specimen from Puebla is quite indistinguishable from those obtained in South-western Texas and Arizona. Every intermediate stage connecting the largest- and smallest-spotted specimens can be found.

+ CYRTONYX MERRIAMI Nelson.

On p. 391 of Mr. Nelson’s paper, under the heading *Cyrtonyx merriami*, which, after reading his original description (*cf.* Auk, xv. p. 48), I placed as a synonym of *C. sallæi* (*cf.* Ibis, 1902, p. 242), I find the following :—

“The foregoing authoritative disposal of *C. merriami* made me almost fear that Mr. Grant held the power to make the ‘tiger change his spots.’ On examination of the type of *C. merriami*, however, I find that the color-characters between it, *C. montezumæ*, and *C. sallæi* are such that a photograph brings out some of the most salient differences.”

We never heard of the *tiger* changing his spots; but if we may believe what Mr. Nelson writes, his "Quail" is undoubtedly able to do so. In the original description of *C. merriami* we find the following:—

"On the posterior portion of the flanks the white spotting is replaced by spots of *buffy and chestnut*."

In the October number of the 'Auk,' on the sheet facing plate xv., we find the same specimen described:—

"Distribution of color on sides of breast and flanks similar to same in *C. montezumæ*, but ground-color paler grey and *white* spots smaller."

Which of these descriptions is correct? Obviously both cannot be, and, so far as one can judge from the indifferent photograph on plate xv., the type specimen agrees with the latter description and has the entire flanks spotted with white.

Turning again to the original description of *C. merriami*, we read that the light shaft-streaks on the back of the neck become more intensely coloured posteriorly, "until on the larger scapulars and tertiaries they are almost or quite *chestnut*"; that the tertiaries are marked with *oblong black spots*, more like bars; and that the chestnut area on the breast and belly is of a *lighter* shade than in *C. montezumæ*. Any "competent ornithologist" reading the above, and bearing in mind the *buff* and *chestnut spotting* on the flanks, must be aware that the type of *C. merriami* should not have been compared with *C. montezumæ* but with *C. sallæi*, which possesses all these characteristics.

Now it will be seen that the type shown in the photograph is a very different bird, apparently a specimen of *C. montezumæ*!

The fact that in the type of *C. merriami* the black on the throat joins the chestnut on the breast without the intervention of a white collar is probably a mere individual character, and of little importance as specific or sub-specific. It may even be caused by the "make-up" of the skin, for the white collar in *C. sallæi* is at best very narrow. The British Museum possesses two male specimens of *C. texanus*, which are unquestionably merely individual

varieties, with the chin and middle of the throat black, as in the Common Quail (*Coturnix coturnix*), instead of pure white. The knowledge that such individual variation may and does occur should make writers cautious in accepting such a character as of any specific value.

I must mention that the bird figured by Mr. Nelson as *C. sallæi* does not appear to be of that species, but that the photograph does not shew up the characters very clearly.

These are a few instances of the inaccuracy of Mr. Nelson's descriptions; and it is evident that his "intimate knowledge of the topography and geographic distribution" does not necessarily establish his claims as an ornithologist.

I may add that, for those who have not had the advantage of twelve years' travel in Mexico, an exceptionally good atlas, with large maps of each State, is available, viz. Cuba's 'Atlas Geografico y Estadistico de los Estados Unidos Mexicanos' (Mexico, 1886).

XII.—Notices of recent Ornithological Publications.

1. 'Annals of Scottish Natural History.'

[The Annals of Scottish Natural History. No. 43, July 1902, and No. 44, October 1902.]

Mr. T. G. Laidlaw's valuable "Report on the Movements and Occurrence of Birds in Scotland during 1901" is continued in the July number and concluded in that of October. The same remark applies to Mr. Harvie-Brown's contribution to the avifauna of the Outer Hebrides, with the exception that the species treated by him reach no further than the Rallidae, so that we must wait until January for the conclusion of this paper. Every student of the distribution of birds in North Britain will read these articles with attention, but the principal rarities have been already recorded; as regards the minor notices, there are none which call for special remark in these pages.

H. S.

2. *Arrigoni degli Oddi on the Harlequin Duck in Italy.*

[Cattura di due "Cosmonettæ histrionicæ" (*Moretta arlecchino*) per la prima volta in Italia comunicazione di Guido Falconieri di Carpergna per parte del Conte Prof. Ettore Arrigoni degli Oddi. Boll. Soc. Zool. Ital. (ser. 3) Ann. xi, 1902.]

The occurrence of the Harlequin Duck (*Cosmonetta histrionica*) in Italy is now registered for the first time. Two young examples of this high northern form were obtained in the estuary of the Po on the 2nd of March, 1902.

3. 'The Auk.'

[The Auk. A Quarterly Journal of Ornithology. Vol. xix. Nos. 3 & 4, July and October 1902.]

In the July number Mr. H. W. Henshaw gives a very interesting account of the species of the genus *Chasiempis* found on the Hawaiian Islands and their distribution over that group. Mr. John Grant Wells follows with an article on the Water-birds of the island of Carriacou, a dependency of Grenada, and situated about twenty miles to the northward of it. Its Land-birds are enumerated in the October part. Owing to the absence of forest, several woodland species found in St. Vincent and Granada are not represented in Carriacou, but its extensive swamps are highly attractive to aquatic and wading birds, and the notes on the species which breed there are of considerable interest. Mr. W. Hubbell Fisher, having had his attention called, by a passage in Mr. F. M. Headley's 'Structure and Life of Birds' (1895), to the use of the bastard wing for checking flight in the domestic Pigeon, has found, from study and photographs taken at Munich, that this natural "break" is also put "hard down" by the Stork when preparing to alight. Dr. Jonathan Dwight's paper on Plumage-cycles and the relation between Plumages and Moults requires close study, and an abstract would hardly do it justice, but his table illustrative of the sequence of these changes has a plausible appearance and may stand the test of extended use. British ornithologists will take especial interest in Mr. O. P. Hay's account of the finding of some bones of the Great Auk in a

large and ancient Indian " midden " on the coast of Florida. The birds to which these bones belonged may possibly have been captured some distance to the northward; but, in any case, this discovery is a strong confirmation of the accuracy of Catesby's statement (1731-43) that the " Penguin " was found in winter off Carolina. Mr. Austin H. Clarke gives a list of 57 species and subspecies of birds obtained on Margarita Island, Venezuela, where Capt. Wirt Robinson found 73 during a longer visit in 1895. The unusual abundance of the Snowy Owl in Canada and New England during the winter of 1901-02 forms the subject of a paper by Mr. Ruthven Deane, and it would appear that exceptionally large flights of this bird occur at intervals of ten or fifteen years; near Belle Isle Strait the fishermen had " been living on them," and outside Toronto many had been taken or shot " while feeding on dead horses or cattle." Among the general notes are records of our Old-World Wigeon in Michigan and an account of the destruction of *Phalaropus fulicarius* on migration by striking a lighthouse in North Carolina. The eleventh Supplement to the American Ornithologists' Union Check-list of North-American Birds must be studied by the systematist, and the writer of this review may be pardoned an expression of satisfaction at noticing the elimination of *Larus argentatus smithsonianus*—thanks to the broad views of Prof. J. A. Allen and others.

In the October part, Mr. B. S. Bowdish gives the first portion of a list of the birds of Porto Rico, which he began to study in 1898. Mr. Robert E. Snodgrass has a rather long (15 pp.) paper on the genus *Geospiza* of the Galápagos, the gist of which is that there is no correlation between the food and the size of the bill, and that an explanation of the variation of the Geospizine bill must be sought elsewhere. Mr. E. W. Nelson's " Nomenclature and Validity of certain North-American Gallinæ " brings us to contentious matter between him and Mr. Ogilvie-Grant, and, inasmuch as the remarks of the latter are appearing in our pages, we abstain from offering an opinion, but reference may be made to " Correspondence " in 'The Auk,' p. 419. Mr. W. A. Bryan's

record of occurrences of the Arctic Tern (*Sterna macrura*) in the Hawaiian Islands helps to fill in the links in the chain of distribution of this species. H. S.

4. 'The Avicultural Magazine.'

[The Avicultural Magazine; being the Journal of the Avicultural Society for the Study of Foreign and British Birds. Vol. viii. Nos. 11 and 12, 1902.]

These two parts of the 'Avicultural Magazine' contain a large number of papers of considerable interest, for the most part concerned with but one kind of bird; but Mr. J. L. Bonhote's "Field Notes on some Bahama Birds" is a notable exception. He gives a good idea of the nature of the country and of the habits of the various species.

5. Benham on an Egg of the Moa.

[Note on an Entire Egg of a Moa, now in the Museum of the University of Otago. By W. B. Benham, D.Sc., M.A., F.Z.S. Trans. & Proc. N.Z. Inst. xxxiv. pp. 149-151, pl. vii., 1902.]

The author describes the "absolutely uninjured egg" of a Moa, which was brought up by a "dredge-hand" working on the Barnsleigh gold-dredge in the river Molyneux, Otago, and is now in the Otago Museum. A second egg was obtained by the same man about two months later. Its length was $7\frac{3}{4}$ inches, its breadth $5\frac{1}{4}$ inches, and its equatorial circumference $16\frac{7}{8}$ inches. The egg is figured on a reduced scale.

6. Berlepsch on new South-American Birds.

[Mitteilungen über neue und seltene südamerikanische Vögel. Von Graf Hans von Berlepsch. Verh. d. V. Intern. Zool. Congr. z. Berlin. Jena, 1902.]

Graf v. Berlepsch describes a new Tinamou, *Nothoprocta fulvescens*, from S.E. Peru (*Garlepp*), and makes remarks on other rare birds from S. America (*Chlorochysa*, *Penelope*, *Ægialitis*, &c.).

7. *Boutourlin on some Birds of Eastern Livonia.*

[Zametki o Nickotorykh Ptitzakh bostotchnoi Liflandii. S. A. Boutourlina. Iz Drevniika Zoologiticheskavootdieleniya Imperatorskavo Obschestvaliubitelci estestvoznaniya, t. iii. no. 3. Moskva, 1902.]

These notes refer to the country round Marienburg in the district of Valk, where it seems that the brown-backed form of the Marsh-Titmouse (*Parus palustris*) is the common species, and not *Parus borealis* as stated by Prof. Menzbier. The Starling of those parts is *Sturnus sophiæ* Bianchi, which, Mr. Boutourlin says, is always distinguishable from *Sturnus vulgaris*. It is also stated that *Mergus serrator* breeds commonly in East-central Livonia, in lat. 57° 26' N. and long. 44° 48' E. H. E. D.

8. *Brewster on North-American Birds.*

[On the Occurrence in Massachusetts of certain rare or interesting Birds. By W. Brewster. Auk, 1901, pp. 135-137.

An Ornithological Mystery. By W. Brewster. *Tom. cit.* pp. 321-328.

An undescribed Form of the Black Duck (*Anas obscura*). By W. Brewster. *Op. cit.* 1902, pp. 183-188.]

In the first of these articles the subjects are *Mareca penelope*, *Nettion crecca*, *Anser albifrons gambeli*, *Rallus crepitans*, *Hematopus palliatus*, and *Stric pratincola*; in the second is contained an account of the voice of an unknown Rail heard at Cambridge, U.S.A.; in the third a new subspecies, *Anas obscura rubripes*, is proposed.

9. *Coburn's Ornithological Expedition to North Iceland.*

[Brief Notes on an Expedition to the North of Iceland in 1899. By F. Coburn. Zool. 1901, pp. 401-419.]

Mr. Coburn gives us a most interesting account of his explorations in the north of Iceland, while the information that he provides shews that new discoveries are still to be made even in countries that have apparently been well worked as regards their ornithology. His observations extend to some sixty-six species of birds, among which may be mentioned a Redwing which has been described as a new form (*Turdus coburni*) by Dr. Sharpe (Bull.

B. O. C. xii. p. 28). Mr. Coburn, moreover, considers the Meadow-Pipit of the island separable from *Anthus pratensis*, as did Faber before him; but more important in our eyes than these identifications are the reports of the breeding of Hornemann's Redpoll and the American Wigeon, coupled with the discovery of the exact nesting-place of the Grey Lag Goose.

10. Coburn on *Anser gambeli*.

[On the Specific Validity of *Anser gambeli* (Hartlaub) and its position as a British Bird. Zool. 1902, pp. 337-351.]

The author expresses his complete agreement with Mr. J. H. Gurney's contention that *Anser gambeli*, *A. albifrons*, and *A. erythropus* are distinct species. He says that, in addition to the fact that *A. gambeli* has a larger and heavier bill and darker under parts than *A. albifrons*, it has also a considerably longer neck. In the immature and breeding stages the birds are much more easily distinguishable than in that of winter, as will be seen from the descriptions given in the article. All the specimens are from Ireland, and shew changes of coloration independent of the moult.

11. 'The Emu.'

[The Emu, a Quarterly Magazine to popularize the Study and Protection of Native Birds. Vol. ii. pts. 1 & 2. July and October, 1902. Melbourne.]

The official organ of the Australasian Ornithologists' Union, edited by Messrs. A. J. Campbell and A. Kendall, continues to make steady progress, and we have now before us the two first numbers of the second volume. Capt. Hutton, of Christchurch, N.Z., contributes a good paper on Penguins; Mr. A. G. Campbell writes of the birds of N.E. Victoria; and Mr. R. Hall continues his notes on a collection from the Fitzroy River in North-western Australia, where many rare species are found. An enormous nest-mound of the Mallee-bird (*Lipoa ocellata*) is described and figured by Mr. Milligan.

12. *Erlanger on the Ornithology of Abyssinia, Galla-land, and Somali-land.*

[Zoogeographie und Ornithologie von Abyssinien den Galla- und Somali-Ländern. Von Carlo, Freiherrn von Erlanger. Ber. Senckenb. nat. Ges. 1902, p. 155.]

This is an address delivered before the Senckenbergian Society of Frankfort-a.-M. by Carlo, Freiherr v. Erlanger, on the 8th of March, 1902, concerning his recent expedition through Somali-land, Galla-land, and Southern Abyssinia. The route is clearly shown on an accompanying map, and the lecture contains much useful information on the geography and ornithology of the various districts traversed. The writer made a large collection of bird-skins—about 8000 in all, referable to some 800 species—concerning which we shall, no doubt, hear much more, when they have been thoroughly worked out. Eight new species have already been described in the ‘Ornithologische Monatsbericht’ (1901, p. 181).

13. *Finn on Abrupt Variation.*

[On some Cases of Abrupt Variation in Indian Birds. By F. Finn, B.A., F.Z.S. J. A. S. B. lxxi. pt. ii. pp. 81–85.]

The author discusses albinistic variation in *Dissemurus paradiseus*, *Æthiopsar fuscus*, *Acridotheres tristis*, and *Machetes pugnax*, and gives a note on *Gallus pseudhemaphroditus* of Blyth.

14. *Fisher on vanishing Game-Birds.*

[Two vanishing Game-Birds: the Woodcock and the Wood Duck. By A. K. Fisher. Reprint from the Yearbook of Department of Agriculture (Washington) for 1901, pp. 447–458.]

The two birds mentioned being in great danger of extinction, attention is called in this paper to the advisability of protecting them, and methods of procedure are suggested. Tables are also given to shew the close and open seasons in the various States.

15. *Gadow on Phalacrocorax harrisi.*

[The Wings and Skeleton of *Phalacrocorax harrisi*. By H. Gadow. Nov. Zool. ix. p. 169.]

Dr. Gadow describes the wings and the skeleton of the great flightless Cormorant of the Galapagos, *Phalacrocorax harrisi*, discovered in 1897 (see *Ibis*, 1900, p. 206), and points out its extraordinary peculiarities.

This Cormorant has the functional primaries reduced to nine and the secondaries to fifteen in number; the bones of the wing, moreover, are much inferior in length and strength to those of the ordinary species. Other differences are carefully pointed out and illustrated by two plates.

16. *Hartert on his Travels and Researches.*

[Aus den Wanderjahren eines Naturforschers. Von Ernst Hartert. II^{te}, III^{te}, & IV^{te} Abschnitt. Nov. Zool. ix. pp. 193-272.]

Mr. Hartert continues, and brings to a conclusion, the very interesting account of his travels and expeditions in various parts of the world, of which we have already noticed the first portion (*cf.* *Ibis*, 1902, p. 150).

The first of the three sections now given relates to Sumatra, Malacca, and India. As regards Sumatra, the author gives a complete list of the birds as yet recorded—from his own researches and those of others—to occur in the vicinity of Deli, and enumerates 212 species, adding many valuable notes. There are no less than nine Hornbills in this district, among which are some of the largest and the most remarkable of the family, such as *Buceros rhinoceros* and *Rhinoplax vigil*. The third chapter of the second section is devoted to Salanga, an island off the south coast of the Malay Peninsula, which the author visited in 1888. It seems to be a most attractive place. Its avifauna had been already worked at by Aug. Müller (*v. J. f. O.* 1882), but Mr. Hartert was able to make some additions.

Mr. Hartert then proceeded to the protected State of Perak (where our friend Sir Hugh Low first introduced the *pax Britannica*) and found it a “paradise for zoologists,”

while it is hardly less attractive to the student of "Wild Man." A visit to Gunong Ijau may be strongly recommended to any traveller in this part of the world. From Calcutta, whither he now proceeded with the late William Doherty, visits were made to some of the most interesting places in British India, and amongst other great sights a view of Kinchinjunga from Darjeeling was obtained, and the wonders of Benares, Agra, Delhi, and Jaipur were inspected. Bird-notes were made at all these places. The return home was effected by Bombay, Aden, and the Suez Canal.

In the third section of his travels Mr. Hartert takes us to the New World, where he visited some of the less-known Caribbee Islands and the adjacent mainland. In May 1892, accompanied by his wife, he crossed the Atlantic to St. Thomas and La Guaira, whence an excursion was made to Caracas. Then the three Dutch West-Indian Islands of Curaçao, Aruba, and Bonaire were thoroughly explored, and materials were accumulated for the excellent memoir on the birds of those islands published in this Journal (*Ibis*, 1893, p. 289). A revised synopsis of the ornithology of the three islands is now given, 56 species being enumerated; while *Coturniculus savannarum caribæus* and *Xanthornus icterus ridgwayi* are introduced as new subspecies.

The fourth and last section of Mr. Hartert's "Naturalist's Journal" gives us an account of his spring-visit to Morocco and Teneriffe in 1901. After touching at Gibraltar and Casablanca, a most interesting excursion into the interior was made from Mazagan, and several scarce birds were met with (e. g., *Francolinus bicalcaratus* and *Comatibis eremita*). From Mazagan our traveller crossed the sea to Teneriffe, and, after a short but enjoyable stay there, returned home by Madeira.

The final chapter of Mr. Hartert's journal is devoted to a review of the birds of Mazagan and Middle Morocco, in which 83 species are treated. Several new "subspecies" are given—*Turdus merula mauritanicus*, *T. m. cabreræ* (from Teneriffe), *Passer hispaniolensis mallæ* (from Malta), and

Galerida cristata riggenbachi (from Mazagan); while a new genus (*Diplooticus*) is proposed for *Ruticilla moussieri*, which, however, in our opinion is quite unnecessary, though the bird certainly has somewhat of the habits of a *Pratincola*.

17. *Hartert on the Birds of the Kangean Islands.*

[The Birds of the Kangean Islands. By Ernst Hartert. Nov. Zool. ix. p. 419.]

The Kangean Islands lie north of Bali and due east of Madura in the Java Sea. Dr. Vorderman is the only naturalist who has visited them (see Nat. Tijdschr. v. Ned. Ind. lii. 1893). Mr. Prillwitz has now sent a collection to the Tring Museum, upon which the present paper is based. It enumerates 78 species, the majority of which are naturally of Javan origin. *Dicrurus suluensis* from Sulu and *D. dohertyi* from Obi Major are described as new, and *Mixornis prillwitzii*, *M. everetti*, and *M. flavicollis* are figured on plate xiii.

18. *Hett on Popular and Local Bird-names.*

[A Glossary of Popular, Local, and Old-fashioned Names of British Birds. By Chas. Louis Hett. 12mo. London: Sotheran & Co., 1902. Pp. 114. Price 1s.]

This compilation will be found of considerable use to those who work at British Birds, as the glossary seems fairly exhaustive, while the List of the British Ornithologists' Union is reprinted in addition.

19. *Johnston on the Birds of Uganda.*

[The Uganda Protectorate, an attempt to give some Description of the Physical Geography, Botany, Zoology, Anthropology, Languages, and History of the Territories under British Protection in East Central Africa, between the Congo Free State and the Rift Valley and between the first Degree of South Latitude and the fifth Degree of North Latitude. By Sir Harry Johnston, G.C.M.G., K.C.B., &c. 2 vols. Royal 8vo. London, 1902. Hutchinson & Co.]

Sir Harry Johnston's Monograph of Uganda is, of course, not a "bird-book" in the ordinary sense of the term; but

it contains a great deal about birds and should be studied by every ornithologist. It is the best illustrated book that we have ever seen, containing more than 500 text-figures taken from drawings and photographs by the author and his friends, besides 48 fully coloured plates prepared by the author, and an instructive set of maps. Many of the coloured plates illustrate characteristic forms of African bird-life, such as Touracos, Barbets, *Balaniceps*, *Nettapus*, and *Helotarsus*. They are somewhat artistic in treatment, no doubt, but give a much better idea of the appearance of such remarkable forms to the field-naturalist than would be obtained from plates prepared from stuffed specimens.

In the course of his first six chapters the author pilots his readers over one of the most diversified portions of tropical Africa, from the low wastes of the Eastern Province across the Mau Plateau to snowy Ruwenzori and the great Congo Forest. Frequent allusions to birds and their ways will be found throughout, both in the text and in the figures. The account of the climb up Ruwenzori is of the greatest interest. Sir Harry believes that the highest point of this massive range of mountains will be found to reach to an altitude of nearly 20,000 feet, and to be the highest land in Africa. Here is a fine field for the exploring naturalist, as yet almost untouched!

The last chapter of the first volume of Sir Harry's work is devoted to a general sketch of the zoology of Uganda. The avifauna of Uganda is graphically described as follows:—

“The Uganda Protectorate is very rich in birds. In no other part of Africa that I have ever visited has bird-life seemed so abundant and so omni-present. In attempting to describe the landscape in the first chapters of this book, it has been constantly necessary to refer to the bird-element in the scenery. The least observant European sojourner in the Rift Valley must be conscious of the black chats with white patches on their wings, hopping about the settlements, courting, singing, fluttering their wings, and turning back their tails. The flamingos on Lakes Naivasha and Hannington, the colleges of marabout storks, the companies

of crowned cranes, the solitary stalking secretary-bird, the wheeling kites, the griffon-vultures, the black and white Egyptian vultures with yellow beaks and yellow legs, the gorgeous, glossy starlings, with their plumage of iridescent blue-green and copper-red, the brightly coloured or extravagantly plumed widow-finches and weaver-birds are all familiar objects in the landscapes of the Eastern Province. The grey parrots, and the many richly plumed plantain-eaters and turacos in the forests of the Central, Western, and Uganda Provinces, the screaming fish-eagles, the brown *Necrosyrtes* vultures, the grey *Spizaetus* eagles, and the handsome bataleur and black-crested eagles, the sun-birds, barbets, green parrots, green pigeons, blue and mauve rollers are seldom absent from one's sight in the daytime as one traverses the forests and the grassy down-country in Uganda, Toro, Busoga, and Elgon. The shores of the Victoria Nyauza and of the other lakes, the marshes and back-waters of the Nile, are frequented by countless water-birds, by whale-headed storks and saddle-billed storks, by herons of gigantic size or minute rail-like form—herons that are snow-white in many species, or dark slaty blue or fawn-colour; by spur-winged geese, Egyptian geese, knob-nosed ducks, and the exquisite little 'pygmy goose'; by pelicans, cormorants, and darters, to name only a few among the more prominent types."

A "tentative list" of the birds hitherto recorded from the Uganda Protectorate, prepared by Mr. Charles Chubb, and arranged according to the classification of the new 'Hand-list,' contains the names of 771 species, to which many more will, no doubt, have to be added.

20. *Legge on the Birds of Tasmania.*

[Notes on the Birds of Tasmania: Systematic List of Tasmanian Birds. By Col. W. V. Legge, F.L.S., &c. Papers & Proc. R. Soc. Tasmania, 1900-1901, p. 90.]

Our old friend Col. Legge, President of the Australasian Ornithologists' Union, contributes a revised systematic list of the birds of the Colony in which he now resides to

the 'Papers and Proceedings' of the Royal Society of Tasmania. A short preface explains the causes of the poverty of the Tasmanian avifauna.

21. *Madarász on a new Blue-throat.*

[Ein neues Blaukehlchen. Von Dr. Julius v. Madarász. Természet. Füzetek, xxv. p. 489.]

The new *Cyanecula discessa* is founded on five specimens collected by M. Härms in Transcaspia and Persia; it is nearest to *C. suecica*, but the throat is "flax-blue." The range of *C. suecica* is generally considered to extend into Cashmere and Northern India, so it would be curious to find a distinct species in Transcaspia (*cf.* Radde, Orn. Caucas. p. 249).

22. *Mearns on Three new North-American Birds.*

[Descriptions of Three new Birds from the Southern United States. By Edgar A. Mearns. Proc. U.S. Nat. Mus. xxiv. pp. 915-926, 1902.]

Two of these forms, *Coturniculus savannarum floridanus* and *Progne subis floridana*, are, as their names denote, from Florida; while the third, *Sitta carolinensis nelsoni*, is from the wooded mountains of Chihuahua and Sonora and of the adjacent States of N. America.

We confess that we are a little uneasy about the rapid growth of the list of North-American "subspecies."

23. *Neumann on the Results of his last African Expedition.*

[Kurze Mitteilung über die zoologischen Resultate meiner Expedition durch Nordost-Afrika, 1900-1901. Von Oscar Neumann. Jena, 1902.]

Herr Neumann gives us here an account of his expedition to the western and southern districts of Abyssinia and Somaliland, of which the fauna has been much less investigated than that of the eastern portions. From Gjidessa and the mountainous woodlands of Gara Mulata to the south-west of Harrar he proceeded to the Erer and Hawash valleys, and so to the Blue Nile and the Kaffa Province. He lays stress on the palearctic species of birds which he found in the northern

regions visited and on the distribution of the forms found throughout his journey.

24. Neumann on new African Birds.

[Ueber neue und wenig bekannte ostafrikanische Vögel. Von Oscar Neumann. Ornithologische Monatsbericht, 1901, pp. 183-185.

Diagnosen neuer Vogelarten aus Süd-Aethiopien. *Id. op. cit.*, Jan. 1902.

Neue afrikanische Vögel. *Id. op. cit.*, Sept. 1902.]

In the first article the author discusses the differences between *Mesopicus spodocephalus* Rüpp. and *M. rhodogaster* Fisch. & Reich., and describes as new *Dendropicus nandensis* from Nandi, E. Africa, and *Calamocichla jacksoni* from Entebbe, Uganda.

In the second he gives diagnoses of *Francolinus nigrosquamatus* sp. n., *Dendromus niger* sp. n., *D. permistus kaffensis* subsp. n., *Amblyospiza ethiopica* sp. n., *Muscicapa reichenowi* sp. n., *Chloropeta natalensis umbriniceps* subsp. n., and *Zosterops kaffensis* sp. n.

In the third article *Astur tachiro nyansæ* is described as a new subspecies from Victoria Nyanza, and *Zosterops smithi* as a new species from Somali-land.

25. Newton's 'Ootheca Wolleyana.'

[Ootheca Wolleyana: an Illustrated Catalogue of the Collection of Birds' Eggs formed by the late John Wolley, Jun., M.A., F.Z.S. Edited from the Original Notes by Alfred Newton.—Part II. Picariæ—Passeres. London: Porter, 1902.]

Many of our readers will be as pleased as we were when we heard that Professor Newton was engaged in finishing the first volume of the 'Ootheca Wolleyana,' the former portion of which was issued in 1864, so that the volume is now completed.

In the first portion of the 'Ootheca' the Accipitres and Striges were treated. In the second we have an account of the eggs of the Picariæ and Passeres in the Wolley Collection. We have also, as an introduction, a memoir of Wolley, which will be read with interest by all ornithologists.

Following the plan pursued in the former portion of the work, after the scientific and English name of each species Prof. Newton states the "clutches" or lots of its eggs contained in the Wolley Collection, and their number, and the exact date and locality at which they were procured, together with the authority. Other particulars are added where they can be given, especially extracts from Wolley's note-books—which in special cases are very full.

It must be understood that, although many other localities have furnished eggs for the 'Ootheca,' a very large proportion of them are from Wolley's original collections made in Lapland. Among the well-known names, which we find quoted as authorities, are those of Salvin, Tristram, Simpson, Lilford, Pastor Theobald, Hancock, and others. Altogether in the first volume 2797 sets or clutches of eggs are catalogued, with accompanying notes. It is hardly necessary to say that the whole of the letterpress is compiled and arranged with the care and correctness habitual to the Author of this work. Four excellent coloured plates illustrate some of the most noticeable eggs described. Besides these there are four lithographic views of scenery connected with bird-life, amongst which (Memoir, p. xxxv) is a view of Eldey Island, supposed to be the last home of the Great Auk. The frontispiece of the volume is an excellent portrait of John Wolley.

26. North on *Eremiornis*.

[Note on *Eremiornis carteri*. By Alfred J. North. Vict. Nat. xix. No. 5, Sept. 1902.]

Mr. North contends that the genus *Eremiornis* may fairly claim to be distinct from the allied Indian form *Schœnicola*, and figures the lower surfaces of skins of both forms taken from photographs (*cf.* Ibis, 1902, p. 608).

27. North on *Malurus leucopterus*.

[Note on *Malurus leucopterus* Quoy and Gaimard. By Alfred J. North, C.M.Z.S., Ornithologist. Records Austral. Mus. iv. pp. 209, 210.]

Mr. North shews that the *Malurus* of New South Wales,

referred by Gould (B. Austr.) to *M. leucopterus* Q. et G., has been wrongly identified, and should be called *Malurus cyanotus* Gould (Handb. B. Austr. i. p. 331, 1885), an alternative name proposed in case the bird of New South Wales should prove to be distinct. *M. edouardi*, recently described as new (Campbell, Vict. Nat. xvii. p. 203), is probably the same as the true *M. leucopterus*.

28. Oberholser on the Horned Larks.

[A Review of the Larks of the Genus *Otocoris*. By Harry C. Oberholser. Proc. U.S. Nat. Mus. xxiv. pp. 801-884, 1902.]

Mr. Oberholser reviews the species of Larks of the genus *Otocorys* (which he persists in mis-spelling *Otocoris*), and gives us a useful and instructive paper, although we can hardly believe that it would be possible to distinguish examples of some of his subspecies satisfactorily. The author allows only six species of the genus—*O. alpestris*, *O. atlas* (doubtfully), *O. longirostris*, *O. bilopha*, *O. penicillata*, and *O. berlepschi*, but “chops up” *O. alpestris* into twenty-three, *O. longirostris* into four, and *O. penicillata* into five subspecies. Our North-European species is called *O. alpestris flava*, while the name *O. alpestris alpestris* is assigned to the North-American bird. Now no one would accuse our friend Dr. Bowdler Sharpe of being a “lumper,” yet he quotes with approval (Cat. B. xiii. p. 544) the *dictum* of Mr. Henshaw that “the large Horned Lark of N. Europe cannot be separated from that of N. America.” Mr. Oberholser is of the contrary opinion, and this may perhaps make us hesitate to accept some of his seven new subspecies (*OO. aa. arcticola, enthymia, diaphora, actia, amorphila, aphrasta*, and *leucansiptila* from various parts of the North-American Continent) without further enquiry.

29. Pigott on London Birds.

[London Birds and other Sketches. By T. Digby Pigott, C.B., M.B.O.U. New Edition, revised and enlarged. London: Edward Arnold, 1902. 8vo. 256 pp. Price 6s.]

Mr. Digby Pigott kindly sends us a copy of the new

edition of his 'London Birds,' of which we formerly noticed the first issue (*Ibis*, 1893, p. 270). A pretty drawing by Mr. Thorburn of the "Cormorants' Rock" in St. James's Park forms an appropriate frontispiece to the present edition, and there are six other illustrations of bird-life. Several new chapters are added.

30. Reichenow's 'Birds of Africa.'

[Die Vögel Afrikas von Ant. Reichenow. Zweiter Band, Erste Hälfte. 4to. Neudamm, 1902. Pp. 384. Price 50s.]

The first half of the second volume of Dr. Reichenow's important work 'Die Vögel Afrikas' (*cf.* *Ibis*, 1901, pp. 142, 732) was issued in August last. It commences with the Psittacidae, after which follow the Musophagidae, Cuculidae, and other Picarians in order up to the Cypselidae, which are not quite finished. Altogether about 370 species are treated in the present half-volume. A few subspecies are introduced, not numbered as species, but designated *a*, *b*, *c*, &c.

Attached to this half-volume is an Atlas with three maps, and an alphabetical list of the localities designated in them, together with references to the places where they are to be found in the maps, and the names of the collectors who visited them. All this will be a very useful addition to the work, and, as we understand, will ultimately form a separate volume along with the coloured plates. Of these plates, five are given with the present part, representing *Macropygia fuelleborni*, *M. aurantiigula*, *Picathartes oreas*, *P. gymnocephalus*, *Penthetria psammocromia*, *Ploceus rufo-niger*, *Symplectes tephronotus*, *Turacus schuetti*, *T. emini*, *Podica senegalensis*, and *P. camerunensis*.

The species of African birds registered so far in the work are 929. We suppose that the Passeres still remaining will amount to at least as many more.

31. Richmond on new Birds from Siam.

[Descriptions of Two new Birds from Trong, Lower Siam. By Charles W. Richmond. Proc. Biol. Soc. Washington, xv. p. 157 (1902).]

Two new birds from a collection made by Dr. W. L. Abbott in the province of Trong, Lower Siam, are described and named *Stachyris chrysops* and *Oreocincla horsfieldi affinis* respectively.

32. Richmond on a new Goatsucker.

[Description of a new Subspecies of *Stenopsis cayennensis* from Curaçao. By Charles W. Richmond. Proc. Biol. Soc. Washington, xv. p. 159 (1892).]

The *Stenopsis* of Curaçao is separated as a new subspecies, *S. cayennensis insularis*, from a specimen sent to the U.S. National Museum by Capt. Wirt Robinson.

33. Richmond on new Birds from the Sumatran Islands.

[Descriptions of Eight new Birds from Islands off the West Coast of Sumatra. By Charles W. Richmond. Proc. Biol. Soc. Washington, xv. p. 187 (1902).]

Dr. W. L. Abbott has forwarded to the U.S. National Museum a collection of several hundred bird-skins from various islands off the west coast of Sumatra. Amongst them are examples of eight species presumed to be new, which are described and named as follows:—*Macropygia simalurensis*, *Psittinus abbotti*, *Thriponax parvus*, and *Hypothymis consobrina*, from Simalur Island; *Palaornis major* and *Hypothymis abbotti* from Pulo Babi; *Malacopteron notatum* from Pulo Bang-karu; and *Stachyris bangakensis* from Pulo Tuanku.

34. Rothschild on Birds from Russian Turkestan.

[List of a Collection of Birds made south of the Issik-kul in Russian Turkestan. By the Hon. Walter Rothschild. Nov. Zool. ix. p. 161.]

A collection made by Mr. A. Taneré in Anklam, south of Lake Issik-kul, contained examples of 68 species, among which were some of considerable interest. Notes on these and their allies are furnished. Mr. Rothschild maintains the distinctness of the Eastern Missel-Thrush as a subspecies—*Turdus viscivorus bonapartei*.

35. *Rothschild and Hartert on the Fauna of the Galapagos.*

[Further Notes on the Fauna of the Galapagos Islands. By the Hon. Walter Rothschild and Ernst Hartert. Nov. Zool. ix. p. 373.]

Besides most interesting additions to our knowledge of the Giant Tortoises of the Galapagos, this paper contains a series of notes on the birds recently obtained by Mr. Beck and other collectors, and concludes with a revised list of the species now known of this most remarkable avifauna. They are 108 in number. The whole of the Passeres (61), except *Hirundo erythrogastra* (a migrant) and *Dolichonyx oryzivorus* (an accidental visitant), are peculiar to the group. *Corvus corax clarionensis*, from Clarion Island, and *Speotyto cunicularia becki*, from Guadeloupe Island, are new subspecies. A good coloured figure is given of the flightless Cormorant (*Phalacrocorax harrisi*).

36. *Salvadori on a new Lark.*

[Nuova specie del genere *Ammomanes*. [Per] Tommaso Salvadori. Boll. Mus. Zool. ed Anat. Torino, xvii. no. 425.]

The author bases *Ammomanes assabensis*, sp. nov., on two specimens from Assab, on the western coast of the Red Sea, in the Museum of Turin, and a third in the Museum of the University of Rome. It is allied to *A. deserti*, *A. saturata*, and *A. akeleyi*.

37. *Seth-Smith on Parrakeets.*

[Parrakeets: being a practical Handbook to those Species kept in Captivity. By David Seth-Smith, F.Z.S., M.B.O.U. Part 2. August, 1902. R. H. Porter: London. Pp. 41-80 and 3 plates. Price 6s. net.]

The present part contains the genera *Conurus*, *Conuropsis*, *Cyanolyseus*, *Henicognathus*, *Microsittace*, *Pyrrhura*, *Myopsittacus*, *Bolborhynchus*, *Psittacula*, and *Brotogeris*, and gives—sometimes in considerable detail—the habits, food, and so forth. Coloured figures are given of *Conurus aruginosus*, *C. cactorum*, *Cyanolyseus patagonicus*, *Pyrrhura leucotis*, and *P. perlata*.

38. *Simon on Peruvian Trochilidæ.*

[Etude sur les Trochilidés observés au Pérou par G. A. Baer. Par Eugène Simon. Nov. Zool. ix. p. 177.]

In his journey through Eastern Peru, principally in the basin of the Huallaga, the entomological collector Baer obtained a series of Trochilidæ, which are referred to 25 species by M. Simon. *Metallura theresiæ* is described as new, and appears to be quite a distinct species. *Psalidopymnna gouldi chlorura* of Hartert (Tierr. p. 183) is renamed *P. pallidiventris*, and is represented as being allied to *P. gouldi* and *P. gracilis*, but is stated not to be the same as *Lesbia chlorura* of Gould.

39. *Winge on the Birds of the Danish Lighthouses, 1901.*

[Fuglene ved de danske Fyr i 1901. 19de Aarsberetning om danske Fugle. Ved Herluf Winge. Vidensk. Medd. f. d. naturh. Foren. i Kbhvn. 1902, pp. 259-323.]

This is the annual report on the birds met with at the Danish lighthouses (*cf.* Ibis, 1902, p. 163), and is illustrated by the usual excellent map, which shews the exact positions of the lights. In 1901, 670 specimens referable to 61 species were sent from 31 lighthouses to the Zoological Museum. A list of the species and various notes are given.

XIII.—*Letters, Extracts, Notices, &c.*

WE have received the following letters addressed to "The Editors":—

SIRS,—I was pleased to see the figure of the courting Robin in 'The Ibis' (1902, p. 678); for although I have for a good many years been familiar with this peculiar attitude as assumed by the Robin, I have never before seen a representation of it in any publication. As Mr. Ogilvie-Grant states that he does not find this courting habit mentioned in any book on British birds, may I refer him to

what I wrote on the subject in 'The Zoologist' for 1896 (p. 427)? When describing the habits of a pair of Blue-throated Warblers, I wrote :—"Presently, as I watched him, the male of the pair sang in an ecstasy, for his plain-coloured mate, which I could see, was creeping and hopping about among the growth of arctic birch close to where he settled, and *he was performing like a Robin*. His head and neck were stretched up, and his bill pointed nearly upwards; his tail was flirited up and down, or held at rather less than a right angle with his body, and his wings were drooped." This peculiar attitude is not confined to the male while actually courting the female, for I have known it assumed by two male Robins in rivalry in the presence of a female. I extract the following remarks from one of my note-books under the date March 30th, 1888 :—"Thus they faced each other, singing in a shrill constrained tone, at a distance of a couple of inches apart; then cuffed at each other once or twice, when one gave up and was chased by the other through the shrubbery." A rough pen-and-ink sketch of one of the Robins in this curious attitude accompanies the note. According to my experience, the body of the bird is not always quite so upright as in Mr. Lodge's drawing. The bill points nearly, but not quite, straight upwards, and the line of the body from the chin to the belly forms a gentle uninterrupted curve. But, of course, this may vary considerably in different cases.

Yours &c.,

O. V. APLIN.

SIRS,—In 'The Ibis' for 1901 (p. 517) I mentioned having seen some Dotterels (*Eudromias morinellus*) on the top of a mountain in Merionethshire on May 10th, 1901. On May 8th in the next year we went up this mountain again for the purpose of looking for these birds. We searched a great deal of ground without success, and at last, being half-numbed by the bitter gusts of icy wind (snow lying in patches about the summit), we began to descend. When crossing a slope covered with weathered stones interspersed with patches of grey-

green vegetation (moss, lichen, wiry grass, and heather only about an inch high) we suddenly and by mere accident came upon four Dotterels feeding among the stones ; and we realized how very easily these quiet little birds might escape notice among the barren tops, even when they were the especial objects of a search. With a wind so keen as to constantly cause one's eyes to fill with tears, one's powers of observation also are materially lessened ! The very tameness of Dotterel is a protection to them, for it would be quite easy to pass within a few yards of them without their rising on the wing or even moving. And brilliant as is the colouring of a full-plumaged Dotterel, when they are quite still among the greys and browns of a mountain-top they are really very inconspicuous. The white coronet on the head is the most conspicuous mark about a Dotterel, and this is especially so when the bird is running away from the observer. But we several times lost sight of one or other of these four, although they were not more than a dozen yards from us. When we had walked within ten yards of them, they even fed *towards* us, so tame were they. When feeding they pecked about among the moss and grass between the stones, turning up tufts of it and greedily eating something they found underneath. As usual, they were full of quaint actions, stretching out a wing or leg from time to time ; and one bird raised its wings high over its back, the tips being uppermost ; another scratched the side of its head with its foot. Two of these birds were in full dress, though one was finer than the other and really most beautiful. The others were dull-coloured birds, with the yellowish edges to the dorsal feathers broad, and the clear bright markings of the under parts wanting.

The Dotterel has seldom been recorded from any part of Wales. But I think the fact of our finding some on the same mountain early in May in two successive years points to the probability that they are regular visitors to the Cambrian mountains on their passage northwards in the spring.

It is, of course, just possible that the Dotterel may breed on some of the tops. The ground looks suitable. But a

search was made in June 1901, and nothing could be seen of the birds.

Yours &c.,

O. V. APLIN.

SIRS,—Reviewing Mr. Chapman's paper "On new Peruvian Birds" in the April number, 1902, pp. 337, 338, you made a remark as follows :—

"The *Chlorochrysa* (*Ch. fulgentissima*) is apparently the same as that described and figured in this Journal (*Ibis*, 1901, p. 716, pl. xv.) by Graf v. Berlepsch and M. Stolzmann as *C. hedwigæ* ; and, if so, Mr. Chapman's name (August 1901) will have priority."

In connection with this allow me to state that there cannot be the slightest doubt that *Chlorochrysa fulgentissima* Chapm. is the same as *Ch. hedwigæ* Berl. & Stolzmann. The question of priority is perhaps still open to some doubt. It is certain that the copies of the article containing the description of the *Chlorochrysa* by Mr. Chapman (bearing the impression "Author's Edition, extracted from 'Bulletin of the American Museum of Natural History,' vol. xiv. Article xix. pp. 225-228, New York, September 7th, 1901") were received here in the second part of the month of September, but some of my friends are of the opinion that Authors' editions extracted from a periodical and sent in advance of the publication of the periodical cannot be regarded as publications in the ordinary sense, because at that time they are not to be obtained through any bookseller, being only accessible to a limited number of writers, to whom they are sent voluntarily by the author of the article. Provided this be the general rule of authors, we have only to make an inquiry whether the number of the 'Bulletin of the American Museum of Natural History' containing the article xix. of Mr. Chapman, bearing the date August 1901, was really published in August 1901 or later, viz. earlier or later than the October number of 'The Ibis' of 1901. Unfortunately I am not able to give any statements in this connexion.

I may further remark that the MS. containing the description of *Chlorochrysa hedwigæ* was sent to the Editors of 'The Ibis' in June 1901, but unfortunately too late for publication in the July 'Ibis.' I also alluded to this new species, and explained its characters at the meeting of the Third Section of the Fifth International Zoological Congress at Berlin on August 14th, 1901*.

Regarding the other new species described in Mr. Chapman's article as above, I wish to inform you (1) that *Malacothraupis castaneiceps* Chapm. is evidently the same as *Malacothraupis gustavi* Berl. Journ. f. Orn. 1901 (January number), p. 85 (from Bolivia), and (2) that *Terenura xanthonota* Chapm. is no doubt identical with *Terenura sharpii* Berl. Journ. f. Orn. 1901 (January number), p. 97 (from Bolivia).

In both cases my names have the priority over those of Mr. Chapman.

Schloss Berlepsch,
Nov. 25th, 1902.

Yours &c.,

COUNT BERLEPSCH.

SIRS,—On the morning of the 17th inst. a gamekeeper shot a Glossy Ibis (*Plegadis falcinellus*) near here, and Mr. J. Cullingford, of Durham, to whom I sent it to be set up, reports it to be a male. The bird had been about for a few days, feeding on the low banks of a pool and in a marshy piece of land adjoining the water. I did not observe any red tinge on the head or neck, both of which were evenly and liberally streaked with grey; but the under parts were suffused with a very decided warm red tint, and the back, wings, and tail were glossed over with brilliant metallic green and purple. Length $22\frac{1}{2}$ inches, wing 11 inches.

Yours &c.,

High Ackworth, Pontefract,
Nov. 21st, 1902.

WALTER B. ARUNDEL.

* Cf. Verh. V. Intern. Zool. Congr. Berlin, p. 549; also see above, p. 116.

SIRS,—Since forwarding to you the MS. of my paper on *Athene chiaradiæ*, on the 4th and again on the 23rd of September last, I have been at Udine and have carefully examined in Mr. Vallon's house the two living specimens of the Black-eyed Civetta and their three yellow-eyed co-nestlings captured along with the parent birds in July last. I found the former perfectly similar to the two first specimens of *A. chiaradiæ* described in my paper, the latter slightly different from the young of the average *A. noctua*. On the 13th of November, 1902, Mr. Vallon sent me three of these small Owls which he had killed, for, being fully fledged and very wild, he feared that they might further damage their feathers, which were beginning to suffer. They were one *A. chiaradiæ* and two of the normal—co-nestlings; on dissection I found them to be all females. I was now able to make a careful comparison between the first and my type, and found it to be quite the same in all essential characters. Being better feathered it looks whiter, and its tarsi and toes are well covered with white feathers, just like the specimen figured by Martorelli; the top of the head is somewhat more spotted. The wing- and tail-feathers being perfect, I may note, moreover, that the four first primaries shew detached white blotches on the inner web: *two* on the 1st and 2nd, only *one* on the 3rd and 4th. On all the following remiges the white longitudinal margin on the inner web is *entire*, becoming very broad on the last. The narrow longitudinal white margin on the outer webs of all the primaries is very distinct, only on the *first four* is it notched, a trace of primitive division. On the tail-feathers the white longitudinal margins are *entire*; on the inner web there are white blotches inside the white margin, except on the two median rectrices, which have such blotches on both webs. *A. chiaradiæ* in this case is again a smaller bird with a proportionately smaller head than the normal Civetta.

The two normal co-nestlings (*A. noctua*), although of the same age, are distinctly larger in size; they are slightly aberrant from the usual type, more spotted on the top of the head

like both parents; they resemble the mother in being dark, but exhibit more white on the facial disc. Both shew a tinge of rose-colour at the base of the inner primaries and on some of the under wing-coverts, which is, I fancy, a character of young feathers. The other two of the same brood, one dark-eyed and the other yellow-eyed, are still alive in Mr. Vallon's house at Udine, the *A. chiaradie* having considerably spoilt its feathers.

I may here add that on the 19th of November I caused the singular albino *A. noctua*, from near Pisa, which I had kept alive from the beginning of the year, to be killed. It was in perfect plumage, but cage-life had produced a considerable malformation in its bill, and I wished to preserve it with the least possible damage. The main peculiarity which I had noticed in this specimen, now a big full-grown female, was the dark greenish-grey colour of the irides, which only under certain incidences of light shewed the red of the blood-vessels, being evidently only partially pigmented but quite enough to look black in ordinary aspects. When dead a closer examination shewed another remarkable character—the entire plumage is of a snowy white when viewed externally, except the middle portion of the tail-feathers and more slightly those around the base of the bill, which are tinged with yellow; but on lifting up the body-feathers and the inner wing-feathers I was surprised to find them all deeply tinged with a vinaceous rose-colour, very like that which is found on the bases of the feathers of certain Bustards in normal condition, namely in our *Otis tetrax*. In this albino Civetta the vinaceous tint extends nearly half up each feather from the base; it is much less marked on the feathers of the head. It looks as if *Athene noctua* as a species, in Italy at least, is in a curious state of instability.

Yours &c.,

R. Zoological Museum, Florence,
Nov. 27th, 1902.

HENRY H. GIGLIOLI.

SIRS,—A female example of *Emberiza pusilla* was procured at the Tees Mouth, near Seaton Snook, on the Durham side of the estuary, on Oct. 11th, 1902, by Messrs. Braithwaite and Millburn. It was submitted to Mr. Ogilvie-Grant, of the British Museum, for identification, and afterwards exhibited at the meeting of the British Ornithologists' Club on Oct. 22nd. As this is only the second known British specimen of this little Bunting, the record of its capture may be considered worthy of a place in the pages of 'The Ibis.'

Yours &c.,

T. H. NELSON.

The Cliffe, Redcar,
Dec. 1st, 1902.

SIRS,—In their paper "On a Collection of Birds from Shendi, Sudan," published in 'The Ibis' for January 1902, Messrs. Rothschild and Wollaston write (p. 32) of *Eupodotis arabs*:—"The chestnut axillaries are a good distinguishing character when the bird is flying." In the Brit. Mus. Cat. Birds, xxiii. p. 323, the axillaries of this species are described as "pure white," and they have certainly been white in about a dozen specimens which I have examined. Did Messrs. Rothschild and Wollaston really come across a species of *Eupodotis* with chestnut axillaries at Shendi, or is it possible that a note on some other species—*Glareola pratincola*, for instance—has been mutilated and mixed up with their note on the Bustard? This explanation suggests itself as the Pratincole is common at Shendi in the spring, but is not referred to in the paper above mentioned, and a reference to it would follow closely after the note on *Eupodotis arabs*.

Yours &c.,

A. L. BUTLER,

Superintendent of Game Preservation,
Khartoum.

Khartoum, Sudan,
Nov. 18th, 1902.

SIRS,—I have the pleasure of informing you that last autumn I bought, through Mr. Vallon's kindness, a splendid specimen of *Athene chiaradiae*, which is now in my collection. It is an adult male, and has been beautifully mounted by Prof. Martorelli; it was taken from the nest by Mr. Vallon, July 8th, 1901, on the Alps of Friuli. In my opinion this is the most interesting of the four specimens of this Owl which are known, because it was first described by Mr. Vallon and afterwards by Prof. Martorelli, who has also given an excellent photo of it. I consider it superfluous to repeat my previous statement that this supposed species is, in my opinion, founded upon aberrant specimens of our Little Owl (*A. noctua*).

Yours &c.,

COUNT E. ARRIGONI DEGLI ODDI.

Florence, Italy, Palazzo Panciatichi-
Ximenes, December 10th, 1902.

News of Mr. Nicoll.—Mr. M. J. Nicoll, M.B.O.U., who has been invited to accompany Lord Crawford as Naturalist on a tour round the world in the S.Y. 'Valhalla,' writes to us from Lisbon on Nov. 28th about the marine birds which he has observed, and concerning which he is keeping a regular journal. Shags, Cormorants, Gannets, and Gulls of several species were noted at the Balenga Islands. From Lisbon the 'Valhalla' will proceed to Madeira and St. Vincent, and thence to South Trinidad and down the South-American coast. Passing through the Straits of Magellan, the 'Valhalla' will visit all the principal groups of the South Pacific Islands and return home by the Suez Canal.

New Expedition to South America.—We are pleased to see an announcement in 'Nature' that Othmar Reiser, the well-known ornithologist of the Bosnian Museum at Sarajevo, will accompany a scientific expedition sent out by the Academy of Sciences of Vienna to South America. The

party will land in North Brazil, and proceed into the interior, to study the little-known fauna of Piauhy and Maranhao.

Travels of Capt. Boyd Alexander.—Capt. Alexander returned home from the Gold Coast in September last with a collection of some 250 birds, among which, however, were very few that he had not previously met with in that Colony. On the 25th of the same month he left again for West Africa, having obtained two months' leave, and on Oct. 26th was at Old Calabar, which he describes as "a splendid place, very prosperous, and quite different from the Gold Coast." In a few days he was expecting to leave for Fernando Po, and would thence go on to San Thomé, to make an ornithological reconnaissance of these islands.

The Position of the American Vultures.—The much-vexed question of the correct position of the American Vultures (Cathartidæ) in the 'Systema Avium' is discussed by Mr. Pycraft in his recently-issued paper on the "Osteology of the Falconiformes" (P. Z. S. 1902, vol. i. p. 277). So markedly do these birds differ from all other Accipitrine forms that such good authorities as Garrod and Forbes wished to place them in a separate Order. Garrod proposed to associate them with the Ciconiæ and Steganopodes, and Forbes to arrange them with the Ciconiæ and Tubinares. Mr. Pycraft agrees with Mr. Beddard that osteologically the Falconiformes are rather Gruine than Ciconiine. They have a "desmognathous palate of a quite peculiar type," which, however, is shown by the author to be nearly approached by *Psophia*. He concludes that the Cathartidæ are the least specialized members of the Accipitrine group, shewing their low generalized position by other parts of the skeleton as well as by the skull. We may safely regard them, he thinks, as the most primitive of the Falconiformes.

The Generic Term Ixoreus.—Among the “general notes” in the ‘Proceedings of the Biological Society of Washington’ for April last (vol. xv. p. 85) is one from Mr. Charles W. Richmond, insisting that the generic term *Ixoreus*, proposed by Bonaparte in 1854 (C. R. xxxviii. p. 3), should be used, on the ground of priority, instead of *Hesperocichla* of Baird (Rev. Amer. B. i. p. 12, 1864). Now I wish to say that, in my opinion, this change ought not to be made. Bonaparte expressly states that the type of his new genus *Ixoreus* “*n’est pas un Grive ni même un Chanteur, mais un Volucere Tæniopterien.*” Bonaparte (whom I knew well and with whom I was frequently in company about the time of the foundation of this generic name) was in the habit of “making his genera” by putting up a small paper label with the generic name in front of the type in the gallery of the Museum in the Jardin des Plantes. By some extraordinary mistake (for Bonaparte had an excellent knowledge of birds) he imagined that a specimen of *Myiotheretes rufiventris* in the gallery was the bird figured by Audubon as *Turdus naevius*. This was the reason why he stated (quite correctly) that the type of his genus *Ixoreus* was a “*Volucere Tæniopterien.*” I well recollect, although it is a long time ago, observing this error soon after it was made, whereupon I pointed it out to Bonaparte and to the late Jules Verreaux, who was with me at the time. Our American friends, therefore, may still safely use *Hesperocichla* for the Varied Thrush, *Turdus naevius*, although, in my opinion, it is hardly necessary to separate it from the genus *Turdus*.

If Mr. Richmond had taken the trouble to read what was written upon this subject forty-three years ago (see P. Z. S. 1859, p. 331), he would have saved himself from committing this (already corrected) blunder.—P. L. S. *See also P. Z. S.*

Baron Snouckaert van Schauburg’s Collection of Birds.—We learn from ‘Science’ (n. s. xvi. p. 717) that the collection of the birds of Holland formed by Baron Snouckaert van

Schauburg and mounted by a celebrated Dutch taxidermist has been purchased by the Carnegie Museum at Pittsburg, U.S.A. It numbers about eight hundred specimens, and contains examples of nearly all the species of Western Europe. Each is represented by both sexes in adult plumage, and in many instances by the young also. There are over three hundred species represented in the collection.

International Protection of Small Birds.—We are “pleased” to hear that more serious steps are likely to be taken on the Continent for the protection of small birds. We learn from ‘Science’ (n. s. vol. xvi. p. 277, 1902) that, encouraged by the constantly renewed resolutions of the Councils General and the Agricultural Societies, which deplored the systematic destruction of birds useful to agriculture, the French Government, in 1892, took the initiative in the matter by inviting the European Powers to send representatives to an International Commission on the subject. This Commission met in Paris in June 1895. After long negotiations the convention thus framed has now obtained the adhesion of France, Germany, Austria, Belgium, Spain, Greece, Hungary, Luxemburg, Portugal, Sweden, Switzerland, and the Principality of Monaco. All the other States are empowered by the terms of the agreement to adhere, if they think fit, to the convention for the protection of birds. The various contracting governments undertake to prohibit the employment of snares, cages, nets, glue, and all other means for the capture and destruction of birds in large numbers at a time. According to this general measure of protection, no one is to be allowed to capture or kill, between March 1st and Sept. 15th, any of the birds useful to agriculture, of which a complete list is contained in the International Agreement.

Sale of the late Dr. Stark's Eggs, Birds, and Books.—The eggs, bird-skins, and ornithological books of the late Dr. Stark were sold by auction at Stevens' Sale-rooms on

the 19th of June last year, but the notice of this event was accidentally omitted in the October number of 'The Ibis.' There were 127 lots in all, but the greater number of them were eggs. Most of these had been taken by Stark himself, who was a first-rate field-naturalist and collector (see 'Ibis,' 1900, p. 220). Many of the eggs were those mentioned in Irby's 'Ornithology of the Straits of Gibraltar' and in Baird, Brewer, and Ridgway's 'Birds of North America.' The prices obtained were, as a rule, very low. Some fine eggs of the Bearded Vulture, from Spain, fetched £2 2s.; of the Cinereous Vulture 12s.; of Bonelli's Eagle 8s.; of the Booted Eagle 6s. A nest with five eggs and two skins of the Blue Rock-Thrush (both sexes) brought 25s.; a nest of Savi's Warbler, with four eggs, 35s.; of Cetti's Warbler, with four eggs, 6s. Two eggs of the Great Bustard were sold for 7s.! Of the North-American lots a clutch of two eggs of *Buteo krideri* (referred to in the 'Birds of North America,' vol. iii. p. 284) fetched 35s., and a clutch of eggs of Bartram's Sandpiper, with a skin of the female, from Minnesota, together with other skins, brought only 14s. The books sold were few; the most important being a fine set of 'The Ibis' (1859-99), £85, and the "Zoology" of the 'Biologia Centrali-Americana' (parts 1-150), £80.

Death of Mr. T. E. Buckley.—It is with the greatest regret that we have to announce the death, on the 5th of November, of our fellow-member, Mr. T. E. BUCKLEY, of Inverness, whose name is well known to all readers of 'The Ibis.' The obituarial notice is unavoidably postponed until our next number.



H. Grönvold del. et lith

Mintern Bros. imp.

DISSURA MORTONI.

THE IBIS.

EIGHTH SERIES.

No. X. APRIL 1903.

XIV.—*On a new Stork from Borneo.*

By W. R. OGIIVIE-GRANT.

(Plate V.)

A STORK belonging to the genus *Dissura* was recently shot by Mr. William Morton on the Simunjan River, a tributary of the Sadong, in Southern Sarawak, and subsequently brought to me for identification. An examination of the series of *Dissura episcopus* in the British Museum confirmed the suspicion that this bird belonged to a perfectly distinct species, but disclosed the fact that a similar specimen to that shot by Mr. Morton had been sent home by Sir Hugh Low in 1876. Probably from lack of material the differences between this bird and *D. episcopus* had not been recognised, and the specimen had been catalogued under the latter title. It was obtained on the Mengalong River, North Sarawak (not at Labuan, as stated in the 'Catalogue of Birds'), and bears the following note in Sir Hugh Low's handwriting:—

“This Stork was caught in the forest, on the banks of the Mengalong River, in a springe set for pheasants. I never saw another specimen, and the natives do not know it.”

Shortly after receiving Mr. Morton's example, which he informs me proved on dissection to be an adult female, the British Museum received a third specimen of the same

bird procured at Lamag, Sandakan, in the month of May, by Mr. Graydon. This example is undoubtedly an adult male in full breeding-plumage, and its dimensions, especially the measurements of the bill and legs, exceed those of the specimens previously mentioned.

The following is a description of the species, which has been named in honour of Mr. William Morton:—

DISSURA MORTONI.

Melanopelargus episcopus Everett (nec Bodd.), Journ. Straits Branch As. Soc. 1889, p. 191.

Dissura episcopus Sharpe, Cat. B. Brit. Mus. xxvi. p. 294 (1898) [part.; specimen *n'*, ex Labuan].

Dissura mortoni Grant, Bull. B. O. C. xiii. p. 26 (1902).

Adult male. Resembles *D. episcopus* in general appearance, but differs in the following important points:—It is considerably smaller, the outline of the culmen is slightly concave, and ends in a protuberance in front of the forehead; the bill is vermilion, the bare skin round the eyes and on the throat and neck is orange or orange-yellow; the legs and feet are dull vermilion; the basal half of the neck is clad in black feathers, which extend up the downy white sides of the upper neck in two wedge-shaped patches; both the wing and tarsus are shorter, the latter being more slender. Iris yellow. Total length 31·0 inches, culmen 6·5, wing 16·2, tail 6·2, under tail-coverts 7·0, tarsus 6·5, middle toe without claw 3·0.

The male (type) which is apparently in full breeding-plumage, further differs from all the specimens of *D. episcopus* with which I have compared it in having the interscapular region clad in long, loose, purple-tipped feathers like those of the chest, but it must be added that the British Museum does not possess specimens of the latter species killed during the breeding-season.

Adult female. Like the male, but with a somewhat smaller and shorter bill. Iris red; naked skin round eye orange-yellow; bill vermilion, the under part mixed with red and yellow; legs dull vermilion (*W. Morton*). Total length about 30·0 inches, culmen 5·7, wing 15·0, tail 5·3, under tail-coverts 6·4, tarsus 5·5, middle toe without claw 2·7.

<i>Dissura mortoni.</i>		<i>Dissura episcopus.</i>				
	Type of male, Lanang, Sandakan, Mr. Graydon.	Type of female, Mengalong R., Sir H. Low.	Adult female, Simunjan R., Mr. William Morton.	Adult male, Nepal, Dr. J. Seully.	Adult male, Kohol, Steeve Coll.	Adult female, Fashoda, Mr. R. M. Hawker.
Total length	in. 31.0	in. 30.0	in. 30.0	in. 37.5 (in flesh).	in. 34.0	in. 34.0
Culmen	6.5	5.7	5.6 (im- perfect at tip).	6.4	6.9	6.25
Wing	16.2	15.0	15.6	19.9	17.5	18.5
Tail	6.2	5.3	5.7	6.7	6.0	7.3
Under tail-coverts..	7.0	6.4	6.4	7.9	7.1	8.3
Tarsus	6.5	5.5	5.5	7.2	6	6.3
Middle toe with- out claw	3.0	2.7	2.7	3.6	3.2	3.0

Hab. Borneo: Lamag, Sandakan (*Graydon*), Mengalong River (*Low*), Lawas River (*Treacher*), Simunjan River (*Morton*), Sarawak (*Platen*); Tumbong Iliang, S.E. Borneo (*Grabowsky*).

The preceding table of measurements (p. 147) shews the differences in size between the present species and *D. episcopus*.

The figures of the male and female of this bird (Plate V.) drawn by Mr. H. Gronvöld faithfully shew their peculiarities. Considering the number of excellent English naturalists who have spent years of their lives in studying the ornithology of Borneo, it is astonishing that this really remarkable bird should have hitherto escaped notice, and that, with the exception of the specimen procured by Sir Hugh Low seven-and-twenty years ago, none have reached this country in the large collections sent home by Everett, Whitehead, and Mr. C. Hose.

XV.—*A List of the Birds of Lucknow.* By WILLIAM JESSE, M.A., F.Z.S., M.B.O.U. (Member of the Bombay Natural History Society).—Part IV.

[Concluded from p. 81.]

No. 1272. *CROCOPUS CHLOROGASTER.* *Southern Green Pigeon.*

Harrial [H.].

A permanent resident, but restricted more or less to those parts where it can procure the fruit of the banian and pipal. In 'Stray Feathers' Reid wrote:—"The natives here erroneously believe that it never descends to the ground, and even pretend that, when shot, it loses about a pound in weight the moment it comes in contact with it! If asked how it manages to quench its thirst, they will tell you that it settles upon a reed, which bends over with the weight of the bird and enables it to drink! Be all these 'yarns' as they may, it is a very rare occurrence to see a Green Pigeon on the ground—still rarer to see it drinking." To this Mr. A. O. Hume, the Editor, appended the note:—

“But do they ever drink? I think *not*.” The Green Pigeon breeds from April to July, and lays two very glossy white eggs. Mango, pipal, and shesum trees are commonly chosen for the nest.

Average of 10 Lucknow eggs	1·22" × ·94"
Measurement of largest egg	1·32" × ·94"
„ smallest egg	1·17" × ·93"

It is not improbable that the eastern variety of this Pigeon (*Crocopus phœnicopterus*) occurs here, but, so far, I have not come across it.

It is said that fifty or sixty years ago, before the jungle, particularly bamboo, was so much cut down, the Bronze-winged Dove (*Chalcophaps indica*) used to be captured close to Lucknow; but I doubt if it now occurs nearer than the Terai.

No. 1292. COLUMBA INTERMEDIA. *Indian Blue Rock-Pigeon.*

Kabútar [H.].

This species is a very common resident, frequenting the minarets and native buildings in large numbers. It interbreeds, to a considerable extent, I fancy, with tame pigeons. I have taken the eggs in deserted godowns and, at Fatchgarh, in wells, during the months of March and April, but I am told that nests are found all the year round.

Average of 18 Lucknow eggs	1·46" × 1·08"
Measurement of largest egg	1·58" × 1·11"
„ smallest egg	1·32" × 1·06"

In Rajputana these birds are highly venerated, and no one is allowed to kill them. No such immunity, however, obtains here.

No. 1295. COLUMBA EVERSMANNI. *Eastern Stock-Pigeon.*

Pahari Kabútar [H.]. Hill-Pigeon [European sportsmen].

The Stock-Pigeons visit us in vast flocks during the cold weather, coming about November and departing in April. They are devoted to certain spots, and are not nearly so wild as *C. intermedia*. One day when making for a large pipal, under which I intended to lunch with a

friend, I was astonished to see some hundreds of these birds dash out from the branches. We sat down to our meal, one on either side of the trunk, and for twenty minutes at least they kept returning in small parties. My friend took them as they came and I as they went, and we got upwards of twenty during tiffin.

No. 1305. *TURTUR FERRAGO*. *Indian Turtle-Dove*.

Pahari Pirki, Fachtaw, Gugu [H.].

A common winter visitor, but apparently somewhat locally distributed.

No. 1307. *TURTUR SURATENSIS*. *Spotted Dove*.

Citroka Fachtaw, Pirki, Gugu [H.].

This is our commonest Dove, and nests at least from February to August, not only in trees and bushes, but in verandahs, on beams and chics, and, as I have been told, even on the ground.

Average of 15 Lucknow eggs 1·05" × ·82"

Measurement of largest egg 1·10" × ·85"

„ smallest egg 1·00" × ·75"

Reid wrote:—"These Doves hate the Common Tree-Pie [*Dendrocitta rufa*] because it doubtless robs their nests, and on two or three occasions I have seen a couple of them succeed in driving it out of a mango tope."

No. 1309. *TURTUR CAMBAYENSIS*. *Little Brown Dove*.

Chota Pirki, Fachtaw, Gugu [H.]. Small-caste Dove [Anglo-Indian boys].

A common and permanent resident, but rather more numerous in some parts of the station than in others. The chief months for breeding are March, April, and May. The eggs and nest are precisely like those of *T. suratensis*, but a trifle smaller.

Average of 12 Lucknow eggs 1·00" × ·85"

Measurement of largest egg 1·10" × ·88"

„ smallest egg 0·90" × ·77"

No. 1310. *TURTUR RISORIUS*. *Indian Ring-Dove*.

Dor Fachtaw, Pirki, Gugu [H.]. Large-caste Dove [Anglo-Indian boys].

A very common and permanent resident, though some individuals apparently migrate during the hot weather. This Dove is wilder than the smaller species, and keeps more to mango- and babool-topes. It breeds throughout a great part of the year.

Average of 14 Lucknow eggs	.....	1·13" × ·89"
Measurement of largest egg	.....	1·22" × ·98"
„ smallest egg	.....	1·06" × ·86"

No. 1311. *CENOPELIA TRANQUEBARICA*. *Red Turtle-Dove*.

Lal Pirki [H.].

This pretty little Dove is a common and permanent resident, though not nearly so numerous as the last three species. It is very partial to dhak-jungle and also to babool-topes and trees along railway-lines, where I have taken its eggs in May and June. These are more cream-coloured than Doves' eggs usually are.

Average of 12 Lucknow eggs	.....	1·04" × ·79"
Measurement of largest egg	.....	1·13" × ·75"
„ smallest egg	.....	0·99" × ·78"

No. 1316. *PTEROCLES ARENARIUS*. *Large or Black-bellied Sand-Grouse*.

Bhut-Titur [H.].

“There is no doubt that the Large or Black-bellied Sand-Grouse occasionally occurs, but nowhere in the Division, that I am aware of, is there any locality that it habitually frequents. It is, however, common in the Hardoi district, where I have seen and shot many, and possibly it is equally abundant in the west of the Unao district.”—*G. Reid*.

No. 1321. *PTEROCLURUS EXUSTUS*. *Common Sand-Grouse*.

Bhur-Titur, Ban-Titur [H.].

This Sand-Grouse is a permanent resident, but, for want of suitable ground, it is comparatively scarce in the Lucknow Division. On June 14, 1896, while after black buck, with my friend Mr. P. J. Lucas, I found a nest and three hard-set eggs of this bird. The former was but a scratching in the sand under a tuft of herbage, and contained one or two blades of

grass as a lining. The hen was greatly distressed, and returned soon after being flushed, when Lucas shot her. The long elliptical eggs were stone-coloured, with dark brown and purple double spotting. Two of these—the third is in Lucas's collection—measure $1.44'' \times 1.00''$ and $1.41'' \times .99''$.

No. 1324. *PAVO CRISTATUS*. *Common Peafowl*.

Mor ♂, Moréla ♀ [H.].

Though not met with in great numbers, the Peacock is usually to be found in dhak-jungle, particularly where it is bordered by cultivation, or in long grass and babool-jungle by water. Though these birds are not specially venerated about Lucknow, there are certain villages the inhabitants of which object to their being molested. They breed in July, August, and September, and probably earlier. I have never been in their haunts during the breeding-season, but two eggs, taken by Mr. P. J. Lucas near Mohanlalganj, 7/9/1896, and given to me, measure $2.73'' \times 2.12''$ and $2.76'' \times 2.09''$.

No. 1354. *EXCALFACTORIA CHINENSIS*. *Blue-breasted Quail*.

Gobal-Butai [H., *teste* Reid].

From Reid's enquiries amongst the bird-catchers, this species appears to be occasionally netted with the Black-breasted Quail during the "rains," but is not met with at other seasons.

No. 1355. *COTURNIX COMMUNIS*. *Common or Grey Quail*.

Bhatér, Ghagir Bhatér, Burra Bhatér [H.].

Common during the cold weather and when the crops are cut in April, the numbers increasing considerably about March. It does not breed with us regularly, but eggs are sometimes found by the villagers. One given to me by some Martinière boys, by whom the bird is known as the "Sand-Plover," is of a rich yellow-stone colour, very heavily marked with blackish brown.

In the season of 1900–1901 hardly a Quail was to be seen in Lucknow or, apparently, in the North-West Provinces. I

believe that the excellent crops in the Punjab prevented the majority from migrating beyond the Salt Range. Last season (1901-1902) this Quail was in fair numbers again. It is often flushed on the edge of Snipe-jheels in the early morning or towards evening.

When abundant, Quail are netted in great numbers, and sell at from Rs. 2 to Rs. 2-8 per hundred. The best males are kept for fighting by the Mahomedans. To improve their fighting temper their masters rub them over with some red material, and it is a common sight to see these little crimson birds "all eager for the fray."

No. 1356. *COTURNIX COROMANDELICA*. *Black-breasted or Rain-Quail*.

Chinung Bhatér [H.].

Very common in crops and long grass during the "rains" and at the end of the hot weather; but certainly the great majority migrate. It is caught in great quantities in nets, but does not fetch quite so high a price as *C. communis*. The males of this species are also prized for fighting.

No. 1357. *PERDICULA ASIATICA*. *Jungle Bush-Quail*.

Lowa [H.].

Very uncommon, but may occasionally be flushed in unfrequented spots with thick vegetation. I once put up a couple of Quail which looked to me more like *P. argunda*, a species that ought to be found here.

No. 1372. *FRANCOLINUS VULGARIS*. *Black Partridge*.

Kála Titur [H.].

Occurs in the Manjor of the Gogra, and, according to Reid, in the Khadir of the Ganges [Unao district], but this I have not yet confirmed personally. Reid states that stragglers have been reported to have been shot on the banks of the Goomti. Mr. B. E. Smithe informs me that he believes that he has come across it once or twice. The only actual "Lucknow" specimen which I have handled was shot by Mr. T. Peacock near La Martinière College in some patowal grass, and given to me.

No. 1375. *FRANCOLINUS PONDICERIANUS*. *Grey Partridge*.
Titur [H.].

To be found wherever there is heavy dhak-jungle, but as the area covered by this tree has of late years been much reduced, and as the birds are systematically trapped the whole year round, they are not very numerous. They are difficult to flush except in the very early morning. They breed in March—at least my shikari wanted me to come and take a nest one hot March day, but, as he said the egg-shells were chipped, I did not go. Like the Quails, the Grey Partridge is much prized as a fighter. The bhisti (water-carrier) is always a great lover of pets, and is often to be seen with a cage containing some bird—a Partridge, for choice. These run about on the road after their master just like dogs.

No. 1382. **TURNIX PUGNAX*. *Bustard-Quail*.

Not common, but probably often overlooked.

In the Museum are four skins (♂ ♀ ♀ ♀ ad.).

No. 1383. *TURNIX DUSSUMIERI*. *Little Button-Quail*.

Lerwa, Lowa, Ghinwa-Lowa, Chota-Lowa [H.].

No. 1384. *TURNIX TANKI*. *Indian Button-Quail*.

Lerwa, Lowa, Lowa-Butai [H.].

These two little birds, though not numerous, are universally spread over the Division, the first species predominating. They are chiefly found, singly or in pairs, in tufts and patches of patowal grass, in bajra khets, or in rough grassy and bushy ravines, where they are flushed with difficulty. The Martinière boys occasionally find the nest and eggs, two to four in number, densely blotched and spotted, during the "rains." One egg, which was given me by Mr. E. Slane, measures '89" × '72".

No. 1388. **RALLUS AQUATICUS*. *Water-Rail*.

I quote my original note, having nothing further to add :—"One day at the beginning of December, 1899, Mr. De Cruz, of Lucknow, very kindly sent me an unknown bird which he had shot. Seeing that it was a Water-Rail, I had it skinned immediately, when it proved to be a female. On

examination I noticed that it lacked the eye-band of *R. indicus*, so I sent it to Mr. Finn, of Calcutta, who kindly examined it for me, and confirmed my surmise that it belonged to this species. Except this specimen, I can find no record of either this species or of *R. indicus* occurring in Lucknow, though I fancy that the latter has been overlooked and will be found eventually."

No. 1392. *PORZANA PARVA. *Little Crake.*

There is a skin of an adult ♂ in the Lucknow Museum, obtained locally by Reid.

No. 1393. PORZANA PUSILLA. *Eastern Baillon's Crake.*

Fairly common on all the big jheels during the cold weather. It swims well, and may be seen, sometimes in small parties, paddling about amongst the lotus and jerking its tail. The peculiar marks on the back, rump, and scapulars are very conspicuous.

No. 1394. PORZANA MARUETTA. *Spotted Crake.*

Seems to be far from common, but, as it is chiefly found in rice-fields or in patches of rushy grass bordering jheels, and is very difficult to flush, it is quite possible that it is less scarce than it appears to be. It is only a cold-weather visitor.

No. 1401. AMAURORNIS PHENICURUS. *White-breasted Water-hen.*

Kināti, Ban-Murghi [H.].

A permanent resident. A pair or two may be found about every village tank, provided it be fringed with bushes or bamboos. It breeds in the rains, from June to August, making a nest of rushes, grass, or straw, and laying sometimes as many as seven eggs. I have found the fabric on the branch of a tree overhanging the water or up a date-palm, and once in a boat-house near the Chutter Munzil. The eggs are pinkish white, spotted and sprinkled with red, purple, and brown, and measure 1·77'' × 1·15'', 1·79'' × 1·16'', and 1·77'' × 1·09''.

Reid fancied that *A. akool* and *A. fuscus* also occurred here, but I have not yet met with either.

No. 1402. *GALLINULA CHLOROPUS*. *Moor-hen*.

I have not found this species at all common, and have seen it on comparatively few occasions. It appears to breed with us, but I have not yet got the nest or eggs.

No. 1404. *PORPHYRIO POLIOCEPHALUS*. *Purple Moor-hen*.
Khima [H.].

Common on the very large jheels, such as Koréla at Mohanlalganj. Here I have seen its eggs in August. The nest is amongst rushes and generally some distance from the shore. Eight is the largest clutch that I have taken.

These eggs averaged	1.89" × 1.38"
Measurement of largest egg	1.93" × 1.41"
„ smallest egg	1.79" × 1.38"

This species is said to commit much damage amongst the rice-fields, but I have not any direct evidence of this. I have not observed it away from its favourite haunts, amidst the rushes and water-plants, about which it climbs as easily as a Great Reed-Warbler. It has a very loud and rather disagreeable cry.

† No. 1405. *FULICA ATRA*. *Coot*.

Thekári, Ari, Khuskul [H.].

The Coot is a permanent resident wherever there are large rushy jheels, but migrates locally. In the winter it is found everywhere. It swims, dives, and flies well, and is much faster on the wing than is at first sight apparent.

No. 1407. *GRUS COMMUNIS*. *Common Crane*.

Kulang [H.].

Hardly so common, I fancy, as Reid would have us believe, at any rate in the actual vicinity of Lucknow. It appears to be more numerous on the backwaters of the big rivers, particularly the Gogra.

No. 1408. *GRUS LEUCOGERANUS*. *Great White or Siberian Crane*.

Tunhi [H., teste Reid].

The only person who records this species is Reid, and he reports five examples from Sandila, which is really outside the old Lucknow Division, but in that of Hardoi.

Both these Cranes are, of course, only winter visitors.

No. 1409. GRUS ANTIGONE. *Sarus Crane.*

Sáras [H.].

A resident species, rarely found in any numbers. Four or five are sometimes seen in company, but more often two or three, of which the third is a young bird. On one occasion, in April, I counted over forty in a flock on a sand-bank in the Ganges, near Fatehgarh. It breeds from July to October, making a nest of weeds in some shallow jheel and laying two eggs, sometimes pure white, but more often with a pinkish or bluish tinge, sparingly spotted and blotched with reddish brown. Some of the shells are very smooth and glossy, while others have a more or less chalky appearance. As a rule, too, the latter appear to be the larger. On one occasion I found a Sarus's nest with the bird sitting on two eggs. It was floating in three or four feet of water, so that I could tow it about. I have never known a Sarus attack anyone who meddled with its eggs, but the old birds are always much distressed. From the number of trios one meets with in the cold weather, I fancy that it is a common thing for only one chick to be hatched. Occasionally eggs have been taken and brought to me in February and March. The call of the Sarus is sonorous and trumpet-like, and can be heard at a great distance.

Average of 11 Lucknow and Hardoi eggs	4.03" × 2.54"
Measurement of largest egg	4.21" × 2.51" }
	4.11" × 2.61" }
„ smallest egg	3.75" × 2.44"

No. 1411. ANTHROPOIDES VIRGO. *Demoiselle Crane.*

Kárkarra [H.]. "Coolen" of European sportsmen.

Not common around Lucknow itself. The jheels of late years have not been such as to tempt these birds. Beyond Rai Bareli, in January 1901, I saw immense numbers on some shallow muddy jheels, and a few days after, while buck-shooting about five miles from Lucknow, I heard and saw a flock passing high overhead, evidently making in the same direction. They are said to be more common on the Chowka, Gogra, and Ganges.

They are most difficult to approach, as they post sentries,

and, long before the sportsman gets within range, they rise spirally until it is just possible to see them circling round and round, all the while keeping up their eternal clanging noise. Once heard, the cry of the Kárkarra is never forgotten.

Of course the bird is only a winter visitor, coming in October or November and departing in March.

No. 1415. *HOUBARA MACQUEENI. *Houbara*.

The only specimen of this Bustard that I have heard of here was one killed by Mr. P. J. Lucas in 1894, on one of the maidáns.

No. 1418. *ŒDICNEMUS SCOLOPAX*. *Stone-Curlew*.

Bastard Florican [Anglo-Indian sportsmen]. Bull-eyed Plover [Martinière boys].

A permanent resident and fairly common, particularly in dhak-jungle. On account of its more or less nocturnal habits it is often supposed to be rarer than it is, but, at nightfall, its call may be heard in almost every grove. It breeds from March to July, laying two eggs in a hollow under some tree or tuft of grass. Only twice have I found them in the open; as a rule, they are in some mango- or guava-tope. They are yellowish or stone-coloured, more or less heavily blotched with brown. My European eggs are far larger than my Indian, and amongst the latter I have never seen any with a greenish ground.

Average of 16 Lucknow eggs 1.76" × 1.36"

Measurement of largest egg 1.95" × 1.35"

„ smallest egg 1.43" × 1.33"

No. 1419. *ESACUS RECURVIROSTRIS*. *Great Stone-Plover*.

The Great Stone-Plover is fairly common on the big rivers, but I have only once seen it in Lucknow, when I shot a single specimen in cold weather on the banks of the Goomti near the Martinière College. In October 1899, I killed two near the big jheel at Ajgaen. Reid says that in the cold weather he has seen it on fallow land or newly ploughed fields about the Chowka and Gogra, in flocks of from 10 to 30. I have only seen it in pairs, or, at most, in parties of four or five.

On April 9th, 1898, I took two eggs on an island in the Ganges at Fatehgarh. They were laid in a hollow in the sand near some tufts of grass. They measured $2\cdot15'' \times 1\cdot43''$ and $2\cdot18'' \times 1\cdot35''$ respectively. In colour they resembled those of *Æ. scolopax*.

No. 1422. CURSORIUS COROMANDELICUS. *Indian Courser*.
Nukri, Karbának [H.].

This Courier-Plover, with its china-white legs, is fairly common on the bare sandy maidáns or on fallow land. It is rarely, I think, found near water. I have never heard it make any call. Eggs have been brought to me which, from their size and the fact that they were only found singly or in pairs, seem to have been correctly identified. I have four of various shades of stone-colour richly marked with dark brown, averaging $1\cdot32'' \times 1\cdot02''$.

No. 1425. GLAREOLA ORIENTALIS. *Large Indian Pratincole or Swallow-Plover*.

Captain Irby says of this species that it was "seen at Alumbagh (three miles from Lucknow) in January 1858." Two skins (σ ♀ adult) are in the Museum, purchased locally.

No. 1427. GLAREOLA LACTEA. *Small Indian Pratincole or Swallow-Plover*.

Common on all the big rivers. I have, moreover, seen it once or twice in the cold weather on the Goomti. I have taken numbers of its eggs on the sand-banks of the Ganges [Fatehgarh] and the Gogra [Fyzabad] in April. Hume speaks, if I remember rightly, of four being the full clutch, but I have never found more than two. When near their treasures, these pretty little birds simulate lameness and broken wings to perfection, quite outdoing the Partridge or the Peewit.

In colour the eggs are of a pale greenish grey, buff, or stone-colour, lightly marked with brown and lilac. There is no nest, only a hollow in the sand.

Average of 21 Fyzabad and Fatehgarh eggs..	$1\cdot03'' \times \cdot81''$
Measurement of largest egg	$1\cdot18'' \times \cdot78''$ }
	$1\cdot07'' \times \cdot82''$ }
„ smallest egg	$0\cdot96'' \times \cdot80''$

No. 1428. METOPIDIUS INDICUS. *Bronze-winged Jacana.*

The Bronze-winged Jacana is less common on the big wheels than it used to be before so much of the land was drained. It breeds at Mohanlalganj, where I once found its nest—merely a mass of teased-out water-weeds—at the end of July. The three eggs on this occasion were fresh, of a beautiful bronze-yellow, thickly scrawled over with black lines, and were highly glossy. They measured $1\cdot43'' \times \cdot99''$, $1\cdot43'' \times \cdot99''$, $1\cdot45'' \times \cdot99''$ respectively.

No. 1429. HYDROPHASIANUS CHIRURGUS. *Pheasant-tailed Jacana.*

Thil-Moorgah [II.]. Golden-headed Coot [Martinière boys].

Very common and a permanent resident. In its handsome breeding-plumage it is so different from what it is in its winter garb that, to the unobservant, it might seem a distinct species. The cry is like the mewing of a cat. It breeds in July and August, making a nest of weeds, and laying four pegtop-shaped, glossy-olive or bronze-green eggs. Like those of the preceding species, they are usually more or less in the water. One clutch in my possession, of a particularly elongated form, is dirty green, faintly spotted and speckled with greenish brown, and not nearly so glossy as usual.

Average of 13 Lucknow eggs	.....	$1\cdot46'' \times 1\cdot08''$
Measurement of largest egg	.....	$1\cdot54'' \times 1\cdot08''$
„ smallest egg	.....	$1\cdot36'' \times 1\cdot01''$

+ No. 1430. *STREPSILAS INTERPRES. *Turnstone.*

In the Provincial Museum are four skins marked “Lucknow.” There are no further details, and, as the bird is not mentioned by Reid in his list, I enter it very doubtfully.

No. 1431. SARCOGRAMMUS INDICUS. *Red-wattled Lapwing.*

Titiri* [H.]. “Did-you-do-it” [Anglo-Indian]; Stone-Plover [Martinière boys].

Common and widely spread over the Division, but rarely found in any numbers. I have only taken the eggs on two or three occasions. A scraping in the ground with a fringe

* Generally used for all the Plovers.

of small bits of kunker forms the nest. The eggs are four, of the usual Plover type.

Average of 14 Lucknow eggs	.....	1·65" × 1·18"
Measurement of largest egg	.....	1·71" × 1·91"
„ smallest egg	.....	1·52" × 1·14"

The breeding-season is from the end of March to August. During the rains many individuals lay their eggs amongst the kunker ballast of the railway-lines.

No. 1433. *SARCIOPHORUS MALABARICUS*. *Yellow-wattled Lapwing*.

Not numerous, but a pair or two may be met with on most open maidáns. They are never found near water, like the Red-wattled Plovers. In the cold weather they often collect into small parties of from six to eight. In this district the breeding-season is in May, June, and July, and perhaps April. The nest and eggs are merely small counterparts of those of *Sarcogrammus indicus*.

Average of 13 Lucknow eggs	.....	1·47" × 1·08"
Measurement of largest egg	.....	1·52" × 1·09"
„ smallest egg	.....	1·40" × 1·08"

[?] No. 1434. *MICROSARCOPS CINEREUS*. *Grey-headed Lapwing*.

Included by Irby in his list, but I agree with Reid that a mistake has been made. At any rate, I mark it with a query until its occurrence is satisfactorily determined.

No. 1435. *HOPLOPTERUS VENTRALIS*. *Indian Spur-winged Plover*.

Common on the Gogra, Ganges, and all the big rivers, but I have only once seen it on the Goomti, close to the Martinière. I have taken numbers of its eggs, of the usual Plover type, on the sandbanks of the rivers, in April.

Average of 9 Fatehgarh eggs	.....	1·54" × 1·13"
Measurement of largest egg	.....	1·67" × 1·13"
„ smallest egg	.....	1·49" × 1·10"

+No. 1436. *VANELLUS VULGARIS*. *Lapwing*.

Sachoor (?) [H., *teste* Reid].

The Peewit is fairly common during the cold weather, but departs about March.

No. 1437. *CHETTUSIA GREGARIA. Sociable Lapwing.*

Reid never met with this bird, and only included it on Irby's authority. I have occasionally observed it in small flocks in the middle of the cold weather on fallow ground, the members keeping apart. I have always found them very tame and easy to approach, even in the open.

No. 1438. *CHETTUSIA LEUCURA. White-tailed Lapwing.*

Very common on jheels during the cold weather in small flocks of rarely more than ten. It is a very quiet bird, remarkably tame, and easy to approach.

+No. 1439. *CHARADRIUS FULVUS. Eastern Golden Plover.*

Turali (?) [H., *teste* Reid].

Of recent years I have found this bird scarce, though flocks are occasionally met with on the maidáns. In April 1901 Mr. A. C. Bryson and I came upon a large flock on a sandbank in the Gogra, near Fyzabad.

+No. 1440. **CHARADRIUS PLUVIALIS. Golden Plover.*

Reid got a single specimen (♀ ad.) one winter near Lucknow, but no one has recorded it since.

+No. 1441. **SQUATAROLA HELVETICA. Grey Plover.*

There are two old skins in the Museum, labelled Lucknow, which Reid apparently overlooked.

No. 1446. *ÆGIALITIS ALEXANDRINA. Kentish Plover.*

Common on the big rivers, where I have found it in full breeding-plumage in April. I could, however, obtain no proof of its nesting. After rain it is often to be found, singly or in pairs, on the sandy plains or maidáns. I am not sure whether it is a permanent resident: I think not.

+No. 1447. *ÆGIALITIS DUBIA. Little Ringed Plover.*

A fairly common resident, particularly on big rivers. Major Newnham, I.S.C., found it breeding on the sandbanks of the Gogra at Fyzabad, in April, and I have met with it on those of the Ganges at Fatchgarh in the same month. Three fresh eggs, that I took from a scraping in the sand, measure 1.12" × .80", 1.10" × .78", 1.09" × .78" respectively.

No. 1451. *HIMANTOPUS CANDIDUS.* *Black-winged Stilt.*

Gaj-paun, Tinghur [H.].

Very common in the cold weather. I do not think that it actually breeds with us, but it does so, apparently, near Delhi, and possibly elsewhere.

No. 1452. **RECURVIROSTRA AVOCETTA.* *Avocet.*

Reid does not include this species in his list, but he obtained a specimen, and two more are also in the Museum, all being from Lucknow. Mr. Pync, of the Opium Department, saw one near Rae Baréli, just beyond our limits.

† No. 1454. *NUMENIUS ARQUATA.* *Curlew.*

Burra Goolinda [H.].

So far as my experience goes, this species is common during the cold weather on or near the big rivers, but rare elsewhere.

+ No. 1455. *NUMENIUS PHÆOPUS.* *Whimbrel.*

Chota Goolinda.

Reid says that this species is quite as common as the last. Such is not my experience, for I can only recollect seeing it near Lucknow on one occasion.

No. 1456. *LIMOSA BELGICA.* *Black-tailed Godwit.*

Tangral, Khag [H.].

Common during the cold weather, sometimes singly, more often in flocks.

No. 1460. *TOTANUS HYPOLEUCUS.* *Common Sandpiper.*

Common during the cold weather, particularly along the edges of the rivers.

No. 1461. *TOTANUS GLAREOLA.* *Wood-Sandpiper.*

Tootwari [H.]. Snippet [Anglo-Indians] †.

Very common, particularly on shallow rushy jheels. It is a perfect nuisance to the Snipe-shooter. It has a musky smell and is poor eating.

† No. 1462. *TOTANUS OCHROPUS.* *Green Sandpiper.*

Very abundant during the winter, some individuals departing as late as the end of April, and returning as early as July. This bird is the Khansaman's "ishnipe."

† These names are given to all the smaller Sandpipers.

The true Snipe is rarely captured near Lucknow, so far as I can learn.

No. 1463. TOTANUS STAGNATILIS. *Marsh-Sandpiper or Little Greenshank.*

Common during the cold weather, but apparently confining itself mostly to jheels with a muddy foreshore.

No. 1464. TOTANUS CALIDRIS. *Redshank.*

Common during the cold weather on large jheels.

No. 1465. TOTANUS FUSCUS. *Spotted Redshank.*

Gutni, Soorma [H., teste Reid].

Fairly common during the cold weather, and frequenting the same localities as the last species.

† No. 1466. TOTANUS GLOTTIS. *Greenshank.*

Tuntuni [H.].

Fairly common, and usually seen alone, or at most with one or two companions.

† No. 1468. PAVONCELLA PUGNAX. *Ruff.*

Very common all through the cold weather in flocks.

No. 1471. TRINGA MINUTA. *Little Stint.*

Occurs in large flocks on the muddy foreshores of jheels and rivers throughout the cold weather.

No. 1474. TRINGA TEMMINCKI. *Temminck's Stint.*

Very common in the same localities as the last-named.

† No. 1477. TRINGA SUBARQUATA. *Curlew Stint or Pigmy Curlew.*

According to Reid, this species is only common during October and April, when it is probably on passage. Two local skins are in the Museum, one of which is in summer plumage.

† No. 1478. TRINGA ALPINA. *Dunlin.*

A cold-weather visitor, frequenting the same localities as the last-named.

No. 1483. (?) GALLINAGO NEMORICOLA. *Wood-Snipe.*

Reid wrote:—"I have on several occasions, but not of late years, flushed a large, dark, solitary Snipe when out

wild-fowl shooting. On the occasions referred to it generally rose from amongst the weeds, within four or five yards of the jheel side. It surely could not have been *G. solitaria*, though it was either this or *G. nemoricola*."

I also once flushed a similar bird in a similar spot, but missed it.

†No. 1484. GALLINAGO CŒLESTIS. *Common Snipe*.

Cháhá, Pukka Cháhá [H.].

Very common throughout the cold weather, stragglers arriving in September and departing at the end of April. The best shooting is from the middle of November to the end of February, when flocks of nearly a thousand have been seen.

No. 1485. GALLINAGO STENURA. *Pintail Snipe*.

Reid only got one specimen, so it must be a rare visitor to the district.

No. 1487. GALLINAGO GALLINULA. *Jack Snipe*.

Chota Cháhá [H.].

Very common throughout the cold weather. On one occasion I saw a Jack Snipe being hawked by a pair of Falcons (*F. jagger*), two Kites, a Tawny Eagle, and two more Raptors, all of which the Snipe finally eluded.

No. 1488. ROSTRATULA CAPENSIS. *Painted Snipe*.

Fairly common at times, and a more or less permanent resident. I rather fancy it breeds at Mohanlalganj, as I have flushed a pair now and then during the breeding-season, though I have never found the nest.

*No. 1489. LARUS ICHTHYAËTUS. *Great Black-headed Gull*.

There is one adult skin (♂) in the Lucknow Museum, obtained locally.

No. 1491. LARUS BRUNNEICEPHALUS. *Brown-headed Gull*.

Dhomra † [H.].

Not very common. Reid says that it is more numerous on the big rivers than elsewhere.

† Applied to Gulls generally.

No. 1495. **LARUS CACHINNANS*. *Yellow-legged Herring-Gull*.

Common on the Gogra and Ganges during the cold weather, and not unfrequently met with on some of the large shallow jheels. The only example that I have actually obtained within our limits was caught by a bird-catcher on a jheel in the direction of Sitapur.

+ No. 1496. *HYDROCHELIDON HYBRIDA*. *Whiskered Tern*.

A very common and permanent resident, but decreasing on account of the more efficient drainage. It breeds during August and September on the large jheels.

+ No. 1499. *STERNA ANGLICA*. *Gull-billed Tern*.

Common during the cold weather, particularly about the big rivers. I saw numbers of this Tern on the Gogra in April 1901, but could find no nest or eggs, though the birds were in breeding condition.

No. 1503. *STERNA SEENA*. *Indian River-Tern*.

Titri [H.]. Gull [Anglo-Indian boys] †.

Very common, particularly on the big rivers. It is a permanent resident, and I have taken dozens of eggs on the Gogra and Ganges in April. They are of various shades of stone-colour, greenish, pinkish, or buff, and double-spotted. Three is the full clutch.

Average of 12 Fyzabad and Fatehgarh eggs . . . 1.67" × 1.22"

Measurement of largest egg 1.74" × 1.24"

.. smallest egg 1.60" × 1.17"

No. 1504. *STERNA MELANOGASTER*. *Black-bellied Tern*.

Common, but not so numerous as *S. seena*, in company with which it breeds. The eggs are similar, but smaller.

Average of 9 Fatehgarh eggs 1.35" × 1.00"

Measurement of largest egg 1.38" × 1.01"

„ smallest egg 1.32" × 1.98"

No. 1510. *STERNA MINUTA*. *Little Tern*.

The least common of the Terns, but fairly numerous on the big rivers. It is a permanent resident, and I found it

† These names are applied to all River-Terns.

breeding on a sandbank in the Gogra at Fyzabad in company with other Terns, Skimmers, and Swallow-Plovers.

Average of 9 Fyzabad eggs	1.21" × 0.91"
Measurement of largest egg	1.33" × 0.92"
" smallest egg	1.17" × 0.91"

No. 1517. RHYNCHOPS ALBICOLLIS. *Indian Skimmer or Scissor-bill.*

Panchira [H.].

A permanent resident, common on the big rivers, and occasionally seen on the Goomti. I have taken its eggs, three or four in a clutch, on the sandbanks of the Gogra and Ganges in April.

Average of 15 Fyzabad eggs	1.61" × 1.16"
Measurement of largest egg	1.72" × 1.17"
" smallest egg	1.56" × 1.15"

No. 1520. PELECANUS ROSEUS. *Eastern White Pelican.*

Fairly common on the big jheels and rivers in the cold weather, and, according to Irby, in the "rains."

No. 1521. *PELECANUS ONOCROTALUS. *White Pelican.*

In the cold weather of 1899-1900 Mr. Marlboro Crosse, of the Educational Department, procured a specimen for me in the District, and there is also a skin (juv.) in the Museum.

No. 1522. PELECANUS CRISPUS. *Dalmatian Pelican.*

Mr. Reid wrote :—"The Dalmatian Pelican is represented in the Museum by, I suppose, locally-purchased specimens, and Mr. Hume has obtained it from near Fyzabad. There can, therefore, be little doubt that it occurs in the Division, at any rate on the Gogra—a river very much frequented by Pelicans." I cannot find these skins.

No. 1523. PELECANUS PHILIPPENSIS. *Spotted-billed Pelican.*

Chota Howasal, Talasind [H.].

Common, particularly during the "rains" and early cold weather, on the bigger jheels and rivers.

†No. 1526. PHALACROCORAX CARBO. *Large Cormorant.*

Pan-kowa, Tal-kowa †.

Fairly common on big jheels and on the Goomti and other rivers. I know nothing of its breeding anywhere round Lucknow.

No. 1527. *PHALACROCORAX FUSCICOLLIS. *Indian Shag.*

Apparently very rare here. The only specimen I know of is one (♂) obtained by Reid, after he published his "List," which is now in the Museum.

No. 1528. PHALACROCORAX JAVANICUS. *Little Cormorant.*

Common and a permanent resident. I have not yet found the nest, though eggs have been sent to me by Mr. S. L. Whymper from the neighbouring district of Bahraich.

No. 1529. PLOTUS MELANOGASTER. *Indian Darter or Snake-bird.*

A common and permanent resident.

No. 1541. IBIS MELANOCEPHALA. *White Ibis.*

Munda, Didhar, Safed Buza [H.].

Common on the bigger jheels during the cold weather. I do not know of this species breeding near Lucknow.

No. 1542. INOCOTIS PAPILLOSUS. *Black Ibis.*

Bhooja, Buza, Kurkool [H.]. King-Curlew [Anglo-Indian sportsmen].

Common and a permanent resident. I have taken its eggs, sea-green, with a few spots and markings of brown, from large stick-nests on palms or tamarinds during July. Three seem to make the full clutch.

Average of 6 Lucknow eggs 2.48" × 1.69"

Measurement of largest egg 2.50" × 1.72"

„ smallest egg 2.39" × 1.69"

This bird is splendid eating.

†No. 1544. PLEGADIS FALCINELLUS. *Glossy Ibis.*

Kewári, Chota Buza [H.].

According to Reid very common, but of late years seems to have deserted us to a great extent. It is only a cold-weather visitant.

† Applied to all Cormorants.

No. 1545. *PLATALEA LEUCORODIA*. *Spoonbill.*

Chamach-Buza [H.].

A cold-weather visitor, fairly common in certain parts of the district.

No. 1546. *CICONIA ALBA*. *White Stork.*

Ghybur [H.].

Occurs, but not very frequently, in flocks during the cold weather.

No. 1548. *DISSURA EPISCOPUS*. *White-necked Stork.*

Lag-Lag, Nuhri, Lohri [H.]. Beef-steak-bird [Anglo-Indians].

A common and permanent resident. It breeds in high trees, laying three or four white eggs, in July and August.

The only nest that I have found was on a big tamarind in the centre of a village. On the same tree were nests of the Grey-necked Crow [*Corvus splendens*], Paddy-bird [*Ardeola grayi*], and Little Egret [*Herodias garzetta*].

Four eggs which I possess measure— $2\cdot65'' \times 1\cdot84''$, $2\cdot50'' \times 1\cdot80''$, $2\cdot56'' \times 1\cdot85''$, $2\cdot52'' \times 1\cdot87''$.

No. 1549. *XENORHYNCHUS ASIATICUS*. *Black-necked Stork.*

Banaras, Lohargunj [H.]. Australian Stork [European sportsmen].

Numerically scarce, but, nevertheless, a permanent resident. Breeds apparently towards the end of the rains and at the beginning of the cold weather. Reid found the nest, "a huge platform of sticks on the top of a pipal tree near a swamp," with three half-fledged young on November 15th, and Lt.-Colonel Thornhill tells me that he has taken the eggs in the Bareilly district during the cold weather.

No. 1550. *LEPTOPTILUS DUBIUS*. *Adjutant.*

Peda-dkank [H.].

Appears to visit us only during the "rains," and is then scarce.

No. 1551. *LEPTOPTILUS JAVANICUS*. *Smaller Adjutant.*

The above remarks apply to this species. So far as I can

recollect, the only place where I have seen Adjutants is in the Martinière Park by the pools which are formed in the "rains."

No. 1552. *PSEUDOTANTALUS LEUCOCEPHALUS*. *Painted Stork*.

Thangil [H.].

This species is more common in the Hardoi district than with us. It is a permanent resident, and is, like the Open-bill and other Storks, very fond of shallow rushy jheels and well-saturated cultivated tracts. Reid states that "it is easily tamed, and will answer to its name like a dog."

No. 1553. *ANASTOMUS OSCITANS*. *Open-bill*.

Very common and a permanent resident. Dozens may be seen during the cold weather on the jheels on either side of the road leading to Mohanlalganj. It breeds near Nigohan, where Mr. E. Slane took some eggs in August.

No. 1554. *ARDEA MANILLENSIS*. *Eastern Purple Heron*.

A permanent resident, but not very numerous. It breeds north of us in Bahraich, whence Mr. S. L. Whymper sent me eggs taken at the end of July.

† No. 1555. *ARDEA CINEREA*. *Common Heron*.

Sain, Kabud, Chanak [H.].

Fairly common and a permanent resident, breeding with Egrets and Paddy-birds on tall trees—tamarinds and pipals for choice—during the rains.

Average of 8 Lucknow eggs	2·33" × 1·69"
Measurement of largest egg	2·47" × 1·68"
„ smallest egg	2·17" × 1·72"

No. 1559. *HERODIAS ALBA*. *Large Egret*.

Tar-bogla [H.].

A permanent resident, but not very numerous. I found it breeding in company with *Ardea cinerea* on a mighty pipal-tree in July, but my men could not climb the branches, which were very slippery, as, while we were out, four inches of rain fell in a little over six hours.

No. 1560. HERODIAS INTERMEDIA. *Smaller Egret.*

Karchia-bogla [H.].

Fairly common and a permanent resident. I found it breeding in company with the Little Egret and the Paddy-bird in July on two tamarinds in the centre of a native village. The nests and eggs resemble those of *Ardea cinerea*, but are smaller.

Average of 5 Lucknow eggs	1·86'' × 1·41''
Measurement of largest egg	1·88'' × 1·50''
„ smallest egg	1·80'' × 1·36''

No. 1561. HERODIAS GARZETTA. *Little Egret.*

Karchia-bogla [H.].

The commonest of the white Egrets, and a permanent resident. It breeds in company with allied species in the "rains."

Average of 6 Lucknow eggs	1·86'' × 1·31''
Measurement of largest egg	1·89'' × 1·30''
„ smallest egg	1·83'' × 1·31''

No. 1562. BUBULCUS COROMANDUS. *Cattle-Egret.*

Surkia-bogla, Badami-bogla, Lal-bogla [H.].

Common and a permanent resident. I once found two tamarinds in a village literally covered with nests of this species. With them were also those of *Ardeola grayi*, *Herodias intermedia*, and *H. garzetta*. This was in July.

Average of 24 Lucknow eggs	1·71'' × 1·33''
Measurement of largest egg	1·83'' × 1·37''
„ smallest egg	1·66'' × 1·25''

No. 1565. ARDEOLA GRAYI. *Pond-Heron.*

Bogla [H.]. Paddy-bird [Anglo-Indian].

The Pond-Heron, or, as he is more generally called, the Paddy-bird, is one of the commonest of Indian species. Not a pond or ditch but harbours one or more. It is very tame and carries on its business a few feet away from a dhobi washing clothes, perfectly indifferent to his presence. It breeds in this district from April to July, laying three or four sea-green eggs in a stick nest on some tamarind or

other tree. Numbers breed together, in company with various Waders, generally close to or in a village.

Average of 12 Lucknow eggs	1.53" × 1.15"
Measurement of largest egg	1.60" × 1.19"
„ smallest egg	1.38" × 1.12"

No. 1567. **BUTORIDES JAVANICA*. *Little Green Heron*.

Not uncommon, but, from its crepuscular habits, usually overlooked. I often see it towards evening fishing in the Goomti. It is a permanent resident, but I have not yet taken its eggs.

No. 1568. *NYCTICORAX GRISEUS*. *Night-Heron*.

Ko Krai, Wak [H.].

A common and permanent resident. Its cry of "wák, wák," as it flies at sundown towards the river, must be familiar to everyone. I have not yet succeeded in locating a breeding-place, but eggs have been sent to me from Bahraich by Mr. Whympier.

No. 1571. **ARDETTA SINENSIS*. *Yellow Bittern*.

Mr. B. G. Smith shot a specimen on a Snipe-jheel near Lucknow, in March 1899, and kindly sent me the skin, which is now in the Museum. I have not met with it myself.

No. 1572. *ARDETTA CINNAMOMEA*. *Chestnut Bittern*.

The Museum contains one locally-obtained skin, and Reid apparently got another from a native fowler in August. Beyond this I know nothing of its occurrence here.

No. 1574. *BOTAURUS STELLARIS*. *Bittern*.

Mergaon [H., *teste* Reid].

Not uncommon in some seasons. I have often flushed it in long rushes when Snipe-shooting. It rises slowly and flaps along over the reeds, and so is easily shot, if required for the Museum. It is, of course, only a cold-weather visitor.

No. 1575. *PHENICOPTERUS ROSEUS*. *Flamingo*.

Hans, Bag-Hans, Raj-Hans [H.].

The Flamingo is common, according to Reid, during the cold weather on the great shallow jheels in the direction of Unao

and Hardoi. It does not come near the city, as a rule; but Major Newnham, the Cantonment Magistrate of Lucknow, has seen some individuals on a jheel near the Jellalabad Fort. Years ago a tame Flamingo used to frequent the compound of the Museum.

No. 1579. ANSER FERUS. *Grey Lag-Goose.*

Hans, Raj-Hans, Sawen [H.].

Occurs in large numbers during the cold weather. In the daytime the birds keep chiefly to the middle of the big jheels, and rarely allow anyone to approach within a couple of hundred yards.

[I forwarded two skins, labelled by Reid *Anser brachyrhynchus*, to Mr. Eugene Oates, who has kindly examined them for me. They are nothing more than *Anser ferus*, and, as Mr. Oates says, how they came to be wrongly identified is a mystery.]

+No. 1580. ANSER ALBIFRONS. *White-fronted Goose.*

Two locally procured specimens are in the Museum.

No. 1581. ANSER ERYTHROPUS. *Lesser White-fronted Goose.*

I have never come across this Goose myself, but Reid shot some eight or nine examples on the Ajaen jheels, which he believed to belong to this species. Dr. Bonavia got a specimen—now, I fancy, in the Hume collection,—and Irby mentions the bird.

No. 1583. ANSER INDICUS. *Barred-headed Goose.*

Hans, Kareyi-Hans, Sawen [H.].

Very common in some places, but I think that strictly within the Lucknow Division the Grey Lag-Goose is the more numerous—at least that is my experience.

No. 1584. SARCIIDIORNIS MELANONOTUS. *Comb-Duck.*

Nukta [H.].

Common on the large grassy jheels. It is not a wary bird, and is comparatively easy to shoot. It breeds in the Division.

No. 1586. RHODONESSA CARYOPHYLLACEA. *Pink-headed Duck.*

Golab Lal-sir [H.].

A rare winter visitor. The native fowlers say that it is more often met with in the "rains."

No. 1587. TADORNA CORNUTA. *Sheldrake.*

Rararia, Safed-Surkháb [H., teste Reid].

A very uncommon Duck, but there are four skins (♂ ♀ ♀ ♀), obtained locally, in the Lucknow Museum.

+ No. 1588. CARSARCA RUTILA. *Ruddy Sheldrake or Brahminy Duck.*

Chakwa-chakwi [H.].

The Brahminy is found all over the Division during the cold weather in small parties of from four to thirty, as well as in pairs. It is very wary, and a great nuisance to the sportsman, as it considers it its duty to warn every Duck in the vicinity. Only the natives eat it.

No. 1589. DENDROCYCNA JAVANICA. *Whistling Teal.*

Chota Silai [H.].

A fairly common and permanent resident. According to Reid, it is a stupid bird, but I have not found it so. Wounded individuals dive almost as much as Pochards and are difficult to recover.

No. 1590. DENDROCYCNA FULVA. *Large Whistling Teal.*

Bara Silai [H.].

Rare. I doubt if this species is a permanent resident with us.

No. 1591. NETTOPUS COROMANDELIANUS. *Cotton Teal.*

Girria [H.].

A common and permanent resident. It breeds with us in July and August, making a nest in holes of trees. I found a pair breeding in a great pipal-tree near the Sanoda jheel. There were six eggs, of which only two were unbroken. These were of a satiny cream-colour, and measured 1.78" × 1.34" and 1.76" × 1.34" respectively.

+ No. 1592. *ANAS BOSCAS*. *Mallard*.

Nil-rugi, Nil-sir [H.].

Not common. I have seen it occasionally, but never shot it, on the Mohanlalganj jheels.

No. 1593. *ANAS PÆCILORHYNCHA*. *Spotted-billed Duck*.

Garm-pai, Battak † [H.].

A common and permanent resident. It is one of the best Ducks for eating. When wounded it dives and is difficult to recover.

No. 1594. *EUNETTA FALCATA*. *Crested or Falcated Teal*.

Kala Sinkhur [H., teste Reid].

Apparently visits us occasionally in the cold weather, as there are two skins in the Museum.

+ No. 1595. *CHAULELASMUS STREPERUS*. *Gadwall*.

Bhuar, Mila [H.].

A very common cold-weather visitor.

+ No. 1597. *NETTIUM CRECCA*. *Common Teal*.

Putari, Souchuruka, Litka-Litki ‡ [H.].

Very common, arriving in October and departing as late as the end of April. It is generally found in flocks, large or small, but several individuals may always be met with, particularly in the early morning or towards evening, by going round amongst the rushes at the edge of the jheels.

+ No. 1599. *MARECA PENELOPE*. *Wigeon*.

Chota Lal-sir, Phariah [H.].

I have never found the Wigeon common, but probably, as Reid says, it is an erratic visitor, being scarce in some seasons and more numerous in others.

+ No. 1600. *DAFILA ACUTA*. *Pintail*.

Sink-pur [H.].

This species visits us during the cold weather, and is found in large flocks on all the big jheels, but is very difficult to shoot. I must have watched literally thousands passing

† Used for all Ducks.

‡ Used indifferently for all small Ducks and Teal.

overhead, but well out of range, while sitting one day by the side of the great Déwa jheel.

No. 1601. QUERQUEDULA CIRCIA. *Garganey or Blue-winged Teal.*

Putari, Khira [H.].

Visits us, like the Common Teal, in immense quantities early in the cold weather. It appears to go south in large numbers after November, returning about February. As a rule, it is wilder than the Common Teal, and keeps to bigger stretches of water.

+No. 1602. SPATULA CLYPEATA. *Shoveller.*

Ghirah, Tokarwala [H.].

A very common Duck during the cold weather, not leaving until the end of March or even later, by which time most of the males have assumed their breeding-plumage. Except at migration-time, the Shoveller is rarely found in flocks, though it frequently associates with other Ducks, and, as Reid has remarked, it is no uncommon sight to see an old Shoveller leading a bunch of Teal across country at a rattling pace. It may be found on any little bit of water or dirty village-pond.

No. 1603. MARMARONETTA ANGUSTIROSTRIS. *Marbled Duck.*

A rare winter visitor. The late Capt. Gaine, R.A.M.C., gave me a skin of this bird which he had shot near Lucknow. Another in the Museum was obtained from a fowler, and a third has since been brought to me.

+No. 1604. NETTA RUFINA. *Red-crested Pochard.*

Lal-sir, Lal-conch [H.].

This handsome Duck is common enough on some of the large jheels, generally, according to my experience, in small flocks. It is rather a late species to arrive.

No. 1605. NYROCA FERINA. *Pochard or Dun-bird.*

Lal-sir [H.].

A fairly common Duck, sometimes found in flocks, sometimes in twos and threes mixed up with other species. It arrives about November and departs at the end of February.

No. 1606. NYROCA FERRUGINEA. *White-eyed Pochard*.

Burna [H., *teste* Reid].

This fine little Pochard is very common and is fond of large weedy jheels. Though it breeds in Kashmir, it is, of course, only a cold-weather visitor here. In many parts of India it is considered worthless to eat, but I think it quite one of the best Lucknow Ducks. [*Nyroca baeri*, the Eastern White-eye, I have not yet come across. Possibly nobody has happened to notice the blackish instead of the rufous head and neck.]

† No. 1608. *NYROCA MARILA. *Scaup*.

Major Thompson, R.A.M.C., who is well acquainted with this species in Europe, shot a single specimen near Lucknow in the winter of 1893. Unfortunately he did not preserve the skin.

No. 1609. NYROCA FULIGULA. *Tufted Duck*.

Rahwara, Allak [H.]. Golden-eye [many European sportsmen].

Fairly common during the cold weather on certain of the large jheels, but, according to my experience, rather local. It occurs chiefly in small flocks.

No. 1610. CLANGULA GLAUCION. *Golden-eye*.

The only person who appears to have obtained this Duck, so rare with us, is Dr. Bonavia. Major Thompson, R.A.M.C., once told me that he believed he had seen, if not shot, it; but all the "Golden-eyes" that have been reported to me have turned out to be *Nyroca fuligula*.

† No. 1612. MERGUS ALBELLUS. *Smew*.

Thalow (?) [H., *teste* Reid].

Not at all common. Reid states that it is very wild and difficult to approach. It seems to occur only in the very coldest months in flocks of about a dozen.

No. 1615. PODICIPES CRISTATUS. *Great Crested Grebe*.

Thang (?) [H., *teste* Reid].

Common during the cold weather. The majority, I fancy, migrate, but some pairs evidently remain and occasionally

breed, as the late Mr. A. Anderson found eggs, if my memory does not fail me, on some wheels by the side of the railway between Lucknow and Hardoi.

No. 1617. *PODICIPES ALBIPENNIS*. *Indian Little Grebe or Dabchick*.

Pandubi, Thildubi [H.].

A very common and permanent resident. I have taken its eggs several times on the weedy ponds which form in hollows near villages during the "rains." Eggs four to six in number, white at first, but brown or chocolate after being stained in the nest of wet weeds.

Average of 11 Lucknow eggs	1.38" × 0.93"
Measurement of largest egg	1.44" × 0.95"
„ smallest egg	1.35" × 0.90"

XVI.—*On the Ibis olivacea of Dubus.*

By T. SALVADORI, F.M.Z.S.

THE *Ibis olivacea* of Dubus is perhaps the least known of the members of the family Ibisidae, and one about which many mistakes have been made, even quite lately. Having recently received an adult specimen, procured by Signor Leonardo Fea in Prince's Island, I hope to be able to settle the status of the species.

Ibis olivacea was first described by Dubus (Bull. Ac. Brux. 1837, p. 105), who gave at the same time a very good figure, which, strange to say, has remained unnoticed by every ornithologist treating of this species. The type-specimen was contained in a box of skins, said to be from Guinea, bought by the King of the Belgians, and presented to the Museum of Natural History of Brussels. The box contained also the type-specimen of *Ardea calceolata*, described and figured by Dubus in the same Bulletin*.

Later, in 1845, Dubus again figured *Ibis olivacea* in his 'Esquisses Ornithologiques,' i. pl. 3. Apparently from this figure Reichenbach took that which he published in the

* "Description d'une Espèce nouvelle de *Héron*," par le Chevalier B. Dubus (*op. cit.* pp. 39-41, pl.).

‘Grallatores’ (t. 133. f. 2384) ; but while Dubus carefully figured the tarsi covered anteriorly with small hexagonal scales, Reichenbach represented them covered anteriorly with transverse scales !

G. R. Gray, in 1849 (Gen. B., App. p. 26), included *Ibis olivacea* in the genus *Geronticus*, while Reichenbach, in 1852 (Av. Syst. Nat. p. xiv), placed it in the genus *Comatibis*, and Hartlaub, in 1854 (*J. f. O.* 1854, p. 295), in the genus *Harpiprion*. Bonaparte, in 1855, included it first (Compt. Rend. xl. p. 725, n. 166) in the genus *Bostrychia*, and afterwards (Consp. Gen. Av. ii. p. 153) in the genus *Hagedashia*, adding that *I. olivacea* was represented not only in the Museum of Brussels, but also in the Paris Museum. I am not aware that the latter statement has been confirmed.

We now come to Cassin, who first, in 1857 (Pr. Ac. Philad. 1857, p. 39), attributed to *Ibis olivacea* a young bird obtained by Duchailu on the River Muni, saying :—“ A young bird, but evidently of this species. . . . General colours as figured by Baron Dubus, but with the feathers of the neck and breast having large central spots of dark fulvous, with which also a few of the feathers of the crest are striped longitudinally.”

Two years later (Pr. Ac. Philad. 1859, p. 174), in a ‘Catalogue of Birds collected on the Rivers Camma and Ogobai by Duchailu,’ Cassin again mentioned *Ibis olivacea*, saying :—“ Several specimens from the Camma, and formerly from the Moonda. The adult of this handsome species is described and figured very accurately by the Baron Dubus. Young ♂. General colours as in the adult, but paler. Under parts of the body with large oval spots of dull yellowish.” I think that as Cassin was able from his specimens to judge of the great accuracy of Dubus’s description and figure, we may assume that his identification was correct.

Schlegel, in 1863 (Mus. P.-B., Ibis, p. 9) made the rash supposition that *I. olivacea* was the same as *Ibis comata*, but Heuglin, in 1873 (Orn. N.O.-Afr. ii. p. 1145), shewed that the surmise was quite untenable.

Nothing more was heard of *Ibis olivacea* till Dohrn visited Prince's Island, and there found the bird (P. Z. S. 1866, p. 330). Mr. Keulemans, who accompanied Dr. Dohrn, has, moreover, given a good account of it (Ned. Tijdschr. Dierk. iii. p. 39).

Dr. Reichenow has also attributed to *I. olivacea* a young bird from Kameroun (J. f. O. 1874, p. 378; 1890, p. 108), the description of which agrees pretty well with that of the young given by Cassin; only Dr. Reichenow describes the bird as having the auricular region edged below by a whitish stripe, a feature found in *Hagedashia hagedash*, but certainly wanting at least in the adult of *I. olivacea*, which has the auricular coverts paler, slightly indicating a pale or whitish band.

This was the status of *I. olivacea* when Mr. Elliot in 1877 published (P. Z. S. 1877, pp. 477-510) his "Review of the *Ibidine*"; in this paper the author described and figured, under the name of *Lampribis* (nov. gen.) *olivacea* (Dubus), some birds from Denkera, in Ashantee, sent by Ussher, which have since been supposed to belong to a different species. These specimens, however, agree very well with the young or immature birds described by Cassin as the young of *Ibis olivacea*.

Since the publication of Elliot's paper, *I. olivacea* has been mentioned by Mr. Büttikofer among the birds of Liberia, specimens having been collected in several places [Not. Leyd. Mus. vii. (1885) p. 243; x. (1888) p. 101; xi. (1889) p. 127]; but of these I shall treat presently.

Ibis olivacea was found also in the island of S. Thomas by Mr. F. Newton, who sent several specimens of it to the Museum of Lisbon; they have been mentioned by Prof. Barboza du Bocage [Jorn. Sc. Lisb. no. xlvi. (1888) pp. 233, 234; (2) no. ii. (1889) p. 144 (S. Miguel); no. iii. (1889) p. 210 (S. Miguel); no. vi. (1891) p. 84 (Angolares)].

Dr. Sharpe (Cat. B. xxvi. p. 38), like Mr. Elliot, attributed to *Lampribis olivacea* some specimens from Denkera (Ashantee), and in his key to the genera the genus *Lampribis* was included in the section having the "anterior aspect of the

tarsus plated with distinct transverse scales." As the specimen of *Ibis olivacea* which I had from Prince's Island had the "anterior aspect of the tarsus reticulated with numerous hexagonal scales," I could not believe otherwise than that my bird was absolutely different from those from Denkera. Strange to say, Mr. Ogilvie-Grant, having, at my request, examined the specimens from Denkera in the British Museum attributed to *Lampribus olivacea*, has found that they have the anterior aspect of the tarsus reticulated with hexagonal scales, shewing that Sharpe's Key to the genera of the Ibises is quite wrong and misleading, so that in respect of the tarsi my bird does not differ from those from Denkera.

Rothschild, Hartert, and Kleinschmidt (Nov. Zool. iv. (1897) p. 377) thought that the bird found by Ussher in Denkera, and figured by Elliot, P. Z. S. 1877, pl. li., was different from *Ibis olivacea* Dubus, and they proposed for the former the name of *Lampribus rara*, saying that "it is probable that Dubus's bird is nothing more than an old *Hagedashia hagedash*, or a closely allied species not yet known to us except by the type." This opinion has been shared both by Dr. Sharpe (Cat. B. xxvi. p. 266; Hand-list, i. p. 187) and by Dr. Reichenow, who, in his recent work 'Die Vögel Afrikas' (i. (2) p. 326), has utterly ignored *I. olivacea* Dubus, and has included the name among the synonyms of *Hagedashia hagedash*.

I think that I am not mistaken in stating, first, that *Ibis olivacea* Dubus is a perfectly distinct species from *H. hagedash*, to which it is very distantly allied*; secondly, that *Ibis olivacea* is known not only from the type in the Museum of Brussels, but also from specimens in the Museums of Philadelphia, Leyden, and Lisbon, and probably others in the Museums of Paris and Stettin.

The bird which I possess—obtained by Signor Leonardo Fea in Prince's Island—is labelled "♂, 26 January, 1901." It appears to be an adult having a very long and full crest;

* In this opinion I am supported by Dr. Dubois, who has, in the Museum of Brussels, the type of *I. olivacea*, and by Dr. Finsch, who has at least one specimen in the Leyden Museum.

its beak is very much like that of *Bostrychia carunculata* both in size and shape, and is much shorter and weaker than that of *Hagedashia hagedash*, the colouring also being very different; there is no white line under the auricular region, which is slightly paler than the rest of the head and neck, and the greater coverts of the secondaries, instead of being golden bronze, are steel-blue; the general coloration above and below is much browner than in *H. hagedash*, and the upper wing-coverts less bronze and more green. Altogether, *Ibis olivacea* is a very different bird from *H. hagedash*.

As to the generic position of *Ibis olivacea* Dubus, it cannot be settled until we first identify *Lampribis olivacea* Elliot (= *L. rara* R., H. et K.), the type of the genus *Lampribis*. For this purpose I must notice that Rothschild and Hartert's supposition of *Lampribis olivacea* Elliot being different from *Ibis olivacea* Dubus, was evidently made without knowing what Dubus's species was, and under the impression that "probably it was nothing more than an old *Hagedashia hagedash*"; but I have shown already that it is a totally different bird. This point being established, we must try to identify the Denkera bird, which Elliot attributed to *Lampribis olivacea* (Dubus), and which Rothschild and Hartert have named *L. rara*. Not having access to the Denkera bird myself, I asked my friend Mr. Ogilvie-Grant to examine the Denkera specimens in the British Museum, especially as regards the shape of the bill, and he answers that in size and shape the bill is exactly like that of *Bostrychia carunculata*, which is the case also with the bill of my specimen of *Ibis olivacea* from Prince's Island, so that in that respect *Lampribis olivacea* Elliot (= *rara* R., H. et K.) and *Ibis olivacea* Dubus perfectly agree. As to the tarsi the two birds also agree, both having them reticulated with hexagonal scales. I have already mentioned the mistake made by Dr. Sharpe in attributing the genus *Lampribis* to the section with transverse scales on the anterior aspect of the tarsi.

A point which has puzzled me much in the identification of *L. olivacea* Elliot is the coppery-red colour of the smaller

upper wing-coverts, forming a distinct patch on the wing, as represented in Elliot's plate (P. Z. S. 1877, pl. li.). This feature is not mentioned in Elliot's description, and from Mr. Ogilvie-Grant's statements (*in litt.*) it appears that no such character exists in the specimens from Denkera, so that probably the coppery patch on the plate is owing to the fact that the artist tried to shew the coppery reflexions which in some lights are shown by the smaller upper wing-coverts on the curve of the shoulders.

Another point remains to be discussed as regards the colouring of the neck and breast of *L. olivacea* Elliot, those parts being of a "rich dark buff, every feather edged with dark olive-brown." But a similar coloration had been already described by Cassin as distinguishing the young birds of *Ibis olivacea* which he had received from Muni, Moonda, and Camma, together with fully adult birds, the latter perfectly agreeing with Dubus's plate.

I think, after all that I have said, that *Lampribus olivacea* Elliot is an immature bird of Dubus's species, and *Lampribus rara* a synonym of it. I may say that Dr. Finsch* is also inclined to believe that such is the case, and for myself I take it to be certain. It follows that *Ibis olivacea* Dubus is the real type of the genus *Lampribus*.

As to the affinities of the genus *Lampribus*, I should say that they are mainly with the genus *Bostrychia*, both of them having a bill of exactly the same shape and even size, a full crest on the nape, and reticulated tarsi, but differing much as regards the lores and sides of the head, which are naked in *Lampribus*, but feathered in *Bostrychia*, the latter having the additional character of a fleshy wattle on the throat.

Possibly *Lampribus* is allied to *Lophotibis*, but I have no means of ascertaining this point, as I do not possess a specimen of *L. cristata*. According to Sharpe's Key to the Genera, *Lophotibis* has the anterior aspect of the tarsi plated

* The Leyden Museum possesses one specimen of *I. olivacea* from Prince's Island (*Keulemans*), besides another *Lampribus* from Liberia (*Büttikofer*), probably belonging to a distinct species.

with transverse scales ; and *if such is the case*, the two genera belong to two different sections*.

The geographical distribution of *L. olivacea* would be as follows :—The type specimen is said to have been from Guinea, which is very probable, but we have no sure proof of this, as I do not think that the name of the collector is known. Besides, the bird is found in Prince's and S. Thomas's Islands. It appears from Cassin's statements that Du-chailu's specimens collected on the Camma, Muni, and Moonda Rivers belong to the same species, as well as the specimens from Kameroun collected by Reichenow and Zenker ; Dr. Reichenow also includes Angola in the range inhabited by *L. olivacea*, and mentions Schütt as the name of the collector. From what I have said, Ashantee is inhabited by the same species, which therefore appears to be distributed over the western coast of Africa from Angola to Ashantee, and to be also found in the islands of the Bight of Guinea (Prince's Island and S. Thomas Island).

As regards the Liberian birds mentioned by Büttikofer, I have some doubt as to whether they may not belong to a distinct species. I have seen one of the specimens (a male), collected by Büttikofer at Soforé Place, June 11, 1880, which differs strikingly from that which I have from Prince's Island, and from the description of *L. olivacea* given by several authors, in having the greater wing-coverts of the secondaries not dark purple or steel-blue, but golden coppery on the outer web, slightly edged with purple, resembling in that respect *Hagedashia hagedash*. Should this character be constant in adult specimens from Liberia, the form residing there would be specifically different, and I propose for it the name *Lampribis*

* Quite recently, while this paper was passing through the press, Dr. Dubois has published the twelfth fascicule of the 'Synopsis Avium' containing the Family Ibisidæ. There is a note concerning *Ibis olivacea*, which he rightly declares totally different from *Hagedashia hagedash*, but he has failed to recognise that *Ibis olivacea* and *Lampribis rara* are one and the same species. Besides, he has attributed Dubus's species to the genus *Lophotibis*, a point which I am not able to discuss ; but should he be right, then *Lampribis* would not be different from *Lophotibis*. For the present I am inclined to consider the two genera distinct.

*splendida**. The specimen which I have examined is fully adult. It has a naked frontal shield at the base of the culmen, *broad and rounded posteriorly*, while this shield is narrow and almost acute posteriorly in the specimen that I have of *L. olivacea* from Prince's Island. The colours are as follows:—Head, neck, and lower parts brown with a slight bronze lustre, more evident on the sides and under tail-coverts; the ear-coverts are paler brown; the long feathers of the nuchal crest have a purple lustre, in some lights bluish or greenish; the back, scapularies, and inner remiges are bronze; the lower back and upper tail-coverts darker and more green; the smaller and median wing-coverts metallic bronze-green with coppery reflexions; the greater coverts of the secondaries *golden coppery*, narrowly edged with purple on the outer web, deep blue, nearly black, on the inner web; the primary-coverts, like the quills, black, with steel-blue gloss; the under wing-coverts black, glossed with dark green or blue; the tail dark bluish green: "bill red; feet greenish flesh-coloured; iris grey-brown" (*Büttikofer*). Wing 330 mm.; tail 150; culmen (without the frontal shield) 111; tarsus 72.

I add the full synonymy of *Ibis olivacea* Dubus, and a complete description of the bird from Prince's Island.

LAMPTRIBIS OLIVACEA (Dubus).

Ibis olivacea Dubus, Bull. Acad. Bruxelles, 1837, p. 105, pl. — (fig. optima) (Guinée) †; id., Esquiss. Orn. i. tab. 3 (1845); Rehn., Grallat. t. 133. f. 2384 (1851) (ex Dubus, sed fig. minus exacta); Hartl., Abh. naturw. Verh. Hamb. ii.

* The synonymy of this form would be as follows:—

Ibis olivacea Büttik. (nec Dubus), Not. Leyd. Mus. vii. p. 243 (Baria and Soforé Place) (1885); x. p. 101 (Du Queah, Liberia) (1888; xi. p. 127 (♂ ad., Farmington River, Liberia), p. 136 (Liberia) (1889); id. Reisebild. aus Liber. ii. p. 476 (1890).

Lampribis rara part., Sharpe, Hand-list, i. p. 187 (Liberia) (1899).

Theristicus rarus, part., Rehnw. Vög. Afr. i. 2, p. 328 (Liberia) (1901).

† "Note sur l'*Ibis olivacea*, *Ibis olivâtre*" (l. c. pp. 105–106 avec planche).

2, p. 41. n. 448 (1852); id., J. f. O. 1854, p. 256 (Mus. Brux.); Heugl., Orn. N.O.-Afr. ii. p. 1145 (crit.) (1873); Rehnw., J. f. O. 1874, p. 378 (juv., Kamerun), 1875, p. 48 (Kamerun), 1877, pp. 144, 145, 156, 274 (West Afr.); Rothsch. et Hartl., Nov. Zool. iv. p. 376 (= *Hagedashia hagedash*, ad.?) (1897); Sharpe, Cat. B. Brit. Mus. xxvi. p. 266 (= *H. hagedash*) (1898); Rehnw., J. f. O. 1900, p. 370 (Kamerun: *Zenker*).

Geronticus olivaceus G. R. Gr., Gen. B., App. p. 26 (1849); Hartl., Orn. Westafr. p. 275 (Munifluss: *Duchailu*) (1857); Cass., Pr. Ac. Philad. 1859, p. 174. n. 217 (ad. and young) (Camma and Moonda: *Duchailu*); Hartl., J. f. O. 1861, p. 271 (Camma); Dohrn, P. Z. S. 1866, p. 330 (Prince's Isl.); Sousa, Jorn. Sc. Lisb. no. xlv. p. 44 (1887).

Comatibis olivacea Rehnw., Av. Syst. Nat. p. xiv, t. 133. f. 2384 (1852); Heine, J. f. O. 1860, p. 201 (Camma and Moonda: *Duchailu*); Oust., N. Arch. Mus. (2) ii. p. 145 (1879) (ex Cassin); Boc., Jorn. Sc. Lisb. no. xlvi. pp. 233, 234 (S. Thomé: *F. Newton*) (1888); (2) no. i. pp. 35, 36 (1889); no. ii. p. 144 (S. Miguel: *F. Newton*) (1889); no. iii. p. 210 (S. Miguel, costa occidental) (1889); no. vi. p. 84 (Angolares: *F. Newton*) (1891).

Harpiprion olivaceus Hartl., J. f. O. 1854, p. 295 (Guinea, Mus. Brux.); Cass., Pr. Ac. Philad. 1857, p. 39 (juv., River Muni: *Duchailu*).

Bostrichia olivacea * Bp., Compt. Rend. xl. p. 725. n. 166 (1855).

Hagedashia olivacea Bp., Consp. ii. p. 153 (1855) (Mus. Brux. et Paris).

Geronticus (Comatibis) olivaceus Hartl., Orn. Westafr. p. 231. n. 657 (Guinea, Mus. Brux., Paris) (1857).

Ibis comata part., Schleg., Mus. P.-B., Ibis, p. 9 (1863); Gieb., Thes. Orn. ii. p. 384 (part.) (1875).

Ibis (Geronticus) olivaceus Keulem., N. T. D. iii. p. 397 (Prince's Isl.) (1866).

* I suppose that it is by a misprint that Dr. Sharpe in the synonymy of this species (Cat. B. Brit. Mus. xxvi. p. 38) writes *B. ochracea* instead of *B. olivacea*.

Geronticus (Hagedashia) olivaceus G. R. Gr., Hand-list, iii. p. 40. n. 10229 (1871).

Ibis (Hagedashia) olivacea Heugl., Orn. N.O.-Afr. ii. p. 1145 (Anmerk.) (1873).

Lampribus olivacea Elliot, P. Z. S. 1877, p. 507 (Guinea, Prince's Isl., Denkera); Sharpe, Cat. B. Brit. Mus. xxvi. p. 38 (part.) (1898); Salvad., Mem. R. Ac. Tor. (2) liii. p. 13 (1903) (Is. del Principe).

Theristicus olivaceus Rehnw., J. f. O. 1890, p. 108 (Oberen Kamerun).

Plegadis olivaceus part., Shelley, B. Afr. i. p. 156. n. 2107 (1896).

Lampribus rara Rothsch., Hart., & Kleinschm., Nov. Zool. iv. p. 377 (Denkera) (1897) (immat.); Sharpe, Hand-list, i. p. 187 (part.) (1899); Dubois, Syn. Av. p. 903. n. 10928 (fasc. xii. 1902).

Theristicus hagedash part., Rehnw., Vög. Afr. i. 2, p. 325 (1901).

Theristicus rarus part., Rehnw., op. cit. p. 328 (Kamerun, Camma, Munda, Muni, ? Angola, S. Thomas, Prinzeninsel) (1901).

Lophotibis olivacea, Dubois, Syn. Av. p. 903. n. 10927 (fasc. xii. 1902).

(Mas ex Ins. Principis.) Capite et collo fusco-brunneis, plumis in medio pallidioribus; regione parotica pallide brunnea; plumis occipitalibus latiusculis, valde elongatis, fuscis, ad marginem viridi, vel cyaneo nitentibus; pectore et abdomine saturate fuscis paullum viridi nitentibus, scapis pallidioribus; subcaudalibus saturate viridinitentibus; dorso scapularibusque nitide olivaceo-æneis; uropygio et supracaudalibus cyanescentibus; tectricibus alarum nitidissime viridibus, majoribus cum tectricibus remigum primariorum remigibusque secundariis cyaneo-chalybeis; remigibus primariis nigris, exterius cyanescentibus; cauda nigra, cyanescente: "cute nuda capitis nigra; pedibus sordide flavidis; iride brunnea" (Dohrn). Long. tot. circa 600 mm.; al. 340; caud. 130; rostri culm. 110; tarsi 65.

A female mentioned by Dohrn had the long feathers of the head non-metallic; another female from Prince's

Island, in the Leyden Museum, obtained by Mr. Keulemans, according to Dr. Finsch (*in litt.*), agrees in nearly every respect with the male, except in the following points:—The feathers of the crest, which are as long, if not longer, than those in the male, are uniform brown, without the metallic lustre; the coloration of the back is a little darker, the upper wing-coverts shew less of the bronze lustre, and the feathers of the neck, sides of the head, and the lower part of the crest have lighter shafts; the dimensions also are somewhat smaller—wing 313 mm.; tail 110; tarsi 67. According to Keulemans, “the bill is brick-red; the iris brown; the feet reddish yellow; the naked skin of the head black.”

It would appear from Cassin’s statements that the “young bird has the under parts with oval spots of dull yellowish.”

Mr. Keulemans gives a good account of the habits of this bird in Prince’s Island, where it is known under the name of “Corvao.”

In the preparation of this paper I have had to resort to Dr. Dubois, Dr. Finsch, and Mr. Ogilvie-Grant for information, which has been freely and kindly given, and to them I owe my best thanks.

XVII.—*On the Eggs of the Moa.* By Dr. A. B. MEYER.

WHEN visiting the Museum of the Royal College of Surgeons of England in the autumn of 1901, I saw an egg of the Moa, and not having been previously aware of its existence I tried to hunt it up in the literature of the subject. On this occasion, as well as formerly, when studying the literature of the eggs of *Æpyornis* (see *Abh. Ber. k. Zool. Mus. Dresden*, vol. ix. no. 7, 1901), I collected certain facts concerning the known eggs of the Moa—reproduced here in an abbreviated form.

Moa’s eggs are very much rarer than those of *Æpyornis*, thirty-six of the latter being known, whereas only three or four perfect Moa’s eggs are as yet recorded, besides a dozen or

more imperfect or reconstructed specimens. In the published list of eggs of *Æpyornis* (*l. c.* p. 4) only thirty-three specimens were enumerated, but I have since heard of three more, which may be mentioned here incidentally:—

One in the Museum of the Royal College of Surgeons of England, where I saw it in the year 1901. 295 by 190 mm.

One in the Bristol Museum, formerly in Sir Greville Smith's collection (see 'Nature,' vol. lxxv. p. 324, 1902).

One sold by auction at Stevens's Rooms, London, in June 1902, for £40—and brought by Mr. Edw. Gerrard of London. 314 by 216 mm., circumference 862 by 707 mm. (See also 'Nature,' lxxvi. p. 160, 1902.)

I am indebted to Sir Walter Buller for several notes, of which use has been made in the following paragraphs; and I shall feel quite satisfied if my unpretentious communication rescues from oblivion some further specimens of Moa's eggs, if they by chance have escaped my notice.

1. George Dawson Rowley (Brighton) figured in the year 1878 the fine Moa's egg in his possession (*Orn. Misc.* iii. p. 244, pl. cxiv.). It is, according to the drawing, 252 by 178 mm., and has also been figured by Sir Richard Owen in his *Memoirs on the Extinct Wingless Birds of New Zealand*, 1879, pl. cxvii. p. 318. It is referred to *Dinornis ingens* Owen (*Dinornis novæ-zealandiæ* Owen) and was found in 1859 or previously in the South Island. Mr. Rowley about six years later paid £100 for it (not £200 as erroneously stated, *Abh. Ber. Zool. Mus. Dresden*, vol. ix. no. 7, 1901, p. 1, note 1). The egg is nearly perfect except for "a hole on the underside" (Rowley, *l. c.* p. 244). The present owner is, I am told, Mr. G. F. Rowley, St. Neots, Huntingdonshire. It has been mentioned by A. R. Thomson, 'The Story of New Zealand,' i. p. 33, 1859; compare also J. D. Enys, *Tr. Pr. N.Z. Inst.* iv. pp. 363 & 403, 1871.

2. The Otago Museum in Dunedin, New Zealand, received in July 1899 "a complete Moa's egg" (*Tr. Pr. N.Z. Inst.* xxxii.

p. 438, 1900), concerning which Sir Walter Buller has given me the following particulars :—

“About the year 1898 an almost perfect specimen was found by a gold-dredging party in one of the Otago rivers, the Clutha or Molyneux [in the south of the South Island]. It was brought up by the dredger and, being hollow, floated on the surface of the water. The Government claimed it, and threatened litigation for its recovery ; but, in the end, the miner was allowed to sell it for £50, for presentation to the Otago Museum.” Subsequently Dr. W. B. Benham, Curator of this Museum, published similar items of information (Tr. Pr. N.Z. Inst. xxxiv. p. 149, July 1902 ; read before the Otago Institute, June 11th, 1901) with some description and a rather insufficient reduced illustration (*l. c.* pl. vii.). Size 195 by 135 mm., circumference 522 by 428 mm.; weight 286·5 gr. Dr. Benham (*l. c.* p. 150) refers the egg to *Euryapteryx ponderodus* [?] or [*Pachyornis*] *elephantopus* (Owen)*.

G. Krause (Illustrirte Zeitung, Leipzig, Nov. 21, 1901, pp. 780, 781) had some time before figured a cast of this egg of the natural size and given some details, furnished by Dr. Benham. The Dresden Museum possesses such a cast.

3. In July 1901 Mr. R. Barnekow, of Awahuri, North Island, New Zealand, informed me that “some hundred miles” from his place a Moa’s egg had been recently found, and that it was in the possession of “The Dredging Co.,” which demanded no less than £500 for it—a price, moreover, stated to be only a “reserve-price in the case of sale by auction.” The owner described it as “in perfect condition save for an almost imperceptible crack of about two inches ; dimensions 9 by 5 inches” (229 by 127 mm.). I surmise that this is the egg which was on sale by auction at Stevens’s Rooms, in June of this year, described as “rather weather-worn at one part and has been cracked and mended at the

* Owen (Mem. Extinct Wingless Birds N.Z. 1879, pl. xc. p. 318) reconstructed an egg of *Pachyornis elephantopus* (Owen) to 233 by 183 mm., but in our present (and still very imperfect) state of knowledge of Moas’ eggs this is rather doubtful.

apex" (compare also 'Nature,' lxvi. p. 160, 1900). I heard that the reserve-price at this auction was £350 (according to 'Nature' £200), and that there was no bidder above £150, while the egg is reported to have gone back to New Zealand. My informant called the size "that of a medium Ostrich egg"; but this may have been an illusion, the more rounded eggs of the Ostrich looking larger than they really are, according to G. Krause (see above, sub No. 2), and measuring only about 150 by 120 mm. (Some years ago, 'Nature' reported (*l. c.*) that a Moa's egg had been sold by auction for £250. I have not been able to trace this egg, and do not know where it is now. Perhaps it refers to No. 4.) The egg of the London auction in 1902 appears to be the same of which Dr. Benham (Tr. Pr. N.Z. Inst. xxxiv. p. 150, 1902; read before the Otago Inst., June 11th, 1901) recently wrote:—"I had an opportunity of examining a second entire egg, which was obtained some months later by the same man [viz., 'a dredge-hand on the Earnsleugh gold-dredge, working on the River Molyneux, Otago,' see No. 2 and *l. c.* p. 149] about a hundred yards below the spot at which our specimen [see No. 2] was taken. The egg had been dipped in shellac (?), and was in a very dirty condition when it was brought to the Museum in order that the taxidermist might clean it before its transmission to London for sale. He refused, however, to undertake the responsibility . . . the two ends were similar, so that the egg was a perfect ovoid." Dr. Benham gives the following measurements: 201 by 138 mm., circumference 540 by 440 mm. These measurements, it is true, do not agree with those given to me by Mr. Barnekow (229 by 127 mm.); nevertheless I take it for granted that they refer to the same egg, my correspondent not having taken the measurements himself, and the owners probably not having been well versed in measuring birds' eggs.

4. Sir Walter Buller has furnished me with the following notes:—"About the year 1892 Sir George Grey (the former Governor) wrote informing me of the discovery of a 'nearly perfect egg' (supposed to be that of *D. robustus*) in

the South Island. It had been offered to him for £50, and he sent the letter on to me. I obtained further particulars from the owner and found that the egg was too much broken to be worth buying." I do not know the present owner of this specimen; it may be that mentioned in 'Nature,' lxi. p. 160, 1902; compare sub No. 3.

5. According to Tr. Pr. N.Z. Inst. xxxi. p. 738, 1899, "the greater part of the egg-shell of a Moa" was found in sandy soil near Clyde, Central Otago, South Island, and received by the Otago Museum in August 1898. "Another specimen was found with it, but was accidentally destroyed." To this fragment we may perhaps also refer Dr. Benham's (Tr. Pr. N.Z. Inst. xxxiv. p. 150, 1902) remark as to two or three more or less damaged specimens "that have been through his hands," viz., that they all belong to the genus *Euryapteryx*.

6. Sir Walter Buller knows of an imperfect specimen in the collection of Mr. Augustus Hamilton, Registrar of the Otago University in Dunedin.

7. The same authority informs me that Mr. Turton, of Dunedin, possesses a much broken egg, which was obtained, as he believes, in the Queenstown district, Otago.

8. There is one half of an egg in the Colonial Museum at Wellington. According to Sir James Hector (P. Z. S. 1867, p. 991), two were discovered in the alluvium of the Upper Clitha Plains, Otago, South Island, but only one nearly complete side could be put together, consisting of about twenty fragments; this egg measured 242 by 153 mm. One had contained "bones of an embryo chick" (comp. P. Z. S. 1867, p. 991; Tr. Pr. N.Z. Inst. iv. pp. 110 & 363, pl. vi. p. 187; and Owen, Extinct Birds N.Z. 1879, p. 319).

9. The egg in the Museum of the Royal College of Surgeons of England, mentioned in the beginning of my communication, was "cracked and pieced together," and measures "216 by 142 mm.," for which particulars I am indebted to Prof. C. Stewart. I could not inspect it closely, as the opening of the case was beset with some difficulties. Judging from outside, the egg did not give the

impression of having been mended. In shape it is a long oval, not pointed. It is not mentioned in the printed Catalogues of the College. This egg belongs to the so-called Mantell's "models" (see below), about which Sir Walter Buller says :—"Mantell's so-called 'models' were ingenious reconstructions from fragments of shell, sorted out and put together with infinite labour. The late Mr. Walter Mantell informed me that the best and most perfect of these—one of an ivory-white appearance—was given away by him, many years ago, to some friend in England, and in recent years he had been unable to trace it. There are several of these 'models' (all more or less imperfect) in the possession of Mr. Mantell's son in Wellington. Mr. Walter Mantell made large collections of M^oa bones and fragments of egg-shells at Waingongoro in the North Island and at Waikouaiti in the South Island, between the years 1848 and 1856." This agrees well with W. B. D. Mantell's own description (Tr. Pr. N.Z. Inst. v. p. 96, 1872) :—"The fragments of egg-shells from these *umus** varied in size from less than a quarter of an inch of greatest diameter to three or four inches. These, after careful washing, I had sorted, and having, with some patience, found the fragments which had been originally broken from each other and fitted together, I succeeded in restoring at least a dozen eggs to an extent sufficient to shew their size and outline. Six or seven of the best of these I gave to the British Museum † after their purchase of the collection; one is in the Museum of the College of Surgeons; the rest, including one very beautiful egg with a polished ivory-like surface, are still in my ownership somewhere in England. Some idea of the labour entailed by this attempt to rehabilitate eggs may be gathered from the fact that several of those restored consisted of

* "The bones and egg-shells of *Dinornis* and its kindred, mixed with remains of every available variety of bird, beast, and fish used as food by the aborigines, being all in and around the *umus* (or native ovens) in which they had been cooked."

† As we shall presently see, *sub* No. 10, the British Museum now contains only three.

between 200 and 300 fragments. I may add that in the markings, size, and so forth, of the eggs (making allowance for the alteration of the former toward the ends of the eggs) I made out about twenty-four varieties, of which I have specimens." In the Proc. Wellington Philos. Soc. (Tr. Pr. N.Z. Inst. iv. p. 364, 1872) occurs the following paragraph as to these "models":—"Mr. Mantell explained that he had restored, more or less perfectly, about twenty eggs, and that he had, as a rule, found them imperfect at one end, as if a hole had been artificially formed for the purpose of extracting the contents, and perhaps to allow of the shell being used as a water vessel . . ." From part of these fragments Owen restored the egg referred to *Emeus crassus* (Owen) from the South Island and figured by him, which is now in the British Museum (see *sub* No. 10).

10-12. There are three specimens restored in plaster in the British Museum and several fragments (see Oates, Cat. Eggs, i. p. 8, 1901); according to the Catalogue the fragments were collected by Mr. Mantell, the three restored eggs only doubtfully so. Owen had already figured one of these (not two as Mr. Oates says), supposed to be that of *Dinornis* [*Emeus*] *crassus* Owen: the other egg figured by Owen, and supposed to belong to *D. ingens* Owen, is not in the British Museum, but in the Rowley Collection, as mentioned above, *sub* No. 1. The last-named is the original of Owen's pl. cxvii. in 'Mem. Extinct Wingless Birds New Zealand,' p. 318 (1879), whereas the British-Museum egg is figured pl. cxv. (p. 317), as well as in Rowley's 'Orn. Misc.' iii. p. 244, pl. cxv. (1878). It is incomplete and put together from small pieces, measuring, according to the drawing, 190 by 151 mm., according to Oates (*l. c.* p. 7) 7.25 by 6 in. [184 by 152 mm.]. The other two restored specimens in the British Museum measure, according to Oates, 7.75 by 5.25 and 8.1 by 5.9 in. [197 by 133 and 206 by 150 mm.]. I do not understand why the Catalogue questions the fact that these were from the Mantellian Collection, Owen stating this, so far as I can see (*l. c.* p. 317), and Mr. Mantell himself saying so (see above under No. 9). I may mention

List of known Moa's Eggs or Fragments thereof.

No.	When found.	Condition.	Locality.	Species.	Size.	Owner.
1.	1859	Nearly perfect.	South Island.	<i>D. nove-zealandica</i> , Owen.	mm. 252 by 178	Rowley Collection, St. Neots.
2.	1898	Perfect.	Molynaux River, S. I.	<i>Pachyornis elephantopus</i> (Owen)?	195 " 135	Otago Museum, Dunedin, N.Z., S. I.
3.	1899	Perfect.	"	?	201 " 138	Dredging Co., N.Z.?
4.	1892	Nearly perfect.	South Island.	<i>D. robustus</i> Owen.	?	?
5.	1898	Greater part.	Clyde, S. I.	<i>Ernyalphenya</i> sp.	?	Otago Museum, Dunedin, N.Z., S. I.
6.	?	Imperfect.	?	?	?	A. Hamilton, Otago, N.Z., S. I.
7.	?	Much broken.	Queenstown district, Otago, S. I.	?	?	Mr. Turton, Dunedin, N.Z., S. I.
8.	?	Half.	Upper Clitha plains, Otago, S. I.	?	242 by 153	Colonial Museum, Wel- lington, N.Z., N. I.
9.	About 1850	"Model."	?	?	216 " 142	R. College of Surgeons of England, London.
10.	"	" incomplete.	South Island.	<i>Emeus crassus</i> (Owen).	184 " 152	British Museum, London.
11.	"	"	?	?	197 " 133	"
12.	"	"	?	?	206 " 150	"
13.	"	"Model."	?	?	?	Mr. Mantell, jr., Wellington, N.Z., N. I.

here, incidentally, that Owen constructed the egg of *Dinornis maximus* to 412 by 326 mm., according to pl. cxix. p. 320 (*op. cit.*).

13. Several "models," according to Sir Walter Buller, in the possession of Mr. Mantell, jr., in Wellington (see No. 9).

Fragments of egg-shells are to be found in several Museums, as at Tring, Vienna, &c.

A very useful Bibliography, which we owe to Mr. A. Hamilton (*Tr. Pr. N.Z. Inst.* xxvi. pp. 229-257, 1893), entitled 'Materials for a Bibliography of the Dinornithidæ, the Great Extinct Birds of New Zealand, usually called Moas,' contains also a great deal about the eggs, and recently Dr. Benham has given us a small and rather incomplete bibliography (*l. c.* xxxiv. p. 151, 1902).

Royal Zoological Museum, Dresden,
December 4th, 1902.

XVIII.—*Bird-Notes from Morocco and the Great Atlas.*

By E. G. B. MEADE-WALDO.

(Plate VI.)

DURING the summer of 1901 I took a journey through the Central Provinces of Morocco and part of the Great Atlas range. The chief object of my trip was to observe the birds, and to collect such as appeared to be worth collecting. I also, however, devoted a considerable portion of my time to entomology. M. Henri Vaucher, a Swiss gentleman and naturalist for many years resident in Tangier, accompanied me as taxidermist and interpreter, and I found his knowledge of the country and his tact in dealing with the by no means easily-managed inhabitants to be simply invaluable; so that I consider that to him such success as attended our expedition is largely due. We started with the usual caravan of horses and mules, ten animals in all, and with seven Moorish servants, the whole of whom behaved well during our long journey, which commenced on May 8th and did not finish until August 21st.

We started too late in the year: all through the plains it was dead summer, everything was absolutely baked up, and the breeding-season was practically over. The birds were silent and moulting, and the heat at times was very intense—facts which applied even to the mountains so far as bird-life was concerned, though I was in good time for butterflies on the very high ground.

The country between Tangier and Rabat has been so well worked, and so much has been written about it, that I do not propose to treat of it in the following account. The route I took was inland, and really most interesting; but beyond the occurrence of the White-shouldered Imperial Eagle in the great plain-swamps of the Wad-li Koos I do not remember anything of special interest until we came to the breeding-grounds of the "Bald Ibis" (*Comatibis eremita*) in the Sallee cliffs, just north of Rabat, although we found an "Arabian Bustard" (*Eupodotis arabs*) floating, dead, in the Seboo at Mehedia. The Bald Ibis breeds abundantly in the cliffs, each bay being occupied by many pairs, and most available sites being taken up; the nests were often very close together, some ledges being quite covered with them, so that they touched each other. They were rather small and built of dry weeds, while almost all of them contained nearly full-grown young, though many birds of the year were on the wing. I saw a pale green, apparently addled, egg in one nest, and picked up some pale green egg-shells on the beach beneath the cliffs. The breeding-season must be very early, as on May 20th I shot a full-grown young bird on the wing. The parents were very wild at the nest, and shewed no apparent solicitude for their progeny. The stomachs of those we examined contained locusts, scorpions, and large centipedes. The majority of the adults pass over into the Forest of Marmora to feed. I met with this bird again at intervals throughout Morocco, and saw a colony breeding in a cliff over the Wad Moorbey at Oolad Lasara, close upon 200 miles from the sea.

The whole of the country passed through, and almost all that from Rabat to Morocco city, was cursed by a plague of

locusts, which must have had a considerable effect on the distribution of the birds, whole districts being denuded of almost every scrap of vegetation and the smaller species being entirely absent.

On leaving Rabat we came across the Rufous Swallow (*Hirundo rufula*) for the first time. Several pairs were collecting mud from the road at the South Gate of the town. I did not meet with it again until we reached the villages on the foot-hills of the Atlas, where it was common enough. Between Rabat and Fedulla, Pratincoles (*Glareola pratincola*) were breeding in all the fields after the manner of our Peewits at home—not in colonies, but in odd pairs; fallow fields were most usually chosen. On a low rocky island in the sea, separated from the mainland by a channel some 200 yards wide, an enormous colony of Buff-backed Herons (*Ardea bubulcus*) was breeding. The whole island was absolutely covered with nests; it is hard to compute the numbers of birds, but there must have been some thousands. Many of these were still building their nests on May 28th; and in the spring of last year (1902), when I passed the breeding-place on April 1st, it was quite deserted.

After leaving Fedulla we struck inland, and travelled slowly, by way of Bershid, Estat, Ben daud, Wad Gizar, and several places the names of which we could not correctly ascertain, to Beni Meskin. A great part of this country was under corn, but much of it had been ruined by locusts; parts were more or less desert, and on referring to my notes I see that Harriers and Ravens had disappeared, as well as Calandra Larks. The last two days before arriving at Beni Meskin we passed through scrubby desert, where Lesser Short-toed Larks (*Calandrella minor*) were observed; but these and the ubiquitous Crested Lark were the only Larks observed on this ground. Both Black-breasted Sand-Grouse (*Pterocles arenarius*) and Pintailed Sand-Grouse (*P. alchata*) were common and very tame; and the Cream-coloured Courser (*Cursorius gallicus*) was noticed, singly or in small flocks: it had apparently finished breeding. We saw no Bustards here; but *Eupodotis arabs* was described to us from a thick scrub-tract of *Zizyphus*

lotus and acacia a few miles away. Many gazelles (*Gazella cuvieri*) frequent this country.

In the neighbourhood of Beni Meskin the heat was intense, ranging from 116° to 95° ; and camping on the hot stones in a gale of hot wind was so unpleasant that we moved on towards the river, passing through a very nice valley of tall zizyphus and acacia, and, for the first time since leaving Rabat, coming across the Moorish Magpie (*Pica mauritanica*).

We crossed the river Wad Moorbey: this is *Oom-er-rebbe* in the maps, but I believe that my spelling is correct, or as near as can be got to the Arabic sound, for the Sultan himself assured me that it was so. The river is a very fine rapid stream, with a great volume of water of a bright brick-red colour. There was little or no cultivation on its banks, which were fringed with tamarisk. There were a few very poor Arab duars on the south side, but the north side appeared almost depopulated, with nearly all the villages in ruins. We followed the south bank eastward for a short distance, and camped on a low hill at what would have been an excellent collecting-ground two months earlier in the year. A good many birds frequented this part; a low cliff was full of Bald Ibises, and a pair of Barbary Falcons had a nest and young. I saw the little light blue Tiercel with his buff nape stoop at and bind on to a Neophron that floated past the cliff, and both he and his mate used to fly at the Bald Ibises and knock them about shamefully. Little Ringed Plovers (*Egialtis curonica*) were breeding commonly along the banks, and I have described as new* a small Sand-Martin (*Cotile mauritanica*) which was very common. These birds were in full moult, and I saw no young in the first half of June, so they must have bred very early. A Pied Wagtail from this locality (*Motacilla subpersonata*) has also been described as new; it was in pairs with nearly full-grown young, evidently bred on the banks of the river.

The most abundant bird was undoubtedly the Rufous Warbler (*Ardon galactodes*)—that is, with the exception of

* Bull. B. O. C. xii. p. 27.

Sand-Grouse, which trooped in to drink in great numbers, morning and evening; but single birds used to come in in the middle of the day, and these were almost invariably old cocks coming to saturate their breasts, so as to convey water to their young. Wherever there was sufficient bush a pair of Shrikes (*Lanius dodsoni*) was sure to occur, and also the Eared Chat (*Saxicola catarina*), which, with the exception of one male of *S. stapazina*, was the only Chat I came across until I reached the Atlas. Both the Great Tit (*Parus major*) and the Ultramarine Tit (*P. ultramarinus*) occurred in the tamarisks by the side of the water.

After spending some ten days up the river we struck off for Marrakesh. As food for our animals had become very scarce, we travelled slowly; the desert plains were very desolate, the only birds observed being the two kinds of Sand-Grouse (*Pterocles arenarius* and *P. alchata*), *Calandrella minor*, a few individuals of *Galerida thectes*, *Cursorius gallicus*, and the Lanner (*Falco feldeggii*).

On arriving at the mountains to the east of Rehamna we passed through a tract of high zizyphus which was full of old nests that appeared to have belonged to the common House-Sparrow (*Passer domesticus*); these nests were built of dry grass, and the young had flown some weeks previously. I found some eggs in one or two which precisely resembled Sparrow's eggs, but the nests were *not* lined with feathers, and there was no town or village within many miles. There had been some Arab tent-villages and some poor crops of barley in the winter within perhaps a mile. I have observed the Sparrow to be very independent of human dwellings in many parts of Morocco, but nowhere so much as in this out-of-the-way place.

Of the city of Morocco itself not much that is new can be written; but no one can visit it without being delighted with the wealth of bird-life in its streets and gardens. Here, as elsewhere throughout the country, the Stork abounds—Little Kestrels, Rollers, Purple Starlings, Rock-Doves, Little Owls, Scops Owls, Barn-Owls, Black Kites, Dusky Bulbuls, Mouse-coloured Swifts, White-rumped Swifts (*Cypselus koenigi*?),

Sahara Buntings, Buff-backed Herons, and hosts of other birds all being common within the city walls. The numbers of the Little Kestrel must be seen to be believed, as many thousands may be observed on the wing at one time about dusk. A pair of Falcons frequented the Kutubia, but at their great height it was impossible to identify them with certainty: I believe that they were *Falco peregrinus*, certainly they were not *F. barbarus*.

After leaving Morocco city we made for Agurgur—a kasbah most beautifully situated on the edge of a precipice—which we reached in three days. On the road I saw a family-party of Bush-Babblers (*Argya fulva*), the only examples observed—though doubtless they were common enough,—and Spectacled Warblers (*Sylvia conspicillata*) were abundant for the first time.

At Agurgur we had the luck to find the Kaid away, while the Khalifa was harvesting in the mountains some miles off, so we got a capital start. After two days' rest and some success with insects, we started eastward over the mountains and descended into the valley of the Wad Nyfys, which we followed up to Tsigidir-el-bor, a kasbah almost on the watershed, which appears to be very low here. The whole of this valley was most interesting, and although watered by the Nyfys I take it to be typical of a dry valley on the north slopes of the Atlas. All the mountains are covered with a thin scrub of arar (*Callitris quadrivalvus*), lentiscus, and juniper; and the river has a hungry look, running mainly over stones with wide stony tracts on each side; it is full of fish, two kinds of which proved to have been hitherto undescribed. There is a certain amount of cultivation and some very fine plantations of old olive-trees.

Of birds there were many, the most noticeable being the Kingfisher (*Alcedo ispida*), Grey Wagtail (*Motacilla melanope*), Little Ringed Plover (*Ægialitis curonica*), Stock-Doves and Wood-Pigeons (both very common), Cirl Buntings, Algerian Chaffinches, Great Tits, and Ultramarine Tits. But I did not see the Atlas Coal-Tit here; it apparently needs a damp mountain-forest, at any rate in the summer. The

Spotted Flycatcher was common ; but the Jay, so plentiful elsewhere, was scarce ; I saw one family-party only. I heard the Common Nightjar, and saw some individuals hawking high up on the mountain-side. Serin Finches were still breeding, and I found several nests with eggs on June 27th. There were a few pairs of the Sahara Bunting about the kasbah, rather a high elevation for them ; but I saw them much higher on Jebel Bourzegan, in M'tuga, where they were breeding in rocks at over 5000 feet.

Finding that we could not ascend the very steep climb of over 5000 feet from Gindafy with our heavily-laden pack-animals, we had to partly retrace our steps down the valley of the Nyfys, crossing which we passed westward into the valley of the Wad Amsmiz and camped in a lateral valley at a place called Sould Jedid—a Berber village with very pleasant people, and a most delightful place. The mountains here were covered with damp forest, consisting of a most luxuriant growth of all the native trees—almost impenetrable, partly owing to the steepness of the ground. Here grew what was apparently the common holly and great quantities of laurustinus. High up, where it was too steep to get them away, were some fine tracts of primæval arar and prickly oak ; above the forest was a low growth of dwarf cistus and two kinds of a very prickly plant. The mountains here are comparatively low, reaching to about 9000 feet. Bird-life was abundant, but I will only mention what appeared to me to be the most interesting species. I saw four Hawfinches on the first day I camped here, but though I was always on the look-out for the bird I never saw another. The Golden Oriole was more numerous than I have ever seen it ; it was most abundant and nesting up to 8000 feet. Moussier's Redstart occurred everywhere, and occurred as high as there was any scrub. The Atlas Coal-Tit (*Parus atlas*), which has been described as new, occurred here for the first time ; it was abundant and much commoner than either the Great Tit or the Blue Tit. Bonelli's Wood-Wren (*Phylloscopus bonellii*) was much the commonest Warbler of the woods. The Subalpine Warbler was the commonest in the

lower scrub, and the Desert Warbler (*Sylvia deserticola*) in the high cistus-scrub above the forest. Both the Moorish Woodpeckers, *Gecinns vaillanti* and *Picus mauritanicus* abounded, the former even far out on the open mountain-side. The Jay (*Garrulus minor*) and the Moorish Magpie were both very common, especially the former, the Magpie not appearing to ascend nearly so high in the mountains. The Wood-Lark (*Alauda arborea*) was fairly common on the upper edges of the forest, and this was the only place in the Atlas where I saw the Alpine Swift. Both the Robin and the Common Wren (*Troglodytes parvulus*) were abundant in the moister valleys, but it was three weeks before I could get a specimen of the latter, owing to the thickness of the wood and the impossibility of getting far enough away. The Rock-Thrush (*Monticola saxatilis*) occurred on the stony parts above the forest, and the Blue Rock-Thrush (*M. cyanus*) in the rocks below.

Of game-birds I saw only the Barbary Partridge, which positively swarmed everywhere—females with young of very different ages, *not* accompanied by the male as a rule; there were also many packs of old birds.

Birds of prey did not strike me as particularly numerous. I saw Hobbies, Sparrow-Hawks, Snake-Eagles (*Circæetus gallicus*), and a Golden Eagle being mobbed by two Bonelli's Eagles. With the exception of the *Neophron*, I saw no Vultures; that species, however, was exceedingly common. The Black Kite was always to be seen, but in no great numbers; and the Common Kestrel outnumbered the Little Kestrel of the plains. Red Kites were rare, much more so than in the mountainous districts of the north of Morocco.

From Sould Jedid we struck westward into the Immentalla valley, and spent some days there, but nothing of special interest occurred. I worked a very fine patch of forest to the west, some of it quite primæval, and also saw the only pine-trees (*Pinus halipensis*) that I met with; but, with the exception of the Honey-Buzzard, I found no bird that I had not seen on Tsaunitz Entsagauz. It was too dry for Wrens, but I saw a few Robins, and found nests of the Serpent-

Eagle and Bonelli's Eagle, and noticed an adult Golden Eagle. There were a few pairs of Sahara Buntings in the village.

Away from the river, which is here a beautiful clear stream, everything is very dry, all the mountains being apparently waterless. Finding nothing fresh, we struck into another valley running S.E. into the heart of the mountains. The track was too bad for pack-animals, so we only took what things we had on us and one very good animal lightly laden. We went up a branch of the Amsmiz river, and eventually got to what was the last hamlet on the north slope, a tiny place of about six huts called Imi Ouern. This was a capital place for insects, but birds were not very numerous.

On the stream, which we followed up to its source at about 8500 feet, we found numbers of what was apparently the Common Dipper (*Cinclus aquaticus*). I caught a nearly full-fledged young bird, which dived all about the bottom of a pool and tried to hide under the stones below; this was on July 12th. Grey Wagtails were numerous on this stream, but, strange to say, I saw no Kingfishers, although they were so common on the Wad Nyfys.

A very fine mountain which we ascended to the summit was singularly devoid of bird-life, the only birds we saw being Barbary Partridges up to about 12,000 feet, Atlas Shore-Larks up to about the same height, a few Black-eared Chats (*Saxicola catarina*), and several pairs of Pied Rock-Thrushes (the latter with nearly-fledged young). I saw a pair of Black Redstarts on the summit of this mountain. A Berber shepherd told a most reliable man who was with me that this mountain was called Tizi Gourza; but a man at Imnentalla told us, when we pointed to the mountain from a distance, that it was Jebel Ogdimt, which it should be according to Thompson's map.

From here we went westward again, gradually getting to the foot of the mountains by Tafegar and Anzoot. Between the mountains and Mogador we saw but little of interest ornithologically. There was a large migration of many kinds of the commoner birds always going on to the south, prin-

cipally of Shrikes, Bee-eaters, and Storks, nearly all young birds. One place, Hamiz de Mescala, was interesting from the quantities of Black-breasted Sand-Grouse that came to the water actually in the middle of the village street; a very few Pintailed Sand-Grouse came with them. Through the plains I did not see Moussier's Redstart, but it occurred again in the neighbourhood of Mogador.

In the list which follows I propose to record only those birds that I have noted in my diary—not all the birds observed. In the spring of 1902 I went on an expedition to the Forest of Marmora and saw much of interest; but beyond the presence of a splendid Bustard, presumably *Eupodotis arabs*, that was common throughout the forest, although not frequenting the densest parts, and the Golden Eagle, which was nesting in trees, I observed nothing that was not found elsewhere; but bird-life was abundant, and our time much too short to thoroughly investigate it on this visit; moreover, this forest is inhabited by most undesirable people.

1. *TURDUS MERULA*. Blackbird.

Common and in full song throughout July in the Atlas Mountains.

2. *MONTICOLA SAXATILIS*. Rock-Thrush.

Not numerous, but breeding in all suitable places up to a great elevation. I saw it at an altitude of 10,500 feet.

3. *MONTICOLA CYANUS*. Blue Rock-Thrush.

Frequenting kasbahs and rocks up to about 6000 feet. Not common.

4. *CINCLUS AQUATICUS*. Common Dipper.

I saw the Dipper on a branch of the upper waters of the Wad Amsmiz running down from the east of Tizi Gourza. It was common and breeding. I saw it up to some 9000 feet. There appeared to be a pair about every mile. They had young out of the nest, but unable to fly, in July.

5. *SAXICOLA CATARINA*. Black-eared Chat.

The most abundant Chat, but not really common. It

frequented low hills on the borders of the desert, and I saw a few in the Atlas.

6. *SAXICOLA STAPAZINA*. Russet Chat.

Much less abundant than the last-named, and not frequenting such arid localities.

7. *SAXICOLA LEUCURA*. Black Chat.

I only saw this bird on migration in August on Jebel Bourzegah.

8. *PRATICOLA RUBICOLA*. Stone-Chat.

Ubiquitous wherever there was a certain amount of scrub, but not ascending high in the mountains.

9. *RUTICILLA TITYS*. Black Redstart.

Occurred at the highest elevations in the Atlas.

10. *RUTICILLA MOUSSIERI*. Moussier's Redstart.

Common in the Atlas up to at least 9000 feet, in fact as high as there was any scrub. I did not see it on the foothills, or indeed below about 3500 feet; but it occurred again in the neighbourhood of Mogador.

11. *SYLVIA HORTENSIS*. Garden-Warbler.

I shot one specimen on the upper waters of the Wad Moorbey in June.

12. *SYLVIA SUBALPINA*. Subalpine Warbler.

Very common in the Atlas at elevations of between 3000 and 7000 feet.

13. *MELIZOPHILUS DESERTICOLA*. Tristram's Warbler.

Abounded in the cistus- and broom-scrub, above the forest, up to 9000 feet.

14. *PHYLLOSCOPUS BONELLII*.

This was the most common Wood-Warbler throughout the high moister woods on the north slopes.

15. *ERITHACUS RUBECULA*. Redbreast.

Common in the moister woods of the Atlas.

16. *DAULIAS LUSCINIA*. Nightingale.

I saw a few individuals in the Atlas.



17. SYLVIA CONSPICILLATA. Spectacled Warbler.

I only noticed this Warbler to be common in one district in the foot-hills of the Atlas.

18. SYLVIA MELANOCEPHALA. Sardinian Warbler.

Almost ubiquitous.

19. SYLVIA ATRICAPILLA. Blackcap.

Occasionally seen in the Atlas.

20. HYPOLAIS POLYGLOTTA. Icterine Warbler.

I saw one example in the Atlas.

21. AËDON GALACTODES.

Exceedingly common, but not ascending into the mountains.

22. ARGYA FULVA. Algerian Bush-Warbler.

I only saw one party.

23. PARUS MAJOR. Great Tit.

Common in the mountains, but I did not see many individuals above the limit of the olive.

24. PARUS ULTRAMARINUS. Ultramarine Tit.

Fairly common. I saw it up to 7000 feet.

25. PARUS ATLAS. (Plate VI.)

Parus atlas Meade-Waldo, Bull. B. O. C. xii. p. 27.

Adult male and female. Most nearly allied to *Parus michalowskii* Bogd., from the Caucasus, but differs chiefly in having the black of the fore-neck extending over the sides of the chest and (in the freshly-moulted bird) conspicuously spangled with white, with the sides of the belly and flanks dark smoky buff instead of pale buff.

	Total length.	Wing.	Tail.	Tarsus.
	in.	in.	in.	in.
♂	4.7	2.65	1.95	0.75
♀	4.8	2.65	1.95	0.75

Hab. Atlas Mountains, Morocco (July 8th, 1901).

The Atlas Coal-Tit abounds throughout the moister woods of the Atlas; it ascends as high as the limit of trees or scrub. It occurred in family-parties, with fully fledged young, in July. The old birds were in more or less heavy moult, so that it was impossible to procure really good specimens.

26. TROGLODYTES PARVULUS. Common Wren.

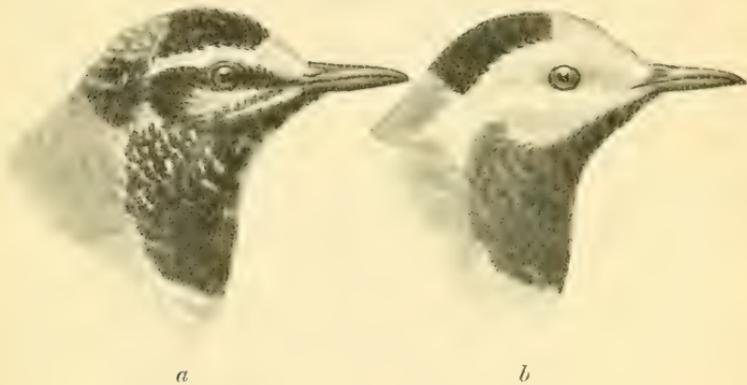
The Wren appeared to be common enough in one tract of moist forest, but I obtained only a single specimen after much perseverance.

27. MOTACILLA SUBPERSONATA. (Fig. 11, *a*.)

Motacilla subpersonata Meade-Waldo, Bull. B. O. C. xii. p. 27.

Adult male and female. Most nearly allied to *M. personata* (fig. 11, *b*), from which, however, it may be at once distinguished by having the white on the forehead only half

Fig. 11.



a. Motacilla subpersonata. b. M. personata.

as wide, 0·2 inch instead of 0·4 inch. The black is confined to the head, and does not extend beyond the nape. The median and greater secondary wing-coverts are dusky brown, with pale margins instead of white.

	Total length.	Wing.	Tail.	Tarsus.
	in.	in.	in.	in.
♂ (worn)	ca. 8·0	3·45	3·65	0·95
♀	ca. 8·0	3·6	3·8	0·95

Hab. Wad Moorbey, Zragna, Morocco (June 4th and 5th, 1901).

This Wagtail was found in family-parties on the side of the river, and was not uncommon.

28. MOTACILLA MELANOPE. Grey Wagtail.

The Grey Wagtail was common on all the streams of the

Atlas, and I saw it also about the irrigation-channels in the neighbourhood of Marrakesh.

29. *RYCNONOTUS OBSCURUS*. Dusky Bulbul.

This Bulbul, which abounds everywhere throughout the Atlas region, ascends to at least 7000 feet in the moist woods.

30. *ORIOLOUS GALBULA*. Golden Oriole.

The Golden Oriole was far more abundant in some localities in the Atlas than I have ever seen it before; it positively swarmed at Sould Jedid and on Tsauritz Entsagauz, both through the olive-region and as far up as there were trees large enough to accommodate it. I saw full-grown young in the middle of July.

31. *LANIUS DODSONI*. Grey Shrike.

A Grey Shrike, which I believe to be *Lanius dodsoni* or an allied form, is very common throughout Morocco. It does not ascend high up the mountains, but I saw a few individuals up to 3500 feet.

32. *LANIUS POMERANUS*. Wood-Chat Shrike.

The ubiquitous Wood-Chat Shrike was migrating south over the mountains in July; large numbers were young birds, but there were some adults in very worn plumage.

33. *MUSCICAPA GRISOLA*. Spotted Flycatcher.

The Spotted Flycatcher was breeding abundantly throughout the Atlas.

34. *HIRUNDO RUFULA*. Red-rumped Swallow.

I first saw this Swallow in the outskirts of Rabat, where it was breeding. I did not notice it again until just outside Marrakesh. It was very common throughout the Atlas region.

35. *COTILE MAURITANICA*.

Cotile mauritanica Meade-Waldo, Bull. B. O. C. xii, p. 27.

The Moorish Sand-Martin is nearest to *Cotile paludicola* Vieill. and *C. minor* Cab., but is much paler, the upper parts being of a greyish-brown tint devoid of gloss and the under

parts pale; the chin, throat, fore-neck, and neck pale smoky grey, and the breast and the rest of the under parts pure white.

	Total length.	Wing.	Tail.	Tarsus.
	in.	in.	in.	in.
♂ (in moult) ca.	5.0	4.0	1.5	0.4
♀	5.0	4.0	1.7	0.4

Very common on the Wad Moorbey in June. I saw no young birds—all were adults in very deep moult. I looked for banks where they had bred, but saw none.

36. *CARDUELIS ELEGANS*. Goldfinch.

The Goldfinch was common in the Atlas region, but I did not see it at any great elevation.

37. *SERINUS HORTULANUS*. Serin Finch.

Serin Finches were breeding as high in the mountains as the limit of trees. They had eggs in July.

38. *COCCOTHAUSTES VULGARIS*. Hawfinch.

The only Hawfinches which I saw were four met with at Sould Jedid.

39. *PASSER DOMESTICUS*. Common Sparrow.

I have a note that many of the Sparrows in the mountains appear to be intermediate between *Passer domesticus* and *P. salicicola*.

40. *FRINGILLA SPODIOGENA*. Algerian Chaffinch.

Common through all the Atlas region.

41. *LINOTA CANNABINA*. Linnet.

I have a note of seeing Linnets at 9500 feet.

42. *EMBERIZA CIRLUS*. Cirl Bunting.

The Cirl Bunting was common throughout the Atlas region up to a considerable elevation (about 5000 feet).

43. *EMBERIZA CIA*. Meadow-Bunting.

I saw the Meadow-Bunting at higher elevations than the last-named species.

44. *FRINGILLARIA SAHARÆ*. Moorish House-Bunting.

The House-Bunting was locally common throughout the Atlas. I saw it breeding in most of the kasbahs up to about

4000 feet; and at one place (Jebel Bourzegan) it was nesting in rocks far removed from any human dwellings.

45. GALERIDA THECKLÆ. Crested Lark.

The Crested Lark is the commonest bird in Morocco; it occurs almost everywhere. I saw it up to a considerable elevation in the Atlas, frequenting even comparatively small open spaces in the woods. The form that has been named *G. t. isabellina* appeared to be the most constant throughout the south of the country.

46. ALAUDA ARBOREA. Wood-Lark.

The Wood-Lark was fairly common in the Atlas. It was breeding in July. It frequented the upper parts of the forest on the edge of the scrub at about 8500 feet.

47. CALANDRELLA MINOR. Lesser Short-toed Lark.

The Lesser Short-toed Lark was common throughout the semi-deserts at the foot of the Atlas, and I saw it at intervals throughout the country south of the Wad Moorbey.

48. MELANOCORYPHA CALANDRA. Calandra Lark.

I did not see the Calandra Lark breeding south of the Wad Moorbey, although it was locally very common further north.

49. OTOCORYS ATLAS. Atlas Shore-Lark.

I saw the Atlas Shore-Lark in small flocks, with a few pairs, on Tizi Gourza up to about 10,500 feet.

50. STURNUS UNICOLOR. Purple Starling.

I noticed that this Starling, locally so common in the plains, did not reach far up into the mountains.

51. GARRULUS MINOR. African Jay.

The Jays that I brought from the Atlas have been named *Garrulus minor*, and those that I brought from the neighbourhood of Tangier *G. cervicalis*. The Jay is extremely abundant throughout the wooded portions of the Atlas, and ascends as far as the limit of trees.

52. PICA MAURITANICA. Moorish Magpie.

The Magpie is locally very common, some of the tracts of

acacia at the foot of the mountains being full of old and new nests. It does not ascend nearly so high in the mountains as the Jay. In the summer some districts were full of flocks of old birds which had not bred.

53. *CORVUS TINGITANUS*. Tangier Raven.

Common everywhere.

54. *CYPSELUS KOENIGI*. White-rumped Swift.

Locally very common. There was a large colony breeding in the archway of the house of Muley-el-Hadji in Marrakesh.

55. *CYPSELUS MURINUS*. Mouse-coloured Swift.

The common Swift of the country, breeding everywhere.

56. *CAPRIMULGUS EUROPEUS*. Common Nightjar.

This species was breeding throughout the Atlas up to a great elevation.

57. *DENDROCOPUS MAURITANUS*. Moorish Pied Woodpecker.

This Woodpecker was very common throughout the Atlas, and I may add that it abounded in the Forest of Marmora east of Rabat.

58. *GEVINUS VAILLANTI*. Algerian Green Woodpecker.

Very common in the mountains. I used to see it far up on the mountain-sides above the limit of trees.

59. *ALCEDO ISPIDA*. Common Kingfisher.

Very common and breeding on the Wad Nyfys.

60. *CORACIAS GARRULUS*. Common Roller.

This species, which abounds everywhere in extraordinary numbers, ascends to a considerable height in the mountains. I saw it breeding in old walnut-trees at an elevation of over 6000 feet at Imi Euern.

61. *MEROPS APIASTER*. Common Bee-eater.

The Bee-eater was seen in great numbers in July, frequenting the highest mountains. Large flocks passed over every night, migrating south.

62. *UPUFA EPOPS*. Hoopoe.

Found breeding in old olive-trees at Sould Jedid in July.

63. *STRIX FLAMMEA.* Barn-Owl.

As elsewhere in Morocco, this species abounded throughout the foot-hills of the Atlas.

64. *SCOPS GIU.* Scops Owl.

This Owl was very common wherever there was sufficient timber.

65. *ATHENE NOCTUA.* Little Owl.

Not common above 3500 feet.

66. *NEOPHRON PERCNOPTERUS.* Egyptian Vulture.

Very common everywhere, and the only Vulture seen.

67. *BUTEO VULGARIS.* Common Buzzard.

I saw a few individuals in the Atlas.

68. *FALCO BARBARUS.* Barbary Falcon.

Although I several times saw small Falcons that I have no doubt belonged to this species, the only pair which I was able to identify positively were those breeding at Oolad Lasara, on the Wad Moorbey.

69. *FALCO FELDEGGI.* Lanner Falcon.

I saw Lanners on many occasions in the plains.

70. *FALCO SUBBUTEO.* Hobby.

Found breeding in the Atlas in July.

71. *CIRCAËTUS GALLICUS.* Snake-Eagle.

Appears to be the most generally distributed Eagle throughout Morocco. It nests up to 7000 feet.

72. *NISAËTUS FASCIATUS.* Bonelli's Eagle.

Breeds both in trees and rocks, but I did not consider it at all common.

73. *AQUILA CHRYSAËTUS.* Golden Eagle.

I observed the Golden Eagle in the Atlas and in the Forest of Marmora; while I often saw large Eagles which I could not identify.

74. *ARDEA BUBULCUS.* Buff-backed Heron.

I have already alluded to the great colony of Buff-backed Herons breeding on a rocky island in the sea; but there are numerous other colonies where there are suitable sites, and a large number nest in the city of Marrakesh.

75. *COMATIBIS EREMITA.* Red-cheeked Ibis.

I did not see this Ibis in the mountains, but it does occur there, and breeds in the cliffs and caves of Haha at no great distance from Mogador. Personally I did not find it breeding south of the Wad Moorbey, although I occasionally saw flocks throughout the plains.

76. *ÆDEmia NIGRA.* Common Scoter.

The only note of any interest made on Ducks in the south of Morocco is that the Common Scoter was seen in large flocks in Mazagan Bay in the beginning of August.

77. *COLUMBA PALUMBUS.* Ring-Dove.

Common throughout the Atlas.

78. *COLUMBA CENAS.* Stock-Dove.

Locally common in the Atlas.

79. *PTEROCLES ARENARIUS.* Black-bellied Sand-Grouse.

Very common on the plains and very tame. I saw a few on the lower slopes of the mountains on broken ground.

80. *PTEROCLES ALCHATA.* Pintailed Sand-Grouse.

Far less numerous and much wilder than the last-named; I saw none away from the plains.

81. *GRUS COMMUNIS.* Common Crane.

I saw the Common Crane in flocks on the plain south of the Wad Moorbey on June 9th.

82. *GIAREOLA PRATINCOLA.* Common Pratincole.

I have noted that I found the Common Pratincole nesting in the fields in the Central Provinces. I did not see it in the south of the country.

83. *CURSURIUS GALLICUS.* Cream-coloured Courser.

Seen in small numbers throughout the plains.

84. *ÆGIALITIS CURONICA.* Little Ringed Plover.

Nesting in suitable places throughout the country and up to a considerable elevation in the Atlas.

85. *TOTANUS OCHROPUS.* Green Sandpiper.

I saw an example in Marrakesh on the 13th of June.

XIX.—*Additional Field-Notes on the Birds of Fohkien.*

By C. B. RICKETT.

THE following notes bring the list of Fohkien Birds up to date, besides furnishing a few items of information on the distribution of some species in the Province and on the habits of others.

The positions of the places here named will be found on reference to my previous papers in 'The Ibis' for 1899, p. 173, and 1900, p. 52.

PYCNONOTUS ATRICAPILLUS (Vieill.).

Although this species is a common resident round Amoy, it rarely occurs at Foochow. I have met with it only four or five times, always in the winter months. La Touche records one specimen from Kuantun in October ('Ibis,' 1899 p. 414).

REGULUS CRISTATUS (Linn.).

A specimen in my collection was given to me by Styan. It was obtained by his collector at Kuantun, and is the only example that I have met with in the Province.

TRIBURA MELANORHYNCHA (Rickett).

The type was obtained at Kuantun on May 4.

Another specimen in La Touche's collection is labelled "Central Fohkien, March."

ARUNDINAX AËDON (Pall.).

I shot an example of this species close to Foochow in October, but never obtained another. It is, as Styan writes, "no doubt often overlooked owing to its very close general resemblance to *Acrocephalus orientalis*."

My bird was in a patch of thick scrub on a small hill quite away from any water.

LANIUS TIGRINUS Drap.

A male in full summer plumage was shot at Foochow on May 16, 1902. The testes were very largely developed. The stomach contained remains of grasshoppers and a beetle.

La Touche obtained one at Kuantun, also in May.

TEPHRODORNIS PELVICUS (Hodgs.).

On March 2nd my men came across a flock of fifteen individuals at Ah Ch'ung and secured them all. At the first shot the survivors flew wildly into the thickest part of the wood; but when the men came on them again they were perched near the top of a high tree, chattering in low tones, and allowed themselves to be shot down without making an attempt to escape.

This is, I think, the first record of this species from the mainland of China. It has occurred in Hainan.

COCCOTHAUSTES JAPONICUS Bp.

A few years ago I saw a caged specimen which was said to have been caught near Foochow. In January 1900 my collector shot a female, and in the following winter a male, both in this neighbourhood.

EMBERIZA CHRYSOPHRYS Pall.

Three or four specimens have been obtained by my collectors about Ching Fung in winter. I shot one myself near that place in December, but lost it in the thick scrub at the edge of a wood. It was in company with three or four individuals of *E. tristrami*.

EMBERIZA YESSOENSIS Swinh.

A specimen was shot near here in February 1902.

AMPELIS PHENICOPTERA T. & S.

Apparently a rare straggler. I have only two specimens, shot in January and April.

MOTACILLA BOREALIS Sundev.

Perhaps not uncommon on migration. I have a fine male in full summer plumage shot on April 1st, and another procured in October.

GECINUS CITRINO-CRISTATUS Rickett.

The type was obtained at Yamakan on December 5, 1899. La Touche has a specimen shot in March.

My collectors got the first example by a mere chance. They had been resting for some time under a tree, and were just moving away, when one of them happened to look up and saw

the bird, which he shot more because they had not obtained much that day than with any idea that it was worth shooting. I believe that I saw a specimen near the same place. It was seated on a large branch near the top of a high tree, where it remained quite still for a long time. At last it flew to an adjacent tree, and I saw at once that it was not any of our common Woodpeckers. I called one of the men and pointed the bird out to him. We sat down and watched it for a long time, during which it remained in the same position, merely moving its head now and then. At last my man risked a long shot without success, and we saw no more of it.

CHRYSOPHLEGMA RICKETTI Styan.

Styan himself shot the type at Yamakan on December 10, 1897. No other specimen was obtained (though my men kept a sharp look out for it) till December 1899, when, curiously enough, Styan's collector shot one at Ah Ch'ung. A third specimen has since been obtained at Ching Fung in October. In the stomach of the second we found insects and fragments of berries.

PITTA NYMPHA T. & S.

I have a fine male shot near Foochow on April 24, 1901. Two friends, to whom I shewed this specimen, assured me that they had seen a similar bird on two occasions this spring when staying at Sharp Peak, at the mouth of the river.

CYPSELUS SUBFURCATUS Blyth.

This is a species that occurs commonly at Amoy, but never, so far as I know, strays up to Foochow.

Swinhoe writes :—" I may here remark that I have never been able to trace it further north on the Chinese coast than Amoy " (' Ibis,' 1863).

CACOMANTIS MERULINUS (Scop.).

This common summer visitor about Amoy I have only met with once near Foochow.

The bird frequented some gardens near my house in April, where for some days its wearisome note, uttered through the whole day and far into the night, rendered it a positive

nuisance,—so much so, that one or two persons whose gardens it specially frequented offered rewards for its destruction. I tried to shoot it myself on two or three occasions, but so well did it conceal itself that, although I knew that it was within a very few yards of me, I could not get a glimpse of it. No sooner did I move away than it recommenced its irritating note.

At last a friend saw it fly up into a pine-tree early one morning, and shot it. Troublesome to the last, it lodged in the tree, and required several more shots to dislodge it, eventually reaching my hands a perfect rag.

La Touche shot a specimen at Amoy in *February*.

SCOPS LATOUCHII Rickett.

The type of this species was shot at Ah Ch'ung on December 16, 1899. Its stomach was crammed with minute insects such as one might find in that of a Warbler.

No other specimen has been obtained, so far as I am aware.

ARCHIBUTEO STROPHIATUS Gray.

A male was shot in February.

ACCIPITER VIRGATUS (Reinw.).

Occurs in winter, but not nearly so frequently as *A. nisus* or *A. gularis*.

ERYTHROPUS AMURENSIS Gurney.

I know of only two occurrences of this species, both in November.

? *FALCO PEREGRINATOR* Sundev.

A skin sent home by me was pronounced by the Rev. H. H. Slater to be *F. atriceps* Hume (*Ibis*, 1894, p. 223).

In 'The Ibis' for 1896, pp. 530, 531, Mr. Ogilvie-Grant writes:—"No doubt the Rev. H. H. Slater has correctly referred the *F. melanogenys* Rickett from Foochow to this continental form" (i. e., *F. peregrinator*).

Last year I took home another specimen, which I compared with the type of *F. atriceps*, and it appeared to me to agree very closely with it.

This specimen is now in the British Museum.

COTURNIX JAPONICA Cassin.

Common at certain times and in certain seasons.

In the early part of November, when the second crop of rice has been cut, very fair Quail-shooting may, in some years, be had on the stubbles. As soon as these are ploughed up the birds scatter about the country, and are found on grassy hill-sides, in vegetable-gardens, and the like.

This applies to *C. communis* as well as *C. japonica*, and hybrids of the two species are by no means uncommon.

ARBORICOLA RICKETTI Grant.

In 'The Ibis' for 1900, p. 59, I wrote:—"My man describes the note as a low 'goo, goo, goo.'" This, owing to his having (like most of his countrymen) no notion of whistling, gives a very poor idea of the sound.

I have myself since heard the note more than once. It is a plaintively whistled "hu-u-u," rising slightly in tone at the end, and has a peculiarly melancholy effect when often repeated. At times the birds utter a much shriller series of notes, which are very rapid and in an ascending scale.

They frequent thick scrub on the hill-sides or underwood at the edge of patches of forest. They are difficult to flush, but, when on the wing, dart through the cover at great speed for twenty or thirty yards, only to drop again and squat closely.

TOTANUS STAGNATILIS Bechst.

Apparently not common. I know of only three or four specimens obtained in October, and two shot at the end of September 1902, out of a small flock of Greenshanks.

LARUS VEGÆ Stejn.

Not at all uncommon on our coast during the winter months.

PUFFINUS LEUCOMELAS Temm.

A few specimens shot off the coast in July and November.

DIOMEDEA NIGRIPES Aud.

La Touche has a specimen.

PLATALEA LEUCORODIA Linn.

I have obtained only one specimen of this species. It was shot in January and gave the following measurements:—Wing 15·3 in., tarsus 6·2, culmen 8·7. The crest was not fully developed, the longest feather being 2·5 in.

One secondary in the left wing was dark-shafted, while the shafts of two or three primaries were faintly darkened near the tips. The tip of the first primary in the right wing had two tiny dark spots, otherwise the dress was that of the adult. Bill black, spatule yellow.

HERODIAS ALBA (Linn.).

In the Cat. B. Brit. Mus. vol. xxvi. p. 99, the Chinese bird is described as *H. timoriensis*, which differs from *H. alba* in having “the bill yellow in summer and winter, the train of dorsal feathers not very long and scarcely reaching beyond the tail.”

This description certainly does not apply to the bird that we used to meet with about Foochow before the “plume trade” deprived us of all our Egrets.

In my four examples of this species in breeding-dress the dorsal trains extend three or four inches beyond the tail, and in one at least the bill is blackish.

La Touche, to whom I referred the question, writes as follows:—“My experience is that birds in breeding-plumage have generally greenish-black bills. The trains are always very long, at least in the males, and extend far beyond the tail.”

HERODIAS EULOPHOTES Swinhoc.

Here again I am unable to agree with the ‘Catalogue.’ In vol. xxvi. p. 141, Dr. Sharpe writes:—“It is with great hesitation that I have added the name of *Demiegretta eulophotes* to the long list of synonyms of *D. sacra*.”

In order to throw some light on this subject, I took to England with me in 1900 four fine specimens of *H. eulophotes* in breeding-plumage. These, together with one that I had previously presented to the Museum, and two of Swinhoc’s skins (one of which was the type), formed a sufficiently good

series to work upon. After comparing them with the large series of *D. sacra* in the Museum collection, I came to the conclusion that the two birds were quite distinct.

My reasons for thinking so are as follows :—

Firstly. The crests in the two species are quite different.

D. sacra has a very short and bushy crest.

In *H. eulophotes* the crest is long, the longest feathers exceeding 4 in. in length. Swinhoe describes it as “springing from the occiput and forming a full ornamental crest, the highest ones being longest and measuring $4\frac{1}{2}$ in. each, the length diminishing gradually to the lower ones.”

Secondly. The dorsal plumes differ very greatly.

In *D. sacra* these are lanceolate feathers with decomposed edges and are worn by adult birds at all seasons.

In *H. eulophotes* they form a dorsal train of the well-known Egret plumes which, in good specimens, extend about an inch beyond the tail, but are not recurved at the tips as in *H. garzetta*. These plumes are only worn in the nesting-season.

Thirdly. The colouring of the soft parts in *H. eulophotes* differs from that in *D. sacra* as given in the writings of Indian ornithologists. Our bird in the breeding-season has yellow irides and bill. The bare skin in front of the eye is *bright blue*. Tarsus and base of toes black ; rest of toes yellow.

Fourthly. In habits *H. eulophotes* is an Egret. It frequents rice-fields, or the sides of inland ponds and creeks, and often nests on the same trees as *H. garzetta*. My collectors have never met with it on the coast.

La Touche, to whom I have submitted the substance of these remarks, writes :—“ No additional notes on this species. The soft parts in breeding specimens are as described. Some specimens have the blue not so bright.”

CICONIA BOYCIANA Swinhoe.

A fine adult specimen in La Touche's collection is labelled “ Foochow, autumn 1900 or spring 1901.” It measures (in the skin) :—Wing 25.25 in., culmen 9.80, tarsus 10.50.

CYGNUS MUSICUS Bechst.

Six examples were shot on the river out of a "herd" of ten in December 1899.

ANSER RUBRIROSTRIS Hodgson.

I have only once met with this species. It was a male shot in November.

ANSER OATESI Rickett, Bull. B. O. C. vol. xi. p. 46.

On my return to Foochow I heard that Mr. C. McAllum, of the Imp. Maritime Customs at Santu, had observed some small Geese in the Bay during the previous winter. I consequently wrote to him and he kindly favoured me with the following information:—

There were in all about forty birds in the flock, which he had often tried to approach, but without success. On one occasion, however, when he had no gun, they rose within easy shot, and he noted that their legs appeared to be flesh-coloured. They seemed to prefer rice-fields to the mud-flats, "and rose without the cries common to the other Geese."

Santu is situated in Samsha Bay, an inlet a few miles north of the mouth of the river. It was there that the type was obtained.

OIDEMIA CARBO (Pall.).

Occurs in winter, but is not common. All the specimens that I have seen were in immature plumage.

XX.—*An Annotated List of the Birds observed on the Orange River between Aliwal North and Odendaalstroom from Dec. 21st, 1901, to June 21st, 1902.* By C. H. T. WHITEHEAD, Lieut. 1st Bat. Highland Light Infantry.

[MR. WHITEHEAD was stationed during the latter part of the South-African war in the line of blockhouses running along the Orange River between Aliwal North and Norval's Pont. I had some correspondence with him in regard to birds, and asked him to keep notes of all those he met with. This

he has done, and my part in the work has been only to transcribe the notes and correct one or two obvious errors.

So few faunal lists of the birds of any part of South Africa have been prepared that any contribution is of value in assisting us to gain some idea of their local distribution.

References are added to Stark's volumes on South-African birds, so far as they go, and afterwards to Sharpe's edition of Layard.—W. L. S.]

1. *CORVUS SCAPULATUS*. (Stark, i. p. 12.)

Very common.

2. *DILOPHUS CARUNCULATUS*. (Stark, i. p. 23.)

Very common. Arrived about the end of December.

3. *AMYDRUS MORIO*. (Stark, i. p. 26.)

Not common. Generally seen in rocky places. A nest was found in a mill.

4. *AMYDRUS CAFFER*. (Stark, i. p. 28.)

A colony of these fine Starlings inhabited a neighbouring cliff. Their cries were rather like those of the Red-winged Starling (*A. morio*), but could be easily distinguished.

5. *SPREO BICOLOR*. (Stark, i. p. 30.)

Very common, and observed nesting in a donga.

6. *LAMPROCOLIUS PHENICOPTERUS*. (Stark, i. p. 38.)

Common. Found more often in the bush than other Starlings.

7. *HYPHANTORNIS VELATUS*. (Stark, i. p. 58.)

Very common.

8. *PLOCEIPASSER MAHALI*. (Stark, i. p. 83.)

I saw four of these birds on Feb. 23rd feeding with the Sparrows in some horse-lines on the south bank of the river. Before rising, and as they did so, they gave utterance to a twitter and a few loud chattering notes.

9. *SPOROPIPES SQUAMIFRONS*. (Stark, i. p. 86.)

Very common in flocks when not nesting. Frequently seen in the horse-lines, but generally amongst the heath or

in the bush. Nests of this bird were found in March. They were untidy and conspicuous structures, placed about six or seven feet above the ground.

10. *ESTRILDA ASTRILD.* (Stark, i. p. 98.)

Common and usually feeding in the bush in flocks. A nest was found in March, well hidden at the bottom of a bush. It contained seven eggs, varying considerably in size and shape.

11. *PYROMELANA ORYX.* (Stark, i. p. 126.)

Not very common. Usually seen in the horse-lines or at the outspans. Sparrow-like in its habits.

12. *COLIOPASSER PROCNE.* (Stark, i. p. 139.)

Common.

13. *VIDUA PRINCIPALIS.* (Stark, i. p. 145.)

Fairly common.

14. *PASSER ARCUATUS.* (Stark, i. p. 160.)

Very common.

15. *PASSER DIFFUSUS.* (Stark, i. p. 163.)

Fairly common. Usually seen singly or in pairs in the bush. Occasionally visited the horse-lines.

16. *SERINUS CANICOLLIS.* (Stark, i. p. 168.)

I did not observe this bird until I went to Aliwal North in June. There I saw a flock feeding with the Yellow-bellied Seed-eater (*S. flaviventris*).

17. *SERINUS FLAVIVENTRIS.* (Stark, i. p. 170.)

This bird has a pretty song. I found a good many of its nests in March. They were flimsy structures, and frequently burst when the young were nearly fledged. They were usually placed about four feet above the ground in a thorn-bush.

18. *SERINUS ALBIGULARIS.* (Stark, i. p. 174.)

Quite common. Very fond of the seeds of a kind of poppy-like plant with pale yellow flowers.

19. *ALARIO ALARIO.* (Stark, i. p. 179.)

A flock of these birds stayed for a long time near a small

spring, which they frequently visited. They fed on the seeds of various heaths in the neighbourhood. They were very tame and had a sweet song. At night they roosted in the bush along the river.

20. FRINGILLARIA CAPENSIS. (Stark, i. p. 187.)

Very common and tame. I found a nest containing three eggs in some heather.

21. FRINGILLARIA TAHAPISI. (Stark, i. p. 189.)

I only saw this species twice—on the 14th of April and the 9th of May. In habits it appeared to resemble the other species of the genus, but the difference in plumage at once caught my eye.

22. FRINGILLARIA IMPETUANI. (Stark, i. p. 190.)

Like the Mountain Canary (*Alario alario*), this species was generally to be seen drinking at the springs. It feeds chiefly on grass-seeds and is a good songster.

23. CALENDULA CRASSIROSTRIS. (Stark, i. p. 202.)

Very common. I found two nests, both well hidden, at the bottom of some heath. The eggs, three in number, were spotted with black varying to greenish black. This bird could always be recognised by its short song, uttered either from a twig of heath or from an ant-hill, or sometimes when on the wing.

24. MIRAFRA NEVIA. (Stark, i. p. 209.)

I saw a small party of these Larks feeding in the open near Aliwal North on June 20th. They were very tame and unwilling to rise.

25. MIRAFRA RUFIPILEA. (Stark, i. p. 218.)

Common. I did not notice this bird's "phee" or wing-cracking noise nearly so much or so often as that of the Bar-tailed Lark (*M. apiata*). At times we did not notice it for weeks together, whereas at Port Elizabeth we heard that of the Bar-tailed Lark every day, and often all day, and this in winter from June to August.

26. TEPHIROCORYS CINEREA. (Stark, i. p. 222.)

Very common, especially near the outspans and farms.

27. *CERTHILAUDA RUFULA*. (Stark, i. p. 234.)

Very common. Always seen in small parties feeding on the old veld. The note, on rising, of the bird on the Orange River differs appreciably from that of the same bird at Port Elizabeth.

28. *MACRONYX CAPENSIS*. (Stark, i. p. 238.)

Not common in summer, but becoming very abundant in late autumn and winter. I first saw a pair on Jan. 9th.

29. *ANTHUS PYRRHONOTUS*. (Stark, i. p. 250.)

Very common.

30. *ANTHUS RUFULUS*. (Stark, i. p. 251.)

Fairly common.

31. *MOTACILLA VIDUA*. (Stark, i. p. 255.)

Very common, especially at the edge of the water; extremely active, always calling and singing, and very tame.

32. *MOTACILLA CAPENSIS*. (Stark, i. p. 259.)

Very common. I found a nest with three eggs in the bank of a donga.

33. *NECTARINIA FAMOSA*. (Stark, i. p. 276.)

I often watched this Sun-bird hovering in front of the yellow flowers of a tree to extract the nectar, but it does not always do this—it equally often perches.

34. *ZOSTEROPS CAPENSIS*. (Stark, i. p. 302.)

Very common. Generally seen in small family-parties in the willows, though in other bushes also. I found a nest at the top of a small willow fifteen feet from the ground in February. It contained one egg and two young.

35. *PARUS AFER*. (Stark, i. p. 305.)

Fairly common and very tame. In the early morning one of these Tits used frequently to perch on the top of my tent and sing.

36. *UROLESTES MELANOLEUCUS*. (Stark, ii. p. 3.)

Not common. I saw one or two of these birds among the bushes on the north bank of the river.

37. *LANIUS COLLARIS*. (Stark, ii. p. 6.)

Very common. I found a nest with three eggs.

38. *LANIUS SUBCORONATUS*. (Stark, ii. p. 9.)

I saw one or two of these Shrikes; in their habits they resembled the previous species.

39. *LANIUS COLLURIO*. (Stark, ii. p. 11.)

I saw this Shrike twice. On Feb. 14th, as I was riding along, I heard its familiar note, and on looking up saw the bird perched on a bush.

40. *NILAUS BRUBRU*. (Stark, ii. p. 16.)

I only saw this bird once; it was perched on a willow and allowed a pretty close approach.

41. *DRYOSCOPIUS CUBLA*. (Stark, ii. p. 25.)

I am not certain of having seen this species. The bird I took for it was rather like a Fiscal, and was sitting on a vine-fence. When it saw me it puffed out the feathers of its back.

42. *LANIARIUS GUTTURALIS*. (Stark, ii. p. 33.)

Very common.

43. *PYCNONOTUS NIGRICANS*. (Stark, ii. p. 64.)

Very common and extremely noisy. Its favourite note is "piture, piture." I found several nests; they are slender but strong structures, made of long fine roots. The eggs are three in number, much marked with red. The adults have a bright red eyelid; young birds, I believe, have it black.

44. *PARISOMA SUBCÆRULEUM*. (Stark, ii. p. 75.)

Very common, but rather difficult to see, on account of the way in which it skulks about at the bottom of bushes.

45. *PHYLLOSCOPUS TROCHILUS*. (Stark, ii. p. 84.)

I saw a Willow-Wren on Jan. 26th.

46. *EREMOMELA FLAVIVENTRIS*. (Stark, ii. p. 106.)

Fairly common and very tame. Generally seen on a thorn-tree searching for insects.

47. *SYLVIELLA RUFESCENS*. (Stark, ii. p. 115.)

Fairly common.

48. *APALIS SCITA*. (Stark, ii. p. 122.)

Common, but difficult to observe, because of its great activity.

49. *PRINIA SUBSTRIATA*. (Stark, ii. p. 131.)

Fairly common on both banks of the river; easily recognised by its note.

50. *PRINIA HYPOXANTHA*. (Stark, ii. p. 132.)

I saw several of these birds; they resembled the previous species in their habits, but were not so active.

51. *PRINIA MACULOSA*. (Stark, ii. p. 133.)

Very common.

52. *SPILOPTILA OCLARIA* (Smith). (Stark, ii. p. 138.)

Very common. Generally seen on the open veld, creeping and flitting about amongst the heath while feeding.

53. *CISTICOLA FULVICAPILLA*. (Stark, ii. p. 141.)

Fairly common. Generally seen about the bushes.

54. *CISTICOLA TERRESTRIS*. (Stark, ii. p. 149.)

Common, but difficult to observe, as it generally alights in thick tall grass.

55. *CISTICOLA SUBRUFICAPILLA*. (Stark, ii. p. 151.)

I only saw this Grass-Warbler once. I put it up and it flew a short distance; it then hid under some heath, and allowed me to come almost within touching distance.

56. *TURDUS OLIVACEUS*. (Stark, ii. p. 175.)

This very common Thrush reminded me much of the English Blackbird, not only by the way in which it skulked about at the bottom of the bushes and by its notes, but also by its nest and eggs. The nest, however, is usually less solid and is built in a more conspicuous place, the horizontal bough of a willow being a favourite position. The colour of the breast of this species varies a good deal.

57. *MONTICOLA EXPLORATOR*. (Stark, ii. p. 183.)

Not very common, but after the snow cleared away individuals collected together from the hills, and one day I saw a dozen of them feeding with the Larks and Pipits.

58. MYRMECOCICHLA FORMICIVORA. (Stark, ii. p. 186.)

Very common. Sings well, both on the ground and whilst hovering. It is fond of flying up vertically fifteen feet or so and hovering for a few seconds, sometimes to sing, at other times apparently to catch flies. This is the most noticeable bird on the veld.

59. PRATINCOLA TORQUATA. (Stark, ii. p. 190.)

Not very common. Usually seen in pairs.

60. SAXICOLA MONTICOLA. (Stark, ii. p. 194.)

Very common. I saw it in all stages of plumage. In habits it is similar to the Ant-eating Chat (*Myrmecocichla formicivora*), though it usually flies up obliquely instead of vertically before hovering.

61. SAXICOLA PILEATA. (Stark, ii. p. 196.)

Common near Aliwal North. I generally saw this species feeding with the Larks, though if a Lark settled near a Wheatear it was always driven off.

62. SAXICOLA LAYARDI. (Stark, ii. p. 200.)

Very common and tame. Usually in family-parties feeding amongst the heath in the open. When put up it moves off with a jerky flight, uttering a squeak with each jerk, but rarely going far.

63. SAXICOLA FAMILIARIS. (Stark, ii. p. 201.)

Very common. A pair of these birds used to frequent my hut. One day as I was sitting in it one of them flew to my shoulder and then to my knee. I found a nest on the top of an old ant-hill with three young in it.

64. COSSYPHA CAFFRA. (Stark, ii. p. 213.)

Very common. I found several nests, which strongly reminded me of those of our English Robin.

65. TARSIGER SILENS. (Stark, ii. p. 219.)

Fairly common. By no means a silent bird. Generally seen perched on the top of a bush, and often making a great deal of noise.

66. *ERYTHROPYGIA CORYPHÆUS*. (Stark, ii. p. 229.)

Very common and noisy.

67. *DICRURUS AFER*. (Stark, ii. p. 265.)

A pair was seen on the river-bank early in June.

68. *COTILE PALUDICOLA*. (Stark, ii. p. 283.)

Very common. It nested in holes on the banks of dongas, just like the English Sand-Martin.

69. *COTILE CINCTA*. (Stark, ii. p. 284.)

A number of these Martins appeared about the 19th of April and disappeared again about a week later.

70. *PTYONOPROGNE FULIGULA*. (Stark, ii. p. 287.)

A few pairs of this species frequented some rocky kopjes. They seemed just as active in the middle of the day as in the evening.

71. *HIRUNDO RUSTICA*. (Stark, ii. p. 289.)

Very common, but departing early in April.

72. *HIRUNDO ALBIGULARIS*. (Stark, ii. p. 292.)

I only identified one of these birds, but I believe that they were common. I overlooked them till just before they left in the autumn.

73. *HIRUNDO CUCULLATA*. (Stark, ii. p. 298.)

Very common. I found one nest with a curved tunnel to it. When the young were hatched, the parents broke a hole in the bowl and added a second tunnel, which was straight. I suppose that the parents found the curve awkward when they had to feed the young so often.

74. *PETROCHELIDON SPILODERA*. (Stark, ii. p. 304.)

A colony of this Swallow occupied the underside of an arch of a railway-bridge near Aliwal North. There must have been at least eighty nests.

75. *UPUPA AFRICANA*, Bechst. (S. & L. p. 134.)

Fairly common.

76. *CYPSELUS AFRICANUS*.

77. *CYPSELUS BARBATUS*.

Cypselus apus, S. & L. p. 90.

Flocks of both these Swifts appeared periodically for a few hours.

78. *CYPSELUS CAFFER*. (S. & L. p. 92.)

I noticed a few pairs of this Swift all through the summer. They must have nested here, I think.

79. *CAPRIMULGUS EUROPEUS*. (S. & L. p. 83.)

A native shewed me two young of this Nightjar just hatched. The old bird rose as we came up; she was brown, without white spots, and larger than the next species*.

80. *CAPRIMULGUS RUFIGENA*. (S. & L. p. 85.)

Very common.

81. *MEROPS APIASTER*. (S. & L. p. 96.)

The Bee-eater was common, and nested in holes in the banks of the donga. It appeared to be fond of locusts, and of a humming grasshopper, which lived among the willows.

82. *CERYLE RUDIS*. (S. & L. p. 110.)

Fairly common; when surprised it flew about making a kind of rippling whistle.

83. *HALCYON ALBIVENTRIS*. (S. & L. p. 115.)

I never actually saw this species near the Orange River, but frequently heard its loud cry. This I at once recognised when I heard it again near Port Elizabeth, where I saw and identified the bird.

84. *COLIUS CAPENSIS*. (S. & L. p. 552.)

Very common, generally in family-parties. It frequently utters a loud rapidly repeated metallic note. Sometimes two or three may be seen hanging together on a branch at the full length of their legs. Flight fairly rapid and straight, though rarely sustained beyond one hundred yards. One day I was chasing a Monitor, when it suddenly ran up a

* [This bird probably belonged to another species, as the European Nightjar has never been known to breed in South Africa.—W. L. S.]

bush about fifteen feet high. I tried to shake it off, when out flew a Coly from another branch. I climbed up and found a nest with three hard-set eggs. This was on the 4th of March. The eggs and nest reminded me very much of those of our Greenfinch, but the eggs were rather larger and the nest more solidly built, being made of sticks and lined with wool.

85. *GEOCOLAPTES OLIVACEUS*. (S. & L. p. 187.)

Fairly common, and generally seen in pairs or in small family-parties. It flies with a whirry jerky sort of flight. The note is a loud "ki ki."

86. *DENDROPICUS CARDINALIS*. (S. & L. p. 190.)

Not very common, and always seen singly. Its call is rather like that of the Cape Robin-Chat, but louder. It is usually found among the willows.

87. *TRICHOLEMA LEUCOMELAS*. (S. & L. p. 173.)

Very common, and at once recognised by its cry, which is like the French word "pain." It is more often heard than seen. A pair nested in a hole in a tree about a foot deep three feet from the ground.

88. *COCCYSTES HYPOPINARIUS* Cab. et Heine.

Coccytes jacobinus S. & L. p. 158.

I saw one of these Cuckoos on January 26th. I was attracted by its cry, which is rather like the alarm-note of a Cape Robin-Chat, but loud and harsh. It flew from bush to bush, after which I noticed it alight on the ground beside a Pied Starling and drive it away. It then followed it into a bush, screeching and jostling it. This time the Starling went to a post; the Cuckoo once more followed and settled on the top of the Starling, screeching at it and driving it away again.

89. *COCCYSTES SERRATUS*. (S. & L. p. 160.)

I saw a pair on Dec. 21st; they were on the bark near the top of a tree. The notes were "wicky wooky" and "tock," followed by a Tit-like call.

90. *CHRYSOCOCCYX SMARAGDINEUS.* (S. & L. p. 151.)

I only saw this bird once at close quarters. This was on the 16th of March. It was perched on some heath.

91. *NEOPHRON PERCNOPTERUS.* (S. & L. p. 6.)

Occasionally seen hovering overhead.

92. *SERPENTARIUS SECRETARIUS.* (S. & L. p. 8.)

A pair of these birds built their nest in a bush about ten feet from the ground. Unfortunately the eggs were stolen.

93. *MELIERAX CANORUS.* (S. & L. p. 17.)

One of these Hawks used frequently to feed on the bank of the river close to a blockhouse.

94. *HALIAËTUS VOCIFER.* (S. & L. p. 46.)

I once saw what I believed to be this Sea-Eagle scouring along a rocky ridge. It passed close to me several times, and chased a Hawk to within about thirty yards of me.

95. *ELANUS CÆRULEUS.* (S. & L. p. 52.)

Fairly common. Very fond of perching on the telephone-wire.

96. *TINNUNCULUS RUPICOLA.* (S. & L. p. 62.)

Very common. It nested in the cliffs and often allowed a near approach.

97. *TINNUNCULUS RUPICOLOIDES.* (S. & L. p. 63.)

Some of my men took a pair of these Kestrels from their nest in a cranny in the cliffs. They were kept a long time and became fairly tame. A few flight-feathers were pulled out, but when these grew again the birds flew off, though they came back for food for some time afterwards.

98. *BUBO MACULOSUS.* (S. & L. p. 73.)

Very common. One of these Owls was caught when coming after some domestic Pigeons, and soon became quite tame. I often saw them out in broad daylight. They can be heard calling in the tops of trees an hour before sunset.

99. *COLUMBA PHÆONOTA.* (S. & L. p. 559.)

Very common. There were at least a pair on every deserted farm. One pair built on the top of an old Red-

winged Starling's nest at a mill on the river-bank. A great many nested and roosted on the cliffs. A flock might always be found on the mules' manure-heap outside the camp, and in the hard weather must have numbered two hundred or more.

100. *COLUMBA ARQUATRIX*. (S. & L. p. 561.)

I saw one or two in the autumn in the bushes. I suppose that they were feeding on the berries, but they never let me get close enough to see.

101. *TURTUR SEMITORQUATUS*. (S. & L. p. 566.)

I believe that I saw these Doves, but I am not quite certain.

102. *TURTUR CAPICOLA*. (S. & L. p. 567.)

These birds were very common, the bush being full of them. They are locally known as "Twǒ-tǒ-oně bār ōne," because of the note.

103. *TURTUR SENEGALENSIS*. (S. & L. p. 568.)

Common. Frequently seen feeding at the outspans with the Doves above mentioned.

104. *CENA CAPENSIS*. (S. & L. p. 572.)

Very common and always in great numbers about the horse-lines. In spite of its long tail and short wings, it seems to be able to fly pretty fast. The nest is very small and frail, generally placed low down in a bush (about two to four feet from the ground), without much attempt at concealment. Eggs cream-coloured.

105. *PTEROCLURUS NAMAQUA*. (S. & L. p. 574.)

These birds began to arrive about the middle of May. Their cry once heard is not easily forgotten. Several flocks were invariably to be found in a certain old mealie-field, in spite of our shooting two or three individuals almost every morning.

106. *FRANCOLINUS LEVAILLANTI*. (S. & L. p. 596.)

Very common. I found a nest with a fresh egg in it on Dec. 16th. I also saw young able to fly well about the same time. Moreover, I saw young only a few weeks old

in June; so it looks as if they breed all the year round. I shot one bird whose crop was so crammed with bulbs that it burst on striking the ground.

107. *COTURNIX CAPENSIS*. (S. & L. p. 603.)

Fairly common. Arrived early in April. I generally found it on the edge of the bush or on old "lands."

108. *NUMIDA CORONATA*. (S. & L. p. 581.)

Huge flocks of Guinea-fowl lived amongst the bushes on the north bank of the river. They roosted on the trees and packed very closely on the branches.

109. *FULICA CRISTATA*. (S. & L. p. 621.)

There were always a good many on the large dam.

110. *COMPSOTIS LEUCOPTERA*.

Otis afroides S. & L. p. 642.

On March 7th I put up five of these birds. They went away crying "kuk-knock-me-down" very distinctly. These were the words I had used to describe the cry before I saw Layard's account.

111. *HETEROTETRAX VIGORSI* (Smith).

Otis scolopacea S. & L. p. 637.

This was the common Knorhaan on the Orange River. Its cry is "kuk-koraan, kuk-koraan," but it sometimes rises silently.

112. *TRACHELOTIS CÆRULESCENS* (Vicill.).

Otis verreauxi S. & L. p. 639.

This species was fairly common, if, as I suppose, it was our small rufous Bustard.

113. *ŒDICNEMUS CAPENSIS*. (S. & L. p. 645.)

I saw several pairs, sometimes on the river-bank amongst the bush, sometimes in the open, and sometimes on rough hill-sides.

114. *CURSORIUS RUFUS*. (S. & L. p. 653.)

Very common in autumn and winter, but I only saw a few pairs in summer: it runs a short distance and then stops and stands upright; when it rises it makes a good deal of noise, but is easy to approach.

115. RHINOPTILUS BICINCTUS. (S. & L. p. 654.)

Very common and unsuspecting. In summer it often makes a great deal of noise when on the ground. Usually seen in pairs or family-parties. In autumn I found it singly or in pairs and very silent.

116. RHINOPTILUS CHALCOPTERUS. (S. & L. p. 656.)

I first noticed the Bronze-winged Courser on March 30th at the edge of the bush by the river. It allowed me to approach very closely before taking to the wing, and then it only fluttered a few yards into the bush. I frequently saw one or more about the same place from March till April 17th, when I shot one in the open, close to the Storoberg spruit.

117. GLAREOLA MELANOPTERA. (S. & L. p. 650.)

I frequently saw these birds passing overhead in December and January, and also observed them occasionally on the ground. I never remember seeing them after locusts. I shot a pair out of a flock that were feeding at the edge of some flooded ground on Jan. 10th.

118. STEPHANIBYX CORONATUS.

Chettusia coronata S. & L. p. 670.

Very common. This Plover usually rises the first time it is put up well within shot. As it rises it utters a harsh quack.

119. ÆGIALITIS TRICOLLARIS. (S. & L. p. 662.)

Very common. The note is a sharp squeak, often heard in the middle of the night.

120. ÆGIALITIS PECUARIA. (S. & L. p. 661.)

I shot one of these Sand-Plovers out of a party feeding on the edge of some flooded ground on January 10th, and another on May 10th. These are the only two occasions on which I came across this species.

121. TOTANUS CALIDRIS. (S. & L. p. 688.)

I often saw a bird which, if it was not a Redshank, was extremely like it, but its legs were dull red instead of orange-red. I used to see it at the mouth of a donga, as well as on the sandbanks in the river and at the water's edge.

122. *TOTANUS STAGNATILIS*. (S. & L. p. 690.)

I saw an individual of this species on Jan. 1st walking about in a small pool. I watched it catch and eat a small fish.

+123. *TOTANUS CANESCENS*. (S. & L. p. 687.)

Common. Usually seen singly, but about the middle of February I saw a considerable flock by the large dam.

124. *HERODIAS ALBA*. (S. & L. p. 714.)

I only once saw this fine bird, on the 1st of March; it was standing at the edge of the large dam.

125. *NYCTICORAX GRISEUS*. (S. & L. p. 724.)

I occasionally put up one of these birds when walking through the bush. I often saw them at the large dam.

126. *SCOPUS UMBRETTA*. (S. & L. p. 725.)

Common. I saw several of its huge nests on a rocky ledge.

127. *CICONIA ALBA*. (S. & L. p. 728.)

I saw twenty-three White Storks by the large dam on Feb. 17th. They stayed there some days. They allowed me to approach within twenty yards of them.

128. *PLECTROPTERUS GAMBENSIS*. (S. & L. p. 746.)

I saw a Spur-winged Goose on Jan. 7th standing on the sandbank in the middle of the river preening its feathers.

129. *CHENALOPEX ÆGYPTIACA*. (S. & L. p. 747.)

Common. A pair nested at the large dam. I saw them with five tiny goslings on Feb. 17th. The call, when about to rise, is a loud "kor kor."

130. *CASARCA CANA*. (S. & L. p. 753.)

Common in autumn. The call when about to rise is a loud musical "kor kor." An officer who knows this Duck well tells me that he found one sitting on its nest among the rocks above the river at a place fifteen miles east of Aliwal North.

131. *ANAS SPARSA*. (S. & L. p. 756.)

Very common. Almost always in pairs. I believe that

a pair nested up a donga on the north bank, because they were there all the summer and used to swim about at the mouth of it in the evening. The Black Duck may often be seen flying about in the middle of the day.

132. *QUERQUEDULA CAPENSIS*. (S. & L. p. 758.)

I saw a small flock of the Cape Teal paddling about at the edge of the large dam on the 20th of May.

133. *PÆCILONETTA ERYTHORHYNCHA*. (S. & L. p. 754.)

A flock of Red-billed Teal used to feed on a sandbank in the river every night, leaving soon after dawn.

134. *PODICIPES CRISTATUS*. (S. & L. p. 785.)

One seen in the middle of the large dam early in April.

135. *STRUTHIO AUSTRALIS*. (S. & L. p. 791.)

I occasionally saw one or two Ostriches on the north bank of the river. All were probably escaped birds.

XXI.--*Remarks on the Type-specimens of certain Birds named by the late Carl Peter Thunberg.* By Dr. EINAR LÖNNBERG, C.M.Z.S.

IN the Zoological Museum of the Royal University of Upsala there still exist certain specimens of birds which were named and described by Carl Peter Thunberg. I have recently examined these types, which are the more important as Thunberg's names have been almost entirely unknown to and disregarded by later authors, even in such an important work as the 'Catalogue of Birds in the British Museum.' Thunberg was not an ornithologist *ex professo*, and in his various papers he sometimes erred in naming, and describing as new, birds which were already known and described, in certain cases even by Linnæus. In some instances, nevertheless, Thunberg's names have priority, and must have their rights, after the descriptions have been compared with the still existing and labelled type-specimens, which have been examined and determined.

To Dr. R. Bowdler Sharpe, who has kindly favoured me with his opinion about some of the very difficult Tyrannidæ, I beg to offer my best thanks for his valuable assistance.

In the year 1819 Thunberg described what seemed to him to be a new species in 'Göteborgiska Kgl. Vettenskaps och Vitterhets Samhällets Nya Handlingar' (Göteborg, 1819). He gave a coloured figure of the bird and named it *Tapera brasiliensis*. This figure is quite recognisable as representing the *Cuculus navius* of Linnæus (or *Diplopterus navius* as it is now termed), although so far faulty that three toes are represented as directed forwards. The type-specimen corresponding to this plate and this name still exists in the Museum: it is a young bird of the species above mentioned. The generic name *Tapera* does not seem ever to have been recognised in literature. It is not recorded in Scudder's 'Nomenclator,' nor is it to be found in Giebel's 'Thesaurus Ornithologiæ.' In spite of this omission, it must now be recognised; and as the name *Diplopterus* was given by Boie to the same bird seven years later (in 1826), *Tapera* has undoubted priority, and the species must stand as *Tapera navius* (Linn.). (For other synonyms see Cat. B. Brit. Mus. xix. p. 423.)

It is true that Thunberg did not realize the affinity between his *Tapera* and the Cuckoos, and seems to have been inclined to place it among the "Curvirostris" (including the Linnæan genera *Caprimulgus*, *Hirundo*, and *Pipra*). The reason why he did so is stated in his paper to be the resemblance between *Tapera* and the Goatsuckers with regard to the coloration of the feathers, and between *Tapera* and *Pipra* as regards the bill (it must be remembered that the specimen is young). The fact, however, that the bird was erroneously placed in the System cannot be a just reason for consigning Thunberg's generic name to oblivion, when he has properly described (in Latin) and figured the type-specimen. In the figure, which is rather good for the time, the characteristic great length of the upper tail-coverts is correctly reproduced, and other features on which generic as well as specific descriptions have been based are conspicuous. I am there-

fore confident that when the attention of ornithologists has been drawn to Thunberg's name *Tapera* it will be generally accepted.

In the year 1821 Thunberg described, in 'Kgl. Vetenskaps-Akademiens Handlingar' (Stockholm, 1821), a bird which he named *Brachyurus gularis*. The type-specimen is still in this Museum, and is the same as *Conopophaga melanops* (Vieill.*). (For other synonyms see Cat. B. Brit. Mus. xv. p. 334.)

In this case Thunberg's specific name is merely a synonym, as it is antedated by the name given by Vieillot.

In the year 1820 Thunberg contributed a paper, entitled "Pipræ novæ species descriptæ," to the 'Mémoires de l'Académie Impériale des Sciences de St. Pétersbourg,' t. viii. This was not, however, printed until 1822. In it he describes as new thirteen species of South-American birds, all of which he refers to the genus *Pipra*. The type-specimens of the majority are still in this Museum, and a revision of them shews the following facts:—

1. PIPRA CAUDATA Thunberg, 1822, = *Pipra caudata* Shaw, 1794. The accepted name is *Chiroxiphia caudata* (Shaw). (For other synonyms see Cat. B. Brit. Mus. xiv. p. 310.)

2. PIPRA FORFICATA Thunberg, 1822, = *Phibalura flavirostris* Vieillot, 1816. The latter is the correct name. (For other synonyms see Cat. B. Brit. Mus. xiv. p. 372.)

3. PIPRA LINEATA Thunberg, 1822, = *Pipra regulus* Hahn & Küster, 1821. The correct name is *Macharopterus regulus* (Hahn & Küster). (For other synonyms see Cat. B. Brit. Mus. xiv. p. 304.)

In this case Thunberg's name has been duly recognised among the synonyms in literature. Unfortunately it was not published until 1822, although bestowed in 1820, and through this delay the specific name "*regulus*" obtained priority.

*. Nouv. Dict. d'Hist. Nat. 1816-19. *Platyrynchus melanops*.

4. *PIPRA CYANEA* Thunberg, 1822, of which the type is apparently lost.

5. *PIPRA VIRIDIS* Thunberg, 1822. This is a female of *Chiroziphia caudata* (Shaw) (see above). The great difference of the sexes led Thunberg to name this species twice.

6. *PIPRA VIRENS* Thunberg, 1822. }

7. *PIPRA PUSILLA* Thunberg, 1822. }

Of these species the types cannot be found.

8. *PIPRA FASCIATA* Thunberg, 1822, = *Sublegatus platyrhynchus* Selater & Salvin. (For other synonyms see Cat. B. Brit. Mus. xiv. p. 158.) In this case Thunberg's name has undoubted priority, because even if Prince Max. von Wied's *Muscipeta incanescens** be referred to this bird, a proceeding which Dr. Selater seems to regard as questionable, Thunberg's name antedates it by many years. The species must therefore stand as *Sublegatus fasciatus* (Thunberg). The type-specimen is from Brazil.

9. *PIPRA FRONTALIS* Thunberg, 1822, = female of *Pipra pectoralis* Latham, 1801. Its modern name is *Euphonia pectoralis* (Latham). (For other synonyms see Cat. B. Brit. Mus. xi. p. 80.)

10. *PIPRA CEPHALEUCOS* Thunberg, 1822, = female of *Pipra leucocilla* Linnæus, 1766, which is also its correct name. (For other synonyms see Cat. B. Brit. Mus. xiv. p. 297.)

In Thunberg's paper (*l. c.* p. 286) there is a misprint or *lapsus calami*, as "*atropicapilla*" is given instead of "*leucocapilla*," to which latter name the Linnean "*leucocilla*" had been changed by Gmelin (*Syst. Nat.* ed. xiii. p. 1002). Thunberg had recognised the likeness between his specimen and the Linnean *Pipra leucocilla*, but, as the latter had been described as black and the former was green, he proposed a new name, not recognising the sexual difference of coloration.

11. *PIPRA FLAVOGASTER* Thunberg, 1822, = *Muscicapa pagana* Licht. 1824. Its modern name is *Elainea pagana*

* Beitr. Naturg. Bras. iii. 1830-31.

(Licht.). (For other synonyms see Cat. B. Brit. Mus. xiv. p. 137.) Thunberg's name for this bird has consequently indisputable priority, so that it should be *Elainea flavogastra* (Thunberg). The type-specimen is from Brazil.

12. PIPRA BRUNNEA Thunberg, 1822, = *Muscipeta bimaculatus* d'Orb. & Lafr. 1837 (*vide* Selater). Its modern name is *Empidonax bimaculatus* (d'Orb. & Lafr.), which, however, should be changed to *Empidonax brunneus* (Thunberg). (For other synonyms see Cat. B. Brit. Mus. xiv. p. 224.)

13. PIPRA ATRA Thunberg, 1822, = *Muscicapa colonus* Vieillot*. The modern name is *Copurus colonus* (Vieill.). The type-specimen is a young bird, and I am indebted to Dr. Sharpe for its determination, as it would have been impossible for me to come to any conclusive result about it for want of material for comparison. Thunberg's name is in this case merely a synonym.

XXII.—On the Adult Dress of the Labrador Falcon.

By Prof. M. MENZBIER and Dr. P. SUSHKIN.

THE LABRADOR FALCON (*Hierofalco labradorus*) must undoubtedly be considered one of the most interesting forms of the genus. It was first figured in 1831 by Audubon, but in course of time was either forgotten or referred to other species, until it was re-established in 1875 by Mr. Dresser, who has had an opportunity of seeing and examining many specimens of this Jerfalcon. Of these some were stated by him to be adults and some young; while amongst the characters of this species he pointed out the lead-blue legs ("pedes plumbei," Ornith. Misc. vol. i. p. 185). Though, in comparison with other well-known species of Jerfalcon, neither the character of the coloration of the plumage nor the colour of the legs told much in favour of Mr. Dresser's views, scarcely any objection has been

* Diet. Nouv. d'Hist. Nat. 1816-19.

made to them. In the year 1881 one of us (Menzbier), when in London, was fortunate enough, through the kindness of Mr. Dresser, to be able to examine and describe two specimens of the Labrador Jerfalcon in the collection of that ornithologist. As neither of them shewed any traces of moult, it was impossible to arrive at a decided conclusion as to their age. Notwithstanding this, our study of the Palearctic as well as of the Nearetic Jerfalcons made us consider the existence in the genus *Hierofalco* of a species with plumage and legs as described by Mr. Dresser (*i. e.*, almost without any well-marked change of colour depending on age and with blue legs) very singular.

For the elucidation of this question, when Sushkin was departing for Western Europe, he was requested to visit all the museums where skins of Labrador Jerfalcons might be expected to be found. The Museum of Brunswick (Technische Hochschule) seemed likely to be of the greatest interest in this respect, and it did not fail to realize our expectations. Through the kindness of Dr. Blasius, Jr., Mr. Sushkin had the opportunity of examining the whole collection of the late Dr. W. Blasius, and many of the skins were even sent to Moscow for Menzbier to study. We found at Brunswick nine specimens of the Labrador Jerfalcon, more or less agreeing with the description by Mr. Dresser, and three of these were in moult, new feathers being detected on the rump, thighs, and tail. Besides this, traces of moult on the rump and small scapulars were found in one of three specimens in the Museum of Berlin.

Basing our opinion upon careful examination of moulting specimens, we came to the conclusion that the plumage of the Labrador Jerfalcon which follows its uniform dark brown dress might be roughly characterized as the same as that of the majority of the Jerfalcons, *i. e.*, dark above, with lighter transverse markings and a distinct wash of bluish on the mantle. According to these two dresses (first dark brown and secondly transversely marked), the Labrador Jerfalcon would be the nearest relative of the Norwegian Jerfalcon, from which it may be distinguished by the following characters:—The

dark colour of the upper parts in the Labrador Jerfalcon is much more sooty; the light transverse markings are not only much darker than in the Norwegian Jerfalcon, but also less developed; they are narrower and do not nearly reach the shafts; the rump is uniform, without any trace of transverse markings; the thighs are dark slaty, with buffy-white transverse spots, and not buffy white with dark transverse bars, as in the adult Norwegian Jerfalcon; while the inner webs of the primaries are not barred, but slightly marbled with buff.

By these characters we can infallibly recognise the beautiful specimen in the British Museum (No. 90.3.13.1) from Canada as *Hierofalco labradorus*. It is an old bird with yellow legs, perceptible even in the skin*. The general colour above is very dark brown, conspicuously washed with bluish; the top of the head is very dark, somewhat darker than the mantle, with no markings at all. The ear-coverts are uniformly dark, like the top of the head. The mustachios are not detached from the ear-coverts. The upper back is uniform in colour, with scarcely perceptible light spots on the margins of some of the feathers. The upper surface of the wing is like the upper back. The lower back and rump are decidedly more bluish than the upper back, of a dirty smoky blue. The under parts are very much spotted, dark brown in general colour, with pale buff transverse spots. The under tail-coverts are barred, but the dark bars are very much broader than the light bars—quite the reverse of the state of things in *Hierofalco gyrfalco*. The wing-linings are as dark as the under parts of the body; the under surface of the primaries is of the same character as in the young bird, the light bars being replaced by nearly inconspicuous markings.

Thus the adult Labrador Jerfalcon differs very much in its coloration from the young, and the slight modifications,

* After looking over a number of specimens of Jerfalcons and Sakers, both in the flesh and in skins, we have come to the conclusion that the yellow colour of the legs is perceptible in dried as well as in fresh specimens.

determined by Mr. Dresser as variations depending on age, are merely individual variations of the young birds. His determination is still more surprising, because he had an opportunity of examining the series of Labrador Jerfalcons in the Brunswick Museum, and evidently did not notice the specimens in moult, as we do not find anything about them in his article.

The other adult specimen of the Labrador Jerfalcon which we know of (from Newfoundland) is now in the Brussels Museum. It is just like the bird in the British Museum described above, but not so bright. We take this opportunity of thanking M. Dubois for sending us a water-colour drawing and a description of this specimen.

Perhaps it may be of interest to add that Joseph Wolf, who made the first figure of the female Labrador Jerfalcon for Mr. Dresser, did not believe that the original of his picture was an adult bird (see Palmer's 'Life of Wolf,' p. 272).

XXIII.—*Notes on the Breeding of Ross's Snow-Goose in Captivity.* By F. E. BLAAUW.

At a meeting of the British Ornithologists' Club on March 20th, 1901 (see Bull. B. O. C. xi. p. 55), I exhibited an egg of the rare Ross's Snow-Goose (*Chen rossii*) laid in captivity by a solitary female kept by me at Gooilust. A year later, through the courtesy of Dr. Heck of Berlin, I received a second specimen of this species, which fortunately proved, as I hoped it would, to be a male. The birds soon paired, and in the beginning of May 1902 the female made a nest under a bush in her enclosure. The nest was, as is usual with Geese, a small depression in the soil, lined with dry grass and grass-roots.

Towards the end of the month the female began to lay, and on the 30th, when the full complement of five eggs had been deposited, she began to sit, having in the meantime abundantly lined her nest with down from her own breast.

The two birds had always been of a very retiring dis-

position, but after the female had laid her eggs the male, who nearly always kept watch close by the nest, became quite aggressive. He would fearlessly attack anybody that approached.

So far everything had gone as is usual with Geese, but on the 21st of June, in the morning—that is, after 21 days' incubation,—I was much astonished to find that the young had already been hatched.

Although I had bred Geese of very different sizes, from the large *Chloephaga magellanica* to the small *Bernicla jubata*, and of very different genera, I had never experienced a shorter time than 28 days as the term of incubation. Probably *Chen rossi* breeds very far up in the north, where the summers are short and the vegetation short-lived, so that the whole process of propagation of the species has only a restricted time for completion. This may explain why this species has the advantage of a week over the other kinds of Geese.

To return to this particular brood. All the five eggs had hatched, and the little birds were still in the nest when I noticed them, forming a most charming group, ever watched as they were by their anxious parents.

The chicks are of a yellowish grey, darker on the upper-side and lighter below, and have, what makes them most conspicuously beautiful, bright canary-yellow heads, with the most delicate greyish sheen over them, caused by the extremity of the longer down-hairs being of that colour. The bill is black, with a flesh-coloured tip. A little spot in front of each eye is also blackish. The legs are olive-green. The down is wonderfully full and heavy, and it seems almost incredible how such large birds can have come out of such small eggs. Three of the chicks were as described above, but two of them had the part *white* which in the others was yellow.

This variation in colour of the chicks is, I may remark, not peculiar to *Chen rossi*, other species of Geese occasionally shewing the same phenomenon. Thus, for example, the chicks of *Chloephaga dispar* and *C. magellanica* also offer two distinct types of coloration, which I find has nothing to do

with the sex of the birds. The parents were extremely anxious about their chicks and terribly restless, and to this, I fear, is to be attributed the fact that I did not succeed in rearing the young.

Although the chicks soon began to feed and grew very rapidly at first, I soon observed that one after the other got something wrong with its breathing-organs, and to my great disappointment they died successively, so that the last was found dead a fortnight after they had been hatched. All that I can add is that, as is usual with chicks, the intensity of the coloration gradually diminished as they got older, and in particular the brightness of the yellow of the head and the depth of the black in front of the eyes slowly diminished, so that even when a week old the delicate glory of it had largely disappeared.

Perhaps next season the chicks (if I get any) will live, so that I may observe what the first plumage is like!

The chick of *Chen rossi* differs from that of *Chen hyperboreus* chiefly in having a shorter and comparatively higher bill and in the want of a blackish stripe over the head, which is present in *C. hyperboreus*. The chick of *C. hyperboreus* is also darker, especially on the back, and of a more olive-green colour, while the down is less dense.

XXIV.—*Notices of recent Ornithological Publications.*

[Continued from p. 132.]

40. *Allen on Species and Subspecies.*

[So-called Species and Subspecies. By J. A. Allen. Reprinted from 'Science,' n. s. xvi. pp. 383-386, 1902.]

Mr. Allen, while viewing with much regret the extremely "fine splitting" into subspecies now so prevalent, contends that the expert, and not the layman, should be judge in such matters; for many forms, perfectly distinct on comparison, cannot well be described in terms that give a true idea of their value. He calls attention to the fact that the A. O. U. constantly refuses to recognise subspecies which are not in a

strict sense new discoveries, but depend only on a re-estimate of their nomenclatural value, while he makes a continued profession of his faith in trinomials.

As an answer to the paper which he cites from 'Science,' his observations are greatly to the point; but we think that he hardly lays enough emphasis on the fact that the primary object of all subdivisions is to make it easier, and not harder, to determine the various forms; while he might have taken the opportunity to denounce strongly the practice of claiming subspecific rank for what are often little more than incidental varieties.

41. *Andersen on the Birds of the Færoe Islands.*

[Meddelelser om Færøernes Fugle. 5te Række. Efter skriftlige Oplysninger fra P. F. Petersen, Nolso, og S. Niclassen, Myggenæs. Ved Knud Andersen. Vidensk. Meddel. f. d. naturh. Foren. i Kbhvn. 1902, pp. 325-365.]

This is a fifth instalment of Mr. Andersen's excellent notes on the ornithology of the Færoe Isles, giving the dates when the different species were observed, together with the state of the weather at the time. Notes on ninety-three species are given, of which perhaps the most interesting is that on the occurrence of the Song-Thrush (*Turdus musicus*) for the first time in the Færoes, late in February 1901.

42. 'The Avicultural Magazine.'

[The Avicultural Magazine. The Journal of the Avicultural Society. New Series. Vol. i. Nos. 1-4. Nov. 1902-Feb. 1903. (Cf. Ibis, 1903, p. 116.)]

In these parts of our contemporary the promise of former numbers is well maintained, and among other matters of interest may be mentioned the continuation of Mr. Bonhote's Field-notes on Bahama Birds, Mrs. Johnstone's paper on the nesting of the Satin Bower-bird in confinement, and those of Mr. St. Quintin on Tragopans in captivity, and of Mr. Martin on the construction of small Aviaries. Articles of varied character are provided to suit the tastes of all Aviculturists, who will join with us in congratulating the

editor on the skill with which he has catered for the public in general.

43. *Burturlin on the Waders of the Russian Empire.*

[Kuliki Rossieskoi Imperie—Premiya-k-Journal 'Psovaia i Rujeinaia Ohta.' Tula, 1902.]

This, the first part of a work on the *Limicola* found within the Russian empire, issued in the form of a prize essay published in Tula in the 'Journal of the Society for Hunting and Shooting,' shews very careful preparation, and gives the synonymy, with references to the most important works on the subject, the geographical distribution, the habits, and dates of appearance and departure of the species which visit or are resident within the limits of the Russian empire. M. Burturlin (p. 54) separates the Snipe inhabiting Eastern Siberia subspecifically from *Gallinago caelestis* under the name *Scolopax (Gallinago) gallinago raddei*, because it has the light stripes on the upper parts wider than in *Gallinago caelestis*, and states that it does not breed further west than the Yenesei River, while it winters in Southern China and Indo-China. He asserts that the tails figured by Seebohm as those of *Gallinago megalis* and *Gallinago stemura* are both referable to *Gallinago megalis*.

The letterpress includes only the species belonging to the genera *Scolopax* and *Gallinago*, but eleven good plates are given of the following:—*Scolopax rusticola*, *Gallinago gallinula*, *G. major*, *G. solitaria*, *G. caelestis*, *Limicola platyrhyncha*, *Tringa maritima*, *T. alpina*, *T. temminckii*, *T. minuta*, and *T. ruficollis*.

44. *Buxton's African Trips.*

[Two African Trips, with Notes and Suggestions on Big Game Preservation in Africa. By Edward North Buxton. London: Stanford, 1902.]

As in the case of his other "short stalks," Mr. Buxton went to British East Africa and the White Nile mainly in search of big game, but by no means confined his attention to such objects. Plenty of allusions to birds may be found

throughout his recent volume, and many of the excellent "photogravures" are devoted to scenes of bird-life. On the White Nile especially birds were most carefully studied and photographed. The "teeming bird-life" is designated as the "real charm of the voyage," and described as follows:—

"Owing to the heading back of the water of the White Nile by the tremendous floods of the Blue Nile, there are, during the season of low-water, wide stretches of bare mud on the foreshore and low-lying banks. These muds constitute the feeding-grounds of vast flocks of Waders and aquatic birds. The river opposite Omdurman was haunted by numbers of Gulls and Terns, unusual birds to find fifteen hundred miles from the sea, but whether they migrate hither or are bred in the marshes I do not know. By the time we tied up for the night we had only made ten miles, but in that short space we had seen huge flocks of Storks, Geese, grey Demoiselle Cranes, coal-black and snow-white Ibises, Spoonbills, Black-headed Gulls, Pelicans, Wood-Ibises, Avocets, Spur-winged Geese, Teal, and Ruddy Sheldrakes. The long lines of the last-named sitting at the edge of the water made a brilliant piece of colour in the setting sun. Some of the Storks and Ibises have the habit of spreading their wings to the sun; and when a row of them maintains this rigid attitude, they have the appearance of ladies holding up their skirts with both hands. Towards evening many of these birds shifted their ground and passed us on the wing with a great clatter. The next morning we added to the list of birds observed the Sacred Ibis, which has a white body with black head and neck. It was no doubt the striking appearance of this bird which attracted the ancient Egyptians, who domesticated it and mummied it after death. I think that it is now extinct or a rare visitor in Lower Egypt. An old friend, the Golden-crested Crane, was present, but in small numbers. I got out my long-range camera, from which I hoped great things, but a steady foundation is essential to that instrument, and I soon found that the vibration of the engine made a well-defined picture impossible. The pictures here given were really taken at a later stage."

Another passage about the bird-life of the White Nile reads as follows:—

“The lagoons were thronged with Storks, Herons, Ibises, Cranes, and other Waders of many kinds. While mobs of Teal were wheeling in the air, Geese, Sheldrakes, Terns, and ponderous Pelicans occupied the open water. The scene was most lively in the evening. The air then became full of the whistling of wings, and the varied conversation—piping, wailing, croaking—which goes on at feeding-time, as well as of those strange ventriloquising notes, the origin of which is so hard to trace, but which I was inclined to attribute in this case to Night-Herons. The Pelicans were the latest to arrive, and the most dignified and silent. They spend their days on the river, and, like the Terns, only come in to rest. Their flight—a series of stately curves—is a splendid sight. The Spoonbills seemed to fish the most zealously, pushing their broad beaks in front of them in the shallow water, like children with shrimp-nets on Cromer sands. Ever and anon the resonant shout of the Fish-Eagles, a pair of which were generally to be seen resting on some thorn-tree or dead snag, rang out over the waste like the call of the muezzin to prayer, while the other sounds reminded one of the stir in a Mohammedan city which follows the sunset in the month of Ramadan.”

45. *Clarke on the Migration of Birds.*

[Bird Migration in Great Britain and Ireland. Fifth Interim Report of the Committee, consisting of Professor Newton (Chairman), Rev. E. P. Knubley (Secretary), Mr. John A. Harvie-Brown, Mr. R. M. Barrington, Mr. A. H. Evans, and Dr. H. O. Forbes, appointed to work out the details of the Observations of Migration of Birds at Lighthouses and Light-ships, 1880-1887.]

Mr. W. E. Clarke here gives us a further instalment of his work connected with the Migration of Birds, work which he has carried out so well that we can only regret the possibility, through want of adequate support, of his being obliged to bring his undertaking to a premature conclusion. The subjects chosen for the present Report are the Fieldfare and the Lapwing; of the former the migrations prove to be

comparatively simple, while those of the latter are much affected by meteorological conditions.

46. *Dresser's 'Manual of Palearctic Birds.'*

[A Manual of Palearctic Birds. By H. E. Dresser, F.L.S., F.Z.S., &c. Part I. pp. 1-498. 8vo. London, 1902. Published by the Author at 3 Hanover Square, W. Price 12s. 6d. net, thin paper copies 15s. net.]

The first portion of Mr. Dresser's long-expected Manual of the birds of the Palearctic Region has now been issued, and the second portion, completing the work, is promised for June next. The second half will contain, besides the remainder of the text, the Preface, Introduction, and Index, together with a map of the Palearctic area and a frontispiece taken from a drawing by Joseph Wolf. The present part commences with the Passeres, and treats of 609 species of that "predominant" group, after which follow the Picearians and Owls, making altogether 709 species. As there are 498 pages in the volume, the space allotted to each is rather more than two-thirds of a page, shewing that the condensation of information required in a work of this character has been well carried out.

After the English and scientific names adopted for each species, a selection of the principal references is given, the vernacular names in different languages are shortly stated, and a condensed description is added. Next the *habitat* is concisely given, followed by general remarks, in the course of which the breeding-habits, nest, and eggs, if known, are always mentioned.

Mr. Dresser is quite conservative in his nomenclature, very few deviations being made from the names ordinarily used by British naturalists. "Subspecies" are occasionally allowed, but they are quite the exception. The print of the book is good and clear, and the names of the genera are used as "running titles," which gives great facility for reference. Altogether we are much pleased with the "Palearctic Manual," which will certainly be greatly appreciated by all ornithologists and acquire an extensive circulation.

47. *Finn on Hybrids of the Guinea-fowl.*

[On Hybrids between the Guinea-fowl and Common Fowl. By F. Finn, B.A., F.Z.S. J. A. S. B. lxxi. pt. ii. pp. 91, 92, pl. vi., 1902.]

The author describes, with a figure, three hybrids caught in the wild state and sent to the Calcutta Zoological Gardens.

48. *Finn on Variation in Birds.*

[General Notes on Variation in Birds. By F. Finn, B.A., F.Z.S. J. A. S. B. lxxi. pt. ii. pp. 154-184, pls. viii., ix., 1902.]

This paper treats of (1) Striking cases of Variation in structural characters, (2) Colour Variation in Wild Birds, (3) Reversion to normal colour in abnormal varieties, (4) Variation in relation of immature to adult plumage, (5) Variation in prepotency, (6) Progressive Variation, (7) Variation directly induced by confinement, (8) Pathological Variation, (9) Spontaneous Variation under domestication, (10) Moral Variability, (11) Variation in mental powers, (12) Variation in taste, (13) Variation in habits. The author concludes that domestication does not directly induce variation, but gives varieties a better chance of surviving; that climate does not directly induce it, but may weed out colours correlated to unsuitable constitutions.

49. *Grinnell on Californian Birds.*

[Pacific Coast Avifauna.—No. 3. Check-list of Californian Birds. By Joseph Grinnell. Cooper Ornithological Club of California. Santa Clara, June 1902. Roy. 8vo. 98 pp.]

This list of 491 species—with an appendix containing 33 that are doubtful—has evidently been composed with great care, both as regards the identification of specimens and their provisional assignment to proper areas. To each specific name is added a synonymy referring only to Californian literature, and a paragraph on the status (including range, comparative abundance, and season of occurrence). The nomenclature of the A. O. U. Check-list is not invariably adopted, but reference numbers to it are given in

brackets. Two maps shew by means of different colours the "Life Zones," or areas of uniform temperature, and the "Faunal Areas," or regions of uniform humidity. The work will be found most useful by those interested in Californian ornithology.

50. *Hartert on Birds from Pahang.*

[On Birds from Pahang, Eastern Malay Peninsula. By Ernst Hartert. Nov. Zool. ix. p. 537.]

The native Malayan State of Pahang contains on its northern border an enormous mountain, Mt. Tahan, said to be upwards of 10,000 feet high, which Mr. Waterstradt, who made the collection now described, was the first European to explore. Species from the lowlands are included in the paper, and altogether 196 are enumerated. The general similarity of the avifauna to that of Sumatra "is very striking."

The occurrence of the remarkable Phasianine genus *Rheinardius* in the Malay Peninsula is a new and most interesting fact. Mr. Rothschild has described the form as a new subspecies—*R. ocellatus nigrescens* (Bull. B. O. C. xii. p. 55).

Mr. Hartert also describes as new:—*Iole holti binghami* (from the Shan States of Burmah), *Pycnonotus prillwitzii* (from Java), *Turdinulus lumii* (from Mt. Tahan), *Siva strigula malayana* (from Mt. Tahan), *Saya waterstradti* (from Mt. Tahan), *Cittocinclera macrura omissa* (from Java), *Pteruthius tahanensis* (from Mt. Tahan), *Ploceus passerinus infortunatus* (from the Malay Peninsula), and *Dissemurus paradiseus johni* (from Hainan). But by far the most remarkable discovery made on Gunong Tahan was the Bullfinch *Pyrrhula waterstradti* (Bull. B. O. C. xii. p. 69), procured at a height of from 5000 to 7000 feet. This intruding Palearctic genus was, however, known to occur in the highlands of Luzon (*P. leucogenys*).

51. *Hartert on Birds from Ecuador.*

[Some further Notes on the Birds of North-west Ecuador. By Ernst Hartert. Nov. Zool. ix. p. 599.]

Mr. Hartert continues his notes on the birds obtained by Mr. F. W. Rosenberg's correspondents in North-west Ecuador, which appears to be a very interesting district. The following species and subspecies are new:—*Mitrephanes berlepschi*, *Rhynchocyclus megacephalus flavotectus*, *Aulia tertia*, *Lathria virufa castaneotincta*, and *Hylophilus bulunensis*. A new genus of Tyrannidæ (*Craspedoprion*) is proposed for *Rhynchocyclus æquinoctialis* and some allied species with the outer web of the external remex pectinated. The splendid new *Pittasoma rufopileatum* (Nov. Zool. viii. p. 370) is figured.

52: *Hartert on Birds from British East Africa.*

[On the Birds collected by William Doherty in the Kikuyu Mountains, near Escarpment Station, British East Africa. By Ernst Hartert. Nov. Zool. xii. p. 620.]

The author here commences the discussion of a large collection of 3000 specimens made by the late William Doherty when encamped in the "Jumper" forest*, about half a mile from Escarpment Station on the Uganda Railway, between September 1900 and April 1901. The spot is on the eastern side of the "Great Rift Valley," or "Eurycolpic Fold" (as we are now told that it ought to be called), some 8000 feet above the sea-level.

Mr. Hartert begins with the Laniidæ, of which 12 species are represented in the collection. The beautiful new *Chlorophoneus dohertyi* (Rothsch. Bull. B. O. C. xi. p. 52) is figured. If the so-called *Malaconotus blanchoti* (p. 623) "agrees perfectly with South-African specimens," its correct

* This magnificent tree is believed to be *Juniperus procera* (see Kew Bull. 1899, p. 197), which was discovered by Schimper in Abyssinia, and was likewise found by Mr. Lort Phillips in Somaliland. But there are no specimens of it from British East Africa in the British Museum or the Kew Herbarium.

name should be *M. starki*. See Selater fil. Ibis, 1901, p. 152, and id. B. S. Afr. ii. p. 41.

53. *Job on Waterfowl.*

[Among the Waterfowl: Observation, Adventure, Photography. A Popular Narrative Account of the Waterfowl as found in the Northern and Middle States of Lower Canada, East of the Rocky Mountains. By Herbert K. Job. 8vo. New York: Doubleday, Page, & Co. 1902. Pp. xxi, 224. Price 6s. 6d.]

In this book Mr. Job gives an interesting account of his observations on birds in the above-mentioned districts, and furnishes a large quantity of information with regard to the breeding of North-American Waterfowl, which may well be unfamiliar to, or not readily obtainable by, English ornithologists. Grebes and Divers, Rock-birds, Petrels, Terns, Ducks, and Geese are successively brought before us; while instances of unusual habits, such as the breeding of the American Herring-Gull on trees and the covering with earth of the eggs of the White-winged Scoter, are especially dwelt upon. The reproductions of photographs are, moreover, well chosen and distinct.

54. *Jourdain on the Birds of Derbyshire.*

[The Ornithology of Derbyshire. A Retrospect. By the Rev. Francis C. R. Jourdain, M.A. Reprinted from the Derbyshire Archæol. & Nat. Hist. Soc. Journ. 1901. 5 pp.]

An interesting paper on the birds of the county, with regard to their increase or decrease.

55. *Lord Lilford on Birds.*

[Lord Lilford on Birds, being a Collection of informal and unpublished writings by the late President of the British Ornithologists' Union, with contributed Papers upon Falconry and Otter-Hunting, his favourite Sports. Edited by Aubyn Trevor-Battye and illustrated by Archibald Thorburn. London, 1903. Pp. i-xviii, 1-312. Price 16s. net.]

It is impossible to take up a book by the late President of our Union without a feeling of renewed regret at the great loss experienced by our Society at his death, while those who

had the privilege of his acquaintance, or were familiar with his formerly published writings, will feel confident of meeting with what will interest and instruct them in his pages. Lord Lilford himself never posed as one of the great ornithological authorities of his day, and as such we should not therefore attempt to portray him ; but for genuine and careful work on the subjects which he took in hand he had hardly an equal, while as a kindly and judicious supporter of those who took a real interest in birds he will always be exceptionally difficult to replace.

Of his character as a true gentleman the letters now published give evidence on almost every page, of his position as a noted naturalist and ardent sportsman they are equally convincing, while the simple and graceful style in which he dilates upon items of local information, matters connected with his aviaries, or facts gleaned upon his journeys, may well make us forget how large a portion of his life was passed under conditions which would hinder most of us from serious work. In editing these letters, Mr. Trevor-Battye has very wisely omitted only those paragraphs which deal with purely personal matters or incidents of merely local interest, and has included all that deal with natural history ; while he has himself furnished a short account of otter-hunting and has induced the Rev. G. E. Freeman to contribute a description of falconry.

The letters are grouped in chapters according to the subjects ; and while all will be found of interest, perhaps the greatest importance for ornithologists attaches to the Notes from Mediterranean Journals—on which the papers in ‘The Ibis’ (1875–1887) were founded—and to the portions of the work concerned with the well-known Lilford ponds and aviaries, where so many rare birds lived and bred. Our late President’s life, his home, and his works (with their illustrations) are all fully treated, while the pages are enriched by thirteen plates by Mr. A. Thorburn, including a portrait of Lord Lilford, and many studies from life of birds in the collection.

56. *Mudge on the Tongue of Parrots.*

[On the Myology of the Tongue of Parrots, with a Classification of the Order, based upon the Structure of the Tongue. By G. P. Mudge, A.R.C.S., F.Z.S. Trans. Zool. Soc. Lond. vol. xvi. pt. 5, pp. 211-278, pls. xxvi.-xxix.]

After a short account of previous memoirs upon the anatomy of Parrots, which embrace but few observations upon the tongue-muscles, Mr. Mudge proceeds to give in detail the structure of the hyoid muscles in a large number of species, which are elaborately illustrated in the plates and in 16 woodcuts interspersed through the text. It is, of course, impossible to give here an adequate abstract of the many new facts which the paper contains. The classificatory results, however, based upon the "lingual myology and osteology," will be of wide interest. Mr. Mudge divides the "group" into three families—(1) Loriidæ, containing *Lorius*, *Eos*, and *Vini*; (2) Nestoridæ, containing only *Nestor*; and (3) Psittacidæ, containing all the remaining genera.

57. *Ogilvie-Grant on Shrikes.*

[A Review of the Species of Shrikes of the Genus *Lanius*. By W. R. Ogilvie-Grant. Nov. Zool. ix. p. 449.]

The species of the difficult genus *Lanius* (in its wide sense, *i. e.* including *Fiscus*, *Enneoctonus*, &c.) are now reviewed preparatory to the publication of a new edition of the eighth volume of the B. M. Catalogue, upon which the author is engaged. Mr. Ogilvie-Grant recognises no less than 57 species of the genus, with a few "subspecies." We are pleased to observe that all the Shrikes in the British List retain their well-known titles in Mr. Grant's nomenclature. *Lanius major*, *L. excubitor*, *L. homeyeri*, and *L. leucopterus* are allowed full rank as species, though it is admitted that "they all grade into one another."

58. *Pease's 'Travel and Sport in Africa.'*

[Travel and Sport in Africa. By A. E. Pease. 3 vols. 4to. London, 1902. Price £10 10s.]

Mr. Alfred Pease's account of his sport and adventures

in Algeria, Somaliland, and Abyssinia is one of the most sumptuously printed and illustrated works that we have ever seen. The three volumes are full of text-figures and coloured sketches, and contain a mass of information on every possible subject relating to the countries which the author has traversed, while descending, in many cases, to the most minute particulars. We wish that we could find time to read all these luxurious pages, for many of the stories are of a most amusing character—but life is too short!

Mr. Pease naturally devotes himself specially to “Big Game,” but feathered fowls are occasionally mentioned, and the lists of birds necessitate a record of the work in the pages of ‘The Ibis.’

In the first volume is a “List of the Birds of Algeria and Tunis,” by W. R. Ogilvie-Grant. This contains the names of 387 species, in English and Latin, with references to the leading authorities on each of them, as indicated by initials.

In the third volume, which relates to Somaliland and Abyssinia, is a similar list of the birds of those countries by the same author, the limits assigned being “between 5° and 13° N. lat. and east of 37° E. long.” It contains the names of no less than 687 species, with the authorities for their occurrence within the area indicated by initials, which refer to a list of the chief works on the subject. The names of the species of which examples were obtained by Mr. Pease (who was accompanied by Mr. L. C. Harwood as collector) are marked with an asterisk. The collection made on the last journey, which included 800 excellent skins, has been already fully described in this journal (see ‘Ibis,’ 1901, pp. 607–699).

59. *Peel on Zoological Gardens.*

[The Zoological Gardens of Europe, their History and chief Features. By C. V. A. Peel, F.Z.S. London, 1903. Price 10s. net.]

This useful book, on quite a new subject, gives us an account of the principal zoological gardens of Europe, based on information collected during a tour round them made by

the author in the early part of last year. Thirty-seven gardens in all were visited, in France, Holland, Denmark, Belgium, Germany, Russia, Hungary, Austria, Switzerland, and the British Islands, and a more or less detailed account is given of each, enriched by photographic illustrations. There are a good many slips and misprints in the letter-press, but Mr. Peel has produced a very readable volume, which we are sure will be much appreciated. The Zoological Garden of Berlin is, no doubt correctly, pronounced to be the best on the Continent, although there must be some error in the statement on p. 106 that it contains "25,000 living creatures," representing 12,000 mammals and birds. Whether it is "well ahead of our London Garden" is, perhaps, a matter of opinion.

In a second edition we hope that the author will correct numerous misprints in the scientific names of the animals and other mistakes. He should also extend the sphere of his observations, and visit the gardens in the United States, at New York, Philadelphia, and Washington, not to mention those at Cairo, Pretoria, and Calcutta.

60. *Preble on the Biology of Hudson Bay.*

[A Biological Investigation of the Hudson Bay Region. By Edward A. Preble. North-American Fauna, No. 22. 8vo. Washington, 1902. 140 pp., 14 pls., 1 map.]

Since the days of the early pioneers, who sent many specimens for determination to Britain, singularly little advance has been made in our knowledge of the fauna of Hudson Bay, and the U.S. biologists have consequently found considerable difficulty in determining the status of many species through want of sufficient material for comparison. The outcome has been an expedition sent by the Biological Survey to the western shores of the Bay in 1900, in charge of Mr. E. A. Preble, who furnishes a very full account of the districts traversed, with details of the "life zones" and botany, while he has not forgotten to sketch the work of previous explorers and to add a bibliography. The Report confines itself almost entirely to the province of Keewatin, in

Canada, and provides annotated lists of the mammals, birds, and batrachians. No new species of birds were discovered.

61. *Reichenow's Report on the Progress of Ornithology.*

[Bericht über die Leistungen in der Naturgeschichte der Vögel während des Jahres 1894. Von Ant. Reichenow. Arch. f. Nat. 61^{te} Jahrg. 2^{te} Band, "Berlin, 1895" (published Dec. 1902).]

We do not doubt the excellence of Dr. Reichenow's report on the progress of the Science of Ornithology for the year 1894, nor the care with which it has been prepared. But we must say that its value is rendered almost nugatory by its being withheld from publication till December 1902. Events move fast now-a-days, even in ornithology, and a report on what has occurred in 1894, published eight years afterwards, is almost useless. We have been informed, however, that the fault of this long delay lies with the publishers and not with the author, consequently we have only to offer our sympathies to Dr. Reichenow on the bad treatment that his good work has met with.

62. *Ridgway on the Birds of North and Middle America.*

[The Birds of North and Middle America. By Robert Ridgway. Part II. Bull. U.S. Nat. Mus. no. 50, pt. 2 (1902).]

We have already noticed the first volume of this important work (see 'Ibis,' 1902, p. 515), and are glad to find the second volume succeeding it so rapidly. While the first was entirely occupied by Mr. Ridgway's account of the numerous Fringillidæ of North and Middle America, four families of nine-primaried Oscines are treated in the present instalment, namely, Tanagridæ, Icteridæ, Cœrebidæ, and Mniotiltidæ. These families are entirely restricted to the Neogean Ornis, having no single representative in the Old World. We wrote somewhat freely of Mr. Ridgway's novel style of treatment of his subject in our former notice, and will not repeat our remarks, except to say that in the present volume also subspecies are excessively numerous, and are placed, apparently, on the same level as species. Of Tanagridæ 112 species and subspecies are recognised as

coming within the limits of the work, of Icteridæ 111, of Cœrebidæ 29, and of Mniotiltidæ 181, so that the volume contains an account of 433 species and subspecies in all.

The general plan of this volume is exactly the same as that of the first; while the synonymy, descriptions of sexes and their plumages, and full list of localities appended to each species and subspecies, bear unflinching testimony to the author's wonderful industry in compiling it.

The third part of Mr. Ridgway's great work, we are informed in the Preface, is "well under way," and is by this time probably nearly ready for issue. It will continue the account of the Oscines. The whole work will occupy some eight volumes, which will appear at the rate of about two a year.

63. Rothschild and Hartert on Birds from the Solomon Islands.

[List of a Collection of Birds made on Ysabel Island, in the Solomon Group, by Mr. A. S. Meek. Nov. Zool. xii. p. 581.]

The authors continue their account of Mr. Meek's collections in the Solomon group, this being their third contribution on the subject. In the present paper 58 species from Ysabel Island are enumerated, amongst which *Edoliosoma erythrogygium saturatius*, *Cacomantis meeki*, *Ceyx meeki*, and *Astur rufo-schistaceus* are described as new. *Nasiterna tristrami* from Kulambangra is also described as new. Other good novelties of this series (*Pitta anerythra*, *Podargus inexpectatus*, and *Pseudoptynx salomonensis*) have been already characterized in the 'Bulletin' of the B. O. C. *Pitta anerythra* and *Ceyx meeki* are figured.

64. Seebohm and Sharpe's 'Monograph of the Thrushes.'

[A Monograph of the Turdidæ, or Family of Thrushes. By the late Henry Seebohm. Edited and completed (after the Author's death) by R. Bowdler Sharpe, LL.D., F.L.S., &c. Parts XII., XIII. Imperial 4to. London: Henry Sotheran & Co., 1902. Price £3 3s.]

We have now before us the concluding double-number of

Seebohm's 'Monograph of the Thrushes,' of which the first part was published in 1898. Dr. Sharpe, in his Preface, clearly explains the reason of the delay in its completion, and we cannot but sympathize with him in the difficult task that he has had to perform. Seebohm, it is well known, was very familiar with this group of birds, which was one of his special favourites. A large series of plates were prepared by Mr. Keulemans for the projected work, but other occupations and bad health prevented the author from attending to the letterpress, and Dr. Sharpe has consequently been called upon to write or rewrite the greater portion of the book. We are, however, sure that ornithologists will be well satisfied with the way in which he has accomplished this hard piece of work, for the result is that we have all the available information upon this beautiful group of birds collected together in one book, and most splendidly illustrated by Keulemans' pencil. Even the most recent additions to our knowledge of the subject are contained in the Appendix.

The Monograph now completed makes two handsome volumes containing 149 coloured plates. Seebohm's division of the Thrushes into *Geocichla*, *Turdus*, *Merula*, and *Mimocichla* is adhered to, but personally we should be inclined to amalgamate the first three genera.

The following species are figured in the present parts:—

Merula subalaris.	Merula atrigularis.
— hortulorum.	— naumanni.
— protomomelæna.	— ruficollis.
— celænops.	— eunomus.
— chrysolaus.	Mimocichla rubripes.
— erythropleura.	— plumbea.
— obscura.	— ardesiaca.
— pallida.	

65. *Westell on the young Cuckoo.*

[The Early Life of the young Cuckoo. By W. Percival Westell. 8vo. London, 1902. 26 pp. Price 1s.]

Mr. Westell gives a useful *résumé* of the life-history of the

Cuckoo, but the main object of his pamphlet is, no doubt, to reproduce four admirable photographs, which he tells us were taken from nature by Mr. J. P. Millar, at the instigation of Mr. John Craig, who was carrying out a series of investigations upon the subject. Of these, three shew the nestling Cuckoo ejecting a young bird or an egg from the nest, while the fourth exhibits the intruder living in harmony, at an age of about eleven days, with a young Meadow-Pipit.

66. *Zittel's 'Palæontology,'* vol. ii.

[Text-book of Palæontology. By Karl A. von Zittel. English edition, translated and edited by Charles E. Eastman, Ph.D. Vol. II. London: Macmillan.]

The recently issued second volume of the English translation of Zittel's 'Text-book of Palæontology' contains the part relating to Aves, which has been revised, and to a great extent rewritten, by Mr. F. A. Lucas, of the U.S. National Museum at Washington. It must be carefully studied by all who are interested in fossil birds. The classification employed is practically that of Stejneger's 'Standard Natural History.'

We extract a very salient passage from the introduction:—

“The difficulties attending the classification of birds are at once their great general similarity of structure and their numerous adaptive modifications, sometimes slight, sometimes so great as to obscure characters of real value. There are, besides, a certain number of aberrant forms, the exact position of which is a matter of uncertainty, and others in which there are departures more or less pronounced from the general structure of the group in which they should obviously be placed. For it must be constantly borne in mind that in palæornithology we are not dealing with the entire Class of birds, but only with a certain portion of it, since the number of known fossil birds is very small, and it is consequently impossible to trace the lines of descent of existing species; we do not even have broken lines to guide us, but merely isolated dots to indicate their probable

existence. For the proportion of fossil to existing birds is small indeed, about 500 extinct to 12,000 living species, and most of these are from the Miocene or later horizons; they are easily referable to existing families, and often to existing genera, so that they throw little light on the phylogeny of modern birds."

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

WE have received the following letters addressed to "The Editors" :—

SIRS,—Referring to your remarks ('Ibis,' 1902, p. 674) on the dead birds seen by Mr. R. W. Llewellyn at the Casquets Lighthouse on May 15th, I venture to suggest that they were possibly Common Redstarts (*Ruticilla phoenicurus*), the males of which are brightly coloured on the breast.

In Ireland, at any rate, few if any Robins are migrating in May, whereas the end of April or beginning of May is the usual date for Redstarts to arrive. I agree with you that the birds are very unlikely to have been Red-breasted Flycatchers (*Muscicapa parva*).

Yours &c.,

RICHARD M. BARRINGTON.

Fassaroe, Bray,
Co. Wicklow.

SIRS,—In reference to my remarks on the Albatrosses (see above, p. 81), I wish to add that Dr. Davidson, of ss. 'Morning,' has just brought to the Museum two specimens of a Mollymawk from the Indian Ocean, which I take to be the true *Diomedea culminata*. They are certainly distinct from *Diomedea bulleri* of the Snares, and therefore the latter remains a good species. The difference between *D. bulleri* and *D. culminata* is in the culmicorn, which is more expanded posteriorly in *D. bulleri* than in *D. culminata*. If *D. bulleri* had been put into the genus *Thalassogeron*, and

the difference between it and *D. culminata* pointed out, there would have been no difficulty in the matter. *D. bulleri* is certainly congeneric with *D. salvini*. Neither of them is such a typical *Thalassogeron* as *D. culminata* or *D. chlororhyncha*, but they cannot be separated generically.

It is *Diomedea bulleri* which breeds on the Snares, not *D. culminata*. *D. chlororhyncha* and *D. culminata* are both found occasionally in our seas, but I do not know that they breed here. Dr. Filhol says that *D. chlororhyncha* breeds at Campbell Island; but he probably did not distinguish the species accurately. I saw none when I was there in January 1901—only *D. melanophrys*, which was extremely abundant, and a few *D. bulleri* or *D. culminata*.

Yours &c.,

F. W. HUTTON.

Christchurch, Dec. 1st, 1902.

SIRS,—In discussing the respective claims to priority of the names *Chlorochrysa hedwigæ* Berl. & Stolz. and *Chlorochrysa fulgentissima* Chapm., Graf v. Berlepsch raises an important point in regard to what constitutes effective publication, which, so far as the medium in question is concerned, can, I think, be satisfactorily answered. This, the 'Bulletin' of the American Museum of Natural History, is not, as Graf v. Berlepsch terms it, a "periodical," but each annual volume is composed of a series of papers published at irregular intervals.

As stated in the 'Bulletin,' 350 separate copies of each paper are printed, "of which 100 are for the authors and 250 copies for the Library exchange list and for sale." These copies may be purchased from the Museum, or through its official agents in New York, London, Paris, and Berlin. Subscribers to the 'Bulletin,' or those who receive it in exchange, may have the papers it contains sent to them as issued, or as a bound volume at the end of the year, as they elect.

In addition to the copies of each paper distributed and placed on sale by the Museum, the author distributes a

number of complimentary copies ; but I wholly agree with Graf v. Berlepsch that such distribution would not of itself constitute a valid publication. Since, however, the ' Bulletin ' and ' Memoirs ' of the Museum can be purchased when they appear through recognised and stated channels of trade, as well as from the Museum itself, it is evident that in their issuance all the requirements of commercial publication are complied with.

Yours &c.,

FRANK M. CHAPMAN.

American Museum of Natural History,
New York City, Feb. 25, 1903.

SIRS,—With no desire to enter the three-cornered duel in which Messrs. Allen, Grant, and Nelson have so pleasantly, entertainingly, and instructively engaged, Mr. Grant's side-shot at the writer in your issue for January 1903 (p. 109) provokes, if, indeed, it does not compel, a reply.

In brief, I am charged with having described a *subspecies* of Ptarmigan (*Lagopus leucurus peninsularis*) from "only one female specimen in autumn plumage"! Surely no tribunal of systematic ornithologists would deny that this is a *casus belli*! One might almost as well be accused of giving an opinion on a geographical race of which he had never seen a specimen!

However, if Mr. Grant will do me the favour to turn to the reference which he quotes from the American Museum ' Bulletin ' (vol. xvi. p. 236), he will find the following words appended to the description of the Ptarmigan in question: "Of this new form the collection contains the following 26 specimens, all from the Kenai Mts."

Trusting that the difference between one and twenty-six is sufficient to warrant this correction,

I am yours &c.,

FRANK M. CHAPMAN.

American Museum of Natural History,
New York City, Feb. 25, 1903.

The Australasian Ornithologists' Union.—From the 'Emu' of January we learn that the annual meeting of the "Australasian Ornithologists' Union," held at Melbourne in November last, was in every way successful. The President, Col. Legge, was unfortunately not able to be present, but sent an excellent address, which contains much information and good advice. In his absence one of the Vice-Presidents, Mr. A. H. C. Zietz, took the chair. Besides the Council's report, several "lectettes" were read, illustrated by a "splendid series of photographs." The second day of the meeting was devoted mainly to the Zoological Gardens, and the third to the examination of the National Museum. After the meeting was over, a week's "camp-out excursion" of the members and their friends to the "Mutton-bird Rookeries" on Philip Island took place, and passed off most satisfactorily.

Report of the Society for the Protection of Birds.—The Annual Meeting of the Society for the Protection of Birds, the aims and objects of which we all approve, though we may doubt the advisability of some of the methods by which it is proposed to carry them out, was held at the Westminster Palace Hotel on Feb. 10th, and seems to have passed off most successfully. The Report of the Council rightly specified two of the measures that the Society had recently taken up, in order to carry out their views, as being of noteworthy importance—namely, the passing by Parliament of a new Act whereby birds illegally obtained might be declared to be forfeited, and the promulgation in India of an ordinance which prohibits the exportation of the skins and feathers of all birds except Ostriches and specimens required for scientific purposes. With the efforts of the Society to stop women from using entire birds or their feathers as "ornaments" for their hats, we have every sympathy, and with four duchesses at their head it will be hard if the Council cannot produce some effect on milliners in this matter. At the same time it must be confessed that the progress as yet made in checking this very objectionable fashion is rather slow.

Besides mentioning with approbation the "Audubon Society" in the United States, the Report calls attention to the existence of sister societies with similar objects in South Australia and Central Queensland, so that the good work is progressing in our colonies as well as in America.

A nice series of "leaflets" issued by the Society (edited by Mr. Dresser) contains excellent contributions from several leading ornithologists.

Ornithologists at work abroad.—Mr. W. G. DOGGETT wrote from Entebbe (Nov. 5, 1902) that he was then preparing to start for the southern frontier of Uganda to take up his post as naturalist to the Anglo-German Boundary Commission under Major Delmé Radcliffe. The expedition will start from the shores of Lake Victoria at lat. 1° S., and will define the boundary between Uganda and German East Africa as far west as the Semliki River. In the Semliki forest Mr. Doggett hopes to be able to obtain, besides a good series of its birds, fresh specimens of *Okapia johnstoni*, which are much required in Europe.

Mr. OGILVIE-GRANT left England on the 14th of February for Madeira, whence he intends to proceed on an ornithological foray to the Azores. He hopes to pick up any crumbs in the way of birds that may be left after Mr. Godman's researches in 1862, and to make investigations in other departments of natural history.

We learn from the 'Orn. Monatsberichte' that Dr. KÖNIG of Bonn has left on a third ornithological expedition to Egypt, and was at Port Said on January 3rd. On this occasion he proposes to start with his caravan from Wadi Halfa, and to devote his attention to Dongola, returning from Khartoum in May.

Our last letter from Mr. MICHAEL J. NICOLL, naturalist on board Lord Crawford's steam-yacht 'Valhalla,' R.Y.S., was posted at Monte Video on January 14th. Mr. Nicoll had landed at St. Paul's Rocks and Fernando Noronha and had procured specimens at both places. At the latter island he had obtained special leave to shoot from the governor, and

had secured examples of several land-birds. The 'Valhalla' had not been able to go to South Trinidad, as originally planned, and was proceeding south to the Straits of Magellan and the Pacific.

From 'Globus' we learn that the well-known naturalists PAUL and FRITZ SARASIN have undertaken a new expedition for the further exploration of Celebes, and will send their specimens of birds and mammals to the Dresden Museum.

We hear that the Tring Museum has lately received a collection of birds from Hainan, the scene of Whitehead's explorations ('Ibis,' 1900, p. 192). It has been formed by three Japanese collectors, from whose labours Mr. Rothschild expects results of considerable value.

Our enterprising correspondent, Mr. ROBERT HALL, C.M.Z.S., of Melbourn, has left his home for Vladivostock, and will pass the spring in Amoorland, where, in company with two ornithological friends, he will observe and collect the birds of North-eastern Siberia. In the summer he proposes to proceed to London by the new Transasiatic railway to greet his brother ornithologists before returning to Australia.

XXVI.—*Obituary.*

MR. T. E. BUCKLEY, MR. A. A. LE SOUËF, and DR. C. BERG.

ORNITHOLOGY loses a steadfast adherent, and many ornithologists as steadfast a friend, by the death, on the 4th of November, 1902, of Mr. THOMAS EDWARD BUCKLEY. Born on the 3rd of April, 1846, at St. Thomas's, Old Trafford, near Manchester, of which parish his father (who came from Saddleworth, in Lancashire) was rector, he was educated at Rugby and Trinity College, Cambridge, where he graduated B.A. in 1869. Three years before this he had passed part of the long vacation in Lapland, reaching Quickjoek, whence he brought back a considerable collection of birds, and was so smitten with the charms of Scandinavia that he revisited the country in 1867 and 1868, though he never again

proceeded so far to the northward. After taking his degree he was urged by his maternal relatives, the Akroyds, to go into "business," for which a favourable opportunity offered, but he had already become devoted to an outdoor life, and preferred enjoying freedom on his own modest competence to the confinement of a counting-house. Early in 1869 he set out with Captain Elwes for Greece and Turkey, where they passed some three months, with results that were published in these pages ('Ibis,' 1870, pp. 59, 188, & 327). Later in the same year he went to Scotland for the first time, and soon after hired a shooting-place in Sutherland; but this did not hinder him from setting off in 1872 with Captain Shelley to the Gold Coast, where they stayed two months collecting birds and other zoological specimens ('Ibis,' 1872, p. 281), and the next year to Matabili-land, in company with Messrs. Gilchrist and F. and W. Oates. To assist him in collecting on this expedition, he received a grant from the Worts Fund of the University of Cambridge, and brought back to its Zoological Museum many valuable specimens; but the party were unable to carry out the whole of their plan through the failure of their draught-oxen. An account of the birds obtained in the course of their journey was contributed by him to our pages ('Ibis,' 1873, p. 355). African zoology, especially in the facilities it offered for sport, now took a strong hold upon him, and a third expedition, this time to Amaswazi-land, was undertaken by him in 1876, though he had in the meanwhile married, and in 1888-89 a fourth to Kilimanjaro—this last proving most disastrous, and being brought abruptly to an end through his companion and very dear friend, Mr. Guy Dawnay, being killed by a buffalo. The last two expeditions, having large game for their chief object, though Buckley was by no means a mere slaughterer, were not ornithologically productive. The passion for sport led him also to North America, which he visited three times, on the last occasion (1893) going to the Rocky Mountains in quest of wild sheep; but wherever he might be, he was always a close observer of all animal life, and yet with a modest mistrust of the value of his own powers. Some

persuasion was needed to get him to exhibit to the Zoological Society on the 7th January, 1882, the marvellous series of skins of Red Grouse (*Lagopus scoticus*) which he had collected, almost all in one district, shewing an amount of variation in the plumage of the cock-birds never before suspected. But he will always be best remembered as joint author with Mr. Harvie-Brown of the series of volumes on the Vertebrate Fauna of the northern parts of the kingdom—Sutherland and Caithness, the Inner and the Outer Hebrides, Orkney and Shetland,—the volume on the latter group being worked out with Mr. A. H. Evans as his coadjutor. Light-hearted as a boy, vigorous and active, to all his friends Buckley seemed likely to attain a good old age, but he never regained his health after an attack of influenza in 1900, while an affection which seized him in June 1902, acting on impaired vitality, produced the fatal result of a few months later.

Mr. A. A. LE SOUËF, well known as the Director of the Zoological and Acclimatisation Society's Gardens at Melbourne, died on May 7th, 1902. He was born in England in 1828, and emigrated to Australia with his parents in 1840. He had an inborn taste for natural history, and, as Director of the Zoological Gardens, had full opportunities for studying animal life, of which he made good use. When Mr. Le Souëf entered upon his duties they were slight, and it is to him that Australia owes one of the most complete gardens of the kind.

A third recent death is that of Dr. CARLOS BERG, Director of the Museum of Buenos Ayres. Berg was originally a Russian subject, and about 1873 joined Burmeister at Buenos Ayres, becoming Director of the National Museum on his death in 1892. He is succeeded by the well-known palæontologist, Dr. Ameghino.

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XXVII.—*On a Collection of Birds from the Northern Islands of the Bahama Group.* By J. LEWIS BONHOTE, M.A., F.Z.S.

THE following pages contain a list of birds collected in the Bahamas during a trip taken for that purpose in the winter of 1901-02.

Making Nassau our headquarters, we thence carried out three distinct expeditions. First we went to Andros, the largest and least explored of the islands; its eastern coast extends in a long ridge some fifty or sixty feet above sea-level, but towards the south and on the west the land rises hardly anywhere above the sea, and is very deeply intersected by broad lagoons. On the west coast there is none of the rock so characteristic of the other islands, but the soil is a soft white marl or mud, which partially hardens here and there on the top. Except for a roving fleet of sponging-vessels, this coast is quite uninhabited and hardly ever visited by white people. Proceeding along it to a place known as Wide Opening, we went in a small boat up the creek, which at its head narrows and forms a deep channel known as the River Lees. This so-called river is entirely salt and is about four miles long, cutting through a fairly deep ridge and opening out inside it into a

large shallow sheet of water, called Turner's Sound, which has another outlet to the sea. On the further side of Turner's Sound is a small stream, some fifteen feet across and eight to ten feet deep, which is the only fresh-water river in the whole group. This stream winds its way eastwards, occasionally widening out into small and very shallow lakes, across which, however, the channel of the stream is always well marked, and after a course of about three miles opens out into an enormous stretch of fresh water extending eastward as far as the eye can reach. In these creeks and lagoons Ducks and Herons abounded, and a good many Flamingos were also to be seen, but, owing to the absence of vegetation, Passerine birds were nearly entirely absent.

Our next expedition was due north of Nassau; and skirting the east coast of Great Abaco, we stayed on Little Abaco, which lies off its north-western point. The country here is mostly covered with pine-forest, and is locally known as the "pine-barrens," consisting of dense bush and clearings for sisal-plantations. A good many species of Passeres were collected here, while we found the American Mocking-bird fairly established as a resident and breeding bird, and have little doubt of its eventually spreading considerably to the south. In this connexion the curious distribution of two species is worth noting: firstly, *Sporadinus riccordi*, a Cuban species, which is found northwards at Andros, again in Abaco, and probably also in Great Bahama; secondly, the Turkey-Buzzard, *Cathartes aura*, which has a precisely similar distribution, so far as the Bahamas are concerned. But it is very strange that neither of these species, and especially the latter, should ever have been found on New Providence, which at its nearest point is not more than twenty-three miles from Andros.

At Little Abaco the Red-tailed Hawk (*Buteo borealis*) was found breeding; a specimen of Kirtland's Warbler was also procured, and the large Yellow-throat (*Geothlypis tanneri*) was fairly numerous.

In our third and last expedition, in which I was accompanied by Mr. Frank M. Chapman, of the American Museum of Natural History, New York, and Mr. L. A. Fuertes, a

well-known American bird-artist, we hoped to have landed on many of the southern islands and to have visited the breeding-colonies of the Frigate-birds, Boobies, Flamingos, and Terns, but owing to illness our original plan had to be abandoned and the end of the first week saw us back again in Nassau Harbour. After a couple of days we set off once more for the southern end of Andros and the neighbouring Cays, where we found the Sooty, Noddy, and Bridled Terns breeding in numbers, as well as the Dusky Shearwater (*Puffinus auduboni*). Four other species of Terns were also seen, and probably intended to breed at no great distance. We penetrated inland and explored some old Flamingo-colonies, where we found a few new nests half built, but most of the birds could not have begun to breed. I have written fully on this species, as well as on the most noticeable of the others met with, in the 'Avicultural Magazine' from October 1902 to January 1903 inclusive, to which I would refer those who may desire more detailed information on the habits &c. than will be found in the following pages.

The total number of species met with amounts to some 108, or about two-thirds of the total number recorded from the group. So many small expeditions have been made of late years by Americans, that no novelties could be expected, but several additions were made to the Bahama list, viz. :—*Vireo flavifrons*, *Mareca americana*, *Botaurus lentiginosus*, *Nycticorax naevius*, and *Mimus polyglottus*, the last of which was hitherto only recorded from a single specimen procured by myself at Nassau on a former occasion, but was now found well established on Little Abaco. *Dendroica gundlachi* was also found on the last-named island, many miles to the north of its previously known range.

Apart from these we find that our series of skins does not bear out the conclusions arrived at in America as regards several local forms, especially *Geothlypis maynardi* and *Riccordia* (*Sporadinus*) *aneo-viridis*. In cases where we have not had sufficient material for comparison, the species have been provisionally placed under their American names.

—1. *MIMOCICHLA PLUMBEA* (Linn.).

Mimocichla plumbea (Linn.); Cory, Bds. Bahamas, 2nd ed. p. 45 (1890); id. Cat. W. Indian Bds. p. 122 (1892); Bonhote, Ibis, 1899, p. 506.

Mimocichla bryanti Seebohm, Cat. Bds. Brit. Mus. v. p. 280 (1881).

4 ♀. March 1902. Nassau, New Providence.

♀. 30th March, 1902. Little Abaco.

Very numerous on New Providence, but seldom seen owing to its retiring habits.

+2. *MIMUS POLYGLOTTUS* (Linn.).

Mimus polyglottus (Sund.); Cory, Cat. W. Indian Bds. p. 121 (1892); Bonhote, Ibis, 1899, p. 507.

5 ♂, 1 ♀. Little Abaco, March 1902.

1 nest and 3 clutches of eggs. Little Abaco, March 1902.

So far as I am aware, this is the first record of this species as a permanent resident in the West Indies. I have carefully compared my examples with a large series of *M. polyglottus* from the States and can find no difference. The bird was very numerous on Little Abaco, and I also saw it on Great Abaco; it appears, however, to be local, as none were seen on some neighbouring cays. The average measurements of the six specimens procured are—wing 4·2 inches, tail 4·7, tarsus 1·19, culmen ·66. The nest is an untidy structure, built a few feet from the ground on any suitable bush; the foundation is made of very coarse material, and consisted, in the case of one found near a boat-building yard, of sticks, fibre, old rope, shavings, pieces of sail, &c., lined with dry bents. The birds were just commencing to lay during the latter half of March, and three seemed to be the usual number of the eggs. These were pale blue, with large rust-coloured spots and a few that were paler. Measurements: 26 by 19 mm.

+3. *MIMUS GUNDLACHI* Cab.

Mimus gundlachi Cab. J. f. O. 1855, p. 470.

Mimus bahamensis Bryant, Pr. Bost. Soc. Nat. Hist. vii. p. 114 (1859); Cory, Bds. Bahamas, 2nd ed. p. 48 (1890);

id. Cat. W. I. Bds. p. 127 (1892); Bangs, Auk, xvii. p. 289 (1900).

2 ♂. Nassau, New Providence, 23rd February and 4th March, 1902.

5 ♀. Nassau, New Providence, 16th December, 1901, 6th January, 23rd February, and 3rd & 7th March, 1902.

♂. Grassy Creek, Andros, 16th January.

♀. Fresh Creek, ,, 5th February.

? Spanish Wells, ,, 2nd February.

2 ♂. Hog Cay, off Great Abaco, 28th March.

This bird, although shy, is by no means rare on New Providence, and it is most curious that it should hitherto have been overlooked. It is to be found throughout the islands wherever sufficient "coppet," or thick bush, grows. Apparently it breeds later than the preceding species, as I found no nests on Little Abaco, where it was fairly numerous, although outnumbered by *M. polyglottus*. I can see no difference between the Bahaman and Cuban birds, and think that Cabanis's name should stand.

†4. GALEOSOPTES CAROLINENSIS (Linn.).

Mimus carolinensis (Linn.); Cory, Bds. Bah. 2nd ed. p. 51 (1890).

Galeoscoptes carolinensis (Linn.); Cory, Cat. W. I. Bds. p. 121 (1892); Bonhote, Ibis, 1899, p. 507; Bangs, Auk, xvii. p. 289 (1900).

2 ♂. Nassau, 22nd February, 1902.

3 ♀. ,, 3rd January, 3rd & 8th March.

♂. Little Abaco, 24th March.

○. ,, 17th March.

A regular and common winter visitor, more often heard than seen.

† 5. POLIOPTILA CÆRULEA CÆSIOGASTER Ridgw.

Polioptila cærulea cæsiogaster Ridgw. Manual N. A. Birds, p. 569 (1887); Cory, Bds. Bahamas, 2nd ed., App. (1890); id. Cat. W. Ind. Bds. p. 120 (1892); Bangs, Auk, xvii. p. 289 (1900).

3 specimens. Little Abaco, 22nd & 30th March, 1902.

Little Abaco was the only island where I met with this pretty little Warbler, and it was not common. I did not visit the more southerly islands, where it is supposed to be more abundant.

6. *MNIOTILTA VARIA* (Linn.).

Mniotilta varia (Linn.); Cory, Bds. Bahamas, 2nd ed. p. 54 (1890); id. Cat. W. Ind. Bds. p. 117 (1892); Bonhote, Ibis, 1899, p. 507.

2 ♀. Nassau, New Providence, 4th March and 17th April.
Occurs on both autumn and spring migrations.

7. *CAMPSOTHTYPIS AMERICANA* (Linn.).

Parula americana (Linn.); Cory, Bds. Bahamas, 2nd ed. p. 55 (1890).

Campsothlypis americana (Linn.); Cory, Cat. W. Ind. Bds. p. 117 (1892); Bonhote, Ibis, 1899, p. 508.

♂. Nassau, New Providence, 19th April, 1902.

Common on passage, but does not remain long.

8. *DENDRÆCA GUNDLACHI* Baird.

Dendroica gundlachi Baird, Rev. Am. Bds. p. 197 (1864); Cory, Cat. W. Ind. Bds. p. 118 (1892).

Dendroica petechia gundlachi Baird; Cory, Bds. Bah. 2nd ed. p. 58 (1890).

Dendroica petechia flaviceps Chapman, Bull. Am. Mus. Nat. Hist. vol. iv. p. 310 (December 1892).

*Dendroica petechia flavivertex** Chapman; Bangs, Auk, xvii. p. 292 (1900).

♂. Grassy Creek, Andros, 15th January, 1902.

2 ♂. Spanish Wells, Andros, 1st February, 1902.

♀. " " 22nd January, 1902.

3 ♂. Little Abaco, 21st, 24th, & 31st March, 1902.

Previously this Warbler had only been sparingly met with north of Long Island, but the present series shews it to range throughout the group. The examples are all very similar, although one or two are more thickly streaked

* Presumably a misprint for "*flaviceps*."

with chestnut on the under parts; there is hardly any chestnut to be seen on the head, but this might possibly be due to the time of year. On Andros these birds are apparently resident, as I met with them again in May. They seem solely to inhabit the mangroves, especially the large clumps standing out in the lagoons.

9. *DENDRÆCA CÆRULESCENS* (Gmel.).

Dendræca cærulescens (Gmel.); Cory, Bds. Bahamas, 2nd ed. p. 58 (1890); id. Cat. W. Ind. Bds. p. 118 (1892); Bonhote, Ibis, 1899, p. 508.

2 ♂. Nassau, New Providence, 18th April, 1902.

Occurs regularly on passage.

10. *DENDRÆCA CORONATA* (Linn.).

Dendræca coronata (Linn.); Cory, Bds. Bah. 2nd ed. p. 59 (1890); id. Cat. W. Ind. Bds. p. 118 (1892).

♂. Mangrove Cay, Andros, 10th January, 1902.

♂. Nassau, New Providence, 22nd February, 1902.

♂. Little Abaco, 24th March, 1902.

2 ♀. „ 24th & 26th March, 1902.

A common winter-visitor in suitable localities, frequenting open and swampy ground, generally in small flocks.

11. *DENDRÆCA TIGRINA* (Gmel.).

Dendræca tigrina (Gmel.); Cory, Bds. Bah. 2nd ed. p. 63 (1890); id. Cat. W. Ind. Bds. p. 117 (1892); Bonhote, Ibis, 1899, p. 508; Bangs, Auk, xvii. p. 292 (1900).

♂. Little Abaco, 22nd March, 1902.

♂. Nassau, New Providence, 17th April, 1902.

A regular migrant through the islands, but never numerous.

12. *DENDRÆCA DISCOLOR* (Vieill.).

Dendræca discolor (Vieill.); Cory, Bds. Bah. 2nd ed. p. 64 (1890); id. Cat. W. Ind. Bds. p. 119 (1892); Bonhote, Ibis, 1899, p. 508; Bangs, Auk, xvii. p. 293 (1900).

2 ♂. Nassau, New Providence, 12th December, 1901,
and 22nd February, 1902.

2 ♀. Nassau, New Providence, 26th December, 1901,
and 21st February, 1902.

♂. Spanish Wells, Andros, 1st February, 1902.

♀. Mangrove Cay, Andros, 15th January, 1902.

2 ♂. Little Abaco. 22nd & 27th March, 1902.

An abundant winter visitor.

13. *DENDRÆCA DOMINICA* (Linn.).

Dendræca dominica (Linn.); Cory, Bds. Bahamas, 2nd ed. p. 65 (1890); id. Cat. W. Ind. Bds. p. 118 (1892); Bonhote, Ibis, 1899, p. 509.

4 ♂. Nassau, New Providence, 12th December, 1901,
19th February and 3rd March, 1902.

♀. Nassau, New Providence, 12th December, 1901.

♀. Spanish Wells, Andros, 21st January, 1902.

A common and abundant winter visitor, generally to be found among the topmost branches of the pine-trees.

14. *DENDRÆCA KIRTLANDI* (Baird).

Dendroica kirtlandi (Baird), Rev. Am. Bds. p. 206 (1864); Cory, Bds. Bahamas, p. 66 (1880); id. Cat. W. Ind. Bds. p. 118 (1892); Chapman, Auk, xv. p. 289 (1898); id. Auk, xvi. p. 81 (1899); Bangs, Auk, xvii. p. 292 (1900).

♂. Little Abaco, 25th March, 1902.

♂. Nassau, New Providence, April 1902.

Scarce as this bird must still be considered, the majority of the specimens known have been taken in the Bahamas. But little light, however, appears to have been shed on its habits or possible breeding-haunts. The two specimens enumerated above were both procured by my native boy. That from Little Abaco was one of a small flock, two other members of which he shot; but as they were somewhat badly knocked about, he did not bring them in, and all further search in the same locality proved fruitless. The second example, which came from near Nassau, was too badly shot to be skinned. Mr. Chapman, in the 'Auk,' has enumerated the known occurrences of this species, some 75 in all. Mr. Chapman is of opinion that its breeding-grounds must be sought for in the Hudson Bay Region.

The Little Abaco specimen is a male, and is undergoing a thorough moult of the head and throat. The whole of the

upper parts are of a bluish ash-colour, the feathers of the crown and scapulars having broad black centres. The ash on the scapulars is tinged with brownish, and on the major coverts becomes nearly white. Under parts pale lemon-yellow, the feathers of the flanks having dark centres; under tail-coverts white, quills and tail-feathers dark brown, the former with white outer margins, the latter with a patch of white on the inner web of the two outermost. Legs black.

Dimensions.—Wing 3 inches, tail 2·9, tarsus 1, culmen ·5.

15. *DENDRÆCA PALMARUM* (Gmel.).

Dendræca palmarum (Gmel.); Cory, Bds. Bahamas, 2nd ed. p. 68 (1890); id. Cat. W. Ind. Bds. p. 118 (1892); Bonhote, Ibis, 1899, p. 509; Bangs, Auk, xvii. p. 292 (1900).

♀. Nassau, New Providence, 12th December, 1901.

♂ ♀ ♀. Spanish Wells, Andros, 21st January, 1902.

A very common and numerous winter visitor, found everywhere. The chestnut head is not developed till far on in the spring.

16. *DENDRÆCA ACHRUSTERA* Bangs.

Dendræca achrustera Bangs, Auk, xvii. p. 292 (1900).

Dendræca bahamensis Maynard (nec Cory), App. Cat. Bds. W. Indies (29th November, 1899).

Dendræca vigorsi (Aud.); Cory, Cat. W. Ind. Bds. p. 118 (1892); Bonhote, Ibis, 1899, p. 509.

Dendræca pinus (Wils.); Cory, Bds. Bahamas, 2nd ed. p. 69 (1890).

2 ♂. Nassau, New Providence, 12th December, 1901, and 3rd March, 1902.

♀. Nassau, New Providence, 12th December, 1901.

I am not thoroughly convinced of the validity of this species, originally described by Maynard and renamed by Bangs. Maynard's original description was published privately by himself, and I have been unable to find a copy of it in this country; but the description given by Bangs agrees fairly well with my specimens, and I have therefore placed them under his name. The wing-measurements of my

specimens are, however, larger, namely, 67 mm., 69, and 67, as against 64, 64, and 63 of Mr. Bangs's skins.

On comparing them with the large series in the British Museum, I find that they may be distinguished by their dull and dark colour and the absence of yellow on the throat. The beak is distinctly stouter, but the wing is only a trifle smaller. This form also occurs in Florida.

17. *SIURUS AUROCAPILLUS* (Linn.).

Sciurus aurocapillus (Linn.); Cory, Bds. Bahamas, 2nd ed. p. 70 (1890); id. Cat. W. Ind. Bds. p. 119 (1892); Bonhote, Ibis, 1899, p. 509; Banks, Auk, xvii. p. 292 (1900).

3 ♂. Nassau, New Providence, 18th February, 7th March, and 17th April, 1902.

A fairly common winter visitor of very skulking habits.

18. *SIURUS NOVEBORACENSIS* (Gmel.).

Sciurus noveboracensis (Gm.); Cory, Bds. Bah. 2nd ed. p. 71 (1890); id. Cat. W. Ind. Bds. p. 119 (1892); Bonhote, Ibis, 1899, p. 510.

♀. Nassau, New Providence, 3rd January, 1902.

♀. Little Abaco, 24th March, 1902.

A winter visitor, inhabiting damp places with thick growth.

19. *GEOTHYLPIIS TRICHAS* (Linn.).

Geothlypis trichas (Linn.); Cory, Bds. Bah. 2nd ed. p. 72 (1890); id. Cat. W. Ind. Bds. p. 119 (1892); Bonhote, Ibis, 1899, p. 510; Bangs, Auk, xvii. p. 289 (1900).

Geothlypis restricta Maynard, Am. Ex. & Mart. (December 15, 1886).

5 ♂. Nassau, New Providence, 21st December, 1901, 4th January, 19th February, 28th April, 1902.

3 ♀. Nassau, New Providence, 11th, 14th, and 16th December, 1901.

♂. Great Abaco, 1st April, 1902.

Without taking into account Mr. Palmer's recent paper* on this genus, which I hope to be able to discuss on a future occasion, I much doubt the existence of two species of the

* Auk, xvii. p. 216 (1900).

Small Yellow-throat on New Providence. In a large series of Yellow-throats from the Bahamas which I have measured, the length of the wing varies in the male from 54 to 60 mm., and in the female 51 to 54 mm.; so that further investigation is necessary before accepting Mr. Maynard's species, which chiefly differs from *G. trichas* in its smaller size, having a wing-measurement of 53-55 mm.

20. GEOTHYLPIS ROSTRATA Bryant.

Geothlypis rostratus Bryant, Pr. Bost. Soc. Nat. Hist. xi. p. 67 (1866); Cory, Bds. Bahamas, 2nd ed. p. 73 (1890); id. Cat. W. Ind. Bds. p. 119 (1892); Bonhote, Ibis, 1899, p. 510; Bangs, Auk, xvii. p. 290 (1900).

Geothlypis maynardi Bangs, Auk, xvii. p. 290 (1900).

2 ♂. Nassau, New Providence, 3rd March and 19th April, 1902.

This bird, which inhabits the low thick bush, is so shy and retiring in its habits that it probably appears much scarcer than it really is. It is not, however, by any means abundant.

One of my specimens (No. 1283) of the large *Geothlypis* from Nassau is certainly brighter on the back than the others, and has yellowish behind the mask instead of ash-grey, while the under parts are bright yellow throughout. The measurements are: wing 63 mm., tail 64, tarsus 24, culmen 16. I take this to be a typical example of *G. maynardi* Bangs.

The following are the measurements of two other specimens:—

	Wing.	Tail.	Tarsus.	Culmen.
	mm.	mm.	mm.	mm.
No. 728 Coll. J. L. B.	63	60	22	15
No. 1388 „ J. L. B.	63	61	22.5	17

In these two specimens the back is duller, in the one the yellow of the flanks is greyish, though hardly at all in the other, and in the yellower one there is also a trace of yellowish behind the eye.

In other words, No. 1388 is *G. rostrata* as defined by Mr. Bangs, while No. 728 has the size and colour of the back of *G. rostrata*, with the head and under parts of *G. maynardi*.

All these specimens come from New Providence, the two extremes being taken in the spring of the year and the intermediate form in the autumn.

To my mind, the best explanation is that *G. rostrata* is the bird in its first year (*i. e.* from its 1st to its 2nd autumn), and *G. maynardi* the fully adult bird; and this conclusion is borne out by my intermediate specimen being an autumn bird in the moult.

Mr. Bangs, however, states that there is a difference in size between the two species, and since, as a rule, birds reach their full growth in their first year, the size of *G. rostrata* and *G. maynardi*, if my solution be the correct one, ought to be the same. On looking through Mr. Bangs's measurements in the paper quoted above we find no definite break between the two species, the one running right into the other. Still, supposing that the two sets are marked by a division, on looking more closely at those measurements we find that the difference lies only in the wing and tail. Those relating to the tarsus and culmen, the *only* skeletal measures given, are *precisely* the same in both series, so that structurally the two so-called species are identical so far as size is concerned, and the apparent difference is due to the length of feathers, which are moulted at a time when I suggest that the transition takes place.

The only evidence which I have to leave untouched is the question of the song, which is said by Maynard to be different; but might not age affect this also?

Apart from these arguments, surely to those who believe in the principles of evolution, as all systematists of the present day are bound to do, it is practically an impossible matter that two such nearly allied resident species, having the same habits, should exist on an island of some 80 square miles in extent. Supposing that they reached the island as two separate forms, they would be bound to approximate and merge together; or supposing, which is almost certainly the case, that they arrived on the island as *one* species, in what manner could natural selection so act as to produce two distinct species on one small rocky island, without hills, rivers, or any pronounced geographical features?

21. GEOTHYLPIS TANNERI (Ridgw.).

Geothlypis tanneri Ridgw. Auk, iii. p. 335 (1886).

Geothlypis rostrata tanneri Ridgw.; Cory, Cat. W. I. Bds. p. 119 (1892).

2 ♂. Little Abaco, 22nd & 28th March, 1902.

♀. „ „ 30th March.

I place my specimens provisionally under this name, though I must confess my inability to recognise any sub-specific differences between *G. tanneri* and *G. rostrata*.

There are three points in which the former may be said to differ *slightly* from *G. rostrata* :—

(i.) There is less ashy behind the mask on the top of the head.

(ii.) The ashy behind the mask over the ears has an almost imperceptible yellowish tinge.

(iii.) The olive on the flanks is of a rather browner shade.

Possibly, however, the birds I got on Little Abaco do not belong to *G. tanneri* of Ridgway, as they differ from the description as given by Cory, viz. :—

(α) “The yellow posterior border to the mask paler, and changing to yellowish grey across the crown.”

In my specimens there is a *slight* yellowish tinge on the broadest part of the light area behind the mask, but no trace of yellow whatever on the crown.

(β) In describing *G. coryi*, with which *G. tanneri* is compared, Cory says, “lower parts, including flanks, entirely rich gamboge-yellow”; and for *G. tanneri* he merely adds, “yellow of lower parts less intense.”

In my specimens the yellow is of exactly the same shade as in *G. rostrata* and is rather lemon-yellow than rich gamboge, and further the flanks are brownish olive, which colour greatly encroaches on the yellow of the lower breast and abdomen. It seems to me most unlikely that both *G. rostrata* and *G. tanneri* should occur on Abaco; but my material being scanty I place these specimens provisionally under the latter name, though my impression at the moment is that *G. tanneri* is not a good species.

It is evident that much still remains to be learnt regarding

these large Yellow-throats, and that a dull as well as a bright form is to be found on both New Providence and Abaco. To my mind there is little doubt that my dull specimens from Abaco are birds in their first year and are not distinct from *G. tanneri*. If, however, *G. maynardi* and *G. rostrata* prove to be two good species, then the dull Abaco bird must be specifically distinct from *G. tanneri*, but could hardly be considered distinct from *G. rostrata*. A large series of specimens, carefully collected and studied on the spot, will be the only means of deciding the question, and meanwhile it will be best to regard the dull birds as young specimens.

22. *SETOPHAGA RUTICILLA* (Linn.).

Setophaga ruticilla (Linn.); Cory, Bds. Bah. 2nd ed. p. 75 (1890); id. Cat. W. I. Bds. p. 120 (1892); Bonhote, Ibis, 1899, p. 511.

2 ♂. Nassau, New Providence, 3rd March and 19th April, 1902.

♀. Nassau, New Providence, 19th April.

A regular migrant, occurring in spring and autumn; solitary stragglers may occasionally be found during the winter.

23. *CÆREBA BAHAMENSIS* (Reich.).

Certhiola bahamensis Reich. Handb. i. p. 253 (1853); Cory, Bds. Bah. 2nd ed. p. 76 (1890).

Cereba bahamensis (Reich.); Cory, Cat. W. Ind. Bds. p. 116 (1892); Bonhote, Ibis, 1899, p. 511; Bangs, Auk, xvii. p. 293 (1900).

2 ♂. Nassau, New Providence, 21st Feb. and 3rd March.

♀. " " 12th December, 1901.

juv. " " 28th April, 1902.

♂. Grassy Creek, Andros, 15th January.

♂ ♀. Little Abaco, 26th March.

A very abundant resident throughout the islands. The breeding-season commences about the end of March, the nest being a domed structure placed at a moderate height from the ground in the thick bush.

+ 24. *HIRUNDO ERYTHROGASTRA* (Bodd.).

Hirundo erythrogastra Bodd. Tabl. Pl. Enl. p. 45 (1783).

Hirundo horreorum A. & E. Newton, Ibis, 1856, p. 66 ;
Cory, Bds. Bahamas, 2nd ed. p. 78 (1890).

Chelidon erythrogaster (Bodd.) ; Cory, Cat. W. I. Bds.
p. 115 (1892).

♂. Green Cay, near Andros, 29th April, 1902.

My specimen was one of three or four which were hawking
along the shore. They had all gone by the next day. This
was the only occasion on which I met with this species in
the Bahamas.

25. *CALLICHELIDON CYANEOVIRIDIS* (Bryant).

Hirundo cyaneoviridis Bryant, Pr. Bost. Soc. Nat. Hist.
vii. p. 111 (1859) ; Cory, Bds. Bah. 2nd ed. p. 79 (1890).

Callichelidon cyaneoviridis (Bryant) ; Cory, Cat. W. Ind.
Bds. p. 115 (1892) ; Bonhote, Ibis, 1899, p. 511 ; Bangs,
Auk, xvii. p. 288 (1900).

♂ ♀. Nassau, New Providence, 6th March, 1902.

Though frequently seen, generally flying at a considerable
height, this species is by no means common, and never seems
to remain long in any one place. It breeds, I am told, in
hollow trees.

+ 26. *VIREO CALIDRIS* (Linn.).

Vireo altiloquus barbatulus (Cab.) ; Cory, Bds. Bah. p. 82
(1890).

Vireo calidris (Linn.) ; Bonhote, Ibis, 1899, p. 511.

Vireo calidris barbatulus (Cab.) ; Cory, Cat. W. Ind. Bds.
p. 115 (1892) ; Bangs, Auk, xvii. p. 288 (1900).

♀. Green Cay, Andros, 30th April, 1902.

A regular and abundant summer visitor, arriving about
the end of April.

27. *VIREO CRASSIROSTRIS* (Bryant).

Laniivireo crassirostris Bryant, Pr. Bost. Soc. Nat. Hist.
vii. p. 112 (1859) ; Cory, Bds. Bah. 2nd ed. p. 83 (1890).

Vireo crassirostris (Bryant) ; Cory, Cat. W. I. Bds. p. 116
(1892) ; Bangs, Auk, xvii. p. 289 (1900).

Vireo crassirostris flavescens Ridgw. Man. N. A. Bds. p. 476 (1896).

4 ♂. Nassau, New Providence, 16th & 26th December, 1901, 19th & 23rd February, 1902.

3 ♀. Nassau, New Providence, 12th & 26th December, 1901, and 28th April, 1902.

A common resident, but very difficult to observe owing to its skulking habits. None of my specimens approach in colour *V. crassirostris flavescens* of Ridgway, a form about which more information is required. In one the stripe from the eye to the nostril is deep orange.

+28. *VIREO FLAVIFRONS* Vieill.

Vireo flavifrons Vieill. Ois. Am. Sept. i. p. 85, fol. 54 (1807); Cory, Bds. Bah. 2nd ed. p. 83 (1890); id. Cat. W. I. Bds. p. 116 (1892).

♀. Mangrove Cay, Andros, 11th January, 1902.

With the exception of the examples seen by Mr. Moore and recorded by Cory, this is the sole record of this species; it probably occurs every winter, but is liable to be confused with the preceding species.

29. *SPINDALIS ZENA* (Linn.).

Spindalis zena (Linn.); Cory, Bds. Bah. 2nd ed. p. 92 (1890); id. Cat. W. Ind. Bds. p. 114 (1892); Bonhote, Ibis, 1899, p. 512; Bangs, Auk, xvii. p. 293 (1900).

10 ♂. Nassau, New Providence, 12th, 14th, & 26th December, 1901; 6th January, 19th & 22nd February, 17th & 28th April, 1902.

7 ♀. Nassau, New Providence, 12th, 21st, & 28th December, 1901, 19th & 21st February, 1902.

Very abundant throughout New Providence. It was also met with on Andros.

30. *SPINDALIS ZENA TOWNSENDI* Ridgw.

Spindalis zena townsendi Ridgw. Proc. U.S. Nat. Mus. x. p. 3 (1887); Cory, Cat. Bds. Bah. 2nd ed., App. (1890); id. Cat. W. Ind. Bds. p. 114 (1892).

9 ♂. Little Abaco, 24th to 31st March, 1902.

♀. „ „ 31st March.

Although this form seemed "somewhat doubtful" to Cory, it has, in my opinion, more right to be recognised than many other so-called local forms. The colouring of the back is distinctive, and of a series of nineteen specimens there was no hesitation in deciding to which race any particular individual belonged. On the other hand, both forms vary, especially that from Abaco; but in Abaco birds the light olive-green edgings to the feathers of the back are *always conspicuous*, which in *S. zena* is *never* the case. As a rule, Abaco birds are paler on the breast, the deep chestnut of the chest not extending so far down.

The females are indistinguishable.

31. PYRRHULAGRA VIOLACEA (Linn.).

Loxigilla violacea (Linn.); Cory, Bds. Bah. 2nd ed. p. 85 (1890).

Pyrrhulagra violacea (Linn.); Cory, Cat. W. Ind. Bds. p. 112 (1892); Bonhote, Ibis, 1899, p. 512; Bangs, Auk, xvii. p. 293 (1900).

♂. Nassau, New Providence, 23rd February, 1902.

5 ♀. " " 16th December, 1901,
22nd & 27th February and 3rd March, 1902.

2 ♂. Little Abaco, 26th March.

2 ♀. " " 25th & 30th March.

An abundant resident, but difficult to observe in the thick bush, which it seldom leaves. The young are olive-grey all over (darker on the back and lighter on the vent), except for the usual patches of chestnut, which are rather paler than in the adult. The dark colour of maturity first begins to appear on the cheeks. One female procured in Little Abaco on the 25th of March is much smaller than any other specimens that I have seen, but agrees in all other respects; its measurements are: wing 2·69 inches, tail 2·53, tarsus ·8, culmen ·47.

32. EUETHIA BICOLOR (Linn.).

Phonipara bicolor (Linn.); Cory, Bds. Bah. 2nd ed. p. 91 (1890).

Euethia bicolor (Linn.); Cory, Cat. W. Ind. Bds. p. 113

(1892); Bonhote, Ibis, 1899, p. 512; Bangs, Auk, xvii. p. 293 (1900).

♂ ♀ ♀. Nassau, New Providence, 3rd January, 19th & 22nd February, 1902.

A most abundant resident. The nest is a domed structure made entirely of dry grass, generally placed at the top of a small straight sapling at a height varying from four to ten feet. The eggs are of a dull white with brownish markings, most conspicuous at the larger end. Measurements $.72 \times .51$ mm. Incubation commences at the end of March.

33. *PASSERCULUS SANDVICENSIS* (Gm.).

Passerculus savanna Wils.; Cory, Bds. Bah. 2nd ed. p. 88 (1890).

Passerculus sandvicensis savanna (Wils.); Bangs, Auk, xvii. p. 293 (1900).

Ammodramus sandwichensis savanna (Wils.); Cory, Cat. W. Ind. Bds. p. 112 (1892).

♂. Mangrove Cay, Andros, 10th January, 1902.

♂ ♀. Little Abaco, 27th & 31st March, 1902.

This bird is by no means common; the specimen procured on Andros was the only one seen. At Little Abaco it was evidently on migration, being quite numerous for about a week, after which no more were seen.

34. *AGELÆUS PHÆNICEUS BRYANTI* Ridgw.

Agelaius phœniceus bryanti Ridgw.; Cory, Bds. Bah. 2nd ed., App. (1890); id. Cat. W. Ind. Bds. p. 110 (1892).

Agelaius bryanti Ridgw.; Bangs, Auk, xvii. p. 293 (1900).

3 ♂. Nassau, New Providence, 17th & 31st December, 1901, and 28th April, 1902.

5 ♀. Nassau, New Providence, 21st, 24th, & 31st December, 1901.

3 ♂. Spanish Wells, Andros, 1st February, 1902.

♂. Grassy Creek, Andros, 8th May, 1902.

2 ♀. Spanish Wells, Andros, 1st February, 1902.

♂. Great Abaco, 1st April, 1902.

5 ♂. Little Abaco, 25th, 28th, & 31st March, 1902.

♀. „ „ 14th March, 1902.

A most abundant species among the mangroves, generally in small flocks.

This species seems to be distinguished from the true *A. phoeniceus* by having shorter wings and a longer and more slender bill. A large range of variation, however, occurs in both forms, and it is not always easy to determine with certainty to which some individuals belong.

† 35. *TYRANNUS DOMINICENSIS* (Gmel.).

Tyrannus dominicensis (Gmel.); Cory, Cat. W. Ind. Bds. p. 108 (1892); Bangs, Auk, xvii. p. 288 (1900).

Tyrannus griseus Vieill.; Cory, Bds. Bah. 2nd ed. p. 99 (1890); Bonhote, Ibis, 1899, p. 513.

♂. Green Cay, near Andros, 29th April, 1902.

A very common summer visitor, arriving about the end of April. It is one of the few Passerine inhabitants of the outlying cays or rocks, however small, so long as they contain a patch of vegetation. During the first fortnight of May it was often met with well out of sight of land.

† 36. *MYIARCHUS SAGRÆ* (Gundl.).

Muscicapa sagræ Gundl. Journ. Bost. Soc. Nat. Hist. vi. p. 313 (1852).

Myiarchus stolidus, var. *leucayensis* Bryant; Cory, Bds. Bah. 2nd ed. p. 100 (1890).

Myiarchus sagræ (Gundl.); Cory, Cat. W. Ind. Bds. p. 108 (1892); Bonhote, Ibis, 1899, p. 513.

Myiarchus leucayensis Bryant; Bangs, Auk, xvii. p. 288 (1900).

♂ ♂ ♀. Nassau, New Providence, 24th February, 3rd March, 28th February, 1902.

○. Mangrove Cay, Andros, 11th January, 1902.

♂. Fresh Creek, Andros, 5th February, 1902.

♂ ♀. Little Abaco, 30th March, 1902.

A widely distributed species, though hardly common. The nest is placed in a hole of a rotten tree, and is begun about the beginning of April.

† 37. *BLACICUS BAHAMENSIS* (Bryant).

Empidonax bahamensis Bryant, Pr. Bost. Soc. Nat. Hist. vii. p. 109 (1859).

Contopus bahamensis (Bryant); Cory, Bds. Bah. 2nd ed. p. 101 (1890).

Blacicus bahamensis (Bryant); Cory, Cat. W. Ind. Bds. p. 109 (1892); Bonhote, Ibis, 1899, p. 513; Bangs, Auk, xvii. p. 288 (1900).

2 ♂. Little Abaco, 21st & 30th March, 1902.

A fairly common resident, seldom found away from thick cover.

+ 38. *PITANGUS BAHAMENSIS* Bryant.

Pitangus bahamensis Bryant, Pr. Bost. Soc. Nat. Hist. ix. p. 279 (1864); Cory, Bds. Bah. 2nd ed. p. 102 (1890); id. Cat. W. Ind. Bds. p. 108 (1892); Bonhote, Ibis, 1899, p. 514; Bangs, Auk, xvii. p. 288 (1900).

4 ♂. Nassau, New Providence, 12th & 21st December, 1901, 19th February and 28th April, 1902.

♀. Nassau, New Providence, 1st March.

♂ ♂. Little Abaco, 14th & 26th March.

A fairly abundant and very tame species, generally to be found on the pine-barrens.

† 39. *CHORDEILES MINOR* Cab.

Chordeiles minor Cab. J. f. O. 1856, p. 5; Cory, Bds. Bah. 2nd ed. p. 106 (1890); id. Cat. W. Ind. Bds. p. 105 (1892); Bonhote, Ibis, 1899, p. 514; Bangs, Auk, xvii. p. 288 (1900).

♂. Grassy Creek, Andros, 6th May, 1902.

A very common summer migrant, arriving about the beginning of May. The males seem to reach the islands a week or more before the females. They begin to pair almost immediately, and I have seen them chasing each other in the full blaze of the midday sun.

† 40. *DORICHA EVELYNÆ* (Bourc.).

Trochilus evelynæ Bourc. P. Z. S. 1847, p. 44.

Doricha evelynæ (Bourc.); Cory, Bds. Bah. 2nd ed. p. 108 (1890); id. Cat. W. Ind. Bds. p. 107 (1892); Bonhote, Ibis, 1899, p. 514; Bangs, Auk, xvii. p. 288 (1900).

♂. Nassau, New Providence, 3rd March, 1902.

A widely distributed species, abundant in suitable localities, but somewhat local. It is very partial to the tall flowers of the sisal.

+ 41. *SPORADINUS RICCORDI* (Gerv.).

Sporadinus riccordi Gervais, Rev. Mag. Zool. 1835, pls. 41 & 42.

Sporadinus riccordi (Gerv.); Cory, Bds. Bah. 2nd ed. p. 111 (1890); id. Cat. W. Ind. Bds. p. 107 (1892).

Sporadinus bracei Lawr. Ann. N.Y. Acad. Sci. i. p. 50 (1877).

Riccordia aeneo-viridis Wm. Palmer and J. H. Riley, Proc. Biol. Soc. Wash. xv. p. 33 (1902) (Abaco).

♂. Mangrove Cay, Andros, 11th January, 1902.

4 ♂. Little Abaco, 21st March, 1902.

On Andros and Abaco this species greatly outnumbers the foregoing, which is very rarely seen on the latter island. On New Providence it is only known from one mummied specimen, the type of *S. bracei*, and can therefore hardly be considered as occurring there. I have very carefully studied and measured series of these birds from Abaco and Cuba, and fail to see the very smallest reason for separating the Abaco bird. The only points of difference I could detect were: (1) the middle tail-feather in the Abaco birds is slightly (1 mm.) broader, and (2) the tail is of a more coppery bronze; but these distinctions are by no means constant.

+ 42. *CERYLE ALCYON* (Linn.).

Ceryle alcyon (Linn.); Cory, Bds. Bah. 2nd ed. p. 115 (1890); id. Cat. W. Ind. Bds. p. 103 (1892); Bonhote, Ibis, 1899, p. 514.

♂. Nassau, New Providence, 17th December, 1901.

♂. Grassy Creek, Andros, 15th January, 1902.

A common winter visitor in suitable localities. It is generally found singly and is very shy.

+ 43. *SAUROTHERA BAHAMENSIS* Bryant.

Saurothera bahamensis Bryant, Pr. Bost. Soc. Nat. Hist. ix. p. 280 (1864); Cory, Eds. Bah. 2nd ed. p. 116 (1890);

id. Cat. W. Ind. Bds. p. 102 (1892); Bonhote, Ibis, 1899, p. 515; Bangs, Auk, xvii. p. 288 (1900).

4 ♂. Nassau, New Providence, 19th & 28th February, 5th March, and 19th April, 1902.

A fairly common inhabitant of the thick bush, more often heard than seen.

†44. *COCYZUS MINOR MAYNARDI* Ridgw.

Coccyzus maynardi Ridgw. Manual N. A. Birds, p. 274 (1887).

Coccyzus minor maynardi Cory, Bds. Bah. 2nd ed., App. (1890); id. Cat. W. Ind. Bds. p. 102 (1892); Bonhote, Ibis, 1899, p. 515; Bangs, Auk, xvii. p. 288 (1900).

○ ♂. Nassau, New Providence, 19th December, 1901, and 6th March, 1902.

A generally distributed, but by no means abundant, species; in the northern islands it is certainly much more conspicuous during the summer months.

†45. *CROTOPHAGA ANI* Linn.

Crotophaga ani Linn.; Cory, Bds. Bah. 2nd ed. p. 118 (1890); id. Cat. W. Ind. Bds. p. 102 (1892); Bonhote, Ibis, 1899, p. 515; Bangs, Auk, xvii. p. 287 (1900).

3 ♀. Nassau, New Providence, 19th December and 19th February.

A common and abundant resident throughout the islands.

†46. *DRYOBATES VILLOSUS MAYNARDI* Ridgw.

Dryobates villosus maynardi Ridgw. Man. N. A. Birds, p. 282 (1887); Cory, Bds. Bah. 2nd ed., App. (1890); id. Cat. W. Ind. Bds. p. 104 (1892); Bonhote, Ibis, 1899, p. 516.

Dryobates maynardi Ridgw.; Bangs, Auk, xvii. p. 288 (1900).

♀. Nassau, New Providence, 1st March, 1902.

♀. Great Abaco, 1st April, 1902.

♀. Little Abaco, 31st March, 1902.

A somewhat rare species, though apparently widely distributed. The present specimens confirm the remarks in my former paper, that the length of wing, and consequent

general size, is the only tangible characteristic of this race. One of the specimens shows a trace of dark stripes on the breast.

†47. SPHYRAPICUS VARIUS (Linn.).

Picus varius Linn. Syst. Nat. i. p. 176 (1766).

Sphyrapicus varius (Linn.); Cory, Bds. Bah. 2nd ed. p. 121 (1890); id. Cat. W. Ind. Bds. p. 104 (1892); Bonhote, Ibis, 1899, p. 516.

♂, 3 ♀. Nassau, New Providence, 4th March, 19th February, and 1st & 7th March, 1902.

A very common winter visitor, especially round Nassau.

† 48. CHRYSOTIS LEUCOCEPHALA (Linn.).

Psittacus leucocephalus Linn. Syst. Nat. i. p. 100 (1766).

Chrysotis collaria (Linn.); Cory, Bds. Bah. 2nd ed. p. 123 (1890).

Amazona leucocephala (Linn.); Cory, Cat. W. Ind. Bds. p. 101 (1892).

I brought home several specimens of this bird alive. They are now becoming very scarce and are exterminated in most of their former haunts, viz. Abaco and Long Island. A few may possibly still be found on Inagua, but I only know of their existence positively on an island the name of which I think it inadvisable to divulge.

† 49. STRIX FLAMMEA PRATINCOLA Bp.

Strix pratincola Bp. List, p. 7 (1838).

Strix flammea, var. *pratincola* Bp.; Cory, Bds. Bah. 2nd ed. p. 125 (1890); id. Cat. W. Ind. Bds. p. 100 (1892); Bonhote, Ibis, 1899, p. 516.

Strix pratincola Bp.; Bangs, Auk, xvii. p. 287 (1900).

One specimen. Hope Town, Abaco, 30th December, 1901.

This Owl is by no means common, and is hardly known by the inhabitants.

†- 50. SPEOTYTO CUNICULARIA CAVICOLA Bangs.

Speotyto cunicularia cavicola Bangs, Auk, xvii. p. 287 (1900).

Speotyto cunicularia, var. *floridana* Ridgw.; Cory, Bds.

Bah. 2nd ed. p. 126 (1890); id. Cat. W. Ind. Bds. p. 100 (1892).

Speotyto bahamensis Maynard (nec Cory), App. Cat. W. Ind. Bds. (29th Nov., 1899); Allen, Auk, xvii. p. 187 (1900).

♀. Nassau, New Providence, 7th March, 1902.

By no means uncommon, but not often seen. I have had no opportunity of comparing this specimen with those from Florida, and thus confirming Mr. Bangs's diagnosis, but, as it comes from the same locality as the type, I include it under its new name. Its measurements are as follows:—Wing 158 mm., tail 76, tarsus 45, middle toe (s. u.) 22, depth of bill 14.

[CIRCUS HUDSONICUS (Linn.).

I saw a Hawk at Spanish Wells, Andros, on the 22nd January, which I believe to have been of this species.]

[FALCO SPARVERIUS (Linn.).

Occasionally seen during the winter, but not very common.]

†51. BUTEO BOREALIS UMBRINUS Bangs.

Buteo borealis umbrinus Bangs, Proc. N. Engl. Zool. Club, vol. ii. p. 67 (1901).

Buteo borealis (Gm.); Cory, Bds. Bah. 2nd ed. p. 131 (1890); id. Cat. W. Ind. Bds. p. 99 (1892).

♂ ♀. Little Abaco, 26th March, 1902.

2 eggs. " " "

The Bahaman bird is apparently identical with the Floridan form lately described by Mr. Bangs. The male differs from the female in the purer white of the chest, the dark band across the breast is less marked, and the feathers on the thighs are pure white, the rusty bars being entirely absent; the ferruginous on the sides and back of the neck is also much brighter. It is rather larger, the wing measuring 15 inches as against 14 in the female.

A nest of this bird was placed about twenty feet from the ground near the top of a pine-tree; the foundation was made of coarse twigs, and it was neatly lined with green pine-needles. The eggs, two in number, were elliptical in shape and dull

bluish white in colour—on one there were no markings whatever, but on the other there were a few irregular smudges of brown.

Measurements: 56 × 47 mm.

My female agrees exactly with the description of the type, and therefore I have placed it under its new name. I can, however, see no difference between this and specimens from the Eastern States; but the series of the southern specimens being small, it is impossible to be quite certain.

+52. *PANDION CAROLINENSIS* (Gmel.).

Pandion haliaëtus (Linn.); Cory, Bds. Bah. 2nd ed. p. 131 (1890).

Pandion haliaëtus carolinensis (Gmel.); Cory, Cat. W. Ind. Bds. p. 99 (1892).

♀ ad. Spanish Wells, Andros, 2nd February, 1902.

♂ ad. „ „ 22nd February, 1902.

♂ imm. „ „ 3rd March, 1902.

♂ imm. Grassy Creek, Andros, 9th May, 1902.

When perfectly adult these birds are of a uniform brown on the back and wing-coverts. The head is nearly pure white, only a very few of the feathers having dark brown shafts. In the young in its first plumage all the feathers of the back have broad pale yellow margins, while a large proportion of the feathers of the head have black shafts. The feathers on the back of the crown and nape are deeply tinged with rufous, which colour extends as a slightly lighter tint to the throat. A bird shot in May has the back nearly pure brown, while the light edgings to the wing-coverts shew a considerable amount of wear. A specimen alive in captivity, which was taken from the nest on the 31st of January, and was full-fledged about three weeks later, began to moult at the end of July, and had by November assumed the pure brown back, the wing-coverts shewing considerably less white than before, the tail and flight-feathers were also moulted.

I met with two nests of this species, both of which were huge structures placed on the top of small mangrove-clumps some fifteen to twenty feet from the ground. I saw young birds on the wing with their parents at the end of January,

so that incubation must begin about the latter end of November. The birds are by no means common in the northern islands, but are chiefly to be found near the broad lagoons, where their principal food is a fish known as "Bone Fish."

†53. *CATHARTES AURA* (Linn.).

Cathartes aura (Linn.); Cory, Bds. Bah. 2nd ed. p. 134 (1890); id. Cat. W. Ind. Bds. p. 98 (1892).

♂. Mangrove Cay, Andros, 10th January, 1902.

♂. Little Abaco, 2nd April, 1902.

This bird was nowhere abundant and was met with only on Andros and Abaco. It is very strange that it should never be found on New Providence, which is only twenty miles from Andros.

†54. *COLUMBA LEUCOCEPHALA* Linn.

Columba leucocephala Linn.; Cory, Bds. Bah. 2nd ed. p. 137 (1890); id. Cat. W. Ind. Bds. p. 96 (1892); Bonhote, Ibis, 1899, p. 516.

♀. Nassau, New Providence, 3rd March, 1902.

♂. Washerwoman Cay, Andros, 1st May, 1902.

A resident, not very numerous during the winter. It breeds in large numbers on some of the outlying cays, flying ten or twenty miles to the mainland for its food. The breeding-season is late, not commencing till June.

†55. *ZENAIDURA MACRURA* (Linn.).

Zenaida macroura (Linn.); Bangs, Auk, xvii. p. 286 (1900).

Zenaidura macroura (Linn.); Cory, Cat. W. Ind. Bds. p. 97 (1892).

♀. Nassau, New Providence, 19th April, 1902.

Until recently this species had not been recorded from the Bahamas. It is known, however, to the natives under the name of "Turtle Dove." The above specimen was shot off the nest, which contained two fresh eggs. Several others were seen and heard on Little Exuma and Andros. On the former island there seemed to be quite a flock on the 22nd of April, possibly migrating.

—56. COLUMBIGALLINA PASSERINA (Linn.).

Chamæpelia bahamensis Maynard, Am. Ex. & Mart (15th January, 1887).

Chamæpelia passerina (Linn.); Cory, Bds. Bah. 2nd ed. p. 139 & App. (1890).

Columbigallina passerina (Linn.); Cory, Cat. W. Ind. Bds. p. 97 (1892); Bonhote, Ibis, 1899, p. 517.

Columbigallina bahamensis (Maynard); Bangs, Auk, xvii. p. 286 (1900).

3 ♂. Nassau, New Providence, December 1901 and February 1902.

5 ♀. Nassau, New Providence, December 1901, January and February 1902.

2 ♂, ♀. Little Abaco, 26th March, 1902.

One of the most abundant species, appearing to breed all the year round. The nest is sometimes on the ground, more often a few feet up a tree. I can find no characters sufficient to warrant a special name being applied to the Bahaman bird. Like the White-headed Pigeon, it is frequently found on outlying rocks and cays some miles from the mainland.

—57. ORTYX BAHAMENSIS (Maynard).

Colinus bahamensis Maynard, App. to Cat. Bds. W. Ind. (1899); Bangs, Auk, xvii. p. 286 (1900).

Ortyx virginianus (Linn.); Cory, Bds. Bah. 2nd ed. p. 142 (1890).

Colinus virginianus (Linn.); Cory, Cat. W. Ind. Bds. p. 96 (1892); Bonhote, Ibis, 1899, p. 517.

♂ ad. Nassau, New Providence, 15th April, 1902.

I have provisionally placed this species under the name given to it by Mr. Maynard, but have not compared it with Floridan or other specimens, and am not therefore able to vouch for its distinctness or the reverse. I brought home three living specimens, a pair of which bred last September, but I was unable to rear the young. Incubation lasted twenty-five days. On New Providence they are fairly common in the pine-barrens, but very difficult to shoot on

the wing, owing to the trees, and it is almost impossible to flush them a second time.

+ 58. *SQUATAROLA HELVETICA* (Linn.).

Squatarola helvetica (Linn.); Cory, Bds. Bah. 2nd ed. p. 144 (1890); Bonhote, Ibis, 1899, p. 517.

Charadrius squaterola (Linn.); Cory, Cat. W. Ind. Bds. p. 94 (1892).

♂. Grassy Creek, Andros, 13th January, 1902.

○. Spanish Wells, Andros, 2nd February, 1902.

♂. Green Cay, near Andros, 29th April, 1902.

Fairly common throughout the winter in suitable spots near the sea, but hardly ever wandering inland.

+ 59. *ÆGIALITIS VOCIFERA* (Linn.).

Ægialitis vocifera (Linn.); Cory, Bds. Bah. 2nd ed. p. 145 (1890); id. Cat. W. Ind. Bds. p. 95 (1892); Bonhote, Ibis, 1899, p. 518.

♀. Nassau, New Providence, 4th January, 1902.

♀. Little Abaco, 21st March, 1902.

Fairly common in winter on open and cultivated land, seldom seen after the beginning of March.

+ 60. *ÆGIALITIS WILSONIA* (Ord).

Ægialitis wilsonia (Ord); Cory, Bds. Bah. 2nd ed. p. 147 (1890); id. Cat. W. Ind. Bds. p. 95 (1892); Bonhote, Ibis, 1899, p. 518; Bangs, Auk, xvii. p. 285 (1900).

2 ♂, ♀. Grassy Creek, Andros, 17th January, 1902.

♂. Little Abaco, 21st March, 1902.

A very common resident, breeding abundantly on the lagoons of Andros. Incubation commences about the beginning of May; I found three eggs a few feet from high-water mark on the 9th of that month. There was no attempt at a nest beyond a slight hollow scraped in the sand.

+ 61. *ÆGIALITIS SEMIPALMATA* (Bp.).

Ægialitis semipalmata (Bp.); Cory, Bds. Bah. 2nd ed. p. 148 (1890); id. Cat. W. Ind. Bds. p. 95 (1892); Bonhote, Ibis, 1899, p. 518; Bangs, Auk, xvii. p. 286 (1900).

♀. Mangrove Cay, Andros, 10th January, 1902.

♂ ♀. Green Cay, near Andros, 29th April, 1902.

By no means numerous, but generally distributed along the sea-shore.

+ 62. *HÆMATOPUS PALLIATUS* Temm.

Hematopus palliatus Temm. Man. d'Orn. ii. p. 532 (1820); Cory, Bds. Bahamas, 2nd ed. p. 150 (1890); id. Cat. W. Ind. Birds, p. 95 (1892).

Hematopus prattii Maynard, App. to Cat. Bds. W. Ind. (1899); Bangs, Auk, xvii. p. 284 (1900).

2 ♂. Grassy Creek, Andros, 5th & 11th May, 1902.

Although shot at Andros during the breeding-season, I am unable to distinguish these specimens from other Atlantic coast and W. Indian examples, which seem to vary considerably in the size and length of the bill. Whether *H. prattii* of Maynard is or is not a good species I cannot say, but the common form is found on Andros during the summer.

+ 63. *STREPSILAS INTERPRES* (Linn.).

Tringa interpres Linn. Syst. Nat. i. p. 148 (1758).

Strepsilas interpres (Linn.); Cory, Bds. Bah. 2nd ed. p. 151 (1890).

Arenaria interpres (Linn.); Cory, Cat. W. I. Bds. p. 95 (1892).

♂. Mangrove Cay, Andros, 10th January, 1902.

2 ♂, 2 ♀. Grassy Creek, 16th January, 1902.

♀. Little Abaco, 30th March, 1902.

♂ ♀. Green Cay, near Andros, 29th April, 1902.

A very common species in suitable places; specimens at the end of April had just completed their change to summer plumage.

+ 64. *HIMANTOPUS MEXICANUS* Müll.

Himantopus nigricollis Vieill.; Cory, Bds. Bah. 2nd ed. p. 153 (1890).

Himantopus mexicanus (Müll.); Cory, Cat. W. Ind. Bds. p. 92 (1892).

♂ ♀. Green Cay, near Andros, 30th April, 1902.

This was the only place where these birds were met with. Some eight or nine pairs were about to breed on the shores of a

small inland pool on the Cay. They appear, unless disturbed, to keep very quiet and to confine themselves to the pool, for we did not find them the first day that we landed, and as the island was barely a mile and a half in circumference we could hardly have missed them had they left the pond. They were just about to breed, a fully shelled and pigmented egg being obtained from the female. As soon as we approached they became very noisy and eventually left the pond, but kept on returning at frequent intervals.

† 65. *GALLINAGO DELICATA* (Ord).

Gallinago wilsoni (Temm.); Cory, Bds. Bah. 2nd ed. p. 156 (1890).

Gallinago delicata (Ord); Cory, Cat. W. Ind. Bds. p. 92 (1892).

♀. Nassau, Bahamas, 24th December, 1901.

A tolerably common winter visitor in suitable spots, but by no means numerous. It is rather local in its distribution and unless its favourite swamps be visited it is but seldom seen. It is more partial to damp spots situated amongst palmettos and bushes than to large stretches of open swamp.

66. *MACRORHAMPHUS GRISEUS* (Gm.).

Macrorhamphus griseus (Gm.); Cory, Bds. Bah. 2nd ed. p. 157 (1890); id. Cat. W. Ind. Bds. p. 92 (1892).

4 ♀. Spanish Wells, Andros, 21st January, 1902.

♀. Grassy Creek, Andros, 10th May, 1902.

A rather scarce winter visitor, generally found in small flocks. In full breeding-dress it looks, at a distance, very much like a Knot. I once met with a flock of these birds in one of the gardens in the town; they were very tame and hungry, having evidently just arrived. The May individual was in full breeding-dress and very fat.

67. *EREUNETES PUSILLUS* (Linn.).

Ereunetes pusillus (Linn.); Cory, Cat. Bds. Bah. 2nd ed. p. 157 (1890); id. Cat. W. Ind. Bds. p. 93 (1892); Bangs, Auk, xvii. p. 286 (1900).

♂ ad. Hog Island, off New Providence, 27th April, 1902.

This is the only occasion on which I met with this species:

it may have been overlooked, owing to its resemblance to the Little Stint, but I am inclined to think that it only visits the northern islands on migration.

68. *TRINGA MINUTILLA* Vieill.

Tringa minutilla Vieill. Nouv. Dict. xxxiv. p. 452 (1819); Cory, Bds. Bah. 2nd ed. p. 158 (1890); id. Cat. W. Ind. Bds. p. 93 (1892); Bangs, Auk, xvii. p. 286 (1900).

2 ♀. Nassau, New Providence, 17th December, 1901.

♀. " " 4th March, 1902.

♀. Hog Island, New Providence, 27th April, 1902.

2 ♀. Grassy Creek, Andros, 17th January, 1902.

A very common winter visitor and excessively tame, allowing an approach to within two or three feet, and if disturbed merely running away for a few yards.

69. *CALIDRIS ARENARIA* (Linn.).

Calidris arenaria (Linn.); Cory, Bds. Bah. 2nd ed. p. 160 (1890); id. Cat. W. Ind. Bds. p. 93 (1892).

♀. Grassy Creek, Andros, 17th January, 1902.

A small flock was seen on two occasions at Andros, the only place where this species was met with.

70. *SYMPHEMIA SEMIPALMATA* (Gm.).

Totanus semipalmatus (Gm.); Cory, Bds. Bah. 2nd ed. p. 160 (1890); Bonhote, Ibis, 1899, p. 518.

Symphemia semipalmata (Gm.); Cory, Cat. W. Ind. Bds. p. 94 (1892); Bangs, Auk, xvii. p. 286 (1900).

♂. Grassy Creek, Andros, 17th January, 1902.

♂ ♀. " " 5th May, 1902.

These birds are not very common during the winter and, when seen, are generally very wild. On my second visit to Grassy Creek in May they were very abundant and preparing to breed, and some of them had, I fancy, begun to sit. They are known locally as "Duck Snipe."

71. *TOTANUS MELANOLEUCUS* Gm.

Totanus melanoleucus (Gm.); Cory, Bds. Bah. 2nd ed. p. 161 (1890); id. Cat. W. Ind. Bds. p. 93 (1892).

3 specs. Grassy Creek, Andros, 15th January, 1902.

♀. Fresh Creek, Andros, 5th February, 1902.

Although this bird was met with on several occasions, it can by no means be considered a common winter visitor.

72. *TOTANUS FLAVIPES* Gm.

Totanus flavipes (Gm.) ; Cory, Bds. Bah. 2nd ed. p. 162 (1890) ; id. Cat. W. Ind. Bds. p. 93 (1892).

2 ♀. Fresh water, Andros, 25th & 27th January, 1902.

A very scarce visitor ; all those seen were observed near the fresh-water lake in the centre of Andros, some twenty miles from the sea.

73. *ACTITIS MACULARIA* (Linn.).

Tringoides macularius (Linn.) ; Cory, Bds. Bahamas, 2nd ed. p. 162 (1890) ; Bonhote, Ibis, 1899, p. 519.

Actitis macularia (Linn.) ; Cory, Cat. W. Ind. Bds. p. 94 (1892).

♀. Little Abaco, 21st March, 1902.

2 ♀. Nassau, New Providence, 27th April, 1902.

This species did not make its appearance till towards the end of March. I believe that individuals are to be found throughout the summer, but the note in my previous paper recording them as common throughout the year was a mistake, as on neither trip did I ever meet with them in winter.

†74. *ARDEA HERODIAS* Linn.

Ardea herodias Linn. Syst. Nat. i. p. 237 (1766) ; Cory, Bds. Bah. 2nd ed. p. 166 (1890) ; id. Cat. W. Ind. Bds. p. 89 (1892) ; Bonhote, Ibis, 1899, p. 519.

♀ imm. Grassy Creek, Andros, 10th May, 1902.

This bird is commonly to be met with throughout the more secluded parts of the islands, where it is known under the name of "Ar snicker." It is very shy and almost impossible to approach. Most of the birds seen were immature.

[*ARDEA EGRETTA* Gm.

Whilst sailing down Middle Bight, Andros, on the 2nd of February, I saw a large white Heron, which I have little doubt belonged to this species. It was excessively wild and did not allow a close approach.]

+ 75. ARDEA TRICOLOR RUFICOLLIS (Gosse).

Egretta ruficollis Gosse, Bds. Jam. p. 38 (1847).

Ardea leucogastra, var. *leucopymna* } Cory, Bds. Bah. 2nd ed.

Ardea cyanirostris } p. 168 & App. (1890).

Ardea tricolor ruficollis (Gosse); Cory, Cat. W. Ind. Bds. p. 89 (1892).

♂ imm. Grassy Creek, Andros, 17th January, 1902.

♂ ♀ ad., ♀ imm. Spanish Wells, Andros, 22nd January, 1902.

2 ♂ ad. Fresh water, Andros, 28th January, 1902.

♂ ad. Nassau, New Providence, 29th April, 1902.

♀ ad. Grassy Creek, Andros, 4th May, 1902.

A very abundant species; examples taken at the end of April were in full breeding-plumage with deep blue beaks. They were very tame, and generally to be found in small flocks round the large clumps of mangroves. In spring they had all paired and did not appear to be gregarious. One nest contained a single egg on the 17th of May.

+ 76. ARDEA RUFIA Bodd.

Ardea rufa Bodd. Tabl. Pl. Enl. p. 54 (1783); Cory, Bds. Bah. 2nd ed. p. 170 (1890).

Herodias pealii Brewer, Pr. Bost. Soc. Nat. Hist. vii. p. 308 (1860).

Ardea rufescens Gmel.; Cory, Cat. W. Ind. Bds. p. 89 (1892).

A. Blue Form.

♀ ad. Grassy Creek, Andros, 15th January, 1902.

♂ ♀ ad. Wide opening, Andros, 24th January, 1902.

♂ imm. " " " "

♀ ad. Fresh Creek, Andros, 5th February, 1902.

B. White Form.

♂ ♀ ad. Grassy Creek, Andros, 14th January, 1902.

♀ ad. " " 15th January, 1902 (shot from nest).

♂ ♂ imm. Grassy Creek, Andros, 13th January, 1902.

Apparently this species is dimorphic; but, so far as my experience went, I never met with any intermediate specimens,

and those of the white form shew no traces of blue in any part of their plumage, thereby contrasting sharply with the succeeding species, in which all the young individuals shew traces of the blue adult plumage, especially towards the tips of the outer primaries. These remarks apply to the specimens in the British Museum as well.

In January I found three nests in which the parents were all of the white form, and in May one nest in which both the parents belonged to the blue; but I believe that instances of the two forms breeding together are not unknown, though I should imagine this to be the exception rather than the rule.

Although both forms were found commonly at Andros, in some localities the white greatly predominated, and in other places almost every bird met with belonged to the blue form.

Should they be considered distinct, the name of the white form is *A. pealii*.

+77. *ARDEA CÆRULEA* Linn.

Ardea cærulea Linn. Syst. Nat. i. p. 143 (1758); Cory, Bds. Bah. 2nd ed. p. 171 (1890); id. Cat. W. Ind. Bds. p. 90 (1892).

Ardea rufa Bodd.; Bonhote, Ibis, 1899, p. 519.

♀ imm. Fresh Creek, Andros, 5th February, 1902.

This bird must be local in distribution, as I saw but one specimen; it used to be common near Nassau, but the swamp where numbers formerly were seen is now nearly dry. My specimen shews traces of blue on the head, neck, and wings.

+78. *ARDEA BAHAMENSIS* Brewster.

Ardea bahamensis Brewster, Auk, v. p. 83 (1888); Cory, Cat. W. Ind. Bds. p. 90 (1892); Bangs, Auk, xvii. p. 287 (1900).

Ardea virescens Linn.; Cory, Bds. Bah. 2nd ed. p. 171 (1890); Bonhote, Ibis, 1899, p. 519.

3 ♂ imm. Nassau, New Providence, 19th December, 1901.

♀ ad. Nassau, New Providence, 5th March, 1902.

- 2 ♀ ad. Spanish Wells, Andros, 23rd January, 1902.
 2 ♀ ad. Grassy Creek, Andros, 10th May, 1902.
 ♂ imm. „ „ 15th January, 1902.
 ♂ ad. Wide Opening, Andros, 25th January, 1902.
 ♂ ad. Green Cay, near Andros, 20th April, 1902.
 ○ ad. Little Abaco, 14th March, 1902.

A very common and numerous resident, the Bahaman form being quite distinct from that of the mainland and Cuba. The sexes are alike, and in the breeding-season the naked skin in front of the eye, which is yellow at other times, becomes a deep blue as in *A. tricolor*. Young birds apparently moult in early spring, viz. March and April, at the same time that the adults assume their brighter colours. Incubation begins towards the end of April; the nest, composed entirely of sticks, is placed low down in small mangrove-bushes. This species does not breed in colonies. The eggs are very pale blue and measure 40 × 29 mm.

79. NYCTICORAX VIOLACEUS (Linn.).

Nyctiardea violacea (Linn.); Cory, Bds. Bah. 2nd ed. p. 173 (1890).

Nycticorax violaceus (Linn.); Cory, Cat. W. Ind. Bds. p. 90 (1890); Bonhote, Ibis, 1899, p. 519.

- ♀ ad., ♀ imm. Spanish Wells, Andros, 21st January, 1902.
 ♂ ad. Grassy Creek, Andros, 15th January, 1902.
 ♂ ♀ ♀ ad. „ „ 10th May, 1902.
 ♂ ♀ imm. Green Cay, near Andros, 30th April, 1902.
 ♂ ad. Hog Cay, off Gt. Abaco, 28th March, 1902.
 ♀ ad. Little Abaco, 29th March, 1902.

A very numerous resident. The females appear to be slightly darker than the males, and some shew traces of yellowish on the throat. Breeding commences soon after the beginning of April, although eggs do not seem to be laid till late in May. When near the nest these birds are stupidly tame, and one even allowed me to take hold of it through the thick bush in which the nest was placed. I am inclined to think that they return yearly to the same

nests, as the foundations of some that were new on the top seemed rather weather-worn. This is much more of a shore-bird than the other species of Heron and may often be found on bare rocks some miles out at sea.

†80. *NYCTICORAX NÆVIUS* (Bodd.).

Nycticorax nycticorax nævius (Bodd.); Cory, Cat. W. Ind. Bds. p. 90 (1892).

♂ imm. Lees River, Andros, 28th January, 1902.

So far as I am aware, this is the first record of this species in the Bahamas, to which it is evidently only an occasional straggler. One more example was seen near the same place, but both were very wild, and it was only with difficulty that the present specimen was secured for identification.

†81. *BOTAURUS LENTIGINOSUS* (Mont.).

Ardea lentiginosus Mont. Orn. Dict. Suppl. (1813).

♂. Nassau, New Providence, 28th December, 1901.

♂. " " January, 1902.

♀. " " 6th March, 1902.

I can find no previous record of this species in the Bahamas, though it is probably a regular winter migrant, which has been overlooked, as it does not rise unless nearly trodden on.

†82. *ARDETTA EXILIS* (Gmel.).

Ardetta exilis (Gmel.); Cory, Bds. Bah. 2nd ed. p. 174 (1890); id. Cat. W. Ind. Bds. p. 89 (1892).

♀ ad. Nassau, New Providence, 21st February, 1902.

Whether this bird is scarce or escapes notice by its skulking habits, I cannot say. Only one specimen was seen.

†83. *RALLUS CORYI* Mayn.

Rallus coryi Maynard, Am. Exch. & Mart, Boston (Jan. 15th, 1887); id. op. cit. (Feb. 5th, 1887); Cory, Bds. W. Ind. p. 254 (1889); id. Cat. W. Ind. Bds. p. 91 (1892).

♂. Spanish Wells, Andros, 2nd February, 1902.

The tracks of many Rails were seen in the soft marl at Andros, but I could not say whether they were made by the present species or not.

I have carefully compared this specimen with a large series of West Indian Rails in the British Museum, from which it is very distinct, being much paler and more ashy grey.

+ 84. PORZANA CAROLINA (Linn.).

Rallus carolinus Linn. Syst. Nat. i. p. 363 (1763).

Porzana carolina (Linn.); Cory, Bds. Bah. 2nd ed. p. 176 (1890); id. Cat. W. Ind. Bds. p. 91 (1892).

3 ♂. Nassau, Bahamas, 14th & 30th December, 1901,
and 3rd March, 1902.

♂. Little Abaco, 1st April, 1902.

Not uncommon during the winter in suitable localities.

85. GALLINULA GALEATA (Licht.).

Gallinula galeata (Licht.); Cory, Bds. Bah. 2nd ed. p. 177 (1890); id. Cat. W. Ind. Bds. p. 91 (1892).

♂. Nassau, New Providence, 14th April, 1902.

This bird is probably more common than it appears to be, as it is well known to the natives by the name of "Red-headed Coot." Personally I only met with it on one occasion, when it ran through the mangroves in front of me, but I could not induce it to take to the wing.

+ 86. PORPHYRIOLOA MARTINICA (Linn.).

Porphyrio martinica (Linn.); Cory, Bds. Bah. 2nd ed. p. 178 (1890).

Ionornis martinica (Linn.); Cory, Cat. W. Ind. Bds. p. 91 (1892).

♂ ad. Mangrove Cay, Andros, 16th December, 1901.

I never personally met with this species, which is evidently a very scarce winter visitor.

87. FULICA AMERICANA Gmel.

Fulica americana Gmel. Syst. Nat. i. p. 704 (1788); Cory, Bds. Bah. 2nd ed. p. 178 (1890); id. Cat. W. Ind. Bds. p. 91 (1892).

♂ ad. Nassau, New Providence, 17th December, 1901.

A very abundant resident, to be found on all the inland lagoons, the numbers being greatly augmented every winter. They are not easily driven away from any lake on which they

have settled, and many are shot every winter by parties walking up and down a small lake, the birds merely flying from end to end, while the Ducks depart after the first shot.

†88. PHENICOPTERUS RUBER Linn.

Phenicopterus ruber Linn. Syst. Nat. i. p. 139 (1758); Cory, Bds. Bah. 2nd ed. p. 180 (1890); id. Cat. W. Ind. Bds. p. 88 (1892).

♂ ♀ ♀ ad. Turner Sound, Andros, 25th January, 1902.

♀ ad. Grassy Creek, Andros, 16th May, 1902.

Although by no means numerous and very local, this species continues to be found in some numbers on Inagua and Andros. I could not ascertain for certain whether it still exists at Abaco, but the balance of evidence is in favour of the fact. I visited the breeding-places at Andros, but the birds had not begun to nest properly; there were, by calculation, 1500 nests occupied in one colony in 1898. And we also calculated that we must have seen from 1500 to 2000 birds on one day in the various flocks we came across. The natives take toll of the young birds in July, and I was told that they capture the adults in August, when they are moulting their primaries and are incapable of flight; but I cannot vouch for the truth of this last statement.

The nests, which are placed in close proximity to each other, are from 12 to 18 inches in height and 9 inches across at the top—slightly more at their bases. They are built at the edge of the water on the soft mud, which is scooped up from round their bases, and when completed weigh between 50 and 60 pounds.

+89. DENDROCYCNA ARBOREA (Linn.).

Anas arborea Linn. Syst. Nat. i. p. 207 (1766).

Dendrocygna arborea (Linn.); Cory, Bds. Bah. p. 183 (1890); id. Cat. W. Ind. Bds. p. 87 (1892).

♂ ♂ ♀ ♀. Fresh water, Andros, 28th January, 1902.

This Duck cannot be called very numerous, but it was often seen along the west coast of Andros, generally in small parties of from six to ten.

+ 90. MARECA AMERICANA (Gmel.).

Anas americana Gmel. Syst. Nat. ii. p. 526 (1788).

♂ ♂ ♀. Spanish Wells, Andros, 22nd January, 1902.

This species, which has not hitherto been recorded from these islands, was only met with on one occasion. The birds were frequenting a small inland pond entirely surrounded by high mangroves and covered at the bottom with weed, a very unusual thing in the ponds of these islands.

+ 91. DAFILA BAHAMENSIS (Linn.).

Anas bahamensis Linn. Syst. Nat. i. p. 199 (1766).

Dafila bahamensis (Linn.); Cory, Bds. Bah. 2nd ed. p. 185 (1890); id. Cat. W. Ind. Bds. p. 86 (1892).

♂ ♀. Spanish Wells, Andros, 22nd January, 1902.

♂ ♂ ♂ ♀. Wide Opening, Andros, 24th January, 1902.

♂. Fresh water, Andros, 28th January, 1902.

♂. Grassy Creek, Andros, 12th May, 1902.

A very numerous species in suitable localities, large flocks of one hundred or more being generally found near the large and tall mangrove islands standing in the middle of the lagoons. The orange patch at the base of the bill varies greatly in colour.

+ 92. QUERQUEDULA DISCORS (Linn.).

Querquedula discors (Linn.); Cory, Bds. Bah. 2nd ed. p. 186 (1890); id. Cat. W. Ind. Bds. p. 86 (1892).

♀. Fresh water, Andros, 27th January, 1902.

This solitary individual was the only example of the species met with; it does not appear to be common.

+ 93. FULIGULA AFFINIS Eyton.

Fuligula affinis Eyton, Mon. Anat. p. 157 (1838); Cory, Eds. Bah. 2nd ed. p. 187 (1890).

Aythya affinis (Eyton); Cory, Cat. W. Ind. Bds. p. 87 (1892).

♂ ♀. Nassau, New Providence, 17th December, 1901.

♀. Fresh water, Andros, 28th January, 1902.

The commonest Duck of the islands, enormous flocks

congregating on the lakes and lagoons, especially after a storm. They come in November and are almost all gone by March.

[PELECANUS FUSCUS Linn.

Although I procured no specimens of this bird, it was frequently seen flying singly along the west coast of Andros and at Abaco. I tried in vain to discover a breeding-station at Andros, and was taken to several supposed sites, but I fancy that one is to be found on the N.W. coast.]

† 94. PHALACROCORAX FLORIDANUS Aud.

Phalacrocorax floridanus Aud. Orn. Biogr. iii. p. 387 (1837).

Graculus dilophus, var. *floridanus* (Aud.); Cory, Bds. Bah. 2nd ed. p. 198 (1890).

Phalacrocorax dilophus floridanus Aud.; Cory, Cat. W. Ind. Bds. p. 85 (1892).

♂. Wide Opening, Andros, 31st January, 1902.

This species is not common, but was occasionally seen along the west coast of Andros. I visited a colony in one of the channels that intersect the island; there were eight or ten pairs of birds and nests to correspond, but either they had not begun to lay (on the 2nd of February) or their nests had been robbed by passing spongers.

95. TACHYPETES AQUILUS (Linn.).

Pelecanus aquilus Linn. Syst. Nat. i. p. 133 (1758).

Tachypetes aquilus (Linn.); Cory, Bds. Bah. 2nd ed. p. 200 (1890).

Fregata aquila (Linn.); Cory, Cat. W. Ind. Bds. p. 85 (1892).

♂ ad. Little Abaco, 23rd March, 1902.

♂♂ imm. „ 30th March, 1902.

Although frequently seen at sea, these birds are generally well out of shot. The specimens that I secured were got as they came down to a freshwater pond to bathe. They arrived nearly every morning in small parties of from six to ten and splashed into the water like Swallows, never settling, but rising again and in about three or four minutes going off to sea.

In May they visit the Tern-colonies and commit great havoc among the eggs.

[*PHAËTHON FLAVIROSTRIS*.

Not often seen, and generally well out at sea when observed.]

96. *LARUS ATRICILLA* (Linn.).

Larus atricilla Linn. Syst. Nat. i. p. 136 (1758); Cory, Bds. Bah. 2nd ed. p. 208 (1890); id. Cat. W. Ind. Bds. p. 82 (1892); Bonhote, Ibis, 1899, p. 519.

♂. Washerwoman Cays, Andros, 10th May, 1902.

♂. Grassy Creek, Andros, 12th May, 1902.

A fairly common summer-visitor, appearing about the latter half of April. I came across a pair, which were evidently breeding, some ten miles from the sea at Andros, but I had no time to search for the nest.

97. *STERNA ANGLICA* Montagu.

Sterna anglica Montagu, Orn. Dict. Suppl. (1813); Cory, Bds. Bah. 2nd ed. p. 209 (1890).

Geochelidon nilotica (Hasselq.); Cory, Cat. W. Ind. Bds. p. 82 (1892).

♂ ♀ ♀. Grassy Creek, Andros, 5th, 7th, & 11th May, 1902.

At the time of my visit to Grassy Creek in May these birds were numerous, and evidently preparing to nest; but, judging by those shot, I do not think that they had begun to lay.

98. *STERNA MAXIMA* Bodd.

Sterna maxima Bodd. Tabl. Pl. Enl. p. 58 (1783); Cory, Cat. W. Ind. Bds. p. 82 (1892).

Sterna regia Gambel; Cory, Bds. Bah. p. 210 (1890).

♂ ♂ ♀. Washerwoman Cays, Andros, 1st May, 1902.

♂ ♂ ♀ ♀. Grassy Creek, Andros, 7th May, 1902.

This fine Tern was by no means rare on the cays, being generally seen in pairs. They showed no signs of nesting.

99. *STERNA CANTIACA* (Gmel.).

Sterna cantiaca Gmel.; Cory, Bds. Bah. 2nd ed. p. 211 (1890).

Sterna sandvicensis aculflavida (Cabot); Cory, Cat. W. Ind. Bds. p. 82 (1892).

4 ♂, 3 ♀. Washerwoman Cays, Andros, 1st May, 1902.

The Sandwich Tern was numerous round the cays on our first arrival, but by the middle of May they had all departed, except about two pairs, which probably intended to breed.

100. STERNA ANTILLARUM (Less.).

Sterna superciliaris Vieill.; Cory, Bds. Bah. 2nd ed. p. 213 (1890).

Sterna antillarum (Less.); Cory, Cat. W. Ind. Bds. p. 83 (1892); Bonhote, Ibis, 1899, p. 520.

♂. Grassy Creek, Andros, 6th May, 1902.

Seen in single pairs on several occasions, but rare compared with the numbers of the other species of Terns.

†101. STERNA FULIGINOSA Gmel.

Sterna fuliginosa Gmel. Syst. Nat. i. p. 605 (1788); Cory, Bds. Bah. 2nd ed. p. 214 (1890); id. Cat. W. Ind. Bds. p. 83 (1892).

2 ♂, 3 ♀. Washerwoman Cays, Andros, 1st May, 1902.

Nesting in thousands on the cays. Incubation commences about the 15th of May, a fortnight later than the Noddies. Each bird lays a single egg.

†102. STERNA ANÆTHETA Scop.

Sterna anæthæta Scop.; Cory, Bds. Bah. 2nd ed. p. 215 (1890).

Sterna anæthetus Scop.; Cory, Cat. W. Ind. Bds. p. 83 (1892); Bangs, Auk, xvii. p. 284 (1900).

5 ♂, 2 ♀. Washerwoman Cays, Andros, 3rd May, 1902.

Breeds in considerable numbers, but is very much scarcer than either the Noddy or the Sooty.

With a little practice this species can easily be distinguished on the wing by its smaller size and greyish back; its cry is also very distinct.

The single egg is always placed under an overhanging ledge of rock, generally near the edge of the sea; but I took

quite a number of eggs deep down in holes similar to those occupied by the Dusky Shearwater.

†103. *ANOUS STOLIDUS* Linn.

Anous stolidus (Linn.); Cory, Bds. Bah. 2nd ed. p. 216 (1890); id. Cat. W. Ind. Bds. p. 83 (1892).

2 ♂, 5 ♀. Washerwoman Cays, Andros, 1st May, 1902.

The most abundant of all the Terns. Incubation begins early in May, when the eggs are laid indiscriminately under bushes on the bare rock or on nests built on the bushes, the structures, which are exposed, being much disturbed by Men-of-War Birds. The parents are very tame, and in many cases allow themselves to be lifted off their eggs.

†104. *PUFFINUS AUDUBONI* Finsch.

Puffinus auduboni Finsch, P. Z. S. 1872, p. 111; Cory, Cat. W. Ind. Bds. p. 83 (1892).

Puffinus obscurus Gmel.; Cory, Bds. Bah. 2nd ed. p. 219 (1890).

9 ♂, 4 ♀. Washerwoman Cays, Andros, 3rd May, 1902.
8 young.

This bird was extremely common on the cays, and at the beginning of May the young were in most cases just hatched, though several fresh eggs were procured. I never saw the birds outside of their holes, nor could I distinguish their cries at night from those of the Sooties. Incubation is carried on by both sexes, and before the egg is laid both birds occupy the same hole. The parent apparently does not brood the young, but merely sits beside it during the first day or two of its existence, after which it is left alone during the daytime.

XXVIII.—*Note on P. Picot's 'Tables Méthodiques des Mammifères et des Oiseaux . . . de la Haute Garonne.'*
By C. DAVIES SHERBORN.

As the tract here cited appears from my observations to be very scarce*, it may be thought advisable to reprint the diagnoses of the few new species of birds founded therein by Picot. There are no new species of mammals.

The full title of the tract reads as follows:—"Tables Méthodiques | des | Mammifères et des Oiseaux | observés | dans le Département de la | Haute-Garonne, Par Philippe Picot-Lapeyrouse, | Membre de l'Institut national, Professeur | d'Histoire naturelle à l'École centrale; | Imprimées par ordre de l'Administration du | département de la Haute-Garonne: | A l'usage des Elèves de l'École centrale. | A Toulouse, | De l'Imprimerie de Veuve Douladoure. | An vii." | [1799, 8^{vo}. viii, 54 Pp.].

The author signs his 'Avertissement':—

PH.^E PICOT.

A LAPEYROUSE, le 1.^{er} frimaire,
an VII de la République.

and this is here reproduced as showing his real name.

The following are the species founded by him:—

P. 10.—*5. L'ALIMOCH. PIC. *Encycl.* *Vultur alimoch.*
Pyrén. Pl. iv.

"Petite espèce, ainsi que le suivant. Blanc sale
Plumes de ailes noires Jabot proéminent Tête,
céra et jabot couleur de safran. PIC. *Encycl.*"

* Mr. Sherborn writes to the Editors as follows:—

"When compiling my 'Index Animalium' I failed in my attempts to obtain a sight of Picot's 'Tables Méthodiques.' But since the publication of the Index I have purchased a copy of the work at the Gerbe sale in Paris, while I have found another copy in private hands. It may, however, be worth while, for general ornithological purposes, to reprint the diagnoses of 7 "new species" described in it, and I hope that you will find space for this in your Journal."

P. 13.—“4. LA PIEGRIÉCHE succulente. Pic. *Lanius esculentus*. Pic. Pyrén. Pl. vi.

“Rousse par-dessus, ondée de noir et de blanc
Le dessous blanc sale rayé de noir transversalement . . .
Les plumes de la queue et des ailes noirâtres liserées
de fauve Arrive au printemps, repart en au-
tomne; prend une graisse très-délicate Habite
dans les hautains et les oseraies.”

P. 28.—“*6. LE TRAQUET montagnard. *Motac. pyrenaica*.
Pic. Pyrén. Pl. xvi.

“Le plus grand de Passereaux, presque aussi gros
qu'un Merle Bec cylindrique un peu arqué vers
sa pointe Plumage uniforme d'un noir mal teint . . .
Poitrine brune Queue arrondie Dix plumes
blanches terminées de brun, et les deux du milieu
brunes seulement jusques à leur moitié Pieds noirs.
Picot, *Mém. de l'Académ. de Toul.* T. iv.”

P. 38.—“*4. LE RALLO-MAROUET. *Rallus mixtus*. Pic.
Pyrén. Pl. xx.

“Plus petit encore que le *Marouette* Oiseau mi-
parti Composé du *Râle d'eau* et de la *Marouette* . . .
Serait-ce un Mulet? Le bec, les jambes et les
pieds comme dans la *Marouette* Les joues, la
gorge, le ventre bleuâtres comme dans le *Râle d'eau*.
Pic. *Encycl. méth.*”

P. 42.—“5. LA BARGE aux pieds rouge. *Scolopax rubripes*.
Pic Pyrén. Pl. xxii.

“Moins forte que la *Barge commune* Le dessus
gris cendré Le dessous blanc de neige Jambes
et pieds rouge de cinnabre Bec à la naissance
courbé en en bas; à sa pointe en en haut. Pic. *Mém.*
de Stockh. Encycl. méth.”

P. 44.—“*6. LE HÉRON montagnard. *Ardea monticola*.
Pic. Pyrén. Pl. xxiii.

“Le plus gros de nos *Hérons* Tête rougeâtre”

P. 45. —“Les plumes du dessus du corps brunes bordées de

rougeâtre Gorge blanche Cou antérieur,
poitrine et flancs roussâtres avec des lignes noires
Ventre blanc Bec mi-parti de brun et de jaune
Jambes jaunes ; pieds noirâtres par-dessus, jaunes en
dessous Le mâle a une petite huppe rougeâtre
Pic. *Encycl. méth.*”

P. 45.—“8. LE CRABIER gentil. *Ardea audax*. Pic. Pyrén.
Pl. xxiv.

— CRABIER marron.	} BUFF.
— CRABIER roux.	
— GUACCO.	

“Ce trois espèces doivent être réduite à une seule
Ce Crabier est de la grandeur de l'*Aigrette* Tête,
cou, poitrine et dos jaunes Aigrette longue et
pendante Ailes, queue et ventre blancs Bec
fort très-aigu, bleu d'azur, noir à la pointe
Jambes et pieds couleur de chair. Pic. *Mém. de
Stock. et Encycl. méth.*”

The words “Pic. Pyrén.” refer to ‘Recherches sur la
Zoologie des Pyrénées, par Philippe PICOT. Figures
enluminées Ouvrage inédit,’ according to his
“Explication des Abréviations.”

XXIX.—Note on the Genus *Certhiparus*.

By Captain F. W. HUTTON, F.R.S.

OF the three birds included in the genus *Certhiparus* in the
‘Cat. Birds Brit. Mus.’ (vol. viii. p. 75), three different
views have been taken by ornithologists:—

I.—Lafresnaye, in 1840, placed *C. albicillus* and *C. novæ-
zealandiæ* in one genus and *C. ochrocephalus* in another.
This view was followed by Gray, in the ‘Zoology of the
Erebus and Terror’ (1848) and by Dr. Finsch in the ‘Journ.
f. Orn.’ for 1843.

II.—In ‘The Ibis’ for 1862 Gray separated *C. albicillus*
from *C. novæ-zealandiæ*, and included it in *Orthonyx* along

with *C. ochrocephalus*. This view has been followed by Sir Walter Buller.

III.—In 1883 Dr. Gadow, in the ‘Cat. Birds Brit. Mus.’ included all three birds in the same genus.

A re-examination of these forms has convinced me that Dr. Gadow is right in placing all three in the same family, but that Gray and Buller are correct in separating *C. novæ-zealandiæ* from the others generically; while I also agree with Lafresnaye and Finsch that *C. ochrocephalus* and *C. albicillus* cannot be kept in the same genus on account of the great differences in their legs and feet. So, in my opinion, each species should form a separate genus.

Next as to the names. The type of *Certhiparus* is *C. albicillus*, and this name must, therefore, be kept for that species. For *C. ochrocephalus* the oldest name is *Mohua* of Lesson (1837). Quoy and Gaimard had stated that the Maori name of this species is *Mohoua* (which, however, was a mistake), and Gray apparently altered the spelling to suit his own views. I see no good reason for dropping *Mohua* in favour of *Clitonyx*. For *C. novæ-zealandiæ* we should have had *Phyllodytes* of Finsch, but unfortunately that name is preoccupied by Wagler (1830) in Batrachia, and by Gistel (1848) in Reptilia; so that a new one must be substituted. I therefore propose that this genus should be called *Finschia*, in honour of Dr. Otto Finsch, so well known as an ornithologist, and one who has given us much help in New Zealand. My scheme of classification is therefore as follows:—

Tail shorter than the wing, the shafts of the feathers projecting.	
Hind claw longer than the bill.....	<i>Mohua</i> .
Hind claw shorter than the bill	<i>Certhiparus</i> .
Tail as long as the wing, the shafts of the feathers not projecting.....	<i>Finschia</i> .

In *Mohua* the tarsus has only three or four scutes which are often fused into one, the divisions being obliterated; while in *Certhiparus* there are five or six scutes, and the divisions are never obliterated.

XXX.—*Remarks on the Flight and Distribution of the Albatrosses of the North Pacific Ocean.* By Capt. GERALD E. H. BARRETT-HAMILTON, F.Z.S.

I HAVE been much interested in reading Captain Hutton's paper on Albatrosses in 'The Ibis' for January (pp. 81 to 88), inasmuch as I have had many opportunities of observing the two species (*Diomedea nigripes* and *D. albatrus*) which frequent the North Pacific Ocean. The following notes may therefore be considered worth printing as a supplement to that writer's remarks.

Captain Hutton is much to be congratulated upon the success of his photographs, a success which none can more fully appreciate than those who, like myself, have wasted plate after plate in the attempt to obtain a picture of the flight of an Albatross.

The Black-footed Albatross, *D. nigripes*, called by the sailors the "Gooney"* was a constant feature of a voyage which I made from San Francisco to Yokohama in June 1896, excepting only in latitudes south of 23° 29' N., where it was very scarce. Again, when running north from Hong Kong through the China Seas, in May 1897, I first observed the Gooney on the 22nd of the month near the Heachu Islands, where several were seen in about latitude 28° 41' N., longitude 122° 11' E. A white-rumped individual was noticed on the same day at a distance of about 4½ hours run from Wolsung, and another on the 23rd as we neared the Japanese coast. Northwards the range of this bird ends far south of that of *D. albatrus*, and it can be but rarely that it occurs in Kamschatkan waters. On my way south from Petropavlosk to Hakodate, between the 31st of August and the 7th of September, 1897, the first individual—one with a white forehead—was not noticed until noon on the 3rd of September. We were then somewhere off Staten Island, one

* The term "Gooney" is, like other sailors' names for birds, not necessarily of very accurate application. Moseley applied it to one of the large white Albatrosses (*D. exulans*). See 'Notes of a Naturalist,' &c. new ed. 1892, p. 148.

of the Kurils, our position according to dead reckoning being in latitude $45^{\circ} 29'$ N. and longitude $156^{\circ} 16'$ E. Later in the voyage I occasionally saw a few more, and was in all cases able to be quite certain of their identity. Again, on the eastern side of the ocean, I found this species at sea on most days during a voyage from Unalashka to Port Townsend in October and November 1896. The most northern point at which the bird appeared was when we were a little less than two days out from Unalashka, say, at nine knots, 400 miles from that port.

I was very much struck by these Gooneys, of which, during our course from San Francisco to Honolulu, there seemed to be an endless supply. It interested me to speculate whether each part of the ocean, as suggested by the Captain of the 'Peru,' had its own set of them, quartering that particular area alone for their daily food, so that our ship merely chanced to pass them on her way, or whether those which we saw followed us during the whole or a great part of our course.

Undoubtedly certain individuals followed in our wake for a distance of at least some miles, but it was not possible to identify them for any greater distance. On the whole I am inclined to adhere to the Captain's supposition, always admitting that individuals may occasionally wander from their own waters and follow a ship for some distance. Moseley, however, evidently thought differently, since he wrote * of the "various kinds of Petrels," which were "our constant companions in the Southern Ocean, following the ship day after day, dropping behind at night to roost on the water and tracking the ship up again in the early morning by the trail of *débris* left in its wake."

These Gooneys are dark and plainly coloured, but vary a good deal in appearance—some being entirely dusky, while others have either the forehead, vent, rump, or under tail-coverts white. They are very powerful fliers, and in this respect are only inferior to the larger Albatrosses, which are not met with in the North Pacific. They circle around a

* *Op. cit.* p. 494.

ship with very little apparent exertion, occasionally alighting in order to examine something thrown overboard which strikes their fancy. Biscuit, however, they seem not to care for in the slightest, treating it with utter contempt. We often used to wonder how so many large birds managed to get their living at sea, for although they were constantly on the look out, it was very seldom that we saw them feed. To the flying fishes, which sometimes passed quite close to them, they paid no attention, and their whole sustenance seemed to be derived from the refuse thrown from the ship. When this contained anything suitable to their tastes they rapidly gathered together from all sides and alighted on the water, a squabbling gang of feathered scavengers. When swimming they sit very high in the water, and rise without difficulty, unless gorged. If intending to move only for a few yards they have a curious habit of literally walking on the surface, opening their wings, yet not flying, and preferring to make use of their large webbed feet to help themselves along. So, too, when about to alight on the ocean, their feet, suddenly thrown forward like those of a duck, are the first part of them to touch the water. Then, if not satisfied with the place which they have at first chosen, they will "walk" on further to a better place without taking the trouble to rise fully into the air.

In flight the legs are carried, like those of so many other sea-birds, stretched straight backwards under the tail. Behind this the feet project and give the bird the appearance of possessing two central tail-feathers longer than the remainder. The legs are frequently moved as if to act as a rudder or to lessen the bird's pace—for example, when descending.

When the wind is strong the flight of the Gooney must be very powerful, as, even in the light breezes which we experienced, the wings were but seldom flapped. With a north-easterly wind, the ship's course being north-west, the individuals seen kept constantly circling round and round behind her stern, first sailing up, then down the wind, but making a rather sharp turn at the north-east and south-west

ends of their course. Thus they avoided the necessity of crossing the wind for any distance. When they did cross the wind they seemed to find it necessary to flap their wings, usually at the points of their course where they turned to run up-wind. At the other end of their beat, when turning to run down-wind, wing-action was apparently unnecessary, since the wind itself supplied all the impetus required. When travelling against the wind the Gooneys seemed to ascend or descend by inclining the body upwards or downwards*. When descending, as the first officer of the ship pointed out to me, by slightly flexing their wings, they perform an act equivalent to shortening sail. When thus circling round in rear of the ship they often assumed an attitude with the wings pointing vertically upwards and downwards. They possessed a wonderful power of dodging the waves, shooting upwards at once when a bigger wave than usual rose in front of them; but they often passed so close over the surface that once or twice I saw the wing which happened to be undermost actually cutting the water for a few yards, yet without impeding the flight of the bird in the slightest.

The second species, Steller's Albatross (*D. albatrus*), is much less active. I first met with it in Hakodate Harbour on the 3rd of July, 1896. There one or two young birds in the dark plumage of immaturity † and with the bill flesh-coloured were generally to be seen, most of them apparently gorged with food. When in this state they seemed to have some difficulty in rising from the water and made free use of their legs in the attempt. When first seen, the dark immature birds of this species are rather likely to be confounded with adults of *D. nigripes*, but they are larger and darker and have the bill pink, and if carefully studied are found to fly in a style that is quite their own. They are most frequently to be seen sitting upon the water, and only rise and fly lazily away on the too near approach of a vessel.

* On this point my notes, copied from my original journal, differ from those of Captain Hutton.

† Seebohm, Ibis, 1890, p. 105, says that the dark form is a dimorphism.

I never saw them following a ship like *D. nigripes*, and so have never had an opportunity of admiring their flight at close quarters. Their range seems to extend much further to the north than that of the other species, as I found them in Ukinsk Bay, Kamschatka, in latitude nearly 60° N., and adults were constantly in view on most days during a voyage from Petropavlosk to Hakodate between the 31st of August and the 6th of September. The Diomed Islands in Bering's Straits seem to have been named after this bird. On the other hand, I have observed it nearly as far south as the "Gooney"; thus I saw an adult on the 23rd of May, 1897, when nearing the Japanese coast on my way from Shanghai, and another on the previous day, at a distance of about 4½ hours run from Wolsung, on the voyage to Japan.

On the eastern side of Bering's Sea this species is found in the neighbourhood of the Pribiloff Islands*, but I did not notice it on the voyage from Unalaska to Port Townsend in the end of October 1896.

XXXI.—*On Birds new to Palestine.* By SELAH MERRILL,
Andover, Mass., U.S.A.†

AMONG the 2,000 birds which I collected while in Palestine, from 1882 to 1886, there are several which, so far as I know, are new to that country, and hence they should be added to the list of those already known. Dr. Tristram's catalogue (in the 'Fauna and Flora of Palestine') is the one followed, and to this the additions are supposed to be made.

(1) Brambling—*Fringilla montifringilla*.

* Mr. William Palmer's "The Avifauna of the Pribiloff Islands" in 'The Fur Seals and Fur Seal Islands of the North Pacific,' Washington, Government Printing Office, 1899, pp. 381, 382.

† Reprinted from the 'Quarterly Statement' of the Palestine Exploration Fund, January 1890, pp. 41-43. [We have thought it advisable to reprint this article, as it seems to have quite escaped the notice of ornithologists, and is of considerable interest.—EDD.]

(2) Cuckoo, Lineated—*Cuculus leptodetus* *. An eastern form of a West-African bird.

(3) Curlew, Slender-billed—*Numenius tenuirostris*.

(4) Duck, Golden-eye—*Clangula glaucion*.

(5) Duck, Common Sheldrake—*Tadorna vulpanser*.

(6) Phalarope, Red-necked—*Phalaropus hyperboreus*.

(7) Plover, White-tailed—*Chettusia leucura*.

(8) Pratincole, Nordmann's—*Glareola melanoptera*.

(9) Yellow-ammer—*Emberiza citrinella*.

It may be of interest also if I make a few additions to his list, following the same order, chiefly as to the localities of birds. In two or more instances I was fortunate enough to obtain specimens which he has entered in his list, but which he did not identify himself.

No. 6. Rock Thrush—*Monticola saxatilis*.

Tristram.—"It arrives in the beginning of April. South of Lebanon it is only a passing traveller tarrying but a night."

Addition.—It is true that it arrives in April, and in some seasons as early as March; but to the last part of his statement I would add that between the 10th and the 30th of September I shot several pairs in the immediate vicinity of Jerusalem.

No. 28. White-throated Robin—*Erithacus gutturalis*.

Tristram.—"Discovered on Hermon and Lebanon."

Addition.—Near Jerusalem in August, 1885, I shot a fine specimen of the female of this species.

No. 30. Eastern Nightingale—*Erithacus philomela*.

Tristram.—"Not obtained by me in Palestine. It may be discovered there."

* [*Cuculus leptodetus* Cab. et Heine (Mus. Hein. iv. p. 34), based on specimens from "Nubia," is placed by Capt. Shelley (Cat. B. xix. p. 244) as a synonym of *C. gularis* Steph.—a well-known South-African species nearly allied to *C. canorus*, which occurs also in West Africa, and (according to the B. M. Catalogue) in East Africa as far north as Lado on the Nile. It might, therefore, visit Palestine in summer, as is the case with other East-African birds, but we know of no other authority for its doing so except Mr. Merrill's statement.—EDD.]

Addition.—I have three good specimens, one shot in August near Jerusalem, and the others shot in the Jordan Valley.

No. 68. Hermit Fantail—*Drymæca inquieta*.

Tristram.—“It is very scarce wherever found.”

Addition.—I should say that it was quite common, for I saw it frequently on different journeys to and from the Jordan Valley. On this road I shot several specimens in November, also one near Jerusalem in September.

No. 90. Palestine Bulbul—*Pycnonotus xanthopygus*.

Tristram.—“Never found in the hills or upper country.”

Addition.—I shot several at Hebron, which is 400 feet higher than Jerusalem.

No. 94. Red-backed Shrike—*Lanius collurio*.

Tristram.—“I have not obtained it south of Esdraelon.”

Addition.—I have shot specimens in the hills near Es Salt, also others in the hilly region between Jerusalem and the Plain of Sharon.

No. 109. Palestine Sun Bird—*Cinnyris osea*.

Tristram.—“Beyond the gorge of the Jordan I never but once found it, and that was at the south of Mount Carmel.”

Addition.—This bird, or a *species* of Sun Bird, is abundant at Jaffa. The markings of those found at Jaffa differ from those found in the Jordan Valley, and I have shot them both in the spring and autumn at both these places. Whether or not these are distinct species I do not now pretend to determine.

No. 111. Serin—*Serinus hortulanus*.

Tristram.—“Is only a winter visitor to the wooded districts and the little glens near the sea. It has not been noticed inland.”

Addition.—In January and February, 1885, these birds were very abundant about Jerusalem, and at different times during those two months I shot a dozen specimens.

No. 113. Tristram's Serin—*Serinus canonicus*.

Tristram.—“Belongs to the Lebanon and Anti-Lebanon

exclusively. I cannot trace it on any of the spurs southwards, either from Hermon or Lebanon, and there it is very local."

Addition.—On the 7th of March, 1885, I shot a beautiful specimen about half-an-hour distant from Jerusalem, near the Convent of the Cross.

No. 116. Hawfinch—*Coccothraustes vulgaris*.

Tristram.—"Only twice detected it, once in Gilead and once near Tabor."

Addition.—I have three specimens, one from east of the Jordan, and two from the neighbourhood of Jerusalem.

No. 139. Grakle—*Amydrus tristrami* Sclater.

Tristram.—"Appears to be confined to the immediate neighbourhood of the Dead Sea."

Addition.—This bird ascends the Great Wadies to a higher point than these words seem to imply. In the upper part of the Wady Farah, and in Wady Suweinit, not far from Mukhmas, I have frequently seen it in large numbers.

No. 167. Night Jar—*Caprimulgus tamaricis*.

Tristram.—"Only three specimens known."

Addition.—I have a beautiful specimen, which I obtained at Jericho in December.

No. 193. Montagu's Harrier—*Circus cineraceus*.

Tristram.—"Not often come under my observation. Obtained three specimens by the Lake of Galilee."

Addition.—I obtained two specimens near Jaffa in November, 1885, and one in the Jordan Valley in April, 1886.

No. 197. African Buzzard—*Buteo desertorum*.

Tristram.—"This may probably be entered among the birds of Palestine, though I have never obtained a specimen."

Addition.—I have three good specimens, one of which was obtained near Mar Saba, and the others in the Jordan Valley. One of these was taken in December, and the others in April. As Dr. Tristram says that it has never been found

in Palestine, I am glad to be able to bring it to the attention of the public.

No. 203. Booted Eagle—*Aquila pennata*.

Tristram.—"Appears to be confined to the wooded regions of Galilee and Phœnicia, and to the Lebanon."

Addition.—I shot a fine specimen near Jerusalem in May 1886.

No. 226. Pygmy Cormorant—*Phalacrocorax pygmaeus*.

Tristram.—"Found on the Leontes and other streams flowing into the Mediterranean. I did not observe it on the Lake of Galilee."

Addition.—I obtained several specimens from the Jordan near Jericho.

No. 236. Little Bittern—*Ardetta minuta*.

Tristram.—"Plentiful in the rushes and reeds round Lake Huleh."

Addition.—Plentiful also on the Anjeh, near Jaffa, and on the Lower Jordan.

No. 237. Night Heron—*Nycticorax griseus*.

Tristram.—"Found in small numbers about Lake Huleh and Gennesaret."

Addition.—Also on the Lower Jordan.

No. 251. Ruddy Sheldrake—*Tadorna casarca*.

Tristram.—"At the south end of the Dead Sea, and near the Lake of Gennesaret."

Addition.—They are just as abundant at the north end of the Dead Sea, and are found all along the Jordan.

No. 257. Garganey—*Anas circia*.

Tristram.—"I have not taken the Garganey myself."

Addition.—I have four fine specimens from the Jordan, one of them shot in November, one in December, and two in May.

No. 294. Stone-Curlew—*Ædicnemus scolopax*.

Tristram.—"Plentiful in the Ghor at the north end of the Dead Sea."

Addition.—I saw it frequently in the region about Mar Saba, and in the hills east of the Jordan. I have specimens from both these localities, and others from the vicinity of Beirut, as well as still others from the north end of the Dead Sea. I should say it was pretty evenly distributed over the country.

No. 296. Cream-coloured Courser—*Cursorius gallicus*.

Tristram.—“Rare in Palestine proper. I twice obtained it near Acre; I also saw it in the southern wilderness, and on the upland of Eastern Moab.”

Addition.—Very abundant between Jerusalem and Beth-lehem on the Plain of Rephaim and south-east towards Mar Saba.

No. 305. Dotterel—*Eudromias morinellus*.

Tristram.—“Vast flocks near Beer-Sheba.”

Addition.—I found them near Mar Saba in May, 1885.

No. 344. Manx Shearwater—*Puffinus anglorum*.

Tristram.—“Obtained a dead specimen near Mount Carmel.”

Addition.—I have two fine specimens, obtained at Jaffa in 1884.

I have observed, during my residence of nearly seven years in Palestine, that there were great variations in the migrations of birds. Some years the land was full of them, and the next year, perhaps, there seemed to be very few. For example, I remember that for two years there were but few Ducks anywhere in the southern part of the country; the next year, however, they were very abundant. What Dr. Tristram says of the Dotterel, No. 305, may have been peculiar to that year. The same I know is true of my observation under No. 296, respecting the Cream-coloured Coursers. In other years, while found here and there, they were scarce; the year referred to they were abundant. The Arabs brought to our hotel large numbers of them for our table. Similar remarks would be true of Quails, and of some other birds. Seasons vary in character and circumstances which we cannot explain, and may combine to cause

these variations. As I have had occasion elsewhere to remark, this is a study where there can be no monopoly of knowledge on the part of any single observer. Many observers are necessary, and each may add something valuable to the general fund of information.

XXXII.—*On the Birds of Fernando Po.*

By BOYD ALEXANDER, F.Z.S., Rifle Brigade.

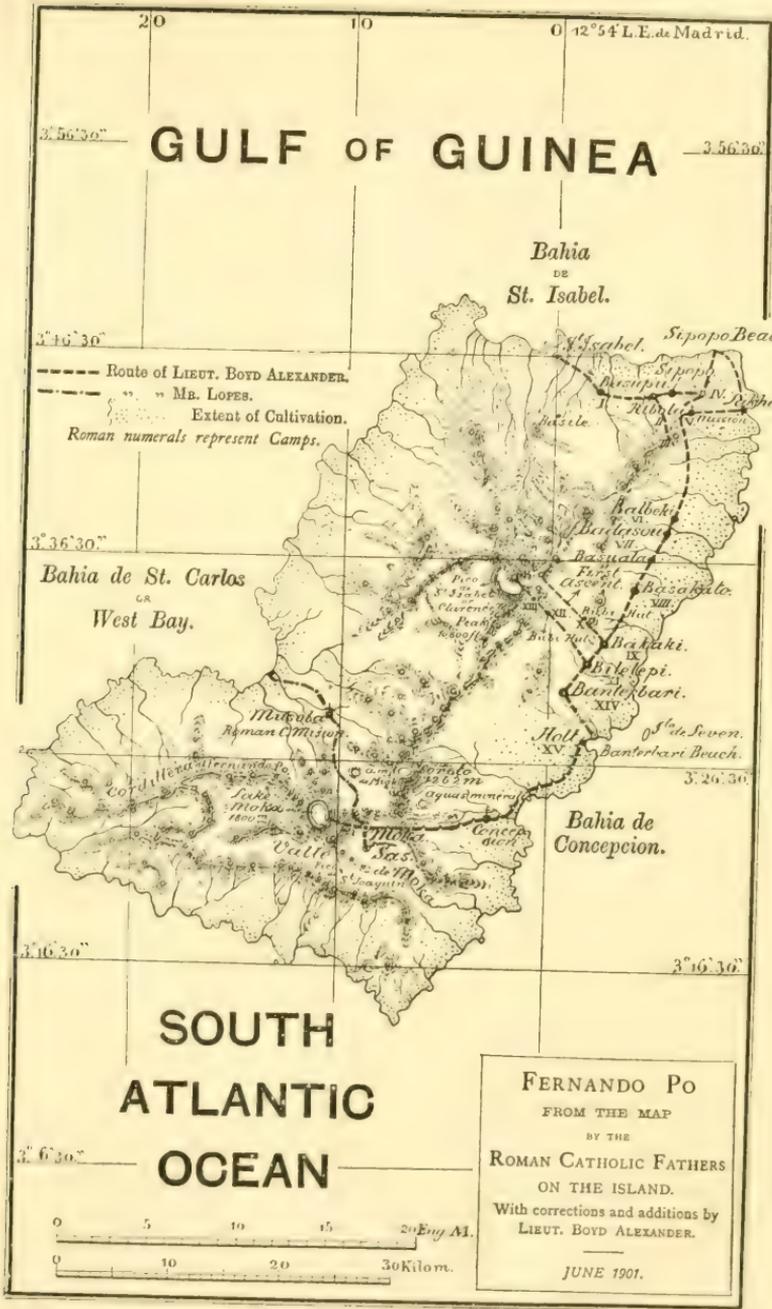
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Part I.—INTRODUCTORY REMARKS.

HAVING completed in July last my ornithological survey of the Gold Coast and its hinterland, I determined to turn my attention to Fernando Po, the largest island of the Benin group. Although it had been previously explored by Louis Fraser, Naturalist to the Allen and Thomson Expedition to the Niger, in 1841, and by Mr. Newton, the Portuguese collector, in 1894, I had hopes of making further additions to the known fauna of the island. But the mountainous nature of Fernando Po, the lack of all roads in the interior, the form and nature of the Government, the great dearth of labour, and the evil reputation of the island for health constitute formidable difficulties to any scientific expedition.

It was, therefore, not without some misgiving that I left Liverpool in September last, in company with my Portuguese collector, Mr. Lopes, to explore this island; but I trusted to my two years' experience on the West Coast to pull me through. At Sierra Leone I had my first disappointment; I found it quite impossible to get carriers. No better success awaited me at Monrovia and at Cape Coast. At



MAP OF FERNANDO PO.

Sekondi, a goodly hoard of Lagos natives, some 400 in number, who had been working on the Kunassi Railway, came on board. Here, I thought, was my opportunity, but not one of them would dream of coming. They had abundance of money and only thought of getting home. And, besides, the very name of Fernando Po was enough. The West-African native has a wholesome dread of this island, where in the past he has been badly treated, especially by the natives of Sierra Leone, who own a large number of the cocoa-farms there. At Old Calabar, however, where we stayed for five days, Sir Ralph Moor, the High Commissioner, very kindly came forward and supplied me with Government carriers.

A two days' run from Calabar brought us to Fernando Po, where, on the evening of Oct. 27th, 1902, we dropped anchor. Unlike the Canary Islands, with their volcanic aspects sprinkled with the green of short-lived grass, Fernando Po rises from the sea with lofty hills clothed to their summits with thick bush and virgin forest. Its northern portion is by far the more mountainous, culminating in a peak known as the Clarence Peak, or by the older name Pico Santa Isabel, which attains an altitude of 10,800 feet. In the southern portion the country is more open, with fertile valleys overgrown with long grass, while a series of mineral lakes and springs exist on the higher levels. The coast-line is flat and much indented with creeks and bays, which afford good landing-places for the numerous cocoa-farms on the island. The dotted portion on the accompanying map (Plate VI^a.) shews the extent of cultivation, which consists of a belt about two miles in width round the island. Along the coast-line are numerous cocoa-farms, which are in the hands of English and Spanish traders. Coffee is also cultivated to a small extent, while plantains, bananas, manioc, and yams form the food of the natives. Further towards the interior, on the edge of the belt near the wooded hills, are small scattered villages of wooden huts belonging to the natives. Beyond this coast-belt there is thick forest intersected by tracks made by the native hunters. There are no roads—only small paths between the villages.

The only communication between the different farms on the island and Santa Isabel is by means of surf-boats, which are manned by West-African natives, chiefly from Sierra Leone and the Kru coast.

The approach to the island by the steamer is from the north, and as one drops anchor in the beautiful little bay of Santa Isabel the lofty peak confronts the traveller, towering above the harbour. In the distance to the left, its taller sister, the Cameroon Peak, also clothed with forest-growth, is visible even down to the white-walled houses of Victoria, which nestles at its base.

On Oct. 28th I landed at Santa Isabel, which presented a scene of much bustle and activity. It was the cocoa-season, and strings of carriers with bags upon their backs were journeying to and from the landing-stage. Throughout the day I was busy getting my baggage together and taking in stores for an early start up-country on the morrow. Trade-goods—such as beads, tobacco, rum, gunpowder, and clothes,—besides bags of rice for the carriers, had to be taken, and this greatly increased the work of transport. Much assistance was given to me by Mr. Couch, of the well-known trading-firm of Messrs. Holt. The Governor, the Marquis Montifuerte, also showed himself gracious and allowed all the baggage to pass free of custom-duties: this was a distinct advantage, since the duties are heavy.

At 5.30 A.M. on Oct. 29th our column of twenty-five men was on the move. This quick departure greatly surprised all the natives, who said "it must mean business." It was a fortunate thing that we arrived with carriers, as there was not a labourer to be had on the island—a curious state of things in a country so fertile and so full of possibilities. But the natives, known as Edeeyahs or Boobies, are excessively indolent, and nothing will induce them to work for any length of time. They are a feeble people and form a strange contrast to other West-African races. Of short stature, abominous and spindle-shanked, and with broad furtive faces, they create anything but a favourable impression. Their dirt is undescribable; they seldom wash, but

scrape themselves with small knives, which are attached to their left upper arms for that purpose by a string band. Horrible deformities are also produced by hempen bands about six inches in width, which are fixed tight round the upper arms and below the knees. By way of adornment, they frequently plaster their bodies, faces, and hair with clay, dyed red with a leaf of a tree indigenous to the island. Patterns are often indulged in. It was quite a common thing to see tiny babies on their mothers' backs literally coated with this clay.

Heavy necklaces, bracelets, and anklets of beads deftly woven together in alternate bands of colour are worn—red, yellow, and blue being the most favoured colours. These ornaments sometimes consist of a very small pointed land-shell. It is treated in the same way as the beads, and shews rank in the wearer. Before the introduction of trade-goods these shells were the current coin in the island, just as cowries were with the West-Coast natives. Little clothing is worn, except a loin-cloth of the scantiest description, in many cases replaced at the posterior by a tail of twisted cloth. A flat circular hat of woven grass, with a small pepper-pot crown, is worn, secured to the hair by a wooden skewer; this is often decorated with the skin of a small tree-squirrel and the blue pinion-feathers of a large Plantain-eater (*Corythæola cristata*).

Although it was now towards the end of the rainy season, the rains were still heavy. The native track along which we journeyed was slippery, and everything dripped with moisture. We were soon drenched through, and it was with difficulty that we could keep our guns dry. Our progress was slow, never more than two miles an hour, the carriers frequently slipping and stumbling, while in many places the path had to be cleared of undergrowth. At times it debouched into open glades, where birds mustered strongly, revelling in the bright sunlight, which scintillated on the delicate pink-tinted leaves of the cocoa-plants, and, where the ground sloped down from the wooded hills to cultivated land, interspersed with palms and mighty cotton-trees, with their colossal branches in pale contrast to the blue background of

distant sea. About midday, after a tiring trek, we reached Basupu, a small Boobie-village, where we pitched our camp. While on the road we had collected a dozen specimens, the skinning and making up of which kept us busy for the rest of the afternoon. Our camp was prettily situated just above a stream, the noise of which we constantly heard. There is no lack of water on the island. We continually had to cross deep ravines, down which water, sparkling and clear, flowed from the hills.

At Ribola, our next camp, we met with some difficulty at the hands of the natives. After a tiring march through thick bush, we arrived towards sundown at this Boobie-village, which consisted of small oblong huts scattered among plantations of yam. These dwellings are made of wooden slabs driven upright into the ground and roofed with palm-leaves. The low doorways, through which the natives crawl, are closed by slabs in the same way as our pig-pounds. Our advent became the signal for a general helter-skelter of the owners into the long grass and bush. Mothers caught up their children as they ran, while the men stared at us and then tailed off to neighbouring huts, jabbering the whole way like a string of geese. The night was perfect. Palm-trees, with their tops silvered by the moon, reared their trunks from masses of tall fish-cane growing round our camp. Small mice crossed and recrossed the narrow paths without disturbing the silence, which now and again was broken by the rustling of grass-cane being pushed aside, and black faces would peer out the next moment to catch a glimpse of me as I sat enjoying my last pipe before bedtime. Not long afterwards an uproar of fowls being caught in neighbouring bushes made it clear to me that we were not going to be trusted. Early next morning (Nov. 1) we struck our camp, and were glad to get away from this dirty village. The natives followed us for some distance, and, thinking they had seen the last of us, gradually melted away into the bush. I then doubled back and took a native track going almost due south into the wooded hills, where we stayed collecting for a couple of days; but the natives, gathering together under

their king and queen, objected to our going any further. It was, they said, their hunting or "beef" country, and no white man was fit to get to the big hill. They told my carriers many tales, for instance that a big river lived up in the mountain, and anyone who crossed it would die. All these stories were readily believed, and signs of intending desertion on the part of several carriers induced me to return the same way as I had come, our column being followed by a howling mob up to within a mile of Sipopo, where they again vanished. I subsequently learned that the natives of this district had been roughly handled by the Spanish troops, and this accounted for their unfriendly attitude towards the white man. The appearance of our big column aroused their suspicions, and, having no interpreter, we were quite unable to enlighten them as to the nature of our mission.

At Sipopo we occupied a cocoa-planter's house and stayed there making collections for several days. This gave a much-needed rest to our carriers. As soon as daylight came, about half-past five, my collector and I used to start off with a couple of carriers and follow one of the native paths into the bush. As a rule, we obtained during the morning's trek about 13 or 14 specimens, and with these we returned to camp, but were out again collecting in the evening. Our average take was between 18 and 20 birds a day. On one occasion, during a trek, we were suddenly startled by the sound of a stampede into the bush, just like the noise a flock of sheep make in getting through some obstacle, followed the next moment by a weird howl of voices like the whines of many dogs in unison. We again passed this spot on our return home. No one was visible, but our track was followed all the same. From time to time the loud report of guns came from behind. The Boobies, emboldened by our retreat, had followed us like an angry flock of geese, firing their guns at a respectful distance to frighten us. It would take too long here to record all our adventures with these curious people, so we must pass on to our camp at Bakaki, whence our first serious attempt to ascend the Peak was made. On the way I was fortunate enough to obtain the services of a

young Boobie-boy, named John, as guide and interpreter, from Mr. Barleycorn, of the Protestant Mission near Lakha.

The Bakaki country is inhabited by a race that speaks a different dialect, and is distinguishable by tribal marks on the face, and these people proved more friendly to us. It is a remarkable fact, but there are no less than five distinct tribal groups on the island. The Edeeyah is a very stay-at-home creature. Many old men that we met with had never gone beyond their own villages all their lives. The mountainous and enclosed nature of the country, with its lack of communication, has no doubt been the cause of these tribal separations. As we passed each village our column gathered in strength, the principal men of the village preceding us as guides. Each had a small hollow-necked gourd with a hole at the rounded end, and this was used as a flute; it can be heard at a great distance. Long before a village came in sight a musical dialogue used to be carried on, telling the inhabitants all about us and our coming. We toiled through the villages surrounded by natives, all eager to gain a sight of a white man, while some, less brave, eyed the column through the chinks in their huts. At Bakaki the natives again crowded round us; they watched, with open-eyed wonder, my tent being pitched, but what surprised and baffled them more than anything else was the opening and putting up of my camp-bed. They shewed themselves friendly enough, presenting us with fowls, for which they expected double their value in return; but when I asked for guides to take me up the big mountain, they became sullen and refused to help me. So long as we kept to the low ground they did not mind, but they did not want us to go into their "beef" country and build houses there. However, I determined to go without them, and with the help of my prismatic compass I struck the right direction. All our provisions and water had to be carried with us, and after a two days' climb and cutting our way through thick bush, I reached a height of nearly 8000 feet. Here was formed the nucleus of our collection, which included the majority of the new and rare species.

Hard work and the continual wearing of wet clothes soon began to tell upon us. My collector was the first to be threatened with fever, and I was reluctantly compelled to hurry down to Bakaki, where he fell ill. On my return, the Boobies could not disguise their satisfaction at the failure of my plans, and more palm-wine than ever was drunk that night. Beyond the cultivation of their yams, these natives think of nothing else except to gather palm-wine—or “topi,” as they call it—and palm-oil, which they exchange with the white traders for rum and tobacco. As regularly as clock-work the village is deserted towards the evening, and families troop down with calabashes to the palm-trees to gather the precious wine. To keep a Boobie away from his palm-wine for a single day is to make him a wretched man. After a halt of two days, my collector, although weak, was well enough to travel, and we accordingly pushed on to Bilelipi, where I determined to attempt the ascent of the mountain once more. By the large bribe of a keg of gun-powder, two hunters were at length induced to agree to guide us up to the top of the hill. Much talk ensued, and the other Boobie-folk did all they could to hinder these two men from going, saying that if they did so evil would befall them.

The Boobie is an excellent hunter. Armed with a long dane-gun and cutlass, he seeks the wooded hills, cutting out his track as he goes. The game is plentiful and nothing comes amiss to him: tree-squirrels (*Sciurinae*)—including the flying squirrel (*Anomalurus fraseri*)—small antelopes (of which there are at least two kinds, one, *Cephalophus ogilbyi*, a red species, and the other, *C. melanorheus*, a mouse-coloured animal), and, the most prized of all, the tree-dassie (*Dendrohyrax dorsalis*) form his quarry. Living in the tops of the palms or in the leafy portions of forest trees, the last-named animal looks exceedingly comical, as it runs, in wild-pig fashion, along the broad branches from one thick retreat to another. The Boobies are quick to discover its home. Every likely tree is scanned and the least shaking of the leafy top seldom escapes their keen sight. While one stays below the tree with cutlass and dane-gun and a couple of

native dogs, the other rapidly scales the tree and shakes the dassie's home violently. The poor dassie falls with a great thud to the ground beneath and attempts to run, but the dogs keep it at bay and the next moment it is quickly dispatched with the cutlass. Our two hunters killed no less than thirteen of these animals in one morning on our way up the mountain.

On November 25th my second attempt to ascend the Peak was commenced. Six men preceded the column as pioneers to cut the road. Our loads had to be greatly reduced in weight, while ten carriers were told off to carry large rum-jars full of water. A heavy mist hung round everything. It did not take long to become drenched with moisture as we brushed past and fought our way through the thick forest-growth wringing with wet. Our progress was tedious. The Boobie-track, little frequented but by hunters, was much overgrown, and the axe had constantly to be used. In many places the path led through tunnels in impenetrable thickets, which it was hopeless to try to cut away, and we had to crawl through on our hands and feet, the loads being passed on from one carrier to another. From time to time heavy mists swept over us. The daylight was obscured, the dreary twilight of the forest became more dreary than ever, and all the birds were silent. After a climb of nearly seven hours we reached a small hunter's hut, at an altitude of about 3200 feet, which we made our base-camp. My carriers were thoroughly exhausted, and I found that a day's rest was necessary before continuing the ascent. This gave me an opportunity of making further collections. From this camp the ascent became so steep and rough that all loads of over 20 lbs. had to be discarded and our tents abandoned. Water, too, was no longer obtainable, and every drop had to be carried with us. At night our only shelter was a roughly-made roof of leaves. At a height of 6000 feet the kola-nut tree and the rubber-vine flourished, and the carriers, now short of rations, gathered the nuts with avidity. Many species of orchids and mountain-ferns grew in abundance on the sheltered slopes. As we ascended, the air became clearer.

Below hung a great carpet of mist, but now and again a breath of wind would swoop down and open it, disclosing to view valleys of exquisite beauty bathed in sunlight, where groups of giant tree-ferns flourished, and whence streams, looking like tiny threads of silver, wound their way to the distant sea.

On the morning of the fourth day, as the summit was reached, we experienced cold blasts of wind from the north-west. A coarse woody weed covered the ground, and the scattered trees were weather-beaten and wind-torn. Near the summit bird-life was scarce, but examples of several species were obtained, including *Laniarius poensis*, *Urolais mariæ*, and *Lioptilus claudi*. The whole ascent resulted in a collection of 45 specimens.

On December 1st we reached Banterbari Beach, where Messrs. Holt have a large cocoa-farm. Here I obtained, through the kindness of Messrs. Maysmor and Blissett, a couple of large surf-boats to take the whole expedition back to Port St. Isabel. A week later we all arrived safely, with boots and clothes looking much the worse for wear, and glad indeed we were to get back to civilization again.

My leave of absence from England having nearly expired, I started by the s.s. 'Oron' on her homeward voyage, leaving my collector behind, however, to work the southern portion of the island. Principal Father Coll and Padre Albanell, of the Roman Catholic Mission, gave him much assistance in his arduous work, and after a successful trip through the Moka Valley, he returned to England with an additional hundred skins. The work of the whole expedition resulted in a series of nearly 500 specimens representing three new genera and 103 species, of which 35 have proved to be new to science. I owe this remarkable success to having traversed the high ground, my predecessors having confined their attention to the lowlands. The wealth of bird-life on the island is indeed wonderful, and proportionately larger than in the forest-region of the adjoining West Coast. The new species are in many cases remarkable, some of them possessing very distinct characters, while others seem to have their nearest allies in East Africa. Owing to the close

proximity of Fernando Po to Cameroon, it is, however, to be expected that a number of these local forms will eventually be found in the latter when the highlands of that country have been thoroughly investigated.

In conclusion, it may be stated that the rich fauna of Fernando Po supports the theory that this island at one time formed part of the mainland. A large proportion of its birds are West African, while many species of its plants have been found to occur in the highlands of Abyssinia. The Peak of Fernando Po and the Cameroon Peak appear to rest on the same base, the narrow channel (30 miles wide) now separating them having a depth of only 290 feet, which suddenly falls on both sides to 600 fathoms.

The distribution of the species of birds recorded up to the present time as occurring in Fernando Po, relatively to the continent of Africa, may be stated as follows:—

Restricted to the Island.	Found also in West Africa.	Found in East Africa.	Found in Africa generally.
34	55	2	33

My best thanks are due to Dr. Bowdler Sharpe for his assistance in the identification of my birds.

Part II.—LIST OF THE SPECIES OF WHICH SPECIMENS WERE OBTAINED, WITH FIELD-NOTES.

[The arrangement and nomenclature used are those of Shelley's 'Birds of Africa,' except where otherwise stated.]

1. *CINNYRIS PREUSSI*, Reichen.

Cinnyris preussi Shelley, B. Afr. i. no. 44 (1896), ii. p. 81 (1900).

I obtained a fine series of this Sun-bird, which is widely distributed over both the northern and southern portions of the island and inhabits the hill-ranges, where it is found in pairs. I procured specimens close to the Peak itself. It is essentially a highland bird, differing in this respect from *C. chloropygia*, the range of which is limited to the low cultivated portions of the island.

2. *CINNYRIS CHLOROPYGIA* (Jard.).

Nectarinia chloropygia Jard. Ann. & Mag. Nat. Hist. x. p. 188, pl. xiv. (1842: Fernando Po); id. Jard. & Selby, Illustr. Orn. (n. s.) pl. 1. (1842); Jard. Monogr. Sun-birds, pp. 171, 249, pl. iii. (1843); Gray, Gen. B. i. p. 97 (1847); Allen & Thomson, Narr. Niger Exped. ii. p. 503 (1848: Fernando Po); Hartl. J. f. O. 1854, p. 12 (Fernando Po); Müll. J. f. O. 1855, p. 13 (Fernando Po); Hartl. Orn. W.-Afr. p. 47 (1857: Fernando Po).

Cinnyris chloropygia Bocage, Journ. Lisb. (2) iv. p. 7 (Santa Isabel, Fernando Po); id. op. cit. (2) vii. p. 32 (1903: Fernando Po).

Cinnyris chloropygius Shelley, B. Afr. i. p. 4. no. 46 (1896), ii. p. 83 (1900); Salvad. Orn. Golfo d. Guinea, iii. p. 104.

a. Ad. ♂. Ribola, Oct. 31, 1902.

b. Imm. Sipopo, Nov. 5, 1902.

c. Imm. Bakaki, Nov. 1902.

Common in the island.

3. *CHALCOMITRA ANGOLENSIS* (Less.).

Nectarinia stangeri Allen & Thomson, Narr. Exped. Niger, ii. p. 501 (1848: Fernando Po); Hartl. J. f. O. 1854, p. 10 (Fernando Po); Müll. J. f. O. 1855, p. 15 (Fernando Po).

Nectarinia angolensis Hartl. Orn. W.-Afr. p. 45 (1857: Fernando Po).

Chalcomitra angolensis Shelley, B. Afr. i. no. 56 (1896), ii. p. 3 (1900); Bocage, Journ. Lisb. (2) vii. p. 32 (1903: Fernando Po).

Cinnyris angolensis Salvad. Orn. Golfo d. Guinea, iii. p. 104.

a. Ad. ♂. Badasou, Nov. 12, 1902. Iris brown; legs and feet black.

b. Ad. ♀. Badasou, Nov. 11, 1902.

Upper parts brown, with a coppery gloss in certain lights; tail-feathers tipped with white and with a bronzy gloss; chin mottled with white; throat and fore-neck glossy brownish black; remainder of under parts creamy white, with brown centres to the feathers: iris brown; legs and feet black.

c. Imm. ♂ (with black throat). Basakato, Nov. 12, 1902.

d. Imm.? ♂ (with metallic throat). Basakato, Nov. 12, 1902.

According to my note-book, this last specimen had the breeding-organs largely developed, and therefore could hardly be an immature bird. With the exception of the metallic coloration on the throat, fore-neck, and forehead, it is in the plumage of the adult female. The upper parts are much worn and bleached. This, I think, proves that the male assumes the female plumage at one season of the year (probably during the rains).

4. *CYANOMITRA URSULÆ*. (Plate IX. fig. 2.)

Cyanomitra ursula Alex. Bull. B. O. C. xiii. p. 38 (1903); Bocage, Journ. Lisb. (2) vii. p. 40 (1903).

Cinnyris ursula Salvad. Orn. Golfo d. Guinea, iii. p. 105.

Ad. ♂. Forehead and fore part of crown faintly washed with metallic blue, with a greenish lustre in some lights; remainder of upper parts dull olive-yellow; quills and tail-feathers brown, edged on their outer webs with golden olive-yellow; ear-coverts and region behind eye cinereous; chin, throat, and breast pale smoky brown, becoming paler on the breast; remainder of under parts washed with pale olive-yellow; pectoral tufts orange-red; under wing-coverts and lining to quills white; bill black; iris hazel; legs and feet brown. Total length 3.6 inches, culmen 0.75, wing 1.95, tail 1, tarsus 0.75.

Near Bakaki, 4000 feet, Nov. 20, 1902.

We obtained two specimens, both males, of this rare little Sun-bird, which frequented the low bushes on the steep ascents of the mountain. It is a quiet bird and seems fond of solitude.

It is named after the author's niece, Miss Ursula Davis.

5. *CYANOMITRA OBSCURA* (Jard.).

Nectarinia obscura Jard. Monogr. Sun-birds, p. 253 (1843: Fernando Po); Jard. & Selby, Illustr. Orn. (n. s.) pl. li. (1843); Hartl. J. f. O. 1854, p. 11 (Fernando Po); Müll. J. f. O. 1855, p. 16 (Fernando Po); Hartl. Orn. W.-Afr. p. 50 (1857: Fernando Po).

Elæocerthia obscura Reichenb. Handb. Scansoriae, p. 293, pl. lxxviii. figs. 3935-36 (1853 : Fernando Po).

Adelinus obscurus Oust. N. Arch. Mus. (2) ii. p. 88 (1879 : Fernando Po).

Cinnyris obscura Gadow, Cat. B. Brit. M. ix. p. 77 (1884 : Fernando Po); Bocage, Journ. Lisb. (2) iv. p. 7 (1895 : Fernando Po); id. op. cit. (2) vii. p. 32 (1903).

Cyanomitra obscura Shelley, B. Afr. i. no. 63 (1896), ii. p. 125 (1900).

Cinnyris obscurus Salvad. Orn. Golfo d. Guinea, iii. p. 104.

Abundant on the low lands, where it feeds on the flowers of the paw-paw tree (*Papaya carica*). Breeds in November. We obtained a large series.

6. CYANOMITRA CYANOLEMA (Jard.).

Nectarinia cyanolæmus Jard. & Fraser, Contr. Orn. 1851, p. 154 (Clarence, Fernando Po); Hartl. Orn. W.-Afr. p. 51 (1857 : Fernando Po); Gray, Hand-l. B. i. p. 108. no. 1318 (1869 : Fernando Po).

Anthodieta cyanolæma Reichenb. Handb. Scansoriae, p. 294 (1853 : Fernando Po).

Cyanomitra cyanolæma Shelley, B. Afr. i. no. 66 (1896), ii. p. 130 (1900); Bocage, Journ. Lisb. (2) vii. p. 32 (1903 : Fernando Po).

Cinnyris cyanolæmus Salvad. Orn. Golfo d. Guinea, iii. p. 105.

Ad. ♂. Basupu, Oct. 30, 1902. Rare.

This specimen has the bill slightly shorter than Fraser's type, which is said to have come from Fernando Po. The metallic parts are greener, with a blue rather than a lilac shade, and the general coloration of the upper parts more of a dusky than a chocolate-shaded brown.

7. CYANOMITRA POENSIS Alex.

Cinnyris chloronatus Allen & Thoms. (nec Swains.) Narr. Exped. Niger, ii. p. 221 (1848 : Fernando Po).

Nectarinia cyanocephala, part. Hartl. Orn. W.-Afr. p. 49 (1857).

Cinnyris oritis Bocage (nec Reichb.), Journ. Lisb. (2) iv. p. 8 (1895: Pico Santa Isabel, Fernando Po).

Cyanomitra poensis Alexander, Bull. B. O. C. xiii. p. 38 (1903).

Cinnyris poensis Salvad. Orn. Golfo d. Guinea, iii. p. 105.

Adult male. Entire head, neck, and throat dark metallic greenish blue; remainder of upper parts greenish olive; quills and tail dusky brown, edged on their outer webs with more golden-olive feathers; entire breast and abdomen olive-yellow; pectoral tufts pale sulphur-yellow; axillaries yellow; under wing-coverts and lining to quills silky white: iris reddish brown; bill black; legs and feet greenish slate.

Total length 4·8 inches, culmen 1·1, wing 2·45, tail 1·65, tarsus 0·8. (*Type.* Bilelipi, 6000 feet, Nov. 27, 1902.)

Adult female. Similar to the male, but duller and smaller, and lacking the sulphur-yellow pectoral tufts.

Total length 4·3 inches, culmen 1, wing 2·2, tail 1·3, tarsus 0·64. (*Type.* Bakaki, 4000 feet, Nov. 20, 1902.)

Immature. Upper parts uniform dull greenish olive, with no metallic colours. Chin, throat, and fore-neck dusky brown; remainder of under parts olive-yellow.

We obtained a fine series of this species, which is widely distributed over the highlands.

Mr. Newton, the Portuguese collector, procured a male specimen during his expedition in 1895 in the vicinity of the Peak.

8. ANTHOTHREPTES FRASERI Jard. & Selby.

Anthreptes fraseri Jard. & Selby, Illustr. Orn. (n. s.) pl. lii. (1843: Fernando Po); Hartl. J. f. O. 1854, p. 14 (Fernando Po); Shelley, Monogr. Nectar. p. 307, pl. xcix. (1879: Fernando Po).

Eleocerthia fraseri Reichen. Handb. Scansoriæ, p. 292, pl. 578. fig. 3934 (1853: Fernando Po).

Nectarinia fraseri, Müll. J. f. O. 1855, p. 16 (Fernando Po); Hartl. Orn. W.-Afr. p. 50 (1857: Fernando Po).

Arachnothera fraseri Gray, Hand-l. B. p. 113. no. 1399 (1869: Fernando Po).

Anthothreptes fraseri Gadow, Cat. B. Brit. M. ix. p. 113 (Fernando Po); Shelley, B. Afr. i. no. 73 (1896), ii. p. 141 (1900); Bocage, Journ. Lisb. (2) vii. p. 33 (1903: Fernando Po); Salvad. Orn. Golfo d. Guinea, iii. p. 106.

a. Imm. ♂. Ribola, Oct. 31, 1902.

b. Nestling. Ribola, Oct. 31, 1902. Bill black; legs and feet flesh-coloured.

c. Imm. ♂. Sipopo, Nov. 7, 1902.

d. Imm. ♂. Sipopo, Nov. 4, 1902. Bill brown; legs and feet slaty flesh-coloured.

e. Ad. ♀. Sipopo, Nov. 4, 1902.

f. Imm. ♂. Besoso. Nov. 13, 1902.

g. Ad. ♂. Ribola, Oct. 31, 1902. Iris brown; upper mandible pale brown, lower yellowish horn-coloured; legs and feet greenish olive.

h. Ad. ♂. Bakaki, Nov. 19, 1902.

i. Ad. ♀. Bakaki, Nov. 20, 1902. Breeding.

j. Ad. ♂. Bilelipi, Nov. 25, 1902.

k. Ad. ♂. Basakato, Nov. 12, 1902.

The female is considerably smaller than the male.

Ad. ♂. Bilelipi, Nov. 25, 1902. Total length 5·9 inches, culmen 0·85, wing 3, tail 2·55, tarsus 0·6.

Ad. ♀. Bakaki, Nov. 20, 1902. Total length 4·6 inches, culmen 0·8, wing 2·45, tail 1·85, tarsus 0·52.

This species inhabits wooded places at the base of the hills, where it is locally distributed. It is a quiet bird, and always seems busy, examining with diligence the tops of thick-leaved bushes for insects.

The northern race of this species is *A. idius* Oberh., which ranges from Liberia to Gaboon (*cf.* Ibis, 1902, p. 288).

Although closely allied to *A. fraseri*, it can be distinguished by its smaller size and general darker and less yellowish-green coloration. An adult male (with pectoral tufts) obtained by me in Ashanti possesses these characteristics when compared with our Fernando Po specimens of *A. fraseri*.

A. fraseri.

Ad. ♂. Bilelipi, Nov. 25, 1902. Total length 5·9 inches, culmen 0·85, wing 3, tail 2·55, tarsus 0·6.

A. idius.

Ad. ♂. Prahsu, Gold Coast, Oct. 16, 1900. Total length 4·3 inches, culmen 0·7, wing 2·38, tail 1·7, tarsus 0·5.

9. ANTHOTHREPTES HYPODILA (Jard.).

Nectarinia collaris Jard. (nec Vieill.); Jard. Monogr. Sun-birds, p. 251, pl. vi. (1843: Fernando Po).

Nectarinia hypodilus Jard. & Fraser, Contr. Orn. 1851, p. 153 (Clarence, Fernando Po); Hartl. J. f. O. 1854, p. 12 (Fernando Po); Müll. J. f. O. 1855, p. 52 (Fernando Po); Hartl. Orn. W.-Afr. p. 52 (1857: Fernando Po); Gray, Hand-l. B. i. p. 108. no. 1317 (1869: Fernando Po).

Anthodieta subcollaris Reichenb. Handb. Scansoriæ, p. 293, pl. 590. figs. 4007, 4008 (1853: Fernando Po).

Anthodieta hypodelos Reichenb. t. c. p. 293 (Clarence, Fernando Po).

Nectarinia subcollaris Hartl. Orn. W.-Afr. p. 52 (1857: Fernando Po).

Anthothreptes collaris Gadow, Cat. B. Brit. M. ix. p. 116, part. (1884: Fernando Po).

Cinnyris hypodila Bocage, Journ. Lisb. (2) iv. p. 8 (1895: Fernando Po).

Anthothreptes hypodila Shelley, B. Afr. i. no. 78 (1896), ii. p. 151 (1900); Bocage, Journ. Lisb. (2) vii. p. 33 (1903: Fernando Po).

Anthodieta hypodila Salvad. Orn. Golfo d. Guinea, iii. p. 105.

a. Ad. ♂ ♂. Basupu, Oct. 30, 1892. Bill, legs, and feet black.

b. Imm. ♂. Ribola, Nov. 2, 1902. Iris hazel. Breeding.

c. Imm. ♂. Sipopo, Nov. 5, 1902.

My immature males are similar to the adults, but the metallic golden green of the upper parts is less strong. Entire under parts yellow, becoming paler on the throat and sides of face. Bill brown.

Common, frequenting coffee- and cocoa-plantations.

10. ANTHOTHREPTES TEPHROLÆMA (Jard. & Fraser).

Nectarinia tephrolæmus Jard. & Fraser, Contr. Orn. 1851,

p. 154 (Clarence, Fernando Po) ; Hartl. J. f. O. 1854, p. 12 (Fernando Po) ; Müll. J. f. O. 1855, p. 16 (Fernando Po) ; Hartl. Orn. W.-Afr. p. 51 (1857 : Fernando Po) ; Gray, Hand-l. B. i. p. 108. no. 1319 (1869 : Fernando Po).

Anthodiæta tephrolama Reichenb. Handb. Scansoriae, p. 294 (1853 : Fernando Po) ; Shelley, Monogr. Nectar. p. 333 (Fernando Po) ; Salvad. Orn. Golfo d. Guinea, iii. p. 106.

Anthothreptes tephrolama Shelley, B. Afr. i. no. 80 (1896), ii. p. 156 (1900) ; Bocage, Journ. Lisb. (2) vii. p. 33 (1903 : Fernando Po).

a. Imm. ♂. Basupu, Oct. 29, 1902.

b. Imm. ♂. Banterbari, Nov. 29, 1902.

Not common. Confined to the coast-line.

11. *ZOSTEROPS STENOCRICOTA* Reichen.

Zosterops stenocricota Reichen. J. f. O. 1892, p. 191 ; Shelley, B. Afr. i. no. 94 (1896), ii. p. 181 (1900).

a. Ad. ♂ ♀. Bakaki, Nov. 15, 1902. Iris hazel ; bill black ; legs and feet pale slaty.

b. Ad. ♀. Bakaki, Nov. 18, 1902.

c. Ad. ♂ ♂ ♀. Bakaki, Nov. 20, 1902.

d. Ad. ♂. Bilelipi, Nov. 24, 1902.

e. Ad. ♂. Moka, Dec. 1, 1902.

f. Ad. ♀. Moka, Dec. 11, 1902.

I first met with this species in the neighbourhood of the mountain in flocks of five or six. When alighting on any tree they used to commence a noisy song-like chatter, not unlike that of a canary in tone. The native name is "Si tawi tawi," which is rather descriptive of the song.

Range. Fernando Po and Cameroon.

Examples of another species of *Zosterops*, described by Count Salvadovi as *Z. brunnea*, were obtained by Mr. Newton in 1895 on the Pico Santa Isabel at an altitude of 2500 metres. (See p. 399.)

12. *LINURGUS OLIVACEUS* (Fraser).

Coccothraustes olivaceus Fraser, P. Z. S. 1842, p. 144 (Clarence, Fernando Po) ; Allen & Thomson, Narr. Exped.

Niger, ii. p. 500 (1848: Fernando Po); Fraser, Zool. Typ. pl. xlvii. (1849).

Ligurnus olivaceus Hartl. Orn. W.-Afr. p. 140 (1857: Fernando Po).

Crithagra olivacea Gray, Hand-l. B. iii. p. 101. no. 7505 (1870: Fernando Po).

Pyrhospiza olivacea Sharpe, Cat. B. Brit. Mus. xii. p. 434 (1888: Fernando Po); Bocage, Journ. Lisb. (2) vii. p. 37 (1893: Fernando Po).

Linurgus olivaceus Shelley, B. Afr. i. p. 304 (1896); Salvad. Orn. Golfo d. Guinea, iii. p. 112.

Pyrhospiza camerunensis Alexander, Bull. B. O. C. xiii. p. 38 (1903: Mt. Victoria).

a. No. 7. Ad. ♂. Basupu, Oct. 29, 1902. Bill orange-yellow; iris hazel; legs and feet orange-yellow.

b. No. 88. Ad. ♂. Ribola, Nov. 2, 1902.

c. No. 89. Imm. ♂. Ribola, Nov. 2, 1902. This specimen is changing from the female plumage into that of the adult male.

d. No. 90. Ad. ♀. Ribola, Nov. 2, 1902.

e. No. 202. Ad. ♂. Bakaki, Nov. 14, 1902.

f. No. 208. Ad. ♂. Bakaki, Nov. 14, 1902. Total length 5.5 inches, culmen 0.6, wing 3, tail 2.4, tarsus 0.7.

g. No. 317. Ad. ♀. Bakaki, Nov. 22, 1902. Total length 5.3 inches, culmen 0.51, wing 2.7, tail 2, tarsus 0.62. Bill orange-yellow; legs and feet orange-yellow.

h. No. 28. Ad. ♂. Moka, Dec. 9, 1902.

i. No. 34. Ad. ♂. Pico Joaquin, Dec. 10, 1902.

j. No. 43. Ad. ♂. Pico Joaquin, Dec. 11, 1902.

k. No. 46. Ad. ♂. Pico Joaquin, Dec. 10, 1902.

l. No. 69. Ad. ♂. Moka Lake, Dec. 13, 1902.

Since I gave *P. camerunensis* specific rank, further material has come to hand and I find that the characters of the supposed new species are not constant. This Weaver-bird is locally distributed on the high lands of the island. In favoured localities it is fairly numerous, going about in small flocks. It breeds in November.

13. VIDUA SERINA (Linn.).

Vidua principalis Shelley, B. Afr. i. no. 312 (1896).

a. Ad. ♂ ; imm. ♂ . Moka, Dec. 9, 1902.

b. Ad. ♂ ; young ; imm. ♂ . Dec. 14, 1902.

Confined to the southern portion of the island. The adult males were in full breeding-plumage. This species had not been previously obtained in Fernando Po.

14. NIGRITA CANICAPILLA (Strickl.).

Æthiops canicapillus Strickl. P. Z. S. 1841, p. 30 (Fernando Po : type, Brit. Mus.).

Nigrita canicapilla Fraser, P. Z. S. 1842, p. 145 (Fernando Po) ; id. Zool. Typ. pl. xlvi. (1849) ; Bp. Consp. Av. i. p. 444 (1850 : Fernando Po) ; Hartl. Orn. W.-Afr. p. 130 (1857 : Fernando Po) ; Bocage, Journ. Lisb. (2) iv. p. 9 (1895 : Fernando Po) ; Shelley, B. Afr. i. no. 365 (1896) ; Bocage, Journ. Lisb. (2) vii. p. 36 (1903 : Fernando Po) ; Salvad. Orn. Golfo d. Guinea, iii. p. 112.

a. Ad. ♂ ♂ . Ribola, Nov. 1, 1902. Total length (measured in flesh) 5·45 inches, culmen 0·59, wing 2·9, tail 2·3, tarsus 0·7. Iris lemon-yellow ; bill black ; legs and feet brown.

b. Ad. ♀ . Basakato, Nov. 12, 1902.

c. Ad. ♂ . Bakaki, Nov. 13, 1902. Iris red ; legs and feet brown.

d. Ad. ♂ . Bakaki, Nov. 15, 1902. Breeding.

e. Ad. ♀ . Bakaki, Nov. 19, 1902. Total length (measured in flesh) 5·3 inches, culmen 0·55, wing 2·7, tail 2·1, tarsus 0·7. Iris orange-yellow ; legs and feet brown.

In the female the black of the under parts has a more brownish shade, and the extent of white on the rump is less pronounced.

f. Ad. ♂ . Banterbari, Nov. 29, 1902.

g. Ad. ♂ . Pico Joaquin, Dec. 10, 1902.

h. Ad. ♀ . Moka, Dec. 15, 1902.

This species is widely distributed on the high ground, frequenting thick trees in pairs. In flight the white on the rump is very conspicuous.

15. *NIGRITA LUTEIFRONS* J. & E. Verr.

Nigrita luteifrons Verr. Rev. et Mag. de Zool. 1851, p. 420; Bocage, Journ. Lisb. (2) iv. p. 9 (1895: Fernando Po); Shelley, B. Afr. i. no. 368 (1896); Bocage, Journ. Lisb. (2) vii. p. 36 (1903).

Nigrita lucieni Sharpe & Bouvier, Bull. Soc. Zool. France, iii. p. 75 (1878); Shelley, B. Afr. i. no. 369 (1896); Salvad. Orn. Golfo d. Guinea, iii. p. 112.

a. Ad. ♂ ♀. Ribola, Oct. 31, 1902.

b. Ad. ♀. Ribola, Nov. 2, 1902.

c. Imm. ♀. Badasou, Nov. 11, 1902.

d. Ad. ♂. Besoso, Nov. 13, 1902.

e. Ad. ♂ ♂. Bakaki, Nov. 14, 1902.

Ad. ♂. Ribola, Oct. 31, 1902. Total length (measured in flesh) 4·4 inches, culmen 0·45, wing 2·4, tail 1·8, tarsus 0·55. Iris black; bill black; legs and feet flesh-coloured.

Ad. ♀. Ribola, Oct. 31, 1902. Total length (measured in flesh) 4·3 inches, culmen 0·4, wing 2·3, tail 1·69, tarsus 0·5. Coloration of soft parts as in male. Breeding.

Locally distributed, and fond of frequenting the tops of tall palm-trees, where it nests. We often observed it in sunny spots hawking in the air for flies.

It is very interesting to have come across both a male and a female of this species, as the latter sex was previously considered to belong to another species—*Nigrita lucieni*.

Range. Fernando Po, Cameroon, Gaboon, and the Congo.

16. *NIGRITA FUSCONOTA* Fraser.

Nigrita fusconotus Fraser, P. Z. S. 1842, p. 145 (Clarence, Fernando Po: type, Brit. Mus.); Allen & Thomson, Narr. Exped. Niger, ii. p. 501 (1848: Fernando Po); Fraser, Zool. Typ. pl. xlix. (1849).

Nigrita fusconota Hartl. Orn. W.-Afr. p. 130 (1857: Fernando Po); Shelley, B. Afr. i. no. 371 (1896); Bocage, Journ. Lisb. (2) vii. p. 36 (1903: Fernando Po); Salvad. Orn. Golfo d. Guinea, iii. p. 112.

Nigrita pinaronota Sharpe, Cat. B. Brit. Mus. xiii. p. 318 (1890: Fernando Po).

a. Ad. ♂ ♀. Ribola, Nov. 2, 1902.

b. Ad. ♂. Ribola, Nov. 2, 1902. Breeding.

Ad. ♂. Total length (measured in flesh) 4·2 inches, culmen 0·5, wing 2·1, tail 1·9, tarsus 0·56. Bill black; iris black; legs and feet slaty grey.

Ad. ♀. Total length (measured in flesh) 3·81 inches, culmen 0·4, wing 2, tail 1·6, tarsus 0·51.

Rare. Found on high ground, frequenting the topmost branches of tall trees in sunny clearings.

The type of this species was obtained by Fraser in Fernando Po.

17. *CRYPTOSPIZA REICHENOWI* (Hartl.).

Cryptospiza reichenowi Sharpe, Cat. B. Brit. Mus. xiii. p. 234 (1890); Shelley, B. Afr. i. no. 378 (1896).

Cryptospiza ocularis Sharpe, Bull. B. O. C. xiii. p. 8 (1902: Mt. Ruwenzori).

Cryptospiza elizæ Alexander, Bull. B. O. C. xiii. p. 38 (1903); Bocage, Journ. Lisb. (2) vii. p. 40 (1903); Salvad. Orn. Golfo d. Guinea, iii. p. 112.

Since my description of *C. elizæ* was published, Professor Reichenow has kindly forwarded to the British Museum the type—a female—of *C. reichenowi* from Cameroon. After comparing it carefully with *C. elizæ* and with the type of *C. ocularis* from Mount Elgon, East Africa, I have no hesitation in making both these species synonymous with *C. reichenowi*.

In the 'Journal für Ornithologie,' 1875 (pl. ii. fig. 1), *C. reichenowi* is figured; but the plate is misleading, since it represents the coloration of the hind-neck and under surface as bright olive-brown instead of yellowish olive-brown.

Our two immature males are similar to the adult, but lack the red round the eyes and on the lores, the latter being buffish brown, while the carmine-red on the back, rump, and upper tail-coverts is less pronounced. Legs and feet whitish brown. (Bakaki, November 14, 1902.)

Ad. ♂. Near Bakaki, 4000 ft., Nov. 20, 1902. Length 4·3 inches, culmen 0·5, wing 2·2, tail 1·45, tarsus 0·75. Iris black; bill slaty black; legs and feet brown.

The sexes are alike in plumage and measurements.

A local species and only met with in the locality of Bakaki. We observed it in small flocks frequenting the more open spots overgrown with long grass. The parties consisted chiefly of young birds.

18. *NESOCHARIS SHELLEYI*.

Nesocharis shelleyi Alexander, Bull. B. O. C. xiii. p. 48 (1903); Salvad. Orn. Golfo d. Guinea, iii. p. 112.

This new genus belongs to the same group as *Spermestes* and *Cryptospiza*, but differs in having a much weaker and more compressed bill; culmen slightly curved. Tail entirely black, very short and rounded, and not extending beyond the outstretched feet. Wing rounded; 3rd, 4th, and 5th primaries longest, 2nd equal to the 7th; 1st very small, narrow, and sharply pointed. Upper tail-coverts olive-yellow like the back; neck and entire breast grey.

The adult bird may be described as follows:—Entire head and upper half of the throat jet-black; neck, breast, and remainder of under parts French grey; remainder of upper parts yellowish olive, becoming brighter on the rump and upper tail-coverts; wing-coverts like the back; quills and secondaries blackish brown, edged with yellowish olive; tail-feathers black; under wing-coverts and inner edges of quills white; bill bluish slate-colour; legs and feet brownish. Length 3.1 inches, culmen 0.32, wing 1.7, tail 1.2, tarsus 0.5. (*Type.* Moka, December 12, 1902.)

This species was not found in the northern part of the island, but was discovered by my collector on the Moka highlands. It appears to be rare, since only two specimens were observed and obtained, which were frequenting the tops of tall thick-leaved trees.

The species has been named after Capt. G. E. Shelley.

19. *SPERMESTES POENSIS* (Fraser).

Amadina poensis Fraser, P. Z. S. 1842, p. 145 (Clarence, Fernando Po); Allen & Thomson, Narr. Exped. Niger, ii. p. 500 (1848: Fernando Po); Fraser, Zool. Typ. pl. 1. fig. 1 (1849).

Spermestes poensis Bp. Consp. Av. i. p. 454 (1850:

Fernando Po); Hartl. Orn. W.-Afr. p. 148 (1857: Fernando Po); Bocage, Journ. Lisb. (2) iv. p. 10 (1895: Fernando Po); Shelley, B. Afr. i. no. 386 (1896); Bocage, Journ. Lisb. (2) vii. p. 36 (1903: Fernando Po); Salvad. Orn. Golfo d. Guinea, iii. p. 113.

a. Ad. ♀. Ribola, Oct. 31, 1902. Iris brown; bill pale bluish slate-coloured; legs and feet slate-coloured.

b. Ad. ♀. Sipopo, Nov. 3, 1902.

Found in small flocks frequenting waste places near villages.

20. *ESTRILDA OCCIDENTALIS* Jard. & Fraser.

Estrelida occidentalis Jard. & Fraser, Contr. Orn. 1851, p. 156 (Fernando Po); Hartl. Orn. W.-Afr. p. 140 (1857: Fernando Po).

Habropyga minor Cab. J. f. O. 1878, p. 229.

Estrilda rubriventris Bocage (nec Vieill.), Journ. Lisb. (2) vii. p. 36 (1903: Fernando Po); Salvad. Orn. Golfo d. Guinea, iii. p. 113.

Imm. ♂. Moka, Dec. 12, 1902.

Ad. ♂♂. Moka, Dec. 16, 1902.

I am unable to find any constant characters to separate *E. minor* from the present species. Specimens of *E. minor* from Abyssinia and Nyassaland in the British Museum are somewhat darker on the upper parts and lighter on the throat; but these characters do not remain constant, and intermediate forms occur. Specimens of *E. minor* in my Zambesi collection are identical with the Fernando Po birds.

Young male (Moka, Dec. 12, 1902). Crown dark brown; remainder of upper parts rufous brown, especially on the rump; quills and tail-feathers dusky brown, edged with rufous brown; under parts tawny buff suffused with pink, becoming whitish on the throat and sides of face; feathers round eye dull crimson; bill black.

Range. Fernando Po, Cameroon, and Abyssinia, southward to Benguela and the Zambesi.

In Gaboon and Loango this form is replaced by a local subspecies, *E. rubriventris*.

21. *ESTRILDA ELIZÆ*.

Estrilda elizæ Alexander, Bull. B. O. C. xiii. p. 54 (1903).

Adult. Similar to *E. nonnula* Hartl., but differs in having the entire under parts tinted with grey and the under tail-coverts pale lead-grey. Wings pale. Iris brown; bill black, with a patch of red on each side of the culmen and at the base of the lower mandible; legs and feet blackish. The sexes are alike in plumage and measurements. Total length 3·8 inches, culmen 0·4, wing 1·9, tail 1·7, tarsus 0·65. (*Type*, ad. ♂. Moka, December 14, 1902.)

Immature. Hind-neck and mantle uniform greyish brown; entire breast and under tail-coverts washed with pale brown; bill black; legs and feet blackish.

This *Estrilda* is confined to the southern portion of the island. My collector obtained his specimens from the long grass in the Moka valley.

The species is named after Lady Eliza Alexander.

22. *MALIMBUS RUBRICOLLIS* (Swains.).

Euplectes rufovelatus Fraser, P. Z. S. 1842, p. 142 (Clarence, Fernando Po: type, Brit. Mus.); id. Ann. & Mag. Nat. Hist. xii. p. 131 (1843); Allen & Thomson, Narr. Exped. Niger, ii. p. 500 (1848: Fernando Po); Fraser, Zool. Typ. pl. xlvi. (1849).

Sycobius malimbus Hartl. Orn. W.-Afr. p. 133 (1857: Fernando Po).

Malimbus rubricollis Sharpe, Cat. B. Brit. Mus. xiii. p. 478 (1890: Fernando Po); Bocage, Journ. Lisb. (2) iv. p. 10 (1895: Santa Isabel, Fernando Po); id. op. cit. vii. p. 37 (1903: Fernando Po); Salvad. Orn. Golfo d. Guinea, iii. p. 114.

Malimbus malimbus Shelley, B. Afr. i. no. 479 (1896).

a. Imm. ♀. Basupu, Oct. 31, 1902. Iris brown; bill blackish horn-coloured; legs and feet dark lead-coloured.

b. Ad. ♂ ♂ ♂ ♀ ♀. Ribola, Oct. 31, 1902. Iris claret-red; legs and feet brown; bill black.

c. Ad. ♂. Basakato, Nov. 12, 1902.

Common at the foot of the hill-ranges, resorting to the thick forest-trees.

23. MELANOPTERYX MAXWELLI.

Melanopteryx nigerrima Bocage (nec Vieill.), Journ. Lish. (2) iv. p. 10 (1895: Fernando Po); id. op. cit. vii. p. 37 (1903); Salvad. Orn. Golfo d. Guinea, iii. p. 114.

Melanopteryx maxwelli Alexander, Bull. B. O. C. xiii. p. 54 (1903).

Adult. Similar to *M. albinucha*, but with the base of the feathers grey instead of white. Upper parts, throat, and breast jet-black, not brownish black; legs and feet brownish black; iris lemon-coloured; bill black. (*Type*, ad. ♂. Ribola, Oct. 31, 1902.)

Total length 5·6 inches, culmen 0·7, wing 3, tail 2, tarsus 0·75.

The sexes are alike in plumage and measurements.

Immature male. General colour above sooty-brown, with traces of yellowish-olive edges to the feathers of the hind-neck and crown, the latter mottled with black; sides of head and under parts pale yellowish olive, inclining to whitish on the under tail-coverts; thighs light brown: bill horn-brown; legs and feet dark brown.

Immature female. Similar to immature male, but with no yellowish edges to the feathers of the hind-neck and crown; sides of neck and under parts ashy white, inclining to pale tawny on the abdomen and under tail-coverts; outer edges of secondaries and quills ashy white: iris pale green; legs and feet light brown.

This species is a good intermediate form between *M. nigerrima* and *M. albinucha*. It differs from the former in being smaller, in the jet-black of the upper parts, throat, and breast, and in the brownish-black legs and feet.

We found this Weaver-bird on the lowlands frequenting the woods, where it nests in small colonies, the tops of thick-leaved forest-trees being chosen as nesting-sites. The note is a running chatter. The following specimens were obtained:—

- a. Ad. ♂. Basupu, Oct. 29, 1902.
- b. Ad. ♀. Type. Ribola, Oct. 31, 1902.
- c. Ad. ♂. Type. Ribola, Oct. 31, 1902.

d. Ad. ♀. Ribola, Oct. 31, 1902.

e. Ad. ♂. Sipopo, Nov. 6, 1902.

f. Imm. ♂ ♂ ♀. Sipopo, Nov. 6, 1902.

Named after the Right Hon. Sir Herbert Maxwell, Bart., M.P., F.R.S.

24. SYCOBROTUS TEPHRONOTUS (Reichen.).

Symplectes tephronotus Reichen. J. f. O. 1892, p. 219 (Buea, Cameroon).

Sycobrotus tephronotus Shelley, B. Afr. i. no. 506 (1896).

Sycobrotus poensis Alexander, Bull. B. O. C. xiii. p. 38 (1903); Bocage, Journ. Lisb. (2) vii. p. 40 (1903); Salvad. Orn. Golfo d. Guinea, iii. p. 114.

Ad. ♂ ♂ ♂. Bakaki, 4000 ft., Nov. 15, 1902.

We found this species only in one locality near Bakaki at an altitude of 4000 feet, frequenting the thick forest-trees. It appeared to be very local and was generally observed in small parties. The note may be described as a running voluble "tizz."

Ad. ♂. Bakaki, Nov. 15, 1902.

Total length (in flesh) 6 inches, culmen 0·8, wing 3·3, tail 2·2, tarsus 1·0.

Range. Fernando Po and Cameroon.

25. HETERHYPHANTES MELANOGASTER (Shelley).

Heterhyphantes melanogaster Shelley, B. Afr. i. no. 512 (1896); Alexander, Bull. B. O. C. xiii. p. 49 (1903: Fernando Po); Salvad. Orn. Golfo di Guinea, iii. p. 113.

Heterhyphantes melanolema Salvad. part., Orn. Golfo d. Guinea, iii. p. 113.

Ad. ♂, ad. ♀, Dec. 7, 1902; ad. ♂, Dec. 16, 1902. Moka.

Adult male. Differs from the female in having an orange-yellow crown and nape; sides of face and præpectoral collar orange-yellow; chin and throat black.

Total length 5·5 inches, culmen 0·8, wing 2·7, tarsus 0·85.

This rare Weaver-bird was discovered by Sir Harry Johnston in Cameroon at an altitude of 8000 feet. The

type, a female, was figured and described by Capt. Shelley (P. Z. S. 1887, p. 126, pl. xiv. fig. 2).

Range. South-east Fernando Po and Cameroon.

26. *HYPHANTURGUS BRACHYPTERUS* (Swains.).

Ploceus brachypterus Swains. B. W. Afr. i. p. 168, pl. x. (1837); Fraser, P. Z. S. 1843, p. 52 (Fernando Po).

Hyphantornis brachyptera Hartl. Orn. W.-Afr. p. 122 (1857: Fernando Po).

Sitagra brachyptera Bocage, Journ. Lisb. (2) vii. p. 36 (1903: Fernando Po); Salvad. Orn. Golfo d. Guinea, iii. p. 114.

Hyphanturgus brachypterus Shelley, B. Afr. i. no. 521 (1896).

a. Ad. ♂. Bakaki, Nov. 10, 1902. Iris pale lemon-coloured; legs and feet slaty flesh-coloured.

b. Ad. ♀. Bakaki, Nov. 13, 1902.

c. Ad. ♀. Moka, Dec. 14, 1902.

27. *HYPHANTORNIS CUCULLATUS* (P. L. S. Müll.).

Ploceus textor (Gm.); Fraser, P. Z. S. 1843, p. 51 (Fernando Po).

Hyphantornis textor Hartl. Orn. W.-Afr. p. 124 (1857: Fernando Po).

Hyphantornis cucullatus Bocage, Journ. Lisb. (2) vii. p. 37 (1903: Fernando Po); Shelley, B. Afr. i. no. 562 (1896); Salvad. Orn. Golfo d. Guinea, iii. p. 114.

Hyphantornis collaris Boc. (nec Vieill.), Journ. Lisb. (2) iv. p. 10 (1895).

Ad. ♂ ♀. Sipopo, Nov. 6, 1902.

Very common. Nesting in all the palm-trees round the native huts. Breeds in November.

28. *LAMPROCOLIUS CHUBBI*.

Lamprocolius chubbi Alexander, Bull. B. O. C. xiii. p. 48 (1903); Salvad. Orn. Golfo d. Guinea, iii. p. 115.

Adult female. Upper parts glossy steel-blue with golden-green shades, most distinct on the hind-neck, upper back, rump, and wing-coverts; the blue shade of the hinder crown being rather sharply defined from the golden green of the neck: median and greater wing-coverts with subterminal velvety-

black patches almost confined to their outer webs; quills black, with outer webs and ends golden green; secondaries of a bluer shade towards their centre and with a broad black velvet band in certain lights; tail-feathers velvety bluish black, with their ends greenish steel-blue and with obsolete narrow blue bars. Sides of forehead velvety black; sides of head frizzled greenish steel-blue, behind which is a patch of coppery bronze; chin and throat violet-tinted steel-blue; remainder of under parts bluish golden green, becoming golden green on the abdomen and under tail-coverts; under surface of wing black, with the coverts metallic steel-blue.

Total length 11·5 inches, culmen 1·1, wing 6, tail 4·7, tarsus 1·2.

Type. Moka, Dec. 16, 1902.

Rare, and only met with in the southern portion of the island.

This species is allied to *L. splendidus*, but differs chiefly in having no trace of reddish purple on the under parts.

Named after Mr. Charles Chubb, of the South Kensington Museum.

29. *AMYDRUS ELGONENSIS*.

Amydrus elgonensis Sharpe, Ibis, 1891, p. 242 (Mt. Elgon, East Africa).

a. Ad. ♀. Moka, Dec. 8, 1902.

b. Ad. ♂. Moka, Dec. 9, 1902.

c. Imm. ♂. Pico Joaquin, Dec. 10, 1902.

d. Ad. ♂. Pico Joaquin, Dec. 11, 1902.

e. Ad. ♀. Pico Joaquin, Dec. 11, 1902.

f. Imm. ♂. Pico Joaquin, Dec. 11, 1902.

g. Ad. ♂. Moka, Dec. 14, 1902.

Confined to the southern portion of the island.

Our birds agree with the type of *A. elgonensis* (from Mount Elgon) in the British Museum.

I think that Dr. Sharpe was wrong in reuniting this species to *A. walleri* Shelley, from which it differs in being smaller and in having a more slender bill and a metallic-purple shade on the throat and sides of neck and wing-coverts, instead of a metallic green.

30. *CORVUS SCAPULATUS* Daud.

Corvus leuconotus Allen & Thoms. Narr. Exped. Niger, ii. p. 221 (Fernando Po).

Corvus curvirostris Gould; Hartl. Orn. W.-Afr. p. 114 (1857: Fernando Po).

Corvus scapulatus Bocage, Journ. Lisb. (2) iv. p. 9 (1895: Fernando Po); Shelley, B. Afr. i. no. 634 (1896); Salvad. Orn. Golfo d. Guinea, iii. p. 116.

Common along the coast.

31. *DICRURUS AFER* (Licht.).

Corvus afer Licht. Cat. Rev. Nat. Hamb. p. 10 (1793).

Dicrurus afer Shelley, B. Afr. i. no. 646 (1896).

Dicrurus coracinus Reichen. ; Shelley, Ibis, 1901, p. 590.

Ad. ♂; ad. ♀. Banterbari, Nov. 29, 1902. Iris pinkish red.

These two specimens are in fine glossy plumage and are identical with others obtained by me in Ashanti. In my paper on the Gold Coast birds (Ibis, 1902, p. 278) I separated the Hinterland specimens from those of the forest-region as *D. coracinus* on account of the duller coloration of the upper parts and of the almost whitish-brown inner webs of the primaries; but I have since collected further specimens in the Hinterland during the month of August, when the birds were in fresh plumage, and find that they are practically identical with the Ashanti specimens (*D. afer*).

The more open country, and the consequently greater power of the sun, would soon bleach the glossy plumage of these Drongos; thereby accounting for their generally duller appearance. The gloss on the plumage is undoubtedly affected by the season and the atmosphere. In the forest-region, where the rainfall is greater and the sunlight more subdued, a fresher and more glossy plumage is always to be noticed.

In Fernando Po *Dicrurus afer* is by no means common. We observed it at an altitude of 4000 feet in the thick forest and at the top of the high cotton-trees among the cocoa-plantations near the coast. From these points of vantage the birds continually uttered their peculiar chattering songs,

which were varied now and again by a series of metallic screeches.

32. *GRAUCALUS PREUSSI* Reichen.

Graucalus preussi Shelley, B. Afr. i. no. 682 (1896); Sharpe, Hand-l. B. iii. p. 291 (1901).

Ad. ♀. Mt. St. Isabel, November 17, 1902.

Total length (measured in flesh) 8·7 inches, culmen 0·9, wing 4·53, tail 4·3, tarsus 0·96. Iris black; legs and feet brownish black.

Obtained at a height of 5000 feet.

33. *LANIARIUS POENSIS* (Alex.).

Dryoscopus poensis Alexander, Bull. B. O. C. xiii. p. 37 (1903); Bocage, Journ. Lish. (2) vii. p. 40 (1903); Salvad. Orn. Golfo d. Guinea, iii. p. 103.

Adult. Entire plumage glossy steel-black, with little or no gloss on the abdomen and thighs; iris bluish black. The female is smaller and somewhat less glossy, especially on the under parts.

Ad. ♂. Total length 6·9 inches, culmen 0·85, wing 3·0, tail 2·65, tarsus 1·15. (*Type.* Mt. St. Isabel, Nov. 26, 1902.)

Ad. ♀. Total length 6·4 inches, culmen 0·8, wing 2·9, tail 2·6, tarsus 1·1. (*Type.* Mt. St. Isabel, Nov. 26, 1902.)

The nearest ally is *Laniarius nigerrimus* Reichen. from East Africa.

We found this Shrike locally distributed in the vicinity of the Peak, from a height of 4000 feet upwards. My collector also obtained it at Moka. It is a shy bird, resorting to the tops of the tall mountain trees or to the thickest brushwood, where it is more often heard than seen, uttering peculiar ventriloquial croaks in a constantly varied tone.

We collected the following specimens:—

- a. Ad. ♂. Near Bakaki, 4000 ft., Nov. 17, 1902.
- b. Ad. ♂♂. Near Bakaki, 4000 ft., Nov. 20, 1902.
- c. Ad. ♂. Type. Mt. St. Isabel, Nov. 25, 1902.
- d. Ad. ♀. Type. Mt. St. Isabel, Nov. 26, 1902.
- e. Ad. ♂. Moka, Dec. 9, 1902.
- f. Ad. ♂. Moka, Dec. 15, 1902.

34. EURILLAS LATIROSTRIS (Strickl.).

Andropadus latirostris Strickl. P. Z. S. 1844, p. 100 (Fernando Po); id. Ann. & Mag. Nat. Hist. xv. p. 127 (1845); Allen & Thomson, Narr. Exped. Niger, ii. p. 496 (1848: Fernando Po); Fraser, Zool. Typ. pl. 35 (1849); Hartl. Orn. W.-Afr. p. 87 (1857: Fernando Po); Shelley, B. Afr. i. no. 836 (1896); Bocage, Journ. Lisb. (2) vii. p. 35 (1903: Fernando Po); Salvad. Orn. Golfo d. Guinea, iii. p. 111.

Eurillas latirostris Sharpe, Hand-l. B. iii. p. 325 (1901).

We obtained a fine series of this Bulbul, which is widely distributed both on the high and low ground. Two of our specimens marked "immature" have scarcely any trace of the yellow moustache, and the lower mandible is of a yellowish horn-colour.

In this plumage they come very close to *E. virens*, but the olive-blackish stripe on the sides of the chin is always indicated and serves at all times to distinguish this species from its congener.

The note of this bird is a clear "wheet-wheet," uttered constantly from the tops of tall trees, and becoming very persistent in the early morning and evening.

Adult male. Ribola, Nov. 1, 1902. Iris brown; bill blackish brown; legs and feet yellowish flesh-coloured.

Immature male. Upper mandible blackish brown, base of lower yellowish horn-coloured; legs and feet yellowish flesh-coloured.

35. EURILLAS VIRENS (Cass.).

Andropadus virens Bocage, Journ. Lisb. (2) iv. p. 8 (1895: Fernando Po); Shelley, B. Afr. i. no. 840 (1896); Bocage, Journ. Lisb. (2) vii. p. 35 (1903: Fernando Po); Salvad. Orn. Golfo d. Guinea, iii. p. 111.

Eurillus virens Sharpe, Hand-l. B. iii. p. 324 (1901).

We obtained a large series of this species, which is widely distributed over the lower portions of the island.

Our three adult birds differ from the immature specimens in having the wing-coverts and quills washed with yellowish olive instead of reddish brown; back olive-brown, the crown a little darker; axillaries and under wing-coverts

sulphur-yellow: bill brown; legs and feet greenish olive-brown; iris claret-red in male, hazel in female.

In all our immature birds the bills are paler and the legs and feet of a yellowish flesh-colour.

This Bulbul was very common, meeting us at every turn. In the morning and evening the undergrowth and fish-canecan used to resound with its loud hurriedly-rendered notes, some of which were not unpleasant, closely resembling those of a *Calamocichla*.

36. *MACROSPHENUS POENSIS*.

Macrosphenus poensis Alexander, Bull. B. O. C. xiii. p. 36 (1903); Bocage, Journ. Lish. (2) vii. p. 40 (1903); Salvad. Orn. Golfo d. Guinea, iii. p. 110.

Adult male. Similar to *M. flavicans* Cass., but head and neck dark cinereous with no greenish tinge. Under parts below neck greenish olive-yellow; quills brownish black edged externally with pale cinereous; thighs pale cinereous: bill black, underneath whitish horn-coloured; legs and feet slate-coloured; iris lemon-yellow. Total length 5·2 inches, culmen 0·72, wing 2·3, tail 2, tarsus 0·85.

Only one specimen obtained, near Bilelipi, 4000 feet, Nov. 25, 1902.

37. *BLEDA NOTATA* (Cass.).

Xenocichla notata Shelley, B. Afr. i. no. 851 (1896).

Bleda notata Sharpe, Hand-l. B. iii. p. 323 (1901).

a. Imm. ♂. Ribola, Nov. 2, 1902.

This specimen has the primary-coverts and broad tips to the secondaries rusty reddish brown.

b. Ad. ♀. Sipopo, Nov. 4, 1902.

Bill blackish brown; iris brown; legs and feet of a whitish flesh-colour.

c. Ad. ♀. Sipopo, Nov. 7, 1902.

38. *BLEDA SERINA* (J. & E. Verr.).

Pyrhurus serinus Shelley, B. Afr. i. no. 894 (1896).

Bleda serina Sharpe, Hand-l. B. iii. p. 322 (1901).

a. Ad. ♂♂. Basupu, Oct. 30, 1902. Iris hazel; bill

reddish horn-coloured, brownish at tip; legs and feet of a dirty claret-colour.

Not common. Frequents the tops of the tall trees.

39. BLEDA TEPHROLEMA (Gray).

Criniger tephrolæmus Shelley, B. Afr. i. no. 877 (1896).

Bleda tephrolæma Sharpe, Hand-l. B. iii. p. 321 (1901).

This species is widely distributed in the wooded hills throughout the island. We obtained a large series.

Ad. ♂. Ribola, Nov. 1, 1902. Iris hazel; bill black; legs and feet greenish.

In the immature bird the crown is brownish grey, and the under parts from the throat downwards are obscure greenish olive, with little or no trace of yellow except on the centre of the abdomen.

40. STELGIDILLAS POENSIS.

Stelgidillas poensis Alexander, Bull. B. O. C. xiii. p. 35 (1903); Bocage, Journ. Lisb. (2) vii. p. 39 (1903); Salvad. Orn. Golfo d. Guinea, iii. p. 111.

Stelgidillas gracilirostris Salvad. (nec Strickl.); Salvad. Orn. Golfo d. Guinea, iii. p. 111.

Adult male. Similar to *S. gracilirostris* (Strickl.), but having the upper parts yellowish olive; entire crown cinereous; chin and throat whitish, remainder of under parts pale ashy grey, becoming pale creamy buff on the abdomen and under tail-coverts.

Total length 7·2 inches, culmen 0·8, wing 3·2, tail 3·0, tarsus 0·8. Iris bright hazel; bill, legs, and feet dark brown. (*Type.* Sipopo, Nov. 8, 1902.)

Adult female. Total length 7 inches, culmen 0·6, wing 3·1, tail 3·2, tarsus 0·7. (*Type.* Near Ribola, Nov. 2, 1902.)

The notes of this species are a series of clear whistles.

The type of *S. gracilirostris* (Strickl.), which is in the British Museum, is said to have come from Fernando Po, but I find that it does not agree with my birds from that island, but *does* agree with the ordinary continental form, which has the crown of the head uniform with the back,

the upper parts being dark olive-greenish in colour, and the under parts dark ashy grey washed with olive.

I have not a doubt that the locality of *S. gracilirostris* has been erroneously marked, and that it was obtained by Fraser on the mainland and not on Fernando Po.

Ad. ♂. Near Ribola, Nov. 2, 1902.

41. *CRINIGER CALURUS* (Cass.).

Criniger calurus Shelley, B. Afr. i. no. 873 (1896); Sharpe, Hand-l. B. iii. p. 316 (1901).

a. Ad. ♂. Ribola, Nov. 2, 1902.

b. Ad. ♂. Ribola, Nov. 2, 1902.

Iris claret-red; bill bluish horn-coloured; legs and feet slaty blue. Breeding.

c. Ad. ♂. Sipopo, Nov. 6, 1902.

d. Ad. Lakha, Nov. 8, 1902.

Found in the woods in the vicinity of the coast. Not common.

42. *CRINIGER TRICOLOR* (Cass.).

Criniger tricolor Sharpe, Hand-l. B. iii. p. 317 (1901).

Pyrrhurus tricolor Shelley, B. Afr. i. no. 892 (1896).

Ad. ♂. Sipopo, Nov. 4, 1902. Total length (measured in flesh) 7 inches, wing 3·2, culmen 0·8, tail 3·1, tarsus 0·7. Upper mandible dark brown, lower greenish horn-coloured; legs and feet slate-coloured. Breeding.

Ad. ♀. Bilelipi, Nov. 25, 1902. Total length (measured in flesh) 5·9 inches, wing 2·8, culmen 0·71, tail 2·7, tarsus 0·7.

Common in the woods at the foot of the hills, frequenting the tops of leafy trees, which it examines quietly and diligently for insects. The note is "hi-hee," deliberately repeated several times.

43. *PHYLLOSTROPHUS POENSIS*.

Phyllostrophus poensis Alexander, Bull. B. O. C. xiii. p. 35 (1903); Bocage, Journ. Lisb. (2) vii. p. 39 (1903); Salvad. Orn. Golfo d. Guinea, iii. p. 111.

Adult. Similar to *P. placidus* (*Criniger placidus* Shelley, B. Afr. i. p. 63), but with the entire crown brown slightly

washed with olive; lores and region round eye cinereous; remainder of upper parts dark greenish olive; chin and throat whitish; fore-neck and flanks washed with olive-brown; breast and middle of abdomen whitish, slightly washed with yellow; iris hazel; bill brownish black, underneath whitish horn-coloured; legs and feet bluish-slate-coloured.

Adult ♂. Total length 7·4 inches, culmen 0·9, wing 3·4, tail 3·1, tarsus 0·9. (*Type*. Bakaki, 4000 ft., Nov. 18, 1902.)

Adult ♀. Total length 7·2 inches, culmen 0·8, wing 2·9, tail 2·95, tarsus 0·82. (*Type*. Bakaki, 4000 ft., Nov. 20, 1902.)

Ad. ♂. Bakaki, Nov. 11, 1902.

Ad. ♀. Mount St. Isabel, Nov. 26, 1902.

This species is confined to high altitudes, differing in this respect from *Stelgidillas poensis*, which was found to inhabit the lowlands. It breeds in November.

44. *Turdinus fulvescens* (Cass.).

Trichastoma rufipennis Sharpe, Ann. & Mag. Nat. Hist. (4) x. p. 451 (1872).

Turdinus fulvescens Sharpe, Cat. B. Brit. Mus. vii. p. 545 (1883); Shelley, B. Afr. i. no. 913 (1896).

Turdinus albipectus Reichen. J. f. O. 1887, p. 307 (Congo).

Turdinus bocagei Salvad. Boll. Mus. Torino, xviii. no. 442 (1903: Fernando Po); Salvad. Orn. Golfo d. Guinea, iii. p. 111.

a. Imm. ♀. Basupu, Oct. 30, 1902. Iris hazel; upper mandible black, lower yellowish horn-coloured, brighter at base; legs and feet slaty flesh-coloured.

b. Imm. ♂; ad. ♂. Sipopo, Nov. 3, 1902.

c. Imm. ♂. Ribola, Nov. 3, 1902.

d. Imm. ♂. Sipopo, Nov. 7, 1902.

e. Ad. ♂. Lakha, Nov. 8, 1902.

f. Ad. ♀. Bakaki, Nov. 9, 1902.

g. Imm. ♂. Bakaki, Nov. 19, 1902.

h. Ad. ♂. Bakaki, Nov. 22, 1902.

Locally distributed in wooded localities, where the ground is inclined to be swampy. It keeps much to the undergrowth, travelling with a gliding flight from one twig to another. The note uttered is a noisy "tizz."

Ad. ♂. (Lakha, Nov. 8, 1902.)

Head dark brown and slightly ashy, back and mantle reddish brown washed with olive, becoming more rufous on the rump and ferruginous on the upper tail-coverts. Forehead, lores, ear-coverts, and sides of head ashy grey. Wing-coverts like the back; quills and secondaries fulvous brown, margined with the same colour as the back. Tail-feathers dark rufous brown edged with rufous. Throat and middle of abdomen white; chest, sides, and flanks strongly washed with dark olive-brown; under tail-coverts more fulvous brown; thighs brownish grey. Iris brown; upper mandible black, lower dark greenish horn-coloured; legs and feet slate-coloured. Total length 5·5 inches, culmen 0·75, wing 3, tail 2·1, tarsus 1·0.

The following specimens of *T. fulvescens*, with which our birds are identical, are in the Brit. Mus. :—

- a. Ad. ♂. Rio Benito, French Congo (*G. L. Bates*).
- b. Ad. ♀. Efulen, Cameroon (*G. L. Bates*).
- c. Ad. ♀. Efulen, Cameroon (*G. L. Bates*).
- d. Imm. Rio Camma, Gaboon (*Du Chaillu*). Co-type.
- e. Imm. West Africa (*Du Chaillu*). Co-type.
- f. Nestling. Rio Camma, Gaboon (*Du Chaillu*). Type of *T. rufipennis*.

It will be seen that Cassin's original description of *T. fulvescens* was taken from the immature bird.

Our immature specimens differ from the adults in being smaller and in having the upper parts more rufescent brown, which becomes almost clear ferruginous on the rump and upper tail-coverts; wing-coverts and quills edged with rufous; under tail-coverts reddish-chestnut. In several of the more mature specimens this rufous coloration is giving way to the more olive-brown of the adult.

In the nestling stage the rufous coloration of the upper parts, especially of the wings and upper tail-coverts, is much

more marked, while the under parts are dirty white washed with dull fulvous on the breast and flanks.

This species can always be distinguished from its congeners by the more sharply defined pattern in the plumage of the under parts and the greater predominance of white in the coloration.

Range. Fernando Po, Cameroon, Gaboon, and French Congo.

45. *Turdinus batesi* Sharpe.

Turdinus batesi Sharpe, Ibis, 1902, p. 94, pl. iv. fig. 2.

Ad. ♂. Bakaki, 4000 ft., Nov. 19, 1902. Breeding.

Total length (measured in flesh) 6·1 inches, culmen 7·5, wing 3, tail 2·2, tarsus 1·1.

Iris brown, eyelids bluish slate-coloured; upper mandible brownish black, lower slaty horn-coloured; legs and feet pinkish flesh-coloured.

Rare. Frequents thick bush and is confined to the hills. The note of the male is a clear whistle, which becomes very persistent towards dusk.

Range. Cameroon and Fernando Po.

The type of this species was obtained by Mr. Bates at Efulen, Cameroon, June 3, 1901.

46. *Stiphornis gabonensis* (Sharpe).

Stiphornis gabonensis Bocage, Journ. Lisb. (2) iv. p. 9 (1895: Fernando Po); Shelley, B. Afr. i. no. 923 (1896); Bocage, Journ. Lisb. (2) vii. p. 35 (1903: Fernando Po); Salvad. Orn. Golfo d. Guinea, iii. p. 110.

a. Ad. ♂. Ribola, Nov. 2, 1902. Total length (measured in flesh) 5 inches, culmen 0·6, wing 2·8, tail 1·7, tarsus 0·9. Iris black; bill black; legs and feet slaty flesh-coloured.

b. Ad. ♂. Ribola, Nov. 2, 1902.

c. Ad. ♂. Sipopo, Nov. 3, 1902.

d. Ad. ♂. Sipopo, Nov. 4, 1902.

e. Imm. ♂. Sipopo, Nov. 6, 1902.

f. Imm. Bakaki, Nov. 9, 1902.

g. Ad. ♂. Badasou, Nov. 11, 1902.

Immature. Differs from the adult in its pale yellow bill,

the whitish flesh-colour of the legs and feet, the tawny buff spots at the end of the wing-coverts; the chin and throat, which are white, with narrow crescentic slaty-grey edges to the feathers; fore-neck pale orange, with narrow fringes of slaty grey to some of the feathers.

This species is locally distributed and frequents the marshy forest-ground at the foot of the hill-ranges. It is a tame and confiding bird and in habits recalls our Robin. Native name "Di weba." It keeps much to the undergrowth, where it flits with a low flight from one bush to another.

47. *HYLIA PRASINA* (Cass.).

Hylia prasina Shelley, B. Afr. i. no. 924 (1896).

Hylia poensis Alexander, Bull. B. O. C. xiii. p. 36 (1903); Bocage, Journ. Lisb. (2) vii. p. 40 (1903; Fernando Po); Salvad. Orn. Golfo d. Guinea, iii. p. 110.

I find, on further examination of a larger series, now at my disposal, that the Fernando Po *Hylia* is not separable from *H. prasina*, the characters assigned to the former not remaining constant.

Ad. ♂. Ribola, Oct. 30, 1902. Iris hazel; bill black; legs and feet greenish olive.

In the immature bird the bill, legs, and feet are yellow. The female is larger than the male.

This species is widely distributed in the woods at the foot of the hill-ranges. The breeding-season commences in November. A good series was obtained.

POLIOLAIS, gen. nov.

This new genus is next to *Camaroptera*, but the distinctive characters are the white outer tail-feathers and the uniform rufous brown crown.

48. *POLIOLAIS HELENORÆ*.

Poliolais helenoræ Alexander, Bull. B. O. C. xiii. p. 36 (1903); Bocage, Journ. Lisb. (2) vii. p. 40 (1903); Salvad. Orn. Golfo d. Guinea, iii. p. 109.

Adult. Forehead, crown, and back of neck rufous brown, fading into pale chestnut on the sides of the forehead and head; remainder of upper parts dusky olive-brown, paler on

the upper tail-coverts; tail white, with the exception of the central pair of feathers which are like the back, next pair with a broad white shaft-stripe only; under wing-coverts and inner margins of quills white; chin and throat white shading into whitish ash on the breast, rather darker on the sides of the fore-chest; thighs, vent, and under tail-coverts tawny brown: iris black; bill dark brown; legs and feet brown.

Total length 3·6 inches, culmen 0·6, wing 1·9, tail 1·2, tarsus 0·9. (*Type.* Bakaki, 4000 feet, Nov. 20, 1902.)

Rare. A pair obtained in the thickets of the forest.

Named after my late sister Miss Helenor Alexander.

49. CAMAROPTERA GRANTI.

Camaroptera granti Alexander, Bull. B. O. C. xiii. p. 36 (1903: Fernando Po); Bocage, Journ. Lisb. (2) vii. p. 40 (1903: Fernando Po); Salvad. Orn. Golfo d. Guinea, iii. p. 109.

Adult male. General colour above dull olive-green; quills and secondaries dusky brown, externally edged with golden olive-green; tail-feathers like the back; lores, sides of face, and under parts cinereous, becoming paler on the chin, throat, and abdomen; breast slightly washed with olive; thighs tawny yellow; under wing-coverts white, washed with yellow; lining to quills white: iris hazel; eyelid dirty yellow; upper mandible brown, lower whitish horn-coloured; legs pale brown, feet lighter.

Total length 4·2 inches, culmen 0·6, wing 2·2, tail 1·2, tarsus 0·9. (*Type.* Badasou, Nov. 11, 1902.)

The female is smaller than the male and lighter on the under parts, with no olive wash on the fore-neck.

Total length 3·7 inches, culmen 0·5, wing 1·9, tail 1, tarsus 0·8. (*Type.* Bakaki, Nov. 19, 1902.)

The nearest ally of this species is *C. concolor* (Temm.).

We found this bird frequenting the thickets at the base of the hills and generally in the vicinity of villages. Skulking in habits, it is more often heard than seen, uttering its plaintive notes—a “wheet” “wheet” several times repeated.

Named after Mr. Ogilvie-Grant.

50. CAMAROPTERA SUPERCILIARIS (Fraser).

Sylvicola superciliaris Fraser, P. Z. S. 1843, p. 3 (Clarence, Fernando Po: type, Brit. Mus.); id. Ann. & Mag. Nat. Hist. xii. p. 440 (1843).

Prinia icterica Strickl. P. Z. S. 1844, p. 100 (Fernando Po); id. Ann. & Mag. Nat. Hist. xv. p. 126 (1845); Allen & Thomson, Narr. Exped. Niger, ii. App. p. 495 (1818: Fernando Po).

Chloropeta icterica Hartl. J. f. O. 1854, p. 17 (Fernando Po); id. Orn. W.-Afr. p. 60 (1857).

Camaroptera superciliaris Sharpe, Cat. B. M. vii. p. 171 (1883: Fernando Po); Shelley, B. Afr. i. no. 963 (1896); Salvad. Orn. Golfo di Guinea, iii. p. 109.

Drymoica icterica Gray, Hand-l. B. i. p. 203. no. 2867 (1869: Fernando Po).

a. Ad. ♂. Sipopo, Nov. 11, 1902. Total length 3·78 inches, culmen 0·62, wing 1·9, tail 1·2, tarsus 0·8. Iris bright hazel; exposed part of throat bluish lead-coloured; legs and feet reddish flesh-coloured. Breeding.

b. Ad. ♂. Sipopo, Nov. 7, 1902.

c. Ad. ♂. Bakaki, Nov. 15, 1902.

d. Ad. ♂. Bilelipi, Nov. 24, 1902.

e. Ad. ♀. Bilelipi, Nov. 24, 1902. Total length 3·6 inches, culmen 0·6, wing 1·8, tail 1·2, tarsus 0·7.

This species is locally distributed and is confined to the more open bush-grown and cultivated country outside the forest.

The note of the male is a rich metallic "chee-up." It is ventriloquial and can be heard at a considerable distance.

51. CAMAROPTERA FLAVIGULARIS Reichen.

Camaroptera flavigularis Shelley, B. Afr. i. no. 965 (1896).

a. Ad. ♂. Basakato, Nov. 12, 1902. Total length 4 inches, culmen 0·6, wing 2·05, tail 1·5, tarsus 0·75. Bill black; iris hazel; exposed portion on throat bright bluish lead-coloured; legs blackish brown; feet brown.

b. Ad. ♀. Basakato, Nov. 12, 1902. Total length 3·45 inches, culmen 0·6, wing 1·9, tail 1·3, tarsus 0·65. Coloration as in male.

The type of this species was discovered by Dr. Zenker at Jaunde in Cameroon (August 1894).

52. CRYPTOLOPHA HERBERTI.

Cryptolopha herberti Alexander, Bull. B. O. C. xiii. p. 35 (1903); Bocage, Journ. Lisb. (2) vii. p. 39 (1903); Salvad. Orn. Golfo d. Guinea, iii. p. 103.

Adult. Entire crown black; base of forehead and broad eyebrow extending to back of nape rufous; spot in front of eye and stripe through eye black; remainder of upper parts bright olive-green; quills, secondaries, and tail-feathers blackish brown, externally edged on their outer webs with bright olive-green; chin, throat, and sides of face rufous; breast white, washed with rufous; remainder of under parts silky white; flanks grey; thighs greyish white; edge of wing pale sulphur-yellow; under wing-coverts and lining to quills white; iris black; upper mandible black, lower yellowish horn-coloured; legs and feet brown.

This remarkable little bird has no near ally. It comes nearest to *C. læta* Sharpe, from Ruwenzori (see Bull. B. O. C. xiii. p. 9), but besides its distinctive characters it is considerably smaller than the East-African species.

Adult C. herberti.

Total length 3·5 inches, culmen 0·5, wing 1·9, tail 1·1, tarsus 0·7. (*Type.* Near Bakaki, 6000 feet, Nov. 20, 1902.)

Adult C. læta.

Total length 4 inches, culmen 0·5, wing 2·3, tail 1·55, tarsus 0·9. (*Type.* Brit. Mus.)

I found this *Cryptolopha* rare. The two specimens obtained were shot from the top of a high tree in the vicinity of our first camping-ground on the way up to the Peak, at an altitude of 6000 feet.

Named after Mr. Herbert Alexander.

53. APALIS RUFIGULARIS (Fraser).

Drymoica rufogularis Fraser, P. Z. S. 1843, p. 17 (Clarence, Fernando Po: type, Brit. Mus.); id. Ann. & Mag. Nat.

Hist. xii. p. 479 (1843 : Fernando Po) ; Allen & Thomson, Narr. Exped. Niger, ii. p. 491 (1848 : Fernando Po) ; Fraser, Zool. Typ. pl. xlii. fig. 1 (1849) ; Hartl. J. f. O. 1854, p. 15 (Fernando Po) ; id. Orn. W.-Afr. p. 58 (1857 : Fernando Po) ; Gray, Hand-l. B. i. p. 201. no. 2836 (1869 : Fernando Po).

Prinia olivacea Strickl. P. Z. S. 1844, p. 99 (Fernando Po : type, Brit. Mus.) ; id. Ann. & Mag. Nat. Hist. xv. p. 126 (1845 : Fernando Po) ; Allen & Thomson, Narr. Exped. Niger, ii. p. 494 (1848 : Fernando Po).

Chloropeta olivacea Hartl. J. f. O. 1854, p. 17 (Fernando Po) ; id. Orn. W.-Afr. p. 60 (1857 : Fernando Po).

Drymoica olivacea Gray, Hand-l. B. i. p. 201. no. 2837 (1869 : Fernando Po).

Euprinodes rufigularis Salvad. Orn. Golfo d. Guinea, iii. p. 108.

Euprinodes olivaceus Salvad. Orn. Golfo d. Guinea, iii. p. 108.

Apalis rufigularis Shelley, B. Afr. i. no. 989 (1896).

Apalis olivacea Shelley, B. Afr. i. no. 994 (1896).

Adult male. General colour above slaty grey, washed with olive-green on the back and rump ; wing-coverts brown, edged with olive-green ; quills and secondaries brown, with olive edges to the latter ; tail-feathers dusky brown, the two central uniform, the next two white with broad brown edges along the webs, the two outer entirely white ; ear-coverts slaty grey ; cheeks, throat, and breast pale rufous ; remainder of under surface dull white, washed with ashy on the flanks ; thighs slaty grey ; under wing-coverts white : bill black ; iris orange ; legs slaty brown ; feet warm flesh-coloured. (Bakaki, Nov. 15, 1903.)

Total length 4·2 inches (measured in flesh), culmen 0·5, wing 1·9, tail 1·7, tarsus 0·6.

It is very interesting to have re-discovered this species, previously known only from Fraser's type in the British Museum. That specimen is, however, in poor condition and appears to have been at one time in spirits. I have therefore thought it advisable to give a full description of our specimen,



J.G. Keulemans del. et lith.

Mintern Bros. imp.

1. APALIS LOPEZI.
2. CYANOMITRA URSULÆ.

which is in fresh plumage. I have also carefully re-examined and compared it with *Prinia olivacea* Strickl. from Fernando Po, the type of which is in the British Museum. I have no hesitation in making *P. olivacea* synonymous with *A. ruficularis*, the former being based on the immature stage of the latter.

We found this elegant little Warbler near Bakaki, frequenting low bush. It is scarce, only one specimen having been obtained.

54. *APALIS LOPESI*. (Plate IX. fig. 1.)

Apalis lopezi Alexander, Bull. B. O. C. xiii. p. 35 (1903); Bocage, Journ. Lisb. (2) vii. p. 39 (1903); Salvad. Orn. Golfo di Guinea, iii. p. 108.

Ad. ♂♂. Bakaki, Nov. 19, 1902.

Adult. Upper parts brownish grey; wing-coverts, quills, and secondaries brown; two central tail-feathers brown, the next two with white centres, the three outer white; under parts dark brownish grey, becoming paler (almost whitish) on the middle of the abdomen; thighs brown; edge of wing white; under tail-coverts white; iris bright hazel; bill dark brown; legs and feet brown.

Total length 4 inches, culmen 0.6, wing 2.1, tail 1.4, tarsus 0.9. (*Type*. Bakaki, 4000 feet, Nov. 19, 1902.)

Not common. Found in thick bush. Breeds in November.

This *Apalis* is allied to *A. sharpii* Shelley, from the Gold Coast, but differs chiefly in the grey throat and generally paler under parts, and in the three outer tail-feathers being pure white. It is also larger.

Adult *A. sharpii*. *Type*. Gold Coast.

Total length 4.2 inches, culmen 0.45, wing 1.8, tail 1.8, tarsus 0.7.

Adult *A. lopezi*. *Type*. Fernando Po.

Total length 4 inches, culmen 0.6, wing 2.1, tail 1.4, tarsus 0.9.

Named after the author's collector, Mr. Lopes, of St. Nicolas, Cape Verde Islands.

55. *APALIS SCLATERI*.

Euprinodes sclateri Alexander, Bull. B. O. C. xiii. p. 36 (1903); Bocage, Journ. Lisb. (2) vii. p. 39 (1903); Salvad. Orn. Golfo d. Guinea, iii. p. 109.

Adult male. Upper parts cinereous; entire crown and sides of head washed with brown; wing-coverts like the back; quills and secondaries brown; three central tail-feathers brown, remainder white; entire under parts cream-colour, becoming paler on the abdomen; under wing-coverts, edge of wing, and lining to quills white; thighs brown washed with cinereous: bill black; legs and feet reddish flesh-coloured. (Mount St. Isabel, Nov. 26, 1902.)

Total length 5.1 inches, culmen 0.6, wing 2.2, tail 2.4, tarsus 0.85.

The female is smaller than the male and is slightly paler on the under parts.

Total length 4.5 inches, culmen 0.5, wing 1.9, tail 1.9, tarsus 0.65. (Moka, Nov. 13, 1903.)

This Warbler is allied to *A. cinerea* Sharpe, from Mount Elgon, East Africa, but differs chiefly in having the entire under parts deeper in colour with little or no white except on the abdomen.

We first obtained this species on our way up the mountain at an elevation of over 5000 feet. The flight is airy as the bird flits from one tree to another. It is locally distributed on the high ground throughout the island. My collector obtained a good series of five specimens near the Moka Lake. In November the bird was breeding, all our specimens being in considerably worn plumage.

Named after Dr. P. L. Sclater, F.R.S.

UROLAIS, gen. nov.

This remarkable genus is allied to the genera *Apalis* and *Chlorodyta*, but is easily distinguishable from them by its very long graduated tail of ten feathers.

A specimen of *Urolais marie* with the tail shortened would closely resemble in structure and general style of coloration *Chlorodyta flavida* (Strickl.).



56. UROLAIS MARLÆ. (Plate VIII.)

Urolais mariæ Alexander, Bull. B. O. C. xiii. p. 35 (1903); Bocage, Journ. Lisb. (2) vii. p. 39 (1903); Salvad. Orn. Golfo d. Guinea, iii. p. 108.

Adult male. Upper parts yellowish green; quills and secondaries dark brown, edged with yellowish green; lores and ring round eye yellow; sides of face like the back; under parts pale buff, becoming lighter on the chin, throat, and abdomen; thighs yellowish green; tail-feathers greyish brown, broadly tipped with white, the two central rectrices, which are the longest, are white at their ends to a distance equal to one-third of their length; edge of wing pale yellow; under wing-coverts and lining to quills white; iris hazel; bill black, at tip whitish horn-coloured; legs and feet yellowish flesh-coloured. Total length 7·8 inches, culmen 0·6, wing 2·1, tail 5·0, tarsus 0·9. (*Type.* Mt. St. Isabel, Nov. 17, 1902. Breeding.)

We obtained two specimens of this rare species on our way up the mountain. They were shot in company with several Sun-birds (*Cinnyris preussi*). This elegant little Tree-Warbler seems to revel in the misty surroundings of the mountain, travelling with dancing flight from one tall tree to another.

Named after Mrs. Boyd Alexander.

57. CRYPTILLAS LOPEZI.

Phlexis lopezi Alexander, Bull. B. O. C. xiii. p. 48 (1903).

Adult. Upper parts chocolate-brown; quills and tail slightly darker, the rufous shade being more confined to the edges of the feathers; lores and ear-coverts slightly more dusky than the forehead and crown, from which they are separated by a well-defined rufous-buff eyebrow; chin, throat, and centre of breast rufous buff, shading into chocolate-brown on the sides of the neck and body, thighs, and under tail-coverts; lining of wing dusky brown, with the coverts rufous buff. Total length 5·5 inches, culmen 0·5, wing 2·2, tail 2·5, tarsus 0·9. (*Type.* Moka, Dec. 15, 1902.)

The sexes are alike in plumage and measurements.

The nearest ally of this species is *Phloxis rufescens* Sharpe (Bull. B. O. C. xiii. p. 9), from Mt. Ruwenzori, East Africa.

This species is confined to the southern portion of Fernando Po. My collector first met with it in the Moka valley, where he obtained a good series. It was very shy and difficult to approach, constantly dipping down to the bottom of the grass after a short flight, and uttering in its hidden retreat a series of ventriloquial whistles. In December breeding had commenced.

Named after the author's collector, Mr. Lopes.

58. CALAMOCICHLA POENSIS.

Calamocichla poensis Alexander, Bull. B. O. C. xiii. p. 37 (1903); Bocage, Journ. Lisb. (2) vii. p. 40 (1903); Salvad. Orn. Golfo d. Guinea, iii. p. 108.

Adult male. Similar to *C. brevipennis*, but larger; primaries, secondaries, and wing-coverts margined on their outer webs with rufous; upper tail-coverts rufous; tail-feathers blackish brown, tipped with white, the central narrowly margined with rufous; iris bright hazel; upper mandible brown, lower yellowish horn-coloured; legs and feet bluish slate-coloured. Total length 6·8 inches, culmen 0·8, wing 3·0, tail 2·75, tarsus 1·15. (*Type.* Bilelipi, Nov. 24, 1902. Breeding.)

Adult male, C. brevipennis, St. Nicholas, Cape Verde Islands, April 1897 (*Alexander*):—Total length 6 inches, culmen 0·6, wing 2·5, tail 2·5, tarsus 1·2.

The genus *Calamocichla* is closely allied to *Luscinola*, and represents a small but well-defined group of African Warblers. Typical examples of *L. gracilirostris* differ from *C. brevipennis*, *C. newtoni*, and the present species in having the first primary proportionately longer, and more than half the length of the second, the upper parts greenish olive, and the under parts dull white, with none of the yellowish-buff coloration which is always present in the African *Calamocichlæ*.

The Fernando Po Reed-Warbler is very locally distributed on the island. We only met with it on one occasion, when it was found in the depths of thick fish-cane surrounding the

native huts of Bilelipi, a little "Boobie" village, where we pitched our tent prior to ascending the mountain. We constantly heard this bird about the camp, especially after a fall of rain—its beautiful trill of notes, like those of *C. brevipennis* (Alexander, Ibis, 1898, p. 83), never failing to arrest our attention. The alarm-note is a harsh "churr" several times repeated.

59. PHYLLOSCOPUS TROCHILUS (Linn.).

Ad. ♂. Sipopo, Nov. 5, 1902.

Ad. ♀. Moka, Dec. 14, 1902.

60. ALETHE CASTANEA (Cass.).

Alethe castanea Shelley, B. Afr. i. no. 1153 (1896); Bocage, Journ. Lisb. (2) vii. p. 34 (1903: Fernando Po); Salvad. Orn. Golfo d. Guinea, iii. p. 107.

a. Ad. ♂. Ribola, Nov. 2, 1902.

b. Ad. ♀. Ribola, Nov. 2, 1902.

c. Ad. ♂. Ribola, Nov. 2, 1902.

d. Ad. ♂. Ribola, Nov. 1, 1902. Iris hazel; bill black; legs and feet bluish flesh-coloured.

e. Ad. ♂. Sipopo, Nov. 3, 1902.

f. Imm. ♂. Sipopo, Nov. 4, 1902.

g. Imm. ♀. Sipopo, Nov. 4, 1902.

Description of the young. Upper parts dull black, with pale oval chestnut centres to each feather, becoming narrower on the crown and nape; under parts chestnut-rufous, with feathers of the fore-neck and chest fringed with black; under wing-coverts grey.

We found this bird widely distributed everywhere in the undergrowth, flying low from bush to bush, always in a very laboured manner. The note is a running "churr," which is weak for the size of the bird. Whenever, after rain, a swarm of driver-ants covered the ground and the branches of the trees, these birds mustered in dozens, stealing with low flight surreptitiously up to their prey, to disappear again the next minute into the thicket.

61. ALETHE MOORI.

Alethe moori Alexander, Bull. B. O. C. xiii. p. 37 (1903);

Bocage, Journ. Lisb. (2) vii. p. 40 (1903); Salvad. Orn. Golfo d. Guinea, iii. p. 107.

Adult male. Anterior portion of crown cinereous; lores blackish; narrow eyebrow and remainder of upper parts chestnut; quills dusky brown, outer webs chestnut; tail-feathers brownish chestnut, inclining to chestnut on the outer webs; chin and throat white, washed with cinereous; remainder of under parts leaden grey; middle of abdomen white; under wing-coverts leaden grey: iris reddish hazel; upper mandible black, lower slaty horn-coloured; legs and feet bluish slate-coloured. Total length 7.1 inches, culmen 0.8, wing 3.2, tail 2.85, tarsus 1.15.

Rare. Our single specimen was obtained at an altitude of 6000 feet. This species is shy and keeps much to the ground in the forest.

Named after Sir Ralph Moor, K.C.B., High Commissioner of Southern Nigeria.

62. *ALETHE POLIOCEPHALA* (Bp.).

Trichophorus poliocephalus Bp. Consp. Av. i. p. 262 (1850); Hartl. J. f. O. 1854, p. 25; id. Orn. W.-Afr. p. 85 (1857; Fernando Po).

Criniger poliocephalus Finsch, J. f. O. 1867, p. 26 (Fernando Po).

Alethe castanonota Sharpe, Cat. B. Brit. Mus. vii. p. 59, pl. ii. (1883).

Alethe poliocephala Büttik. Not. Leyd. Mus. vii. p. 177 (1885); Shelley, B. Afr. i. no. 1156 (1896); Salvad. Orn. Golfo d. Guinea, iii. p. 107.

Callene hypoleuca Reichen. J. f. O. 1892, p. 221, Taf. ii. f. 3 (juv.: Kamerun).

Alethe hypoleuca Shelley, B. Afr. i. p. 83 (1896).

Alethe alexandri Sharpe, Bull. B. O. C. xii. p. 4 (1901).

Ad. ♂ ♀. Bakaki, 4000 feet, Nov. 17, 1902.

The male differs slightly from the female in having the crown, lores, ear-coverts, and sides of face brownish black, and the breast tinged with pale buff.

Iris hazel; bill black; legs and feet whitish flesh-coloured.

This bird is scarce; it haunts the running brooks in the vicinity of the hills. When perched, it has a peculiar way of rapidly opening and closing its wings, after the manner of a Wheatear.

This *Alethe* is the *Criniger poliocephalus* of Temminck, originally obtained from the Gold Coast and Fernando Po, the description agreeing with our present specimens from the latter locality.

Alethe alexandri from Cameroon was separated from *A. castanonota* on account of the sides of the face being black, but this character is not constant.

Our male specimen, which is not quite adult (lower mandible not entirely black), has the sides of the head and crown almost reddish brown, and in this respect agrees with specimens of *A. castanonota* from Fantec, in the British Museum. In fully-adult birds this reddish coloration in the plumage would disappear, as in our adult female specimen. The figure of *A. castanonota* in the 'Catalogue of Birds' was evidently taken from an immature bird, a reddish phase in young birds being a character of this genus.

63. NEOCOSSYPHUS POENSIS (Strickl.).

Cossypha poensis Strickl. P. Z. S. 1844, p. 100 (Clarence, Fernando Po: type, Brit. Mus.); id. Ann. & Mag. Nat. Hist. xv. p. 126 (1845); Allen & Thomson, Narr. Exped. Niger, ii. App. p. 496 (1848: Fernando Po); Fraser, Zool. Typ. pl. 37 (1849); Hartl. Orn. W.-Afr. p. 77 (1857: Fernando Po); Bocage, Journ. Lisb. (2) vii. p. 34 (1903: Fernando Po).

Neocossyphus poensis Shelley, B. Afr. i. no. 1179 (1896); Salvad. Orn. Golfo d. Guinea, iii. p. 107.

Ad. ♀. Ribola, Oct. 31, 1902.

Total length (measured in flesh) 8.1 inches, culmen 0.76, wing 4.3, tail 3.56, tarsus 1. Iris brown; bill brown; legs and feet flesh-coloured.

Uncommon; frequenting furtively the open spots where cocoa is grown on the borders of the forest.

This is a shy bird, never remaining in view for very long,

alighting quickly on the ground, the next moment to disappear into the cover of some thick-leaved tree.

Range. From the Gold Coast to Cameroon; Gaboon and Fernando Po.

64. CALLENE POENSIS.

Callene poensis Alexander, Bull. B. O. C. xiii. p. 37 (1903); Bocage, Journ. Lisb. (2) vii. p. 40 (1903); Salvad. Orn. Golfo d. Guinea, iii. p. 106.

a. Ad. ♂. Near Bakaki, Nov. 19, 1902.

b. Ad. ♂ (type). Bilelipi, Nov. 25, 1902.

c. Ad. ♂. Mt. St. Isabel, Nov. 25, 1902.

d. Ad. ♀. Moka, Dec. 16, 1902.

Adult. Upper parts olive-brown, inclining to blackish brown on the crown; upper tail-coverts chestnut; central tail-feathers reddish brown, remainder chestnut, the two outer margined with brown; quills, secondaries, and wing-coverts edged with olive-brown on their outer webs; sides of face and remainder of under parts orange-red; centre of abdomen white; thighs olive-brown; under wing-coverts orange-rufous; iris brown; bill black; legs and feet slaty flesh-coloured. Total length 5.2 inches, culmen 0.65, wing 2.9, tail 2.0, tarsus 1.05.

The nearest ally of this species is *C. isabelle* from Cameroon. This *Callene* affects the high ground, where it is locally distributed.

65. CALLENE ROBERTI.

Callene roberti Alexander, Bull. B. O. C. xiii. p. 37 (1903); Bocage, Journ. Lisb. (2) vii. p. 40 (1903); Salvad. Orn. Golfo d. Guinea, iii. p. 106.

a. Ad. ♂ ♀ (types), ♂ ♂ ♂. Bakaki, 4000 feet, Nov. 18, 1902.

Adult male. General colour above olive-brown; quills and secondaries blackish brown, with olive-brown edges to their outer webs; upper tail-coverts and tail-feathers chestnut, three central feathers black; lores olive-brown, washed with red; a distinct white streak from the base of the bill to the front part of the eye; chin, throat, and breast orange-rufous,

becoming deeper on the latter part; remainder of under parts white; thighs blackish brown; under wing-coverts white; lining to quills pale fulvous; iris black; bill black; legs and feet blackish brown. Length 5 inches, culmen 0·6, wing 2·6, tail 1·75, tarsus 0·85.

The sexes are alike in plumage. Nearest ally, *C. cyornithopsis* Sharpe (Bull. B. O. C. xii. p. 4) from Cameroon.

Rare. Frequents high ground. It is a silent and shy bird, keeping much to the ground and low undergrowth.

Named after Captain Robert Alexander.

66. PRATINCOLA AXILLARIS Shelley.

Pratincola axillaris Shelley, Birds Afr. i. no. 1191 (1896).

Seven adult and two immature males. Moka, December 1902.

Confined to the southern portion of the island—in the Moka Valley, which is overgrown with long grass and low scattered bushes.

67. TURDUS POENSIS.

Turdus poensis Alexander, Bull. B. O. C. xiii. p. 37 (1903); Bocage, Journ. Lisb. (2) vii. p. 40 (1903); Salvad. Orn. Golfo d. Guinea, iii. p. 106.

a. Ad. ♂. Bakaki, 4000 feet, Nov. 19, 1902.

b. Ad. ♂ ♀ (types); ad. ♂. Bakaki, Nov. 20, 1902.

c. Ad. ♂ ♂ ♂ ♂. Pico Joaquin, Dec. 10–12, 1902.

d. Ad. ♂. Moka, Dec. 13, 1902.

Adult. General colour of upper parts olive-brown; primaries brown, edged on their outer webs with olive-brown; outer webs of secondaries of the same colour as the back, with indistinct blackish bars across the webs; tail-feathers brown, washed with olive on their outer webs; lores blackish; chin and throat white, with broad blackish-brown streaks to the feathers; breast and flanks brown; feathers of the lower breast with whitish crescentic terminal bands; abdomen and under tail-coverts white; thighs brown; axillaries and under wing-coverts orange-rufous; lining to quills pale fawn-coloured; iris hazel; bill yellow; legs and feet brown.

Total length 8·2 inches, culmen 0·8, wing 4·2, tail 2·9, tarsus 1·2.

The nearest ally of this species appears to be *Turdus xanthorhynchus* Salvad., from Prince's Island.

This Thrush is by no means common, being confined to the eastern and southern portions of the island, where it frequents the wooded highlands.

68. LIOPTILUS CLAUDI.

Lioptilus claudoi Alexander, Bull. B. O. C. xiii. p. 34 (1903); Bocage, Journ. Lisb. (2) vii. p. 39 (1903); Salvad. Orn. Golfo d. Guinea, iii. p. 103.

a. Ad. ♂ (type). Bakaki, Nov. 17, 1902.

b. Ad. ♂ ♀. Bakaki, Nov. 17, 1902.

c. Ad. ♀ (type); ad. ♂. Mount St. Isabel, Nov. 26, 1902.

d. Ad. ♂ ♂ ♂ ♀. Moka, Dec. 8-15, 1902.

Adult. Entire head, back, and scapulars cinereous, slightly darker on the crown; rump and upper tail-coverts rufous brown; quills, secondaries, and tail-feathers brown, edged on their outer webs with rufous brown; chin and throat cinereous, with slight white striations to the feathers; breast cinereous; centre of abdomen white; flanks washed with rufous brown; under tail-coverts cinereous; feathers of thighs rufous brown; under wing-coverts and lining to quills pale tawny; iris black; upper mandible brown, lower slaty horn-coloured; legs and feet slaty flesh-coloured. (*Type.* St. Isabel, Nov. 17, 1902.)

Total length 5·2 inches, culmen 0·55, wing 2·6, tail 2·25, tarsus 0·9.

The sexes are similar in plumage and measurements.

This *Lioptilus* frequents high altitudes, and was the last species observed near the summit of St. Isabel. Though the birds were often obscured from view by the heavy mountain mist, their pretty flute-like songs could be heard from the tops of the trees. We generally observed them in small parties of four or five.

The nearest ally of this species is *L. abyssinicus*, from East Africa.

Named after my brother Mr. Claud Alexander, 1st Scots Guards.

69. MUSCICAPA GRISOLA Linn.

Muscicapa grisola Shelley, B. Afr. i. no. 1308 (1896).

I obtained a specimen of this species on November 8, 1902, at Sipopo.

70. ALSEONAX OBSCURA Sjost.

Alseonax obscura Sharpe, Hand-l. B. iii. p. 207 (1901).

Ad. ♂. Bakaki, Nov. 17, 1902. Upper mandible brown, lower one pale horn-brown at tip; legs and feet brown.

Frequents the tops of tall trees on the hills. It is more plentiful in the southern portion of the island. At Moka my collector obtained two male and five female specimens in December.

The range of this species includes Cameroon and Fernando Po.

71. CASSINIA FRASERI (Strickl.).

Muscipeta fraseri Strickl. P. Z. S. 1844, p. 101 (Fernando Po: type, Brit. Mus.); id. Ann. & Mag. Nat. Hist. xv. p. 128 (1845); Allen & Thomson, Narr. Exped. Niger, ii. App. p. 491 (1848: Fernando Po); Hartl. Orn. W.-Afr. p. 95 (1857).

Butalis fraseri Bp. Consp. Av. i. p. 318 (1850: Fernando Po).

Smithornis fraseri Gray, Hand-l. B. i. p. 324. no. 4869 (1869: Fernando Po).

Cassinia fraseri Bocage, Journ. Lisb. (2) iv. p. 8 (1895: Fernando Po); Shelley, B. Afr. i. no. 1332 (1896); Bocage, Journ. Lisb. (2) vii. p. 34 (1903: Fernando Po); Salvad. Orn. Golfo d. Guinea, iii. 103.

- | | |
|-----------------------------------|---------------------------------|
| a. Ad. ♀. Sipopo, Nov. 3, 1902. | } Gizzard contained
beetles. |
| b. Ad. ♂. Sipopo, Nov. 8, 1902. | |
| c. Ad. ♂. Badasou, Nov. 11, '02. | |
| d. Ad. ♀. Badasou, Nov. 11, 1902. | |
| e. Ad. ♀. Bakaki, Nov. 16, 1902. | |

Uncommon, frequenting undergrowth of the hills.

These examples agree well with the type from Fernando Po in the British Museum. On the other hand, specimens from Gaboon and the Congo differ in having the general coloration much more reddish brown, especially on the upper

parts, becoming a deep rufous on the rump and upper tail-coverts. This is the mainland form of *C. fraseri*, and is referable to *C. rubricauda* of Hartlaub, which has hitherto been made synonymous with *C. fraseri*.

The following specimens of *C. rubricauda* are in the British Museum :—

♂. Landana (*Petit*).

♂. 1882. Landana (*Petit*).

Ad. Gaboon.

♀. Landana (*Petit*).

♂. Congo (*Bouvier*).

Ad. Gaboon.

72. SMITHORNIS SHARPEI. (Plate VII.)

Smithornis sharpei Alexander, Bull. B. O. C. xiii. p. 34 (1903); Bocage, Journ. Lisb. (2) vii. p. 39 (1903); Salvad. Orn. Golfo d. Guinea, iii. p. 103.

a. Ad. ♀. Bakaki, Nov. 15, 1902.

b. Ad. ♂. Bakaki, Nov. 19, 1902.

c. Ad. ♂ (type); ad. ♀. Bakaki, Nov. 20, 1902.

d. Ad. ♀ (type). Mount St. Isabel, Nov. 25, 1902.

Adult. Entire head cinereous, with faint shaft-stripes; lores and frontal band bright rufous; ear-coverts cinereous; remainder of upper parts brownish rufous, becoming brighter on the upper tail-coverts; feathers of the back with white bases and with subterminal black bands; tail-feathers rufous brown, inclining to rufous on the outer edges; quills blackish brown; sides of neck and fore-neck bright rufous; chin and throat white, with blackish streaks to the side-feathers; breast and remainder of under parts pale creamy white, with blackish streaks to the feathers of the breast and flanks; under wing-coverts fawn-coloured; iris brown; upper mandible black, lower whitish horn-coloured; legs and feet greenish.

Total length (measured in flesh) 6 inches, culmen 0.7, wing 3.1, tail 1.8, tarsus 0.8.

The male is a little larger than the female, and is generally brighter on the sides of the neck and breast. A near ally,



J.G. Keulemans del. et lith

Mintern Bros. imp

SMITHORNIS SHARPEI

Smithornis zenkeri, has since been discovered by Dr. Zenker in Cameroon. It differs from *Smithornis sharpii* in having a brownish-olive shade on the upper parts instead of a clear olive, and the general coloration of the under parts duller, especially the rufous on the neck and fore-neck, which is less intense. There is a specimen of *S. zenkeri* in the British Museum, obtained by Mr. Bates at Éfulen, Cameroon. This specimen is not fully adult, since there are pale tawny spots on the wing-coverts. It is, therefore, probable that the Cameroon species will prove to be the immature form of *S. sharpii*. We found our new *Smithornis* only at high altitudes in thickly-wooded localities, where it was locally distributed in pairs. It was breeding in November.

Retiring in nature, it seeks the misty dells and quiet thickets of the mountain-side, where it remains inert for many hours; and then, when daylight begins to fade, wakes up and utters from time to time a peculiar note—a grinding and discordant “churr”—to its mate, long after other birds have fallen asleep.

73. DIAPHOROPHYIA CHLOROPHYRS.

Diaphorophyia chlorophrys Alexander, Bull. B. O. C. xiii. p. 34 (1903); Bocage, Journ. Lisb. (2) vii. p. 39 (1903); Salvad. Orn. Golfo d. Guinea, iii. p. 103.

a. Ad. ♂. Bakaki, Nov. 17, 1902.

b. Ad. ♂. Near Bakaki, 4000 ft., Nov. 18, 1902.

c. Ad. ♂ (type); ad. ♀. Bakaki, Nov. 19, 1902.

d. Ad. ♀ (type); ad. ♂. Bakaki, Nov. 20, 1902.

e. Ad. ♂. St. Isabel, Nov. 26, 1902.

Adult male. Glossy greenish black, brighter on the tail-feathers; breast and remainder of under parts rich creamy yellow; under wing-coverts white; thighs black; iris bluish black; eye-wattle delicate grass-green; legs and feet slaty blue. Total length (measured in flesh) 4·2 inches, culmen 0·55, wing 2·1, tail 0·9, tarsus 0·8.

Adult female. Duller and with less gloss on the upper parts.

In the breeding-season, which is in November, the plumage of this bird becomes richer and brighter, especially in the

male. We found it in the vicinity of the Peak, and it was also observed by my collector in the southern portion of the island. It is by no means common, and frequents the undergrowth, flitting from shrub to shrub, the male from time to time emitting a weak croaking note.

74. *DIAPHOROPHYIA CASTANEA* (Fraser).

Platystira castanea Fraser, P. Z. S. 1842, p. 141 (Clarence, Fernando Po: type, Brit. Mus.); id. Ann. & Mag. Nat. Hist. xii. p. 131 (1843); id. Zool. Typ. pl. xxxiv. fig. 2, ♀ (1849).

Platystira leucopygialis Fraser, P. Z. S. 1842, p. 141 (Clarence, Fernando Po); id. Ann. & Mag. Nat. Hist. xii. p. 131 (1843); Allen & Thomson, Narr. Exped. Niger, ii. App. p. 499 (1848: Fernando Po); Fraser, Zool. Typ. pl. xxxiv. fig. 1, ♂ (1849); Hartl. Orn. W.-Afr. p. 95 (1857: Fernando Po).

Diaphorophyia leucopygialis Bocage, Journ. Lisb. (2) vii. p. 33 (Fernando Po); Salvad. Orn. Golfo d. Guinea, iii. p. 101.

Diaphorophyia castanea Shelley, B. Afr. i. no. 1352 (1896); Sharpe, Hand-l. B. iii. p. 245 (1901).

We obtained a good series of this Flycatcher, which is common in the low country. The males were generally observed together, frequenting the woods and making their presence known by their ventriloquial notes, which resemble the croaking of a bull-frog.

Adult. Iris reddish brown; eye-wattle dirty claret-red; legs and feet pale lilac.

75. *BATIS POENSIS*.

Batis poensis Alexander, Bull. B. O. C. xiii. p. 34 (1903); Bocage, Journ. Lisb. (2) vii. p. 39 (1903); Salvad. Orn. Golfo d. Guinea, iii. p. 102.

Adult male. Similar to *B. minulla*, but differs in having the entire crown black and the pectoral band much narrower; iris lemon-coloured. Total length 3.6 inches, culmen 0.4, wing 2.2, tail 1.4, tarsus 0.5. (*Type.* Bakaki, Nov. 14, 1902.)

Adult female. Similar to the female of *B. minulla*, but differs in having the red pectoral band much narrower. Total length 3·5 inches, culmen 0·4, wing 2·0, tail 1·3, tarsus 0·5. (*Type.* Bakaki, Nov. 14, 1902.)

Not common. Seen on the tops of high trees.

76. *TROCHOCERCUS ALBIVENTRIS* Sjöstedt.

Trochocercus albiventris Sharpe, Hand-l. B. iii. p. 251 (1901).

a. Ad. ♂. Bakaki, Nov. 17, 1902. Iris and bill black; legs and feet brown.

b. Ad. ♀. Bakaki, Nov. 17, 1902.

c. Ad. ♀. Bakaki, Nov. 19, 1902.

d. Ad. ♂. Bakaki, Nov. 20, 1902.

e. Ad. ♂. Mount St. Isabel, Nov. 26, 1902.

f. Ad. ♂. Mount St. Isabel, Nov. 26, 1902.

g. Ad. ♂. Pico Joaquin, Dec. 11, 1902.

These specimens agree well with an example of *T. albiventris* in the British Museum obtained by Sir H. Johnston from Cameroon. This uncommon Flycatcher is confined to the high hills on the north and south sides of the island. It frequents the leafy tops of high trees.

77. *TERPSIPHONE TRICOLOR* (Fraser).

Muscipeta (*Tchitrea* Less.) *tricolor* Fraser, P. Z. S. 1843, p. 4 (Clarence, Fernando Po).

Muscipeta tricolor Allen & Thomson, Narr. Exped. Niger, ii. App. p. 492 (1848: Fernando Po).

Tchitrea tricolor Hartl. Orn. W.-Afr. p. 90 (1857: Fernando Po).

Terpsiphone tricolor, Bocage, Journ. Lisb. (2) iv. p. 8 (1895: Fernando Po); Shelley, B. Afr. i. no. 1392 (1896); Sharpe, Hand-l. B. iii. p. 264 (1901); Bocage, Journ. Lisb. (2) vii. p. 33 (1903: Fernando Po); Salvad. Orn. Golfo d. Guinea, iii. p. 102.

a. Ad. ♀. Basupu, Oct. 29, 1902.

b. Ad. ♂. Basupu, Oct. 30, 1902.

c. Ad. ♂. Basupu, Oct. 30, 1902.

d. Ad. ♂. Basupu, Oct. 30, 1902.

e. Ad. ♂. Ribola, Nov. 2, 1902.

f. Ad. ♂. Bilelipi, Nov. 24, 1902.

Bill dark bluish slate-coloured; legs and feet bluish lead-coloured. Breeding.

Widely distributed at the base of the hills.

In the sunny glades of the forest the bright plumage of this Flycatcher used frequently to arrest the eye as it flitted airily from one branch to another, the male every now and again uttering a soft running "tiz."

78. *PSALIDOPROCNE FULIGINOSA* Shelley.

Psalidoprocne fuliginosa Shelley, B. Afr. i. no. 1446 (1896); Sharpe, Hand-l. B. iii. p. 202 (1901).

Psalidoprocne poensis Alexander, Bull. B. O. C. xiii. p. 34 (1903; Bakaki, Fernando Po); Bocage, Journ. Lisb. (2) vii. p. 39 (1903); Salvad. Orn. Golfo d. Guinea, iii. p. 101.

On a more careful examination, I find that the characters of *P. poensis* are not constant. A fully adult example brought home by my collector subsequently to the publication of my description is identical with the type of *P. fuliginosa* in the British Museum. The general paler brown of the throat, breast, and under wing-coverts, which served to separate my former specimens from *P. fuliginosa*, is a sign of immaturity.

Adult male. Iris brown; legs and feet pinkish flesh-coloured. Basakato, Nov. 12, 1903.

This species is locally distributed on the island. Small parties frequent the open spots in the forest, where they make use of the dead branches of trees as resting-places.

79. *CYPSELUS POENSIS*.

Cypselus poensis Alexander, Bull. B. O. C. xiii. p. 33 (1903); Bocage, Journ. Lisb. (2) vii. p. 38 (1903); Salvad. Orn. Golfo d. Guinea, iii. p. 116.

Adult male. Similar to *C. unicolor* Jard., but differs in being considerably smaller. The upper parts are paler brown, with little or no greenish gloss on the feathers; chin, throat, and fore-neck pale whitish. Total length 6.2 inches, culmen 0.25, wing 5.2, tail 2.4, tarsus 0.4. (*Type.* Sipopo, Nov. 6, 1902.)

At Sipopo, on November 6, towards evening, a flock of these Swifts suddenly appeared in the vicinity of our house, which was situated on high ground, about two miles from the sea. We observed these birds on several other occasions.

There is a specimen of *Tachornis gracilis* in the British Museum labelled "Fernando Po," but the locality may be doubted (see p. 400).

80. HETEROTROGON FRANCISCI.

Heterotrogon francisci Alexander, Bull. B. O. C. xiii. p. 33 (1903); Bocage, Journ. Lisb. (2) vii. p. 38 (1903: Fernando Po); Salvad. Orn. Golfo d. Guinea, iii. p. 116.

Adult female. Allied to *H. vittatum*, but differs in being considerably smaller, and in having the white bars on the greater wing-coverts and secondaries wider and more distinct: iris reddish brown; upper mandible black, lower orange-yellow; soft parts orange-yellow; legs and feet yellowish flesh-coloured. Total length (measured in flesh) 9.4 inches, culmen 0.6, wing 4.4, tail 4.9, tarsus 0.6.

Type. Bakaki, 4000 feet, Nov. 18, 1902. Breeding.

This is a rare bird, and is one of the best discoveries made by my collector. Its scarcity can be judged by the fact that the Boobie hunters had never seen it before. It is very shy and keeps much to the undergrowth. My collector obtained only one specimen out of a pair which he saw.

Named after Colonel Boyd Francis Alexander.

81. EURYSTOMUS GULARIS Vicill.

Eurystomus gularis Bocage, Journ. Lisb. (2) iv. p. 7 (1895: Santa Isabel, Fernando Po); Shelley, B. Afr. no. 1511 (1896); Sharpe, Hand-l. B. ii. p. 47 (1900); Bocage, Journ. Lisb. (2) vii. p. 31 (1903: Fernando Po); Salvad. Orn. Golfo d. Guinea, iii. p. 117.

Observed on one occasion only.

82. MEROPS MARIONÆ.

Merops marionis Alexander, Bull. B. O. C. xiii. p. 33 (1903); Bocage, Journ. Lisb. (2) vii. p. 39 (1903); Salvad. Orn. Golfo d. Guinea, iii. p. 117.

Adult male. Similar to *M. northcotti* Sharpe, but differs in having the black band round the throat wider. It is also larger.

Adult (M. marionæ). Bakaki, 4000 ft., Nov. 17, 1902. Total length 8.1 inches, culmen 1.4, wing 3.5, tail 3.3, tarsus 0.4. Iris red; legs and feet dull purplish black.

Adult (M. northcotti). British Museum. Gold Coast. Length 7.2 inches, culmen 1.2, wing 3.3, tail 3.5.

We first met with this Bee-eater at Basakato, near Bakaki. Our second specimen was obtained at an elevation of 4000 ft. Found in pairs.

Named after Miss Marion Alexander.

83. *ISPIDINA LEUCOGASTRA* (Fraser).

Halcyon leucogaster Fraser, P. Z. S. 1843, p. 4 (Clarence, Fernando Po: type, Brit. Mus.); Allen & Thomson, Narr. Exped. Niger, ii. p. 503 (1848: Fernando Po).

Alcedo leucogaster Fraser, Zool. Typ. pl. xxxii. (1849); Bp. Consp. Av. i. p. 159 (1850: Fernando Po).

Ispidina leucogastra Bocage, Journ. Lisb. (2) iv. p. 7 (1895: Fernando Po); Shelley, B. Afr. i. no. 1610 (1896); Sharpe, Hand-l. B. ii. p. 54 (1900); Reichen. Vög. Afrikas, ii. p. 288 (1902: Fernando Po); Bocage, Journ. Lisb. (2) vii. p. 31 (1903: Fernando Po).

Ispidina leucogaster Salvad. Orn. Golfo d. Guinea, iii. p. 116. Occasionally observed along the mountain-streams.

84. *HALCYON LOPESI*.

Halcyon lopezi Alexander, Bull. B. O. C. xiii. p. 33 (1903); Bocage, Journ. Lisb. (2) vii. p. 38 (1903); Salvad. Orn. Golfo d. Guinea, iii. p. 117.

Adult female. Upper parts and sides of head dark chestnut; quills black; secondaries black, with a subquadrate speculum of bluish green; lower back, rump, and upper tail-coverts light bluish green; tail-feathers bluish green, edged on their inner webs and broadly tipped with black; entire under parts white; under wing-coverts white; iris brown; eyelids coral-red; bill dark coral-red; legs and feet coral. Total length (measured in flesh) 8.6 inches, culmen

1.7, wing 4.0, tail 2.2, tarsus 0.5. (*Type.* Sipopo, Nov. 6, 1902.)

This Kingfisher differs from its near ally *H. badius* in its larger dimensions, and in the nearly square shape of the speculum on the wings.

It inhabits woods close to the sea.

85. *TURACUS MERIANI* (Rüpp.).

Turacus meriani Shelley, B. Afr. i. no. 1650 (1896).

a. Ad. ♀. Bakaki, Nov. 14, 1902. Iris brown; eyelids coral-red; bill yellow, base of upper and lower mandibles coral-red; legs and feet black.

b. Ad. ♀. Bakaki, Nov. 19, 1902.

c. Ad. ♀. Moka Lake, Dec. 12, 1902.

Common in the wooded hills, and found in pairs which resort to tall thick-leaved trees. The note is a guttural grunt, like that of a bull-frog; in the male it is louder and more prolonged. In the early morning, long before the mists had cleared off the hills, we used to hear these peculiar cries, sometimes almost in unison like the "gobbling" of many Turkeys.

86. *CORYTHÆOLA CRISTATA* (Vieill.).

Corythæola cristata Schal. J. f. O. 1886, p. 55 (Fernando Po); Shelley, B. Afr. i. no. 1660 (1896); Bocage, Journ. Lisb. (2) vii. p. 32 (1903; Fernando Po); Salvad. Orn. Golfo d. Guinea, iii. p. 118.

Zizorhis gigantea Allen & Thomson, Narr. Exped. Niger, ii. App. p. 504 (1848; Fernando Po).

Turacus giganteus Hartl. J. f. O. 1854, p. 125 (Fernando Po); id. Orn. W.-Afr. p. 159 (1857).

a. Ad. ♂. Bilelipi, Nov. 25, 1902.

Iris bright hazel; bill yellow, tip of bill black, fore-tip banded with red; legs and feet dull blackish brown.

Found amongst the hills in small parties.

On the way up the mountain our "Boobie" hunter killed one of these birds. Immediately others came round and proved very bold, uttering the whole time hoarse croaks,

which can be heard at a long distance and sound resonant in the hill-valleys.

By the white inhabitants this bird is generally known as "pheasant." Native name "kee-so."

The natives are fond of adorning their hats with the pinion- and tail-feathers of this bird.

87. *CEUTHMOCHARES ÆNEUS* (Vieill.).

Ceuthmochares æneus (Vieill.) ; Bocage, Journ. Lisb. (2) iv. p. 7 (1895 : Santa Isabel, Fernando Po) ; Shelley, B. Afr. i. no. 1680 (1896) ; Sharpe, Hand-l. B. ii. p. 172 (1900) ; Bocage, Journ. Lisb. (2) vii. p. 32 (1903 : Fernando Po) ; Salvad. Orn. Golfo d. Guinea, iii. p. 118.

Zanclostomus flavirostris Fraser (nec Swains.), P. Z. S. 1843, p. 52 (Fernando Po) ; Allen & Thomson, Narr. Exped. Niger, ii. p. 221 (1841).

a. Ad. ♀. Basupu, Oct. 30, 1902. Bill yellow ; iris claret-red ; soft parts blue. Iris of young bird brown ; upper mandible brown, lower pale horn-coloured.

b. Ad. ♂. Basupu, Oct. 31, 1902.

c. Ad. ♂. Bakaki, Nov. 11, 1902.

A common bird, haunting the thick trees, through which it works its way with wonderful agility. The young were abroad in November. Native name "Bu-e saw-e-saw."

88. *CHRYSOCOCCYX SMARAGDINEUS* (Swains.).

Chrysococcyx smaragdineus Bocage, Journ. Lisb. (2) iv. p. 11 (1895 : Fernando Po, observed) ; Shelley, B. Afr. i. no. 1709 (1896) ; Bocage, Journ. Lisb. (2) vii. p. 32 (1903 : Fernando Po) ; Salvad. Orn. Golfo d. Guinea, iii. p. 118.

Metallococcyx smaragdineus Sharpe, Hand-l. B. ii. p. 161 (1900).

Ad. ♂. Sipopo, Nov. 9, 1902.

89. *CHRYSOCOCCYX CUPREUS* (Bodd.).

Chrysococcyx cupreus Shelley, B. Afr. i. no. 1712 (1896) ; Sharpe, Hand-l. B. ii. p. 161 (1900) ; Bocage, Journ. Lisb. (2) vii. p. 32 (1903 : Fernando Po) ; Salvad. Orn. Golfo d. Guinea, iii. p. 118.

Chalcites auratus Allen & Thomson, Narr. Exped. Niger, ii. p. 221 (1848).

Chrysococcyx auratus Hartl. Orn. W.-Afr. p. 190 (1857 : Fernando Po).

Ad. ♀. Moka, Dec. 14, 1902.

90. INDICATOR POENSIS.

Indicator poensis Alexander, Bull. B. O. C. xiii. p. 33 (1903); Bocage, Journ. Lisb. (2) vii. p. 39 (1903); Salvad. Orn. Golfo d. Guinea, iii. p. 119.

Adult male. Similar to *I. exilis*, but smaller. Crown and nape ashy grey; white patch near nostril very distinct; base of forehead dusky black; band below cheeks and ear-coverts dusky; under parts pale ashy grey, fading into whitish on the chin; thigh-coverts with dark shaft-stripes: iris hazel; bill black, horn-coloured at base of lower mandible; legs and feet greenish. Length 4.3 inches, culmen 0.35, wing 2.5, tail 1.45, tarsus 0.45. (*Type.* Bakaki, Nov. 9, 1902.)

This new species comes close to *Indicator willcocksii* Alexander, from the Gold Coast.

The key for these small West-African Honey-guides reads as follows:—

- a. Crown ashy brown, slightly washed with yellow and mottled with darker centres to the feathers.
 - a'. A dusky band below cheeks and ear-coverts.
 - a''. Under parts ashy *I. exilis.*
- b. Crown golden olive, slightly striped with blackish centres to the feathers; upper parts almost uniform.
 - b'. No dusky band below cheeks and ear-coverts.
 - b''. Under parts ashy olive, fading into creamy white on the lower breast and abdomen *I. willcocksii.*
- c. Smaller; wing 2.5; crown ashy grey.
 - c'. Dusky blackish band below cheeks and ear-coverts.
 - c''. Under parts pale ashy grey, fading into whitish on the chin *I. poensis.*

91. BARBATULA LEUCOLÆMA J. & E. Verr.

Barbatula leucolæma Shelley B. Afr. i. no. 1773 (1896); Sharpe, Hand-l. B. ii. p. 182 (1900).

a. Ad. ♀. Ribola, Nov. 2, 1902.

b. Ad. ♀. Bakaki, Nov. 18, 1902. Legs and feet dull black.

c. Ad. ♂ ♂ ♂ ♂ ♂ ♀. Moka, Dec. 7-14, 1902.

Well distributed in the wooded hills. More plentiful in the southern portion of the island.

92. *BARBATULA SUBSULPHUREA* (Fraser).

Bucco subsulphureus Fraser, P. Z. S. 1843, p. 3 (Fernando Po); Allen & Thomson, Narr. Exped. Niger, ii. App. p. 504 (1848: Fernando Po); Fraser, Zool. Typ. pl. 52 (1849).

Barbatula subsulphurea Hartl. J. f. O. 1854, p. 195 (Fernando Po); Verr. P. Z. S. 1859, p. 392 (Fernando Po); Shelley, B. Afr. i. no. 1774 (1896); Sharpe, Hand-l. B. ii. p. 182 (1900); Bocage, Journ. Lisb. (2) vii. p. 31 (1903: Fernando Po); Salvad. Orn. Golfo di Guinea, iii. p. 119.

a. Ad. ♂. Basupu, Oct. 30, 1902.

b. Ad. ♀. Basupu, Oct. 30, 1902.

c. Ad. ♂. Ribola, Oct. 31, 1902.

d. Ad. ♂. Bakaki, Nov. 9, 1902.

e. Ad. ♂. Bakaki, Nov. 9, 1902.

Common in the low country.

93. *BARBATULA SCOLOPACEA* (Temm.).

Barbatula scolopacea Bocage, Journ. Lisb. (2) iv. p. 7 (1895: Fernando Po); Shelley, B. Afr. i. no. 1776 (1896); Sharpe, Hand-l. B. ii. p. 182 (1900); Bocage, Journ. Lisb. (2) vii. p. 31 (1903: Fernando Po).

Bucco stellatus Jard. & Fraser, Contr. Orn. 1851, p. 155 (Clarence, Fernando Po).

Xylobucco scolopacea Hartl. Orn. W.-Afr. p. 174 (1857: Fernando Po); Verr. P. Z. S. 1859, p. 397 (Fernando Po).

Xylobucco scolopaceus Salvad. Orn. Golfo d. Guinea, iii. p. 119.

Abundant, frequenting the lowlands in small parties on the tops of high trees.

Ad. ♀. Basupu, Oct. 29, 1902. Iris lemon-yellow; bill dark bluish slate-coloured; legs and feet slate-coloured. Note, a loud "click."

94. DENDROMUS POENSIS.

Campothera poensis Alexander, Bull. B. O. C. xiii. p. 33 (1903); Bocage, Journ. Lisb. (2) vii. p. 39 (1903); Salvad. Orn. Golfo di Guinea, iii. p. 119.

a. Ad. ♂ (type). Besoso, Nov. 13, 1902.

b. Ad. ♀ (type). Bakaki, Nov. 14, 1902.

c. Ad. ♀. Bilelipi, Nov. 24, 1902.

d. Ad. ♂. Bilelipi, Nov. 25, 1902.

Adult male. Similar to *D. nivosus*, but the forehead, crown, and occiput light brown; chin, ear-coverts, and sides of face white striped with brownish black; under parts with scarcely any shade of olive: iris bright hazel; bill brownish lead-coloured; feet greenish. Length 6·3 inches (measured in flesh), culmen 0·75, wing 3·3, tail 1·65, tarsus 0·65.

A shy bird and difficult to obtain, frequenting the wooded hills. The food of this Woodpecker consists principally of black ants and their larvæ.

95. VINAGO CALVA (Temm. & Knip).

Treron calva Bocage, Journ. Lisb. (2) iv. p. 11 (1895: Fernando Po).

Vinago calva Shelley, B. Africa, i. no. 1851 (1896); Sharpe, Hand-l. B. i. p. 52 (1899); Salvad. Orn. Golfo d. Guinea, iii. p. 120.

Ad. ♂. Sipopo, Nov. 3, 1902.

Ad. ♀. Basupu, Oct. 30, 1902.

Iris blue; bill bluish horn-coloured, soft parts crimson; legs and feet orange-yellow.

A common Pigeon in the vicinity of cultivation. The typical *V. calva* is found in Loango and Angola. Our two specimens from Fernando Po agree well with the Angola specimens in the British Museum and with those from Cameroon and Gaboon. On the other hand, specimens from Sierra Leone and the Gold Coast differ from the typical *V. calva* in having the grey neck and collar brighter and more distinct, and the under parts of a pale greenish olive instead of yellowish greenish olive. This form is the *Vinago calva sharpii* of Reichenow (Orn. Monatsb. 1902, p. 45).

*Ranges :**Vinago calva.*

West Africa, from Cameroon across to Fernando Po, and Prince's Island, ranging as far south as Angola.

Vinago sharpii.

West Africa, from Sierra Leone to River Niger.

96. *TURTUR SEMITORQUATUS* (Rüpp.).

Turtur semitorquatus (Rüpp.); Shelley, B. Afr. i. no. 1878 (1896).

Streptopelia semitorquata Sharpe, Hand-l. B. i. p. 78 (1899).

a. Ad. ♂. Bilelipi, Nov. 24, 1902.

b. Ad. ♂. Moka, Dec. 16, 1902.

Common in the neighbourhood of the coast.

97. *HAPLOPELIA SIMPLEX* (Hartl.).

Haplopectia simplex, Shelley, B. Afr. i. no. 1873 (1896).

Haplopectia poensis Alex. Bull. B. O. C. xiii. p. 33 (1903: Fernando Po); Salvad. Orn. Golfo d. Guinea, iii. p. 121.

We obtained two female specimens of this species. One of these agrees well with two typical female specimens of *H. simplex* from San Thomé.

Immature female. Forehead and front of crown vinous white; occiput and hind-neck with a coppery purplish gloss; remainder of upper parts brown, with a purplish gloss on the feathers of the wings and back; sides of neck vinous rufous; chin white; breast and under parts vinous rufous, with a strong coppery purplish gloss on the fore-neck in certain lights; under tail-coverts cinereous: bill black; cere lead-coloured; legs and feet claret-coloured. Total length (measured in flesh) 10 inches, culmen 0.85, wing 5.9, tail 3.2, tarsus 1.15. (Bakaki, 4000 feet, Nov. 19, 1902.)

The gizzard contained a large number of gnats.

This is the type of my *H. poensis*, but since writing the description of that form I have come to the conclusion that it is the immature bird of *H. simplex*, which apparently passes through a distinct rusty reddish phase of plumage during the first year.

The fact that these two female specimens were obtained in the same locality within a day of each other, and most probably from the same flock, makes it difficult to suppose that they are of different species.

This Ground-Pigeon is very shy and keeps much to the thick undergrowth in small flocks.

98. *TYMPANISTRIA BICOLOR* Reichenb.

Peristera tympanistria Fraser, P. Z. S. p. 53 (1843: Fernando Po; breeding); Hartl. Orn. W.-Afr. p. 197 (1857).

Tympanistria fraseri Bp. Consp. Av. ii. p. 67 (1854: Fernando Po).

Tympanistria tympanistria Shelley, B. Afr. i. no. 1893 (1896); Sharpe, Hand-l. B. i. p. 83 (1899); Bocage, Journ. Lisb. (2) vii. p. 37 (1903: Fernando Po); Salvad. Orn. Golfo d. Guinea, iii. p. 121.

a. Imm. ♂. Sipopo, Nov. 6, 1902.

b. Ad. ♂. Basakato, Nov. 12, 1902.

c. Imm. ♂. Bakaki, Nov. 15, 1902.

Locally distributed in pairs in the woods where there are open clearings, and in the cocoa-plantations.

This is a shy species, darting away with a rapid and straight flight at the approach of footsteps.

99. *PSITTACUS ERITHACUS* Linn.

Psittacus erithacus Bocage, Journ. Lisb. (2) iv. p. 10 (1895: Fernando Po); Shelley, B. Afr. i. no. 1915 (1896); Reichen. Vög. Afrikas, ii. p. 2 (1902: Fernando Po); Bocage, Journ. Lisb. (2) vii. p. 38 (1903: Fernando Po); Salvad. Orn. Golfo d. Guinea, iii. p. 119.

Constantly observed passing high overhead in large flocks. It is a migrant to the island.

100. *MILVUS ÆGYPTIUS* (Gm.).

Milvus ægyptius Bocage, Journ. Lisb. (2) iv. p. 10 (1895: Fernando Po); Shelley, B. Afr. i. no. 2011 (1896); Sharpe, Hand-l. B. i. p. 268 (1899); Reichen. Vög. Afrikas, i. p. 609 (1901: Fernando Po); Bocage, Journ. Lisb. (2) vii. p. 38 (1903: Fernando Po); Salvad. Orn. Golfo d. Guinea, iii. p. 120.

Occasionally observed about the harbours.

101. *ASTUR LOPESI* Alexander.

Astur lopezi Alexander, Bull. B. O. C. xiii. p. 49 (1903);
Salvad. Orn. Golfo d. Guinea, iii. p. 120.

Adult male. Above blackish slate-coloured; crown, nape, and sides of neck slaty blue, paler on the last; chin and throat white, the lower part washed with pale vinous chestnut; remainder of under parts bright vinous chestnut, with remains of whitish cross-bars, especially on the breast; centre of abdomen and under tail-coverts white; tail-feathers black tipped with white, and with three irregular white spots on their inner webs; under tail-coverts white, barred with vinous chestnut: iris black; cere yellow; legs and feet orange-yellow; claws black. Total length 13 inches, culmen 0.9, wing 7.3, tail 6.2, tarsus 2.3. (*Type.* Moka, Dec. 11, 1902.)

This species is allied to *A. toussenelli* (Verr.), but differs in the coloration of the under parts and thighs and in being smaller.

Range. Cameroon and Fernando Po.

102. *PSEUDOGYPS AFRICANUS* (Salvad.).

Pseudogyps africanus Shelley, B. Afr. i. no. 2094 (1896);
Sharpe, Hand-l. B. i. p. 242 (1899).

Ad. ♀. Near Sipopo, Nov. 8, 1902.

This bird is locally distributed along the coast-line. It is much prized for food by the natives.

103. *ARDEA GULARIS* Bosc.

Ardea gularis Bosc; Bocage, Jorn. Lisb. (2) iv. p. 11 (1895: Fernando Po); Shelley, B. Afr. i. no. 2120 (1896); Bocage, Jorn. Lisb. (2) vii. p. 38 (1903: Fernando Po); Salvad. Orn. Golfo d. Guinea, iii. p. 122.

Leptorodius gularis Sharpe, Hand-l. B. i. p. 196 (1899).

An adult female was obtained on an islet called Leven, off Banterbari, where a colony of these birds breeds.

†104. *ÆGIALITIS DUBIA* (Scop.).

Ægialitis dubia Shelley, B. Afr. i. no. 2471 (1896); Sharpe, Hand-l. B. i. p. 154 (1899).

One specimen obtained near Sipopo, Nov. 8, 1902.

105. TRINGOIDES HYPOLEUCUS (Linn.).

Totanus hypoleucus Shelley, B. Afr. i. no. 2494 (1896).

Tringoides hypoleucus Sharpe, Hand-l. B. i. p. 161 (1899);
Bocage, Journ. Lisb. (2) vii. p. 37 (1903: Fernando Po);
Salvad. Orn. Golfo d. Guinea, iii. p. 121.

Frequently observed along the creeks of the shore-line.

Part III.—LIST OF BIRDS RECORDED AS OCCURRING IN FERNANDO PO BY PREVIOUS AUTHORS, SPECIMENS OF WHICH WERE NOT OBTAINED ON THE PRESENT OCCASION.

1. ZOSTEROPS BRUNNEA Salvad.

Speirops brunnea Salvad. Boll. Mus. Torino, xviii. no. 442 (1903: Fernando Po); Salvad. Orn. Golfo d. Guinea, iii. p. 106.

2. LAMPROCOLIUS SPLENDIDUS (Vieill.).

Lamprotornis chrysonotus Swains.; Fraser, P. Z. S. 1843, p. 52 (Fernando Po).

Lamprocolius splendidus Salvad. Orn. Golfo d. Guinea, iii. p. 115.

3. LAMPROCOLIUS PURPUREUS Müll.

Lamprocolius auratus Hartl. Orn. W.-Afr. p. 117 (1857: Fernando Po).

Lamprocolius purpureus Salvad. Orn. Golfo d. Guinea, iii. p. 115.

4. ONYCOGNATHUS HARTLAUBI Gray.

Onycognathus hartlaubi Sharpe, Cat. B. Brit. Mus. xiii. p. 166 (1890); Salvad. Orn. Golfo d. Guinea, iii. p. 115.

5. LANIARIUS SULPHUREIPECTUS (Less.).

Laniarius chrysogaster Hartl. Orn. W.-Afr. p. 107. (Fraser.)

Laniarius sulphureipectus Salvad. Orn. Golfo d. Guinea, iii. p. 104.

6. ANDROPADUS GRACILIROSTRIS Strickl.

Andropadus gracilirostris Allen & Thomson, Narr. Exped. Niger, ii. p. 497 (1848). (Fraser.)

7. XENOCICHLA ALBIGULARIS Sharpe.

Xenocichla albigularis Sharpe, Cat. B. vi. p. 103, pl. vii. fig. 1.

Xenocichla tricolor Salvad. (nec Cass.) Orn. Golfo d. Guinea, iii. p. 110.

Professor Bocage's description (Jorn. Lisb. (2) vii. p. 35) of a specimen obtained by Mr. Newton in Fernando Po answers well to the type of *X. albigularis* in the British Museum.

8. EREMOMELA BADICEPS (Fraser).

Sylvia badiceps Fraser, P. Z. S. 1842, p. 144 (Clarence, Fernando Po).

Eremomela badiceps Salvad. Orn. Golfo d. Guinea, iii. p. 109.

9. FRASERIA OCREATA Strickl.

Tephrodornis ocreatus Strickl. P. Z. S. 1844, p. 102 (Fernando Po: type, Brit. Mus.).

Fraseria ochreata Salvad. Orn. Golfo d. Guinea, iii. p. 103.

10. TERPSIPHONE ATROCHALYBEA (Thomson).

Tchitreia atrochalybeia Allen & Thomson, Narr. Exped. Niger, ii. p. 494 (1848: Fernando Po).

Terpsiphone atrochalybea Reichen. J. f. O. 1875, p. 24 (Cameroon); Salvad. Orn. Golfo d. Guinea, iii. p. 102.

The type, stated to have been obtained by Thomson in Fernando Po, and now in the British Museum, agrees well with specimens from San Thomé. It is curious that this remarkable-looking bird should have escaped our notice, but, as it occurs in Cameroon, it is quite possible that the locality assigned to it by Thomson may be correct.

11. TACHORNIS GRACILIS (Sharpe).

Cypselus ambrosiacus Hartl. Orn. W.-Afr. p. 24 (1857: Fernando Po); Salvad. Orn. Golfo d. Guinea, iii. p. 116.

12. CHÆTURA SABINII Gray.

Chætura sabinii Hartl. Orn. W.-Afr. p. 25 (1857: Fernando Po); Salvad. Orn. Golfo d. Guinea, iii. p. 116.

Acanthylis bicolor Strickl. P. Z. S. 1844, p. 99 (Fernando Po).

13. CERATOGYMNA ATRATA (Temm.).

Buceros atratus Hartl. Orn. W.-Afr. p. 162 (Fernando Po).

Buceros poensis Fraser, P. Z. S. 1853, p. 14 (Fernando Po).

Ceratogymna atrata Salvad. Orn. Golfo d. Guinea, iii. p. 117.

14. CERYLE RUDIS (Linn.).

Ispida bicincta Fraser, P. Z. S. 1843, p. 51 (Fernando Po).

Ceryle rudis Hartl. Orn. W.-Afr. p. 37 (1857 : Fernando Po); Salvad. Orn. Golfo d. Guinea, iii. p. 116.

15. HALCYON CYANOLEUCUS (Vieill.).

Halcyon cyanoleuca Bocage, Journ. Lisb. (2) iv. p. 7 (1895 : Banks of Shark River, Fernando Po, *Newton*).

16. HALCYON DRYAS Hartl.

Halcyon cinereifrons part. Hartl. Beitr. Orn. W.-Afr. p. 18, no. 53 (1850 : Fernando Po); id. J. f. O. 1854, p. 2 (Fernando Po, *Fraser*); id. Orn. W.-Afr. p. 32 (Fernando Po, *Fraser*, 1857).

Halcyon dryas Sharpe, Cat. B. xvii. p. 248 (Fernando Po, *Fraser*); Shelley, B. Afr. i. no. 1627 (1896); Salvad. Orn. Golfo d. Guinea, iii. p. 117.

17. TURACUS BUFFONI (Vieill.).

Corythaix buffoni Hartl. Orn. W.-Afr. p. 156 (1857 : Fernando Po); Salvad. Orn. Golfo d. Guinea, iii. p. 117.

18. CUCULUS SOLITARIUS (Steph.).

Cuculus rubiculus Swains.; Fraser, P. Z. S. 1843, p. 52 (Fernando Po); Salvad. Orn. Golfo d. Guinea, iii. p. 118.

19. AGAPORNIS PULLARIA (Linn.).

Agapornis pullaria Hartl. Orn. W.-Afr. p. 168 (1857 : Fernando Po); Salvad. Orn. Golfo d. Guinea, iii. p. 119.

20. STRIX FLAMMEA Linn.

Strix poensis Fraser, P. Z. S. 1842, p. 189 (Fernando Po); Salvad. Orn. Golfo d. Guinea, iii. p. 120.

21. BUBO POENSIS Fraser.

Bubo poensis Fraser, P. Z. S. 1853, p. 13 (Fernando Po); Salvad. Orn. Golfo d. Guinea, iii. p. 120.

Bubo fasciolatus Hartl. Orn. W.-Afr. p. 18 (Fernando Po, Fraser).

22. GYPOHIERAX ANGOLENSIS (Gm.).

Gypohierax angolensis Hartl. Orn. W.-Afr. p. 1 (Fernando Po, Fraser); Salvad. Orn. Golfo d. Guinea, iii. p. 120.

23. VANELLUS ALBICEPS.

Vanellus albiceps Gould, P. Z. S. 1834, p. 45; Allen & Thomson, Narr. Exped. Niger, ii. p. 508 (1848: River Quorra, West Africa); Hartl. Orn. W.-Afr. p. 214 (Fernando Po, Fraser).

Sarciophorus albiceps Fraser, Zool. Typ. pl. lxiv. (1849: Fernando Po).

Xiphidiopterus albiceps Salvad. Orn. Golfo d. Guinea, iii. p. 121.

According to Messrs. Allen and Thomson, the type of this species was obtained by Capt. Allen from the Quorra, West Africa, during his expedition up that river, and not from Fernando Po. Gould, in his original description of the species also supports this statement.

Part IV.—ORNITHOLOGICAL BIBLIOGRAPHY OF FERNANDO PO.

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1855. HARTLAUB, G.—Beschreibung einiger neuen Vogelarten. Journ. f. Orn. 1855, p. 353. (*Trichophorus poliocephalus* Temm., p. 358, Fernando Po.)
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XXXIII.—*On some rare and unfigured Eggs of Palearctic Birds.* By H. E. DRESSER, F.Z.S. &c.

(Plate X.)

THE eggs represented in the accompanying Plate have all been received from Mr. N. Zarudny, and are, I believe, now figured for the first time. The field-notes respecting the species have been communicated to me by the same gentleman, at whose request I have great pleasure in publishing them.

(1) *SAXICOLA CHRYSOPYGIA* (De Filippi). Red-tailed Wheatear. (Pl. X. fig. 15.)

Of this species only the single egg now figured was sent; it was obtained by Mr. Zarudny on the 25th of May, 1892, in Transcaasia. The nest of this Wheatear is, like that of its allies, placed on the ground in stony places, and usually on mountain-sides, at varying altitudes, from the base of the hills to a considerable height. The eggs are white, with a bluish tinge, very finely dotted at the larger end with pale red. The specimen figured measures 0·77 by 0·65 inch.

(2) *LUSCINIOLA INDICA* (Jerdon). Indian Hill-Warbler. (Pl. X. figs. 14, 16.)

Of this bird I have received a clutch of three eggs, which were taken by Mr. B. R. Kareff at Tyschkan, Djarkensky Uyest, on the 30th of May, 1899, from a nest on the southern slope of the Boro-choro Mountain. The nest was placed in a dense patch of nettles, about a foot above the ground, in a place where small bushes and high grass were intermingled, and where junipers were growing on the cliffs, at an altitude of about 6500 feet.

The measurements of the nest (text-fig. 12, p. 405) are as follows:—

	mm.	in.
From front to back	115	(4·52)
From right to left	135	(5·31)
Smallest diameter	70	(2·75)
Height of entrance-hole	45	(1·77)
Width of entrance-hole	48	(1·89)

The outer wall of the nest is composed of grass bents and



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blades, the central and inner portions of similar, but finer materials, and the lining throughout of soft downy feathers, the entire fabric being firmly and closely constructed. The

Text-fig. 12.



Nest of *Luscinola indica*.

female was taken on the nest and the eggs were therefore thoroughly authenticated. Two of the eggs are figured, the third having been unfortunately broken in its transit from Russia.

(3) *PASSER YATHI* Sharpe. Afghan Sparrow. (Pl. X. figs. 1-4.)

Mr. Zarudny met with this Sparrow breeding in South-eastern Persia, and was the first naturalist to obtain its eggs, of which he has sent me several clutches. The eggs of this species are from four to six in number, and vary from stone-grey to grey in ground-colour, more or less marked and spotted with warm brown. In almost every clutch one egg has the ground-colour white, and is but sparingly marked with brown (see fig. 2). Four eggs are figured in order to show the variations: all of them were taken by Mr. Zarudny in Seistan, in the first and second weeks of June 1901.

(4) *PASSER AMMODENDRI*, Severtzoff. Saxaul Sparrow. (Pl. X. figs. 5-8.)

Four eggs of this bird were taken by Mr. Zarudny at Tedjeur, Transcaspia, on the 17th of May, 1892, and at Repetek, Transcaspia, on the 4th of May, 1892. The nest of this Sparrow resembles that of *Passer domesticus*, being sometimes open and at other times with an entrance at the side. It is constructed of saxaul twigs, and lined with camel's hair and feathers. It is usually placed in a saxaul tree, and not unfrequently in the outer portion of the nest of a Kite or other bird-of-prey. This Sparrow also builds occasionally in a ruined hut or even in the side of a well, or in a fissure on the steep slope of a sand-hill. In some clutches one egg is much paler than the rest (see fig. 7), but it appears that this is not so often the case as it is with *Passer yatii*. The eggs received from Mr. Zarudny average 0.75 by 0.57 inch in dimensions.

(5) *ANTHUS SIMILIS* (Jerdon). Brown Rock - Pipit. (Pl. X. figs. 12, 13.)

A clutch of four eggs, two of which are figured, is in the collection—but in a very dilapidated state, having been much incubated when taken by Mr. Zarudny, at Noukabad, in Baluchistan, on the 2nd of May, 1901. The nest of this Pipit is roughly constructed of grass, and is placed on the ground amongst herbage or under a bush. The eggs vary in size from 0.82 by 0.62 to 0.87 by 0.65 inch.

(6) *PYCNORHAMPHUS CARNEIPES* (Hodgson). White-winged Grosbeak. (Pl. X. figs. 9-11.)

A clutch of four eggs of this bird was taken in the same locality as the eggs of *Lusiniola indica* on the 20th of May, 1899. The nest (see text-fig. 13, p. 407) was placed on the small lower branch of a juniper-tree, close to the stem and about five feet above the ground. The measurements of the nest are as follows:—

	mm.	in.
Extreme outer diameter.....	150	(5.90)
Diameter of cup	85	(3.34)
Depth of cup	50	(1.97)
Height of nest.....	75	(2.95)

The outside wall of the nest is of dry and fragile juniper-twigs, some of which are covered with green moss, and the inner part is of finer twigs, strongly and closely interwoven. The female alone builds the nest, but the male

Text-fig. 13.

Nest of *Pycnorhamphus carneipes*.

bird remains in the immediate vicinity while she is thus employed.

As will be seen from the figures, the eggs of this bird resemble in character those of *Coccothraustes vulgaris*.

EXPLANATION OF PLATE X.

- Figs. 1- 4. Eggs of *Passer yatuü*, p. 405.
 „ 5- 8. „ — *ammodendri*, p. 406.
 „ 9-11. „ *Pycnorhamphus carneipes*, p. 406.
 „ 12, 13. „ *Anthus similis*, p. 406.
 „ 14, 16. „ *Luscinola indica*, p. 404.
 „ 15. Egg of *Saxicola chrysopygia*, p. 404.

XXXIV.—*On the proper Names of the Two Forms of Black-eared Chats.* By JOSEPH I. S. WHITAKER, F.Z.S.

IN the January number of 'The Ibis' (1903, pp. 90 and 91) I notice that Mr. Dresser, writing on the synonymy of some Palearctic Birds, disputes the validity of the name *Saxicola caterinæ* (not *catarinæ*, as spelled by him), which was given by me to the western form of the Black-eared Chat ('Ibis,' 1898, p. 625).

Mr. Dresser commences, very rightly, by recognising the distinctness of the eastern and western forms of the Black-eared Chat, but proceeds to state that, both forms having already received names, "*Saxicola caterinæ*" can only be regarded as a synonym, and finally concludes, somewhat arbitrarily, and without giving any reasons for his deduction, by saying that "the eastern form will therefore stand as *Saxicola amphiteuca* Hempr. & Ehrenb., and the western as *Saxicola albicollis* (Vieill.)."

In order to arrive at a satisfactory solution of this question of names (for apparently the distinctness of the two respective forms or species is now recognised by most ornithologists), it is necessary to examine and carefully consider previous descriptions of the Black-eared Chat, with a view to ascertaining, so far as may be possible, to which form they refer.

Taking first Vieillot's *Ænanthe albicollis* (Nouv. Dict. xxi. p. 424, 1818), the description given to this bird, although in many respects applying equally to both forms, when taken as a whole applies far better to the eastern form than to the western. To begin with, the plumage of the upper parts in the western form could never correctly be described as of a "beau blanc," even "légèrement teint de roux," &c., the upper plumage of this form being distinctly cream-coloured. On the other hand, in the eastern form these parts *are* of a fine white. Secondly, the words "une bande noire traverse et enveloppe l'œil" are certainly more applicable to the eastern form, in which the eye is completely and very markedly encircled by the black band; whereas in the western form it is not generally so, being

either without any black at all above the eye or with merely a very narrow line. Lastly, the words "les couvertures du dessus et du dessous des ailes sont de cette couleur (noire) ainsi que les *pennes*" would indicate that Vieillot meant that the quills as well as the wing-coverts were black, both above and below.

I do not know where Vieillot's type-specimen may be, if, indeed, there be one in existence; but I may say that the form of Black-eared Chat most often met with in Europe appears to be the eastern and not the western, the range of the latter being more or less confined to a comparatively small portion of the Continent.

I would here observe that the term eastern, as applied to the Black-eared Chat with a dark under-wing, is somewhat misleading, the range of this form extending right across the European Continent as far west as France and Portugal. Mr. Dresser is evidently unaware of this fact, as, in a letter, he informs me that he has never heard of its occurrence further west than Montenegro and Albania.

With regard to Temminck's *Saxicola aurita* (Man. d'Orn. i. 1820, p. 241), his description, although, on the whole, more applicable to the eastern form of Black-eared Chat than to the western, is so vague that it might apply equally to either. Owing, however, to the kindness of Dr. Otto Finsch, of the Rijks Museum at Leiden, where Temminck's collection is preserved, I have been able to ascertain that Temminck's specimens of Black-eared Chats are from South France, Italy, Portugal, Egypt, Bogosland, and Arabia, and that they all agree in having the under surface of the wing *black*. Dr. Finsch was unable to inform me which particular specimen had served Temminck as his type; but presumably his description was taken from one of these examples, and, seeing that all the specimens have the under surface of the wing black, we are justified in concluding that Temminck's description of *S. aurita* applies to the eastern and not to the western Black-eared Chat, which has the under surface of the wing of a light colour.

This is, indeed, all the more probable when we consider that the eastern Black-eared Chat is the form found throughout the greater part of Southern Europe, as well as in Asia Minor and North-east Africa; while the western form, so far as I have been able to ascertain, with the exception perhaps of an occasional straggler, occurs only in North-west Africa, South Spain, Sicily, and one or two other West-Mediterranean coast-districts.

Hemprich and Ehrenberg's descriptions of *S. aurita* var. *libyca* and *S. amphileuca* (Symb. Phys. 1829, and Symb. Aves, 1833) are also rather vague, but there can be no doubt that both refer to the eastern Black-eared Chat and must therefore be regarded as synonyms of *S. albicollis* (Vieill.) or *S. aurita* Temm.

Dr. Finsch, in his Catalogue of Birds in the Leyden Museum (p. 151), is unable to separate *S. aurita* and *S. amphileuca*, specimens in his collection from South France and Bogosland being identical. This form of the species, in fact, as already mentioned, has a wide range from east to west, and the term *eastern* as applied to it, being misleading, might perhaps with advantage be changed for some other more appropriate designation.

In conclusion, I maintain that both Vieillot's and Temminck's descriptions refer to the Eastern Black-eared Chat, and that Hemprich and Ehrenberg's names are synonyms; so that the name *Saricola caterine*, failing proof to the contrary, should stand for the western Black-eared Chat.

XXXV.—Notices of recent Ornithological Publications.

[Continued from p. 265.]

67. 'Annals of Scottish Natural History.'

[The Annals of Scottish Natural History. No. 45, January 1903, and No. 46, April 1903.]

Mr. Harvie-Brown begins the January number with a sympathetic "In Memoriam" of his—and our—esteemed friend, the late T. E. Buckley; and this is followed by his

final instalment of the supplementary notes on the Birds of the Outer Hebrides. Mr. W. Eagle Clarke gives details of the example of *Phylloscopus viridis* obtained on September 5th, 1902, at the Sule Skerry lighthouse (*cf.* Bull. B. O. C. xiii. p. 12), the second occurrence of this bird in Great Britain; he also remarks upon some species which are not often observed on actual migration in Scotland, such as the Lesser Whitethroat and the Black-tailed Godwit. He further records a Sooty Shearwater (*Puffinus griseus*) from Stromness, Orkneys, while Mr. W. Evans gives some interesting particulars, up to date, respecting the occurrence of this species in the Forth area. In the April number Messrs. Hinxman and Eagle Clarke contribute some new matter on the fauna of East Ross-shire; Mr. Donald Guthrie's notes from South Uist form another useful supplement to the 'Birds of the Outer Hebrides'; and Mr. T. G. Laidlaw begins his Report on the Movement and Migration of Birds in Scotland during 1902. Some interesting records are to be found among the minor notices.—H. S.

68. 'The Auk.'

[The Auk. A Quarterly Journal of Ornithology. Vol. xx. Nos. 1 & 2, January and April 1903.]

The January number opens with a concise article by Prof. J. A. Allen on "The A. O. U. Check-list—its History and its Future," and those who play with nomenclature may read pp. 6-9 with profit. Mr. B. S. Bowditch's paper on the birds of Porto Rico—commenced in October—is now concluded, and its value is augmented by a bibliography. An interesting account of the migrations of Richardson's Grouse is given by Mr. A. W. Anthony, who passed several months in the vicinity of the mining-camp of Sparta, Eastern Oregon; and the description of the wild—and harmless—shooting that took place at a flock of a dozen birds which alighted in front of the hotel is amusing, though hardly flattering to the "Spartans." Messrs. Grinnell and Daggett have a valuable paper on the birds observed on the Coronados Islands, a small group situated about twenty miles south of San Diego,

California, but within Mexican waters: not to be confounded with an island of the same name in lat. 26° N. *Melospiza coronatorum* is described as a "new-species"; though why a hyphen should be placed between new and species it is hard to say. It may be a printer's error, but we are not certain, for some peculiar notions exist as to the use of hyphens. This is shown in a paper by Dr. Edwin W. Doran on the "Vernacular Names of Birds," in which the author argues that the A. O. U. Check-list is incorrect in the omission of hyphens in compound words, such as "Turkey Vulture," "Prairie Hen," &c. We are, in the main, of Dr. Doran's opinion, for in these cases "Turkey" and "Prairie" are substantives in apposition, and require the connecting hyphen; moreover, we naturally try to write the language which Prof. Allen, in a reply (p. 73), terms "British English" as contrasted with "American English." However, in case of usage, invoked by Prof. Allen, any argument would be futile, and each must go his own way. In Dr. W. C. Braislin's notes on some birds of Long Island is a record of an immature *Larus minutus*, obtained May 10th, 1902, along with some Bonaparte's Gulls: a second instance for North America. An important feature of this number is Mr. William Dutcher's Report of the A. O. U. Comm. on the Protection of North-American Birds, in which is shown how much can be done by steady and systematic action as distinguished from the vicarious interference which is too often an excuse for self-advertisement.

In the April number our fellow-member, Mr. J. L. Bonhote, communicates the results of observations obtained at some of the Bahaman lighthouses. Mr. H. W. Henshaw states that four examples of the Emperor-Goose (*Phalacrocorax auritus*) were obtained on December 12th in Hawaii, which is by far the furthest southern locality on record, and gives details of some other interesting visitors to the Sandwich Islands. The steamer which plies between Puget Sound and Honolulu was boarded early in October, when 680 miles from land, by a Short-eared Owl (*Asio accipitrinus*), and this, coupled with another similar instance, indicates that there is an

autumnal migration from North America; it may also, perhaps, weaken the claims of *A. sandvicensis* to specific rank.—H. S.

69. *Bangs on the Birds of the Liu Kiu Islands.*

[Stejneger's Catalogue of Birds thus far recorded from the Liu Kiu Islands, Japan, revised, with Additions to date. By Outram Bangs. Proc. New England Zool. Club, iii. p. 93 (1903).]

In the 'Proceedings' of the U.S. National Museum, vol x. (1887), Dr. Stejneger gave a list of all the species of birds recorded from the Japanese islands of the Liu Kiu group. In 1890 a fine collection of birds from the same islands was received by the Museum of Comparative Zoology from Mr. Owston, an examination of which raised the total number of species belonging to the Liu-Kius from 77 to 99. Mr. Bangs has now amalgamated the two lists and gives us a complete catalogue of all the known species of the group. The avifauna of the Liu-Kius is essentially Japanese, with a few endemic species, such as the curious Woodpecker *Sapheopipo noguchii*.

70. *Bangs on new Races of American Birds.*

[Proceedings of the New England Zoological Club. Vols. iii. and iv. 1902-3.]

Mr. Outram Bangs sends us copies of eight papers on "new races" of American birds, but we think it is hardly necessary to give their names, as they are all very close allies of well-known species. Nor do we quite understand why it was necessary to put every species into a separate paper with a separate title to it.

71. *Brewster on the Birds of Lower California.*

[Birds of the Cape Region of Lower California. By William Brewster. Bull. Mus. Comp. Zool., Harvard Coll. xli. pp. 1-241 (1902).]

The peninsula of Lower California is an interesting district, and has engaged the attention of many American collectors—Frazar, Xantus, Belding, Bryant, and Anthony have all

had their turn, and have amassed fine series of its birds for the museums of the Eastern States. Mr. Brewster has now taken up the subject and compiled an excellent memoir, containing a careful account of the birds of the terminal portion of the long peninsula, to which well-selected field-notes from the various collectors are added.

The avifauna thus treated is decidedly Neartic, but, as Baird pointed out years ago, appears to be more nearly related to that of Arizona than that of California. The number of species ascribed to the "Cape Region" is 167, besides 88 subspecies. To these Mr. Brewster has now added one of the first category and three of the second—namely, *Totanus melanoleucus frazari*, *Megascops auctusi*, *Bubo virginianus elachistus*, and *Tachycineta thalassina brachyptera*. The 30 birds supposed to be peculiar to Lower California are mostly very close allies of their continental representatives. There are 3 Humming-birds included in the list, amongst which *Basilinna leucotis* is a well-marked species, restricted to the peninsula.

72. *Bulletins of the Philippine Museum.*

[*Bulletins of the Philippine Museum.*—I. On Birds from Luzon, Mindoro, Masbate, Fieao, Cuyo, Culion, Cagayan Sulu, and Palawan. By Richard C. McGregor. Pp. 1–12.—II. List of Bird-skins offered in exchange. Pp. 1–8. 8vo. Manila, 1903.]

A Museum of Ethnology, Natural History, and Commerce has been established by the American authorities at Manila, and the first two of the 'Bulletins' of the new Institution are now before us. The first, prepared by Mr. R. C. McGregor, contains a paper on some recent additions to the Philippine avifauna, in the course of which *Chibia cuyensis* is described as a new species from Cuyo Island. The second part is devoted to a list of bird-skins offered in exchange, which, we are assured, are all in "first class" condition.

We beg leave to congratulate our American friends on the energy and enlightenment shown by their government in attending to the claims of science at so early a date in their new rule of this most interesting country.

73. *Chapman on Birds from Alaska.*

[List of Birds collected in Alaska by the Andrew J. Stone Expedition of 1901. By Frank M. Chapman. Bull. Amer. Mus. N. H. xvi. pp. 231-247 (1902).]

The naturalists of the "Stone" Expedition to Alaska of 1901 attended principally to mammals, but obtained 302 specimens of birds, which are referred to 68 species by Mr. Chapman. Most of them are well-known inhabitants of Arctic America, but two are now described as belonging to new subspecies — *Lagopus leucurus peninsularis* and *Cyanocitta stelleri borealis*. Some field-notes by Mr. Figgins (Mr. Stone's taxidermist) are added to the list.

74. *Finn on Two Birds from Mauritius.*

[On Specimens of Two Mauritian Birds in the Collection of the Asiatic Society. By F. Finn, B.A., F.Z.S., Deputy Superintendent of the Indian Museum. J. A. S. B. lxxi. pt. ii. pp. 87-91, pls. iv., v. (1902).]

The author writes on certain specimens of a Moorhen and a Tropic-bird in the Calcutta Museum "from Mauritius," presented many years ago by Mr. Willis Earle, and catalogued by Blyth as *Gallinula chloropus* and *Phaethon candidus*. The Moorhen is referred to *G. pyrrhorhoa* Newton, but its large bill and other divergences are noticed, while one of the Tropic-birds (referred to *Phaethon lepturus*) appears to be more like *P. americanus* of the B. M. Catalogue; but it may be questioned whether these two supposed species are really separable, or whether there is an error in the locality.

75. *Finsch on Dicaeum sollicitans.*

[Ueber *Dicaeum sollicitans* Hartert. Von Dr. O. Finsch. Notes Leyden Mus. xxiii. pp. 153-155.]

The Leyden Museum has received from its correspondent Herr Max Bartels, in Java, an example of *Dicaeum sollicitans* of Hartert (Nov. Zool. viii. p. 52), which was based on a single specimen with the sex undetermined. The new example, of which a description is given, is certainly a female, but Herr Bartels has also secured a male in similar plumage. This proves that the species belongs to the plain-

coloured group of *Dicaeum*, in which the sexes are dressed alike.

76. *Finsch on Two new Javan Birds.*

[Ueber zwei neue Vogelarten von Java. Von Dr. O. Finsch. Notes Leyden Mus. xxiii. pp. 147-152.]

The two new birds from Java are *Caprimulgus bartelsi* and *Crithagra estheree*. The *Caprimulgus* is named after Herr Bartels, a planter resident at Pangerango, near Pasir Datar, in Western Java, who is very active in ornithological work and was the discoverer of both the novelties. Herr Bartels is the author of the most recent list of Javan birds (see "Zur Ornithologie Javas," in *Natuurk. Tijdschr. v. Ned. Ind.* lxi. p. 129), in which 239 species are enumerated.

77. *Finsch on Two Species of Centropus.*

[Ueber zwei bisher verkannte Arten: *Centropus nigrorufus* (Cuv.) und *C. grilli* Hartl. Von Dr. O. Finsch. Notes Leyden Mus. xxiii. pp. 156-161.]

It is well known that Levaillant described and figured, in his 'Oiseaux d'Afrique,' many birds which were entirely strange to South Africa, and in some instances even gave alleged particulars concerning their exact localities and nesting-habits. Such was the case with a species of *Centropus*—his "*Coucal Noirou*" (pl. 220), which Dr. Finsch now shews was really based on a Javan and Sumatran species called *C. purpureus* in the British Museum Catalogue (xix. p. 348). This bird, therefore, ought to bear the name *C. nigrorufus* Cuv., whereas the African species of Coucal, often known under the latter name (if distinct from *C. bengalensis*, which is doubtful), should be termed *C. grilli* Hartl.

78. *Fisher on a new Tern.*

[A new *Procelsterna* from the Leeward Islands, Hawaiian Group. By Walter K. Fisher. Proc. U.S. Nat. Mus. xxvi. pp. 559-563 (1903).]

The author describes what appears to be a decidedly new species of the genus *Procelsterna*, or (as we should prefer to

call it) *Procellisterna*, obtained by the naturalists of the U.S. Fish-Commission steamer 'Albatross' at Neekar Island, Hawaiian group, and also seen on Bird Island. It is named *P. saxatilis*. The eggs were taken and are described. The species is nearest to *P. cinerea* of the Australian seas.

79. *Fountain on the Mountains and Forests of South America.*

[The Great Mountains and Forests of South America. By Paul Fountain. London: Longmans & Co., 1902. 1 vol. 8vo. 306 pp. Price 10s. 6d. net.]

This is certainly a remarkable work and one to which attention should be called. Though the author has evidently had no scientific education, and often falls into error in consequence, he has accumulated a large experience of animal life during his travels, and tells his story in good, plain, easy English. Birds are constantly referred to—indeed the author's chief occupation appears to have been that of a Collector, but he does not inform us distinctly what has become of his bird-skins. There are many good field-notes about the species he met with, but in many cases we are not informed what they were, as they seem to be mostly described from memory, not from specimens. For example, the "Urraca-Jay," pictured in a lively way on p. 19, one would suppose to be a *Cyanocorax*, but the eggs described as belonging to it are certainly those of one of the Cuckoos of the Crotophagine group. However, the volume is worthy of examination, though some people might be inclined to doubt the author's good faith.

80. *Godman'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. (Zoology.) Parts CLXXI.-CLXXVII. 1902-03. (R. H. Porter.)]

Mr. Godman has now finished the Gallinæ and Geranomorphæ and has progressed well with the Limicolæ. We are pleased to see that he refuses to reject the well-established

terms *Ortyx* and *Parra* on the quite insufficient grounds which have been put forward for doing so. No well-known name should be altered where there is the slightest doubt of the absolute necessity of so doing.

Good coloured figures are given of *Ortalis wagleri*, *Odontophorus melanotis*, *O. leucolæmus*, and *O. cinctus*.

It is expected, we are glad to say, that the "Birds" of this important work may be brought to a close before the end of the year.

81. 'Handbook of Instruction for Collectors.'

[Handbook of Instruction for Collectors issued by the British Museum (Natural History). London, 1902. 137 pp. Longmans. Price 2s. 6d.]

This is a very useful little book, and should be referred to by every naturalist who goes abroad to collect. Even if he knows all about his particular subject, there are sure to be points on which he may require assistance, and here he will find it. The section relating to bird-skinning is short, but full of information, and contains, we think, everything that it is necessary to know. We are specially pleased with the chapter on how to determine the sex of a bird. It is clear, precise, and well illustrated. But we should also have liked to have chapters on collecting birds' eggs and birds in spirit, which both require special treatment.

82. Hartert on Brisson's Generic Terms.

[Eine logische unabweisbare Aenderung in der ornithologischen Nomenklatur. Von E. Hartert. V. Internat. Zool. Congr. pp. 897-899.]

It has been the fashion with many ornithologists (especially those with exaggerated views of the claims of priority) to use Brisson's so-called "generic names." Mr. Hartert proves to us most clearly that this practice is incorrect. Brisson, with all his undoubted merits, never made any generic names adapted to the modern system of binomial nomenclature. The typical Pigeons, for example, he named "Genus Columbinum," using *Columba* as a name for some of them, for others *Ænas*, *Palumbus*, and *Turtur*. It is more logical for binomialists to discard Brisson's nomenclature altogether!

83. *Hartert on the Birds of the Obi Group, Moluccas.*

[The Birds of the Obi Group, Central Moluccas. By Ernst Hartert. Nov. Zool. x. p. 1 (1903).]

The Obi Islands lie in the middle of the Moluccan Archipelago, between Halmahera and Ceram, and consist of one larger islet and several that are smaller. They have been visited by Bernstein, Guillemard, Doherty, Lucas (of Brussels), and recently by Waterstradt, who managed to ascend the hills of the interior. Mr. Hartert now gives us the first complete list of the birds of this group, based mainly on the rich series at Tring. He enumerates 85 species, and adds instructive notes. The following are now described as new:—*Astur griseogularis obiensis*, *Cryptolopha everetti waterstradti*, *Pachycephala johni*, and *Criniger lucasi*. Besides these and other species restricted to the locality, Obi Major is (or was until quite lately) the only certainly ascertained home of the rare Woodcock *Neoscolopax rochussenii*.

84. *Hartert on the Birds of the Tukong-Besi Islands and Buton.*

[On the Birds collected on the Tukong-Besi Islands and Buton, Southeast of Celebes, by Mr. Heinrich Kühn. By E. Hartert. Nov. Zool. x. p. 18.]

The Tukong-Besi Islands form an extensive but almost unknown archipelago east of Buton, and had never been visited by a zoological collector till Mr. Kühn went there in December 1901 and January 1902. Buton also is nearly unknown ornithologically. Altogether Mr. Kühn's collection contains examples of 73 species, of which 9 or 10 are migrants from the north and the rest are residents. Generally the ornithology of these islands is predominantly Celebesian, but the following forms are described as peculiar:—*Pisorhina manadensis kalidape*, *Tanygnathus megalorhynchus viridipennis*, *Phanicrophas calorhynchus rufiloris*, *Dicaeum kuehni*, *Cinnyris infrenata*, *Zosterops flavissima*, *Oriolus broderipi oscillans*, *Ptilinopus melanocephalus aurescentior*, and *Hypotaenidia kuehni*.

85. *Hartert on the Birds of Batchian.*

[The Birds of Batjan. By Ernst Hartert. Nov. Zool. x. p. 49 (1903).]

Many well-known ornithologists—Wallace, Bernstein, Guillemard, and others—have visited the beautiful island of Batchian and explored its avifauna, which is closely related to that of its larger sister Halmahera. The remarkable form *Semioptera* exists in both of them, but *S. halmaheræ* is slightly different from *S. wallacii*. The material lately supplied to Tring by Doherty and Waterstradt, who penetrated into the high interior, has led to the compilation of the present complete list of the known birds of Batchian, which includes 135 species. Of these *Muscicapula hyperythra pallidipectus*, *Myzomela batjanensis*, and *Columba albertisii exsul* are described as new.

86. *Hartert on a new Oligomyodian Form.*

[On a remarkable new Oligomyodian Genus and Species from Ecuador. By E. Hartert. Nov. Zool. x. p. 117.]

Sapayoa ænigma is a new Piprine form, established on the strength of a single female specimen obtained on the Rio Sapayo, in N.W. Ecuador. It appears to be allied to *Scotothorus* (= *Heteropelma*), and is of a general olive-green colour, but it is possible that the male may be differently coloured.

87. *Henshaw on the Birds of the Hawaiian Islands.*

[Birds of the Hawaiian Islands, being a complete List of the Birds of the Hawaiian Possessions, with Notes on their Habits. By H. W. Henshaw. 8vo. Honolulu, H. T., 1902. 146 pp. Price \$1.00.]

A handbook of the birds of the Hawaiian Archipelago will be very useful to the students of that peculiar Ornis, particularly when it is accompanied by such valuable field-notes as Mr. Henshaw gives us in the present memoir. His prefatory remarks are also of interest. Mr. Henshaw assigns 125 species to the Hawaiian avifauna, of which about half (60) are endemic Passeres. Three Rails are likewise peculiar to the group, the rest of the birds being mostly stragglers from America or species of wide distribution.

It would have made the "List" more generally useful if references had been added under each species to the figures published in the great works of Wilson and Evans and of Rothschild. 'The Ibis' does not appear to have reached Honolulu, at any rate the name of one of the Editors is persistently misspelled!

88. *Ihering on the Birds of São Paulo, Brazil.*

[Contribuições para o Conhecimento da Ornithologia de São Paulo por H. von Ihering. Revista do Mus. Paulista, v. pp. 261-329, pl. xi. (1902).]

This is a supplement to Dr. v. Ihering's previous articles on the same subject (*cf.* *Ibis*, 1891, p. 134). He now gives a list, with short remarks added, of 46 additional species of birds which have been recently ascertained to occur within the confines of the State of São Paulo. Amongst these are 4 considered to be probably of new "subspecies" — *Icterus cayanensis valencio-buenoi* (!), *Tyranniscus bolivianus paulistus*, *Picumnus sagittatus sharpei*, and *P. nebulosus caipira*. Adding these to the 590 enumerated in the previous papers, we find the strength of the Pauline ornithology to be now about 636 species. The author calculates that it will ultimately run up to 800 species, which is highly probable.

In the second section of his memoir Dr. v. Ihering describes the eggs of 40 species of Pauline birds additional to those in his former papers, and illustrates six of them on a nicely coloured plate. The gem of these is the egg of *Ampelion cucullatus*.

In the third section he discusses the occurrence of an Argentino-Chilian element in the Pauline avifauna, where, however, it appears to us to be very feebly represented.

The fourth section gives a complete nominal List of the Pauline Ornithology.

89. *Innes on the Birds of the White Nile.*

[Voyage au Nil Blanc pour des Recherches Zoologiques. Par le Dr. W. Innes Bey. Bull. Soc. Khédiv. de Géographie, sér. v. no. xii. Cairo, 1902.]

This paper, lately read before the Khedivial Society of

Geography at Cairo, gives an instructive account of the author's journey up the White Nile to Fashoda and back, and many notes on the birds, which appear to have attracted his principal attention. He went from Cairo in company with M. Jägerskiöld and other savants from Sweden (sent out by their government on a scientific mission to Egypt and the Soudan) with the object of obtaining a series of birds from the White Nile for the Museum of the Medical School at Cairo, of which he is Curator. In this object he seems to have been quite successful, as he obtained examples of 99 species, of which a systematic list is given at the close of the memoir. Most of these birds are also mentioned in the narrative, which occupies the greater part of the article.

We congratulate the Egyptian authorities in having resident at Cairo a naturalist who is evidently devoted to his work, and trust that under his curatorship the Museum of the Medical School will make rapid progress with its series of native birds.

90. *Kollibay on the Birds of Southern Dalmatia.*

[Beiträge zur Kenntniss der Vogelwelt Dalmatiens. Von Rechtsanwalt Kollibay, Neisse. Ornithol. Jahrb. xiv. pp. 22-45 (1902).]

The author gives an interesting account of his journey to the island of Curzola, in Southern Dalmatia, in the course of which he visited Dr. Madarász at Budapest, Herr Reiser at Sarajewo, and other ornithologists at Mostar and Cattaro. Notes on the birds of Curzola and the vicinity will be found in a second section. Some Buntings (*Emberiza melanocephala*, *E. cirrus*, and *E. hortulana*) were found breeding, and several rare Sylvians are mentioned. *Pratincola rubetra dalmatica* is described as a new subspecies!

91. *Lillo on the Birds of Tucuman.*

[Enumeración sistemática de las Aves de la Provincia de Tucumán por Miguel Lillo. An. Mus. Nac. Buenos Aires, viii. pp. 169-221 (1902).]

This list of the birds of Tucuman contains some prefatory

remarks and the names of 351 species which have been recorded as occurring in that State of the Argentine Republic. A few remarks are added to each of them.

We can assure the author that much yet remains to be done in Argentine Ornithology, and advise him to examine the Sierras on the western side of Tucuman. He claims to have added 20 species to the previous lists of the birds of the State.

92. *Lönnerberg on a Fossil Condor.*

[On some Fossil Remains of a Condor from Bolivia. By Dr. Einar Lönnerberg. Bull. Geol. Inst. Univ. Upsala, vi. pt. 1 (1893).]

Among the valuable palæontological specimens brought home by Baron Erland Nordenskiöld from the valley of Tarija, in Southern Bolivia, were a complete tarso-metatarsus and the upper and lower ends of the femur of a large bird. These are now described and figured by Dr. Lönnerberg and referred to a new species of New-World Vulture allied to the Condor, which it is proposed to call *Sarcorhamphus patruus*. The age of the new fossil Condor is about that of *Mustodon andium*, plentiful remains of which are found in the same deposits.

93. *Lucas on some North-American Fossil Birds.*

[Notes on the Osteology and Relationship of the Fossil Birds of the Genera *Hesperornis*, *Hargeria*, *Baptornis*, and *Diatryma*. By Frederick A. Lucas. Proc. U.S. Nat. Mus. xxvi. pp. 545-556 (1903).]

The acquisition by the U.S. National Museum of a specimen of *Hesperornis regalis* and the loan of some bones of *Hesperornis gracilis* and *Baptornis advena* have enabled Mr. Lucas to add a little to our knowledge of these obscure fossil forms. After commenting fully on *Hesperornis*, he points out that *H. gracilis* is so different from *H. regalis*, that it ought to be put in a separate genus, for which the title *Hargeria* is proposed. *Baptornis* is stated to be quite distinct from *Hesperornis*, and more like existing birds. *Diatryma* is not a Dromæognathine bird, and may possibly belong to the Stercorornithes.

94. *Nelson on a new Cliff-Swallow.*

[A new Subspecies of the Cuban Cliff-Swallow. By E. W. Nelson. Proc. Biol. Soc. Washington, xv. p. 211 (1902).]

A new subspecies of Cliff-Swallow is described as *Petrochelidon fulva pallida*. It is based on specimens obtained by the Biological Survey in Coahuila, Mexico, and its distribution is given as the "arid border of the tableland in N.E. Mexico."

95. *North on the Egg of the Kagu.*

[Description of the Eggs of the Kagu, *Rhinochetus jubatus* Verreaux et Des Murs. By Alfred J. North, C.M.Z.S. Records Austral. Mus. iv. pp. 310, 311, pl. 1.]

Mr. North describes and figures eggs of the Kagu of New Caledonia (*Rhinochetus jubatus*) laid in confinement at Sydney. He points out their resemblance to those of some of the Laridæ, but they are likewise to be compared with those of some of the Cranes (Gruidæ), to which family the Kagu is usually supposed to be allied.

The egg of this bird has already been described and figured by Bartlett from an example laid in the Zoological Society's Gardens (see P. Z. S. 1868, p. 154, pl. xii. fig. 3).

96. *Oberholser on Birds from Paraguay.*

[List of Birds collected by William T. Foster in Paraguay. By Harry C. Oberholser. Proc. U.S. Nat. Mus. xxv. pp. 127-147 (1902).]

A collection of birds made by Mr. W. T. Foster at Sapucay, in Paraguay, which is a short distance to the east of Asuncion, contains 78 specimens, which are referred to 65 species and subspecies. Mr. Oberholser has already published descriptions of the new forms (Proc. Biol. Soc. Washington, xix. p. 187). He now gives a complete list of the species with critical notes, and proposes to alter the nomenclature according to the American system. The most noticeable novelty appears to be a new *Arremon* (*A. callistus*), allied to *A. polionotus*. But it is based on a single specimen only, and appears to be a little doubtful.

97. *Oberholser on new South-American Birds.*

[Some new South-American Birds. By Harry C. Oberholser. Proc. U.S. Nat. Mus. xxv. pp. 59-68 (1902).]

Mr. Oberholser describes as new (or as requiring new names) *Thamnophilus tephrogaster* from Bahia, *Synallaxis spixi notatus* from Argentina, *Xenicopsis percnopterus* from Brazil, *Ochthæca rufimarginata acrophila* from Rio Napo, *Mecocerculus alutus* from Ecuador, *M. stictopterus euplastus* from Peru, *Rhynchoocyclus scotius* from "Brazil," *Hemitriccus pammictus* from S. America (!), *Pogonotriccus alleni* from Colombia, *Sirystes sibilator atimastus* from Matto Grosso, *Icterus pyrrhopterus compsus* from Matto Grosso, and *I. p. argoptilus* from Argentina. A new genus (*Perissotriccus*) is likewise founded for *Todirostrum ecaudatum*, and the species of *Thryothorus* of the group allied to *T. leucotis* are rearranged. We beg leave, however, to express some doubt whether it is of advantage to Science to describe such species as are here indicated without a comparison of the examples in the British Museum, especially where the localities are uncertain. We are nearly sure that most of Mr. Oberholser's species could be matched by specimens in the well-filled boxes at South Kensington.

98. *Prichard's 'Heart of Patagonia.'*

[Through the Heart of Patagonia. By H. Hesketh Prichard. With Illustrations by J. G. Millais. London: Heineman, 1902. 1 vol. 346 pp. Price 21s. net.]

Mr. Prichard went through "the heart of Patagonia" in search of the extinct *Neomylodon*, of which, it was suggested, some individuals might still be found lingering in the recesses of the Andes. This did not prove to be the case, but the author's adventures and experiences have resulted in the production of a most interesting narrative of his journey, which we can heartily recommend to our readers. Mammals were naturally the first objects of attraction, but birds, as will be obvious on turning over the pages of Mr. Prichard's book, were by no means neglected. Patagonia, we are told,

is a wonderful country for Birds-of-prey. You may travel for leagues, and see no signs of life but Chimangos, Carranchos, and Condors. Mr. Millais's life-like illustrations provide an additional charm to the work.

99. *Richmond on Birds from the Andaman and Nicobar Islands.*

[Birds collected by Dr. W. L. Abbott and Mr. C. B. Kloss in the Andaman and Nicobar Islands. By Charles W. Richmond. Proc. U.S. Nat. Mus. xxv. pp. 287-314 (1902).]

The collection of birds made by Dr. Abbott and Mr. Kloss in the Andaman and Nicobar Islands in the early part of 1891 contained about 520 specimens, which are referred by Mr. Richmond to nearly 100 species. Of these nine "appear to be new"—namely, *Zosterops ventralis*, *Sturnia erythropygia katchalensis*, *Rhinomyias nicobarica*, *Arachnechthra klossi*, *Pitta abbotti*, *Spilornis klossi*, *Astur obsoletus*, *Osmotreron chloroptera andamanica*, and *Excalfactoria triukatensis*. We venture to express a doubt whether it is justifiable to describe these supposed "new species" without consulting Mr. Hume's collections now in the British Museum. We are sure also that such a well-known journal as that of the Bombay Natural History Society ought not to be pronounced "inaccessible" at Washington, and that Mr. Butler's recent paper on the Andamans should have been consulted before the publication of the present article. We are pleased, however, that Mr. Richmond is content to follow the arrangement of the 'Fauna of British India,' and does not turn the sequence of the species upside down! Dr. Abbott may be congratulated on having got examples of the *Pitta* of the Nicobars (*P. abbotti*), which Mr. Hume saw but did not obtain.

Mr. Kloss has lately published an interesting account of his experiences during this voyage ('In the Andamans and Nicobars,' London, Murray, 1903), which we can cordially recommend to our readers. There are numerous allusions to birds in it.

100. *Richmond on Birds from Sumatra.*

[Birds collected by Dr. W. L. Abbott on the Coast and Islands of North-west Sumatra. By Charles W. Richmond. Proc. U.S. Nat. Mus. xxvi. pp. 485-524 (1903).]

Mr. Richmond gives us an account of the birds which the indefatigable collector Dr. Abbott obtained in the winter of 1891-92 on the coast and islands of North-west Sumatra during a five months' cruise. The series consists of about 450 specimens, representing nearly 140 species. They are mostly well-known Sumatran forms, but 19 are "believed to be new," and described accordingly. These are named *Macropygia simalārensis*, *Spilornis abbotti*, *Pisorhina umbra*, *Palaeornis major*, *Psittinus abbotti*, *Pelargopsis simalārensis*, *P. sodalis*, *Thriponax parvus*, *Macropteryx permagna*, *Cyanoderma fulviventre*, *Stachyris banjakensis*, *Malacopterum notatum*, *Hypothymis abbotti*, *H. consobrina*, *Tchitrea procera*, *Graucalus babūensis*, *G. simalārensis*, *Campephaga compta*, and *Oriolus mundus*.

Some of these "species" appear to rest on rather slender evidence. For instance, *Macropteryx pteronota*, founded on a single female, is said to be like *M. longipennis*, "but size larger"!

New names are given to *C. grisea* Bp. ex Gray, and to *Corvus tenuirostris* Moore (nec Gray, nec Bonnatere), which are proposed to be called respectively *Columba phasma* and *Corvus compiler*. It is suggested that *Ichthyophaga* Lesson (1842) has priority over other generic terms for *Falco ichthyætus* Horsf.

101. *Richmond on Pinaroloxias inornata.*

[Note on *Pinaroloxias inornata* (Gould). By Charles W. Richmond. Proc. Biol. Soc. Washington, xv. pp. 247, 248 (1902).]

Gould described "*Cactornis inornata*" in 1843, from a specimen obtained during the voyage of H.M.S. 'Sulphur,' and stated to have been brought from Bow Island, Paumotu group. It seems, however, *not* to occur there, and Mr. Richmond identifies it with *Cocornis agassizi* Townshend (Bull. Mus. Comp. Zool. xxvii. p. 133, 1895) from Cocos

Island, which was also visited by the 'Sulphur.' The bird should therefore stand as *Pinaroloxias inornata*, this new generic name for it having been made by Dr. Sharpe, who removed it to the family Dicæidæ.

102. Rothschild and Hartert on Papuan Birds.

[Notes on Papuan Birds. By the Hon. W. Rothschild and E. Hartert. Nov. Zool. x. p. 65.]

The authors continue their notes on Papuan birds, of which the Tring Museum contains an almost unrivalled series. Of the Paradiseidæ, which are first treated, 87 out of 96 recognised forms are represented at Tring by 1292 skins. The specimens are now catalogued systematically and notes are added. Of *Lobo-paradisea sericea* the three only known examples are at Tring, but the exact locality is still uncertain. *Loborhamphus nobiis* (Bull. B. O. C. xii. p. 34) is figured. *Manucodia atra altera* is a new subspecies. The Corvidæ and Laniidæ of Papua are next reviewed. In the latter family *Pitohui* (scr. *Rhectes*) *dohertyi* is a new species from Ron Island, in the Bay of Geelvink, *P. meyeri* a new species from Northern New Guinea, and *Pinarolestes megarhyncha madaraszii* and *P. m. despectus* are two new subspecies. A new *Pachycephala* is described from British New Guinea as *P. moroka*. Six Papuan Dicruridæ are recognised, of which *Dicrurus meeki* from Guadalcanar, Solomon Islands, is new. Lists of the Oriolidæ, Artamidæ, and Sturnidæ follow and conclude the present instalment of the Papuan Birds.

103. Salvadori on the Birds of Franz-Joseph Land.

[Osservazioni Scientifiche eseguite durante la Spedizione polare di S.A.R. Luigi Amedeo di Savoia, Duca degli Abruzzi, 1899-1900. Ucelli. Osservazioni del Prof. Tommaso Salvadori. Milano, 1903. 11 pp. 4to.]

We have here an account of the collection of birds made by H.R.H. the Duke of the Abruzzi during his celebrated North-Polar expedition of 1899-1900. As might have been expected from the locality visited, the series was not large, embracing only 38 specimens, which are referred by

Count Salvadori to 10 species, besides a certain number of eggs. But the birds are by no means without interest, as 8 of them are from Prince Rudolph Island, the most northern of the Franz-Joseph group, where the expedition passed the winter. The only Passerine bird in the list is *Plectrophenax nivalis*, of which examples were obtained in May and June 1900.

The introduction contains an excellent summary of previous authorities on the birds of Franz-Joseph Land. The egg of *Pagophila eburnea* is figured.

For a complete account of the Duke of Abruzzi's adventurous journey, we may refer our readers to "On the 'Polar Star'" (two vols., Hutchinson & Co., 1903), a most interesting and beautifully illustrated work, with many references to birds.

104. *Salvadori on the Birds of Principe and San Thomé Islands.*

[Contribuzioni alla Ornitologia della Isole del Golfo in Guinea.— I. Uccelli dell' Isola del Principe. II. Uccelli dell' Isola di San Thomé. Per Tommaso Salvadori. Mem. R. Accad. Sci. Torino, (2) liii. pp. 1-16, 17-45 (1903).]

The distinguished Italian explorer Sig. Leonardo Fea has lately visited the four principal islands of the Gulf of Guinea, and Count Salvadori has undertaken the task of working out the birds which he has collected. After a concise account of previous authorities on the birds of the island of Principe and a complete bibliography, the Count states that the 41 specimens obtained by Sig. Fea are referable to 16 species, of which one, *Turdus cauthorhynchus* (already characterized in Boll. Mus. Torino, no. 114, p. 2), is new to science, and another, *Pheniconaias minor*, is new to the island-fauna. A complete list, with synonymy and remarks, is then given of the 43 species as yet ascertained to occur in the island.

It is a remarkable fact that neither diurnal nor nocturnal birds-of-prey have yet been found in the island. The general facies of the avifauna is decidedly West-African, but there

are two Passerine genera peculiar to it—*Cuphopterus* and *Parinia*.

In a second memoir the ornis of the larger island of San Thomé is treated in a similar manner. An excellent summary of the previous authorities on the subject is given, together with a complete bibliography. Sig. Fea had a bad time in this island and secured only 103 specimens of birds, which are referable to 21 species. Two of these (*Zosterops fea* and *Corythornis thomensis*) are new to science. The list of the known birds of St. Thomas, which follows, contains 63 species, together with synonyms and remarks. Twenty-two of them are restricted to the island. An appendix gives the names of 17 doubtful species.

105. *Shufeldt on the Classification of certain Groups of Birds.*

[On the Classification of certain Groups of Birds. (Supersuborders: Archornithiformes, Dromæognathæ, Odontoholcæ.) By R. W. Shufeldt. *American Naturalist*, xxxvii, pp. 33-64 (1903).]

This is one of a series of essays prepared by the author for a general work on the classification of the Class Aves, but subsequently broken up and issued separately on account of difficulties connected with its publication. The present memoir contains Dr. Shufeldt's views on *Archæopteryx*, the Ostriches and allied birds, and the *Odontornithes*. Eight other memoirs are stated to be ready for appearance in due course.

106. *Swenander on the Gullet and Stomach of Birds.*

[Studien über den Bau des Schlundes und des Magens der Vögel. Inaugural Dissertation von Gust. Swenander. Upsala, 1902.]

This elaborate paper contains a valuable addition to our knowledge of the structure of the gullet and stomach of Birds, and the author has tried to refer the varieties of the finer anatomical structure to the nature of the food as their ultimate cause. About 130 birds, representing most of the principal groups, have been examined micro-copically, while of 47, mostly common European birds, more microscopical

detail has been given. Especial attention has been paid to the solvent glands. The general part, and most of the numerous illustrations, will chiefly interest the histologist, but the systematist will hardly derive much help or hints from this part of avine anatomy.

XXXVI.—*Letters, Proceedings of the British Ornithologists' Union, Extracts, Obituary, &c.*

WE have received the following letters addressed to "The Editors of 'The Ibis'" :—

SIRS,—On the 16th January last, through the kindness of Mr. Arthur W. Elford, British Vice-Consul at Catania, Sicily, I came into possession of a fine specimen of *Porphyrion alleni* Thompson, which had been obtained on the 4th of December, 1902, at the Pantano di Catania, an extensive tract of marshy land near the town of that name. The bird in question was shot by a local sportsman, Signor Vincenzo Auteri, who, fortunately recognising its rarity, took it to a taxidermist and had the skin prepared by him. The specimen was not sexed, but, judging from its wing-length (6·10 inches), I presume it to be a male. The average wing-length in a series of specimens of this species in my collection is 6 inches in the case of males, and 5·60 inches in that of females.

This makes the sixth recorded instance of the occurrence of this tropical species in Europe, four of the previous captures having been effected in Italy and one in Spain. Of the four examples obtained in Italy, no less than three come from the neighbourhood of Lucca in Tuscany, while the fourth is from the vicinity of Pachino in Sicily (Giglioli, 'Avifauna Italica,' p. 353).

According to Signor Auteri, another of these birds was seen by him about the middle of January this year not far from the Lake of Lentini, also near Catania, but was not secured.

I may also here mention having lately heard from the naturalist Blanc of Tunis that a specimen of *Porphyrion alleni* was obtained in December last near Bizerta in North Tunisia, and was prepared by him for a customer.

As Prof. Giglioli observes (*Avifauna Italica*, p. 354), it is a singular fact, and one worthy of notice, as being contrary to the generally accepted ideas regarding the laws governing the migration of birds, that the cases recorded of the occurrence in Europe of this tropical Ethiopian species should all have occurred during the autumn or winter months.

The species has no doubt rightly been separated generically from *Porphyrio* under the name of *Porphyryula* Blyth, or *Porphyriola*, as perhaps it should be spelled.

While on the subject of *rare aves*, for this part of the world at least, I may mention having this winter obtained a fine adult specimen of the Gannet (*Sula bassana*). This was taken alive in a fishing-net off the coast near Palermo and brought to me by some fishermen. The bird lived in my garden for more than two months, but died about the end of March, on the approach of warm weather.

This northern species, although apparently common in winter about the Straits of Gibraltar, is more or less rare so far east in the Mediterranean as Sicily, particularly in its adult dress; and the present capture is, I believe, but the third recorded for Italy in that state of plumage. The Florence Museum possesses one; another, obtained off the small island of Levanzo in the month of May, is in the Trapani Lyceum collection, and that now recorded appears to be the third. Young Gannets in their dark dress are more often met with in this part of the Mediterranean, and I myself last year obtained one of them here, and another near Tunis. The species, although no doubt more or less uncommon on the Italian coasts, is probably less rare than is generally supposed. Colonel Irby, who was in Palermo during the past winter, informed me that he and his son, when out walking one day, saw an adult Gannet flying not far from the shore below Monte Pellegrino. From Tunis also I have heard of an adult Gannet having been obtained during the past winter on the Lake of Bizerta.

Yours &c.,

JOSEPH I. S. WHITAKER.

Palermo,
May 30th, 1903.

SIRS,—It will be interesting for your readers to know that, being in Lyons last autumn, I bought a fine specimen of the Long-legged Buzzard (*Buteo ferox*) in the flesh. It had been obtained on October 3rd, 1902, on the Rhone near Feysin, a locality about three miles from Lyons. It was skinned in my presence at Mr. Casartelli's establishment, and proved on dissection to be a young female; it is now in my collection at Caoddo (Padova). When I informed my friend Dr. L. Bureau of this occurrence, the distinguished Director of the Museum of Nantes wrote to me that the specimen in question is of great importance, being the second taken in France. The only example previously known was killed on September 2nd, 1878, by Dr. de Montessus in the Department of Saône d. Loire, and is now preserved in the Museum of Autun.

Yours &c.,

COUNT E. ARRIGONI DEGLI ODDI.

Villa del Monte a Pulicciano,
Certaldo Val d'Elsa (Toscana).
March 24th, 1903.

SIRS,—I ought to have pointed out before that in the 'Ibis' for 1902 (p. 410) Mr. W. R. Ogilvie-Grant has made it appear that I obtained examples of *Pyrhulanda leucotis* (Staul.) on the White Nile in 1900. The species, however, of which I procured specimens was *P. melanocephala* (Licht.), but from want of material I identified them wrongly as *P. leucotis* (see Ibis, 1901, p. 245).

Yours &c.,

Holmehurst, Burley, New Forest,
May 19, 1903.

HARRY F. WITHERBY.

Proceedings at the Anniversary Meeting of the British Ornithologists' Union, 1903.—The Annual General Meeting of the British Ornithologists' Union was held in the meeting-room of the Zoological Society of London, 3 Hanover Square (by permission of the Council of that Society), on

Wednesday, the 13th of May, at 6 P.M. Dr. F. DuCane Godman, F.R.S., the President, took the Chair.

The Minutes of the last Annual Meeting having been read and confirmed, the following Report of the Committee was read :—“The Committee regret to have to announce the loss by death since the last Anniversary of two Ordinary Members of the Union, namely, Mr. Thomas E. Buckley (an old and highly valued member) and Mr. Nigel Gurney. There have been five resignations, viz., those of Mr. F. E. Beddard, F.R.S., Mr. S. R. Crockett, Mr. Lionel Hinxman, Mr. P. M. C. Kermode, and Mr. W. Stoate. One election has been cancelled under Rule V. (that of Mr. A. E. Maxwell), and two members have been removed under Rule VI. (the Hon. R. Coke and Mr. J. L. Newman).

“The Union on May 13th consisted of 365 Ordinary Members, 2 Extra-Ordinary Members, 9 Honorary Members (one less than the complement, owing to the lamented death of Dr. Gustav Radde, Director of the Tiflis Museum), and 19 Foreign Members.

“There are at present 21 candidates for the Ordinary Membership, whilst Mr. R. Ridgway’s transference from the Foreign to the Honorary Membership is recommended by the Committee, who also recommend Dr. G. Martorelli for election as a Foreign Member, and Col. W. Vincent Legge (at present an Ordinary Member), Capt. F. W. Hutton, F.R.S., and Mr. A. J. North for election as Colonial Members under Rule II. as amended at the last General Meeting.”

The Meeting then proceeded to elect officers for the ensuing year, when it was announced that Dr. F. DuCane Godman, F.R.S., had been re-elected President, Mr. Howard Saunders Secretary, and Mr. W. E. de Winton a member of the Committee in place of Dr. R. Bowdler Sharpe, who had retired by rotation.

The following twenty gentlemen were then ballotted for and elected Ordinary Members :—Max Bartels, Pasir Datar, Java, Dutch Indies; The Rev. Francis L. Blathwayt, 173

Monks Road, Lincoln; Godfrey P. Burrell, Brooklands, Alton, Hants; Frederick O. Pickard Cambridge, 35 Haydon Park Road, Wimbledon; John C. Crowley, B.A., 16 Chatsworth Road, Croydon; Edward V. Earle, Franks, Farningham, Kent; Nevin H. Foster, Hillsborough, Co. Down; Hugh S. Gladstone, B.A., Capenoch, Thornhill, Dumfriesshire, N.B.; Ambrose Y. Lethbridge, Warmwell, Dorchester; The Rev. Henry H. Mills, Treslothan Vicarage, Camborne, Cornwall; Major Frederick W. Proctor, Downfield, Maidenhead; Pilcher G. Ralfe, The Parade, Castletown, Isle of Man; Frederick R. Ratcliff, 24 Lancaster Gate, W.; William E. Renaut, 15 Grafton Square, Clapham, S.W.; Capt. Robert P. Sandeman, Dan-y-Park, Crickhowell; Capt. Richard Sparrow, 7th Dragoon Guards, and Rookwoods, Sible Headingham, Essex; Claud B. Ticehurst, Winstowe, St. Leonard's-on-Sea; Hugh B. Watt, 3 Victoria Drive, Mount Florida, Glasgow; Stephen J. White, Oakwood, Crayford, Kent; Charles H. T. Whitehead, Deighton Grove, York.

It was agreed that the name of Mr. Robert Ridgway, C.M.Z.S., should be transferred from the list of Foreign to that of Honorary Members.

The following members were then elected Colonial Members of the Union:—Capt. F. W. Hutton, F.R.S., C.M.Z.S., Col. W. Vincent Legge, F.Z.S., and Alfred J. North, C.M.Z.S.; and Dr. Giacinto Martorelli, of Milan, was elected a Foreign Member.

After a vote of thanks to the Council of the Zoological Society of London for the use of their rooms had been unanimously agreed to the Meeting adjourned.

The Annual Dinner, subsequently held at Lämmer's Hotel (Dr. F. DuCane Godman in the Chair), was attended by seventeen Members and Guests.

MR. WALTER GOODFELLOW, F.Z.S., M.B.O.U., is gone on a new ornithological Expedition, and on this occasion has

selected the "Far East" for his collecting-ground. A letter from him, written in January last and dated at Dasao, Mindanao, Philippines, informs us that he was shortly leaving that port for the high mountains in the interior of the island, where he hoped to meet with birds as yet undiscovered. He describes the present state of Mindanao as "fairly quiet," and states that the American officers have been most kind to him, and have helped him in every way.

The last letters received from Mr. MICHAEL J. NICHOLL, Naturalist to the Earl of Crawford's S.Y. 'Valhalla,' were posted at Suva, Fijis. After touching at Punta Arenas, in the Straits of Magellan, the yacht proceeded to the Pacific by Smyth's Channel. The scenery was very fine there, but bird-life was scarce. Mr. Nicholl obtained specimens of all the birds he saw, including three species of Cormorants, Skuas, Diving Petrels, a Goose, and a Rail. At Valparaiso several Gulls were obtained, besides Petrels and Albatrosses. Short visits were made to Easter and Pitcairn Islands. At the latter island five specimens of a *Zosterops* were obtained. About 100 bird-skins, sent home from Valparaiso, have been received safely at the British Museum.

The Ostrich-farm at Nice.—The new Ostrich-farm at Nice is well worth a visit. It is about 2 miles out of the city on the Cagnes road, but is easily accessible by "tram." The farm is conducted on strictly mercantile principles, the object being not only to breed Ostriches, but to sell "feather-goods" of all sorts produced by these birds. The present stock on the farm consists of about 100 birds imported from California. The stock now in California, where there are several flourishing Ostrich-farms (at San Diego and elsewhere), was originally obtained from the Cape, so that these birds belong to the form of Ostrich distinguished as *Struthio camelus capensis*; but there are also some birds lately received from North Africa, which, when adult, will, no doubt, turn out to be examples

of typical *S. camelus*. The eggs are mostly hatched in an incubator. The Director of the Nice Ostrich-farm is Mr. W. S. Belfield. We believe that this is the first Ostrich-farm established in Europe, and heartily wish it success.

The Philadelphian Collection of Birds.—The Report of the Academy of Natural Sciences of Philadelphia for 1902 gives a good account of the condition and prospects of its celebrated collection of birds, which is now, we believe, mainly under the care of Mr. Witmer Stone. About one-half the mounted series has been re-arranged in systematic order on the “new ornithological floor,” after having been carefully examined by the taxidermist and properly labelled. The large “study collection” in skins has been likewise well attended to. Among the important additions received during the past year have been a series from Sumatra collected and presented by Mr. A. C. Harrison and Dr. H. M. Hiller, a set of Galapagan birds obtained by purchase, and a good series of New-Mexican birds collected by Mr. Rehn.

The Hart Museum, Christchurch.—We are pleased to learn from ‘The Standard’ of June 8th that the Hart Museum of Birds at Christchurch is likely to find a permanent home at Bournemouth. ‘The Standard’ makes the following remarks:—

“All visitors to Christchurch who are interested in matters ornithological know the well-stocked Museum which stands about half-way between the railway station and the famous Abbey. Everybody with even an elementary acquaintance with local avifaunas knows that this museum contains one of the best collections of birds ever got together and set up by one man from a single district. In some respects it may be said to resemble the museum on the Dyke-road, at Brighton, for the late E. T. Booth shot the specimens and mounted them himself, and he is said to have been ‘the first to exhibit not merely a collection of stuffed birds, but

rather a true representation of bird-life and haunts.' There, however, the resemblance ends. Booth took the British Islands for his hunting-grounds, but the life-work of the owner of the Christchurch Museum has been almost entirely done in the New Forest district, which the Victoria County History defines, for the purposes of natural history, as the tract of country lying between Southampton Water on the east and the Avon on the west.

"As a rule, the breeding species, whether resident or simply coming here for nesting purposes, are represented by the male and female; and, wherever possible, nest, eggs, and immature young are added. The cases in which the birds are mounted are small; but the principle laid down by Booth of a close adherence to natural surroundings, and insisted on in the Bird-Gallery of the Natural History Museum, is here followed. According to the last-published Catalogue (1894), there are about a hundred cases of Passerine birds, of which the most important are an Alpine Accentor, shot in the old Castle gardens in 1855; the Bearded Titmouse, now extinct in the district; the Golden Oriole, which has nested on Lord Malmesbury's estate, and of which species there is an egg in the collection; locally-killed Choughs (1861); and the Nut-cracker, the actual specimen referred to by the late John Henry Gurney in his 'Rambles of a Naturalist.' The Picarian birds occupy about a dozen cases, the most important being the Roller and the Bee-eater; and there are some excellent examples of the Hoopoe, which is probably increasing as a breeding species. The Eagle Owl and Snowy Owl came from the Grantley-Berkeley Collection, dispersed many years ago; but the evidence for their occurrence in Hampshire would scarcely satisfy Ornithologists of the present day.

"The gem of the museum is the case of Honey-Buzzards; the male and female were obtained in 1860, when several pairs of these birds visited the Forest, and a nestling was got in 1875.

"Other noteworthy examples of Birds of Prey are a pair of

Red-footed Falcons, a pair of Ospreys (1870), and a single example of the Kite. The Egyptian Goose and the Summer Duck should be discarded as having no connexion with the county, being probably escapes from ornamental waters.

“The Rails and Plovers are well represented, as are Gulls, Terns, Petrels, and Divers. The late Lord Lilford believed that the White-winged Black Tern formerly bred near the Avon, for the visitors on the spring migration are always met with at one particular spot on the river.

“For some time it has been known that Mr. Hart wished to dispose of his collection as a whole. Last November the suggestion was made that it should be acquired by the County Borough of Bournemouth, where it might be suitably housed, and constitute the nucleus whence should develop a museum illustrating the biology of Hants and Dorset. The immediate reply to that suggestion was the offer of £100 from a local resident towards a fund for the purchase of the collection and the erection of a suitable museum. Quite recently the matter has again come to the front, and at a meeting, under the presidency of the Mayor, the resolution was carried that it was desirable in the interests of Bournemouth to purchase the Hart Collection, and a committee has been appointed to give effect to this expression of the popular will.”—*Standard*.

OBITUARY.—A much valued friend and correspondent has been lost to us by the death of Dr. GUSTAV RADDE, the well-known Director of the Caucasian Museum at Tiflis, and a veteran worker in Ornithology. Radde, the son of a schoolmaster at Danzig, was born in 1831, and from early youth showed his predilection for Natural History. In 1852 and the following years he was employed in the Crimea, as assistant to the botanist Steven, in collecting plants and making drawings of them. A memoir on the botany of the Tauric Peninsula written by him was published in the ‘Bulletin’ of the Society of Naturalists of Moscow in 1854.

In 1855 Radde obtained the post of Botanist and Zoologist to Schwartz's expedition to the newly annexed Amoorland, and passed four years in the exploration of that then almost unexplored region. The result of this famous expedition was a series of works and memoirs on the geography, ethnography, and zoology of Eastern Siberia, of which that of the greatest interest to Ornithologists is the quarto volume on the "*Festlands-Ornis*," published by the Russian Geographical Society in 1863, and well known to most of our readers as containing one of the best accounts of the birds of Eastern Siberia.

In 1864 Radde removed to the Caucasus and took up his residence at Tiflis, where he founded a Natural History Museum and Library and remained actively engaged in their administration and on various kindred pursuits up to the time of his death. Next to the Siberian volume, Radde's '*Ornis Caucasia*,' published at Cassel in 1884, is the one amongst his numerous scientific works and memoirs, illustrative of the Natural History of the Caucasus and of the adjoining portions of the Russian dominions, by which he is best known to Ornithologists. Radde was throughout his life an ardent traveller, and was frequently engaged in excursions of a longer or shorter character. When the Grand Duke Michael made his yacht-voyage to India and Japan in 1895, Radde was selected to accompany him, and he was again chosen two years later to go along with some members of the Imperial family to North Africa. Radde spoke English fluently, and was well acquainted with many of our Union, of which he was a Foreign Member. He was also a Foreign Member of the Zoological Society of London, and received one of the Gold Medals of the Geographical Society in 1889. At the time of his death he was engaged in the preparation of an account of the Collections of the Caucasian Museum, of which three volumes (out of six) have already appeared.

THE IBIS.

EIGHTH SERIES.

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XXXVII.—*On a Collection of Birds from North-western Argentina and the Bolivian Chaco.* By Dr. EINAR LÖNNBERG, C.M.Z.S.

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I. INTRODUCTORY REMARKS.

WHEN the Swedish Expedition to Argentina and Bolivia, under the direction of Baron Erland Nordenskiöld, returned home in 1902, I was requested to examine and determine the birds of the collection which had been made in those countries. At the beginning of the expedition Baron Nordenskiöld had no intention of collecting birds; but when, a little later, Mr. G. von Hofsten joined the party, he was placed in charge of this particular department of zoology. The ornithological results of the expedition are thus chiefly due to Mr. von Hofsten, who, although not a trained naturalist, succeeded in getting together a comparatively

large series of birds, and also in making some interesting field-notes on their life-history.

The collections were made principally at the following stations :—

1. LA QUINTA, PROVINCE OF JUJUY.—The vegetation here consisted of a luxuriant tropical or subtropical forest, in which a lake, the “Laguna del Sauzal,” lay imbedded. On this lake bird-life was very rich.

2. MORENO.—A place situated on the “Puna de Jujuy,” a large plateau some 250 kilometres in length, and from 50 to 70 kilometres in breadth. This plateau is about 3500 metres above sea-level; it is sandy in the centre, but is surrounded by rocks and mountains which attain to a maximum height of 6100 metres. The sandy ground is mostly firm, but in some places there are moving dunes. The vegetation is very characteristic. There are no trees at all, but numbers of xerophilous shrubs, as a rule about a metre high, are scattered over the “puna.” Between them the naked sand lies bare, almost without any vegetation. In addition to the shrubs, great columnar cactuses are found in numbers in some places. The sandy plain is traversed by rivulets from the surrounding mountains, which all end or disappear in a large central salina. During the dry season this salina does not contain any water, but becomes a thick layer of salt. Along the edges of the rivulets there is a peculiar vegetation, and Pampas-grass (*Gynerium*) also grows there.

3. SAN LUIS.—A small place near the Bolivian town of Tarija, and Tolomosa, ten kilometres from it. Tarija is situated 1900 metres above the sea. The ground is here a kind of “loess,” renowned for its richness in pleistocene fossils. This loess is most fantastically cut out by rivulets and watercourses into “barrancas” of different shape and appearance. The vegetation is mostly composed of low mimosaceous trees and different shrubs of a spiny nature. In the barrancas grow tall trees of *Schinus* and various bushes. Along the river *Salix humboldtiana* attains a height of about 15 metres.

4. TATARENDA, near Caiza, in the Bolivian Chaco, on the border between the tropical forest and the "dry" woods. The latter consist of low trees, which shed their foliage during the dry season, so that the ground is then thickly covered with withered leaves. In the woods there are many open places, which are marshy during the rainy season, but are afterwards dry and covered with grass. At one place there is a forest of palms (*Copernicia serrifera*) extending over an area about five kilometres in length, but elsewhere no palms are to be seen.

5. COLONIA OR FORTIN CREVAUX, Bolivian Chaco, on the Pilcomayo.—Along the river are dense woods of *Salix humboldtiana* and of a tree called "bubu" belonging to the Composite, besides a number of smaller trees and shrubs. In some places there grows a gigantic *Phragmites*. The river forms a number of small lakes.

[These localities are mostly shown in the map on p. 443, which has been kindly lent to us by the Royal Geographical Society. It was prepared to illustrate Baron Erland Nordenskiöld's account of his expedition. See Geogr. Journ. xxi. p. 513, May 1903.—EDD.]

II. BIRDS OF QUINTA, PROVINCE OF JUJUY, ARGENTINE REPUBLIC.

When the expedition was at work at Quinta, Mr. G. von Hofsten had not joined the party, so that the specimens collected were few in number. Most of them were shot in or near the Laguna del Sauzal, a small lake surrounded by luxuriant tropical forest. The species met with may, however, be considered characteristic of the fauna of this tract. They were as follows:—

- | | |
|---------------------------------------------------|-------------------------------------------------------|
| 1. <i>Gallinula galeata</i> (<i>Licht.</i>). | 8. <i>Parra jaçana</i> <i>Linn.</i> |
| 2. <i>Aramides chiricote</i> (<i>Vieillot.</i>) | 9. <i>Plegadis guarauna</i> (<i>Latham.</i>) |
| 3. <i>Larus cirrhocephalus</i> <i>Vieillot.</i> | 10. <i>Cairina moschata</i> (<i>Linn.</i>). |
| 4. <i>Vanellus chilensis</i> (<i>Molina</i>)*. | 11. <i>Dendrocyena viduata</i> (<i>Linn.</i>). |
| 5. <i>Ægialitis collaris</i> (<i>Vieillot.</i>) | 12. <i>Spatula platalea</i> (<i>Vieill.</i>). |
| 6. <i>Himantopus melanurus</i> <i>Vieillot.</i> | 13. <i>Querquedula versicolor</i> (<i>Vieill.</i>). |
| 7. <i>Totanus flavipes</i> (<i>Gm.</i>). | 14. <i>Phalacrocorax vigua</i> (<i>Vieill.</i>). |

* This specimen has the short tarsi of *V. chilensis*, but the tail is only

Among the birds observed at Quinta the "Chuña" (*Chunga burmeisteri*) should also be mentioned, and a small Owl, obtained at the same locality, which I refer to *Glaucidium phalaenoides* (Daud.).

The following Trochilidæ were collected at Quinta by Dr. Rob. Fries:—

Heliomaster furcifer (<i>G. Shaw</i>).	|	Lesbia sparganura (<i>G. Shaw</i>).
Chlorostilbon aureiventris (<i>d'Orb.</i> <i>et Lafri.</i>).		Chaetocercus burmeisteri
		(<i>Sclater</i>)*.

III. BIRDS OF MORENO ON THE PUNA DE JUJUY, ARGENTINE REPUBLIC.

Moreno, the second station where birds were collected, was much more interesting, both from its situation at such a great altitude above the sea-level and from the natural conditions prevailing therè. Mr. von Hofsten tried, therefore, to collect as many specimens as he was able and made some notes about species that were noticed but could not be obtained. The following list may be regarded as fairly complete, as it is based on observations continued through two months and a half.

1. ZENAIDA AURICULATA (Des Murs).

Only one specimen was observed and shot at Moreno on December 6th, 1901. It agrees perfectly with the description in the Cat. of Birds, vol. xxi., except that the ear-spot is obsolete. Iris reddish brown.

narrowly tipped with white. The colour of the head may be termed ashy-brown. It is thus in its coloration apparently intermediate between *V. chilensis* and *V. cayemensis*, although from its size it must be assigned to the former species.

* A female of this very rare species was obtained at Quinta. A short time ago the type at Buenos Aires was the only known specimen of this bird. The type was a male, and the female was unknown when Mr. E. Hartert wrote the "Trochilidæ" in 'Das Tierreich' in 1900. This female is not, however, the first obtained, as Mr. Hartert has recently examined five specimens and has described one of them in the Bull. Brit. Orn. Club, vol. xii. p. 43. The type-specimen was from Tucuman, a more southern locality than the Province of Jujuy.

2. *METRIOPELIA AYMARA* (d'Orb.).

Three specimens in spirit. This Pigeon seems to have been common.

3. *METRIOPELIA MELANOPTERA* (Molina).

A specimen preserved in spirit agrees perfectly with the description in the Cat. of Birds, but its measurements are rather smaller. Wing 130, tail 85 mm.

4. *PTILOSCELIS RESPLENDENS* (Tschudi).

In habits and manner of occurrence this bird resembles the European Lapwing. It feeds on larvæ and insects, but more especially on a small crustacean (*Hylea laevis*). Usually from eight to ten individuals are found together on the moist meadows. When disturbed they fly screaming round and warn other birds, being thus troublesome to the hunter. Specimens were collected in October and November 1901.

4-5. *CHARADRIUS DOMINICUS* Müll.

Only one specimen was observed and shot, December 1st, 1901, on a rivulet near Moreno.

6. *ÆGIALITIS SEMIPALMATA* (Bp.).

This bird occurred in small flocks of from ten to fifteen individuals on the moist meadows, feeding on insects.

7. *HETEROPYGIA MACULATA* (Vieillot).

This Wader occurred in couples on the moist meadows, feeding on insects and crabs. Specimens were shot at Moreno in December 1901.

8. *THINOCORUS ORBIGNIANUS* Geoffr. & Less.

These birds live in flocks of from six to ten on the sandy plains and fields of drifting sand. They resemble Sand-Grouse, and have a remarkable similarity to the ground which they frequent. They squat very close.

A specimen from Moreno, shot in December 1901, is somewhat abnormal. Its measurements are unusually small (wing 125, tail 62, tarsus 16 mm.), but, on the other hand, they are larger than those of *T. rumicivorus*, while the tail is even longer than in typical *T. orbignianus*. The skin

is in such a bad state that it is difficult to ascertain the colour of some parts of the plumage, but the back is not stained and its colour is more sandy than in typical *T. orbignianus*, with hardly any rufous tinge. The forehead and nape are not grey but sand-coloured with black central spots, thus resembling the back in colour. The sides of the face are light sandy. The colour of the fore-neck cannot be made out, and in other respects the plumage is similar to that of the known species. It is thus difficult to form an opinion about the specimen. It might be a young bird, although it does not appear to be so.

†9. PLEGADIS GUARAUNA (Linn.).

In large flocks on the moist meadows.

10. NYCTICORAX TAYAZUGUIRA (Vieillot).

A young bird, the only specimen obtained, was shot in November 1901 at San Antonio, Puna de Jujuy.

11. NETTION FLAVIROSTRE (Vieillot).

This little Duck was rather common in the rivulets on the puna.

12. SPATULA PLATALEA (Vieillot).

A young female was shot in a rivulet at Moreno on December 10th, 1901, but the species was rather scarce. Other specimens were shot at Abra Pampa, not far from Moreno.

13. IBYCTER MEGALOPTERUS (Meyer).

Very common at Moreno. It feeds on carrion, though also on living prey, and in addition to this on insects (beetles) and seeds.

14. BUTEO ERYTHRONOTUS (King).

A beautiful female specimen of this Buzzard was obtained at Moreno.

†15. FALCO FUSCO-CÆRULESCENS Vieillot.

Two specimens, shot at Moreno in November 1901. This Falcon preys on small birds and mice.

16. *SPEOTYTO CUNICULARIA* (Molina).

This little Owl was to be seen by day as well as by night, but generally after it had become dark. It lives in pairs among the Tola-bushes (*Leptophyllum*), and nests in burrows belonging to rodents. The prey consists of small birds and mammals, as well as of beetles. The length of the wing in the specimens brought home varied from 191 to 200 mm. It was common at Moreno.

17. *BOLBORHYNCHUS ORBIGNYI* Finsch.

Iris brown. Fully-developed specimens agree perfectly with the description of this species in the Cat. of Birds (vol. xx. p. 236), except that the great under tail-coverts have a slight bluish tinge, in which respect they resemble the corresponding feathers of *B. rubrirostris*. In some specimens the tail is rather short, but that seems to depend upon the fact that it is much worn. I think, therefore, that the Parrakeet of Moreno must be referred to this species, even if in some degree it approaches *B. rubrirostris*.

This little Parrakeet occurs at Moreno in large flocks of several hundreds, which fly about screaming loudly. But they are only found where the Tola-bushes (*Leptophyllum*) grow, and seem to feed exclusively on the buds and seeds of those shrubs. They nest in burrows which are dug out in the barrancas. Mr. von Hofsten examined two breeding-holes, and found that they consisted of a burrow about two metres long which ran almost straight into the barranca but sloped upwards. At the end of this duct was a chamber containing the nest made of feathers, and the white eggs. Beyond the chamber another duct continued of from 20 to 30 cm. in length which led to a larger chamber, apparently used for defæcating.

18. *PATAGONA GIGAS* (Vieillot).

This Humming-bird certainly seems to visit the white flowers of the great columnar cactus for the honey as well as for the insects in the flowers. It was also obtained at Ojo del Agua, Puna de Jujuy, but was not common.

19. *CHLOROSTILBON AUREIVENTRIS* (d'Orb. et Lafr.).

Mr. von Hofsten twice found nests of this little Humming-bird. They are very simply made of grass-straws and wool of the vicuña. In the first was found one, in the other two white eggs measuring 16 by 10 mm. The nests were placed in crevices in the rocks, at steep and inaccessible places.

20. *COLAPTES RUPICOLA* d'Orb.

This Woodpecker occurred at an altitude of 5000 metres above the sea-level, but was rather rare. A male and female were killed, December 1st, 1901. Dr. Selater has recorded it as occurring in Peru at an altitude of 12,170 feet (P. Z. S. 1881, p. 488), on the authority of Prof. Nation. It feeds on larvæ which it hacks up directly from the ground.

21. *CINCLODES BIFASCIATUS* Selater.

This bird reminds one in its habits of the European *Cinclus*. It lives on rivulets, hopping from stone to stone. Now and then it dips its head under the water to catch larvæ and small crabs, sometimes even descending wholly into the stream. It builds its nest of grass-straws in shrubs at the water's edge. It is found up to an altitude of about 5000 metres above the sea-level.

22. *GEOSITTA CUNICULARIA* (Vieill.).

Iris yellowish brown. To judge from the general coloration of the plumage and the measurements, the *Geositta* obtained at Moreno belongs to this species, but the breast seems to be entirely unspotted in the specimens brought home. It may, therefore, perhaps represent a distinct race or subspecies. It is too small to belong to *G. rufipennis*, from which it also differs in having the second primary almost wholly rufous on the inner web, and the first basally and centrally with a rufous tinge.

The collector states that this bird is common at Moreno, where it runs on the sandy ground among the Tola-bushes, feeding on insects. Its flight is in curves up and down, and when it descends it seems to fall vertically to the ground.

23. *UPUCERTHIA DUMETORIA* Geoffr. et d'Orb.

Only one specimen was observed, shot at Moreno in December, 1901. It was feeding on insects.

24. *LEPTASTHENURA EGITHALOIDES* (Kittl.).

Mr. von Hofsten remarks, as others have done before him, that this bird in its behaviour recalls the Long-tailed Tit of Europe. A pair had their nest, containing three white eggs, in a stone wall at Moreno in December, 1901.

25. *PHACELLODOMUS STRIATICEPS* (d'Orb. et Lafr.).

A nest of this bird was found at Moreno in December, 1901. It was composed of small sticks, and was 150 cm. high and 40 cm. broad. It contained three white eggs.

26. *AGRIORNIS ANDICOLA* d'Orb.

A single specimen, observed at Moreno, was shot on December 4th, 1901. It was feeding on insects.

27. *MUSCISAXICOLA RUFIVERTEX* d'Orb. et Lafr.

This bird is stated to be rather common in small flocks on the moist meadows at Moreno.

28. *CENTRITES OREAS* Sclater & Salvin.

Iris dark brown. Two examples, male and female, must belong to this species, as the former has the inner web of the primaries pale cinereous, almost white, and similarly the female has the inner web of the primaries pale with a cinnamonous tinge. Otherwise they agree with the description of *C. niger* in the Cat. of Birds (xiv. p. 62), but the above-mentioned characteristics are said to be the distinguishing features of *C. oreas*. The bird, stated to belong to the fauna of Bolivia and Peru, is thus recorded as an inhabitant of the Cordillera of Argentina.

At Moreno it was not uncommon in suitable localities. It was usually seen in pairs on the moist meadows, where it hopped about catching insects.

—29. *ATTICORA CYANOLEUCA* (Vieill.).

Iris dark brown. This Swallow nests in holes in the barrancas at the same places as *Bolborhynchus*, and in company with it. It sometimes uses the burrows made by the Parrakeet. It was not numerous at Moreno.

30. *CHRYSOMITRIS UROPYGIALIS* Selater.

This bird lives in cultivated places, on meadows, and near water. It is not common; it feeds on seeds. It was observed at Moreno up to an altitude of at least 4600 metres above the sea-level.

31. *PSEUDOCHLORIS LUTEA* (d'Orb. et Lafr.).

This bird is usually seen singly along the rivulets at Moreno, where it is common. It feeds on seeds and buds.

32. *ZONOTRICHIA CANICAPILLA* Gould.

Iris yellowish brown. Very common at Moreno, feeding on seeds and insects; it builds its nest in stone walls and under the roofs of houses.

The specimens from Moreno are to a certain extent intermediate between *Z. pileata* and *Z. canicapilla*, having the coloration of the former and especially the black bands on the sides of the crown; but they are much larger than *Z. pileata*, almost attaining the size of *Z. canicapilla*, and I therefore refer them to that species. Wing 80, tail 75, culmen 13 mm.

Schalow (Fauna Chilensis, Bd. i. Zool. Jahrb. Suppl. p. 723) regards *Z. canicapilla* as a subspecies of *Z. pileata*.

33. *PHRYGILUS FRUTICETI* (Kittl.).

Rather scarce, feeds on seeds and buds. Two specimens were shot at Moreno in November, 1901. It has been reported by Dr. Selater from Peru, at an altitude of 14,000 feet (*cf.* P. Z. S. 1881, p. 486).

34. *PHRYGILUS ATRICEPS* (d'Orb. et Lafr.).

Iris yellowish brown. This bird was common in the Pampas-grass (*Gynerium*) along the rivulets at Moreno. Its food consisted of seeds and buds. It builds its nest in tufts of Pampas-grass. One which Mr. von Hofsten brought to me was taken on December 20th, 1901, and was constructed of grasses and pieces of dry herbs, lined with horse-hair and the wool of the vicuña. It contained three eggs, bluish green in colour, with numerous small pale brown spots and blotches scattered all over the surface, most densely at the greatest circumference and least at the ends. The longitudinal diameter of the eggs was 21-25 mm., the greatest transverse 17 mm.

35. *PIRYGILUS PLEBEIUS* Cab.

Iris brown. This was the most common bird at Moreno. It resembles the European House-Sparrow in its habits. It builds its nest in crevices in the rocks, but also under the roof-tiles of houses and in bushes. The eggs are said by Mr. von Hofsten to be white, measuring 22 mm. in length by 15 mm. in breadth. Usually there are three or four in a nest. The food of the bird consists of seeds, buds, and caterpillars.

IV. BIRDS OF SAN LUIS, NEAR TARIJA, IN BOLIVIA.

The third Station of the Swedish Expedition was near Tarija, at a place named San Luis. In its surroundings it resembled the second as regards the natural conditions, but it was not so high above the sea as Moreno, and, although "puna" prevailed round Tarija as well, there was a richer vegetation, which made a change for the better. The bird-life was almost entirely different from that of Moreno, and decidedly richer.

The following birds were collected at the third Station and during excursions around the same.

1. *NOTHURA BOLIVIANA* Salvadori.

The specimen from San Luis which I refer to this species (iris brown) has no markings on the inner webs of the three outer primaries. Wing 125 mm., tarsus 29 mm. It was shot in January 1902, and eggs taken on January 16th probably belong to this species, as no other member of the family was procured. They were laid in a shallow nest lined with twigs, straws, and feathers of the bird. They were four in number and measured from 43 to 45 mm. in length to 32.5 mm. in thickness. They have the usual enamelled or china-like surface, and are in some lights greyish with a plum-coloured tinge, in others brownish with a tinge of chocolate.

2. *COLUMBULA PICUI* (Temm.).

One specimen, shot at San Luis, January 27th, 1902. Iris lilac.

+3. *ÆGIALITIS SEMIPALMATA* (Bp.).

San Luis, February 6th, 1902. Iris brown.

+4. *HETEROPYGIA MACULATA* (Vicill.).

San Luis, February 8th, 1902.

Zapatero, March 8th, 1902.

+5. *QUERQUEDULA VERSICOLOR* (Vicill.).

San Luis, March 4th, 1902.

6. *SPATULA PLATALEA* (Vicill.).

Iris reddish yellow (stated to be white in *Cat. Birds Brit. Mus. vol. xxvii. p. 317*).

This specimen is an adult shot at San Luis in April, 1902. A young bird shot at Abra Pampa on the "puna," is stated to have had brown eyes.

Pairs are usually found on the rivulets.

+7. *PHALACROCORAX VIGUA* (Vicill.).

Adult birds in full plumage were shot at San Luis, March 4th, 1902. An adult bird in transitory plumage was shot on January 17th.

8. *FALCO CASSINI* Sharpe.

Tolomosa, February 8th, 1902.

The bluish-ashy and black bars on the tail are distinct to the tip; otherwise the example agrees with the description in *Cat. Birds Brit. Mus. vol. i.* Wing 345 mm. Iris brown.

9. *TINNUNCULUS CINNAMOMIMUS* (Swains.).

Adult males from San Luis, January 26th, 1902. Three females from the same place, January 1902. Iris brown.

10. *POLYBORUS THARUS* (Molina).

This Carrion-Hawk was very common at San Luis, and appeared as soon as anything that could pass for catable was thrown out. Iris yellow (brown, according to *Cat. Birds Brit. Mus. vol. i.*).

11. *BOLBORHYNCHUS AYMARA* (d'Orb.).

Occurred at San Luis in large flocks, screaming loudly when flying round. Iris brown.

†12. *CERYLE AMAZONA* (Latham).

The only specimen observed was shot at San Luis on the way to the Chaco in March 1902. Iris brown.

13. *CERYLE AMERICANA* (Gm.).

San Luis, January 24th, 1902. Iris red-brown.

14. *CHLOROSTILBON AUREIVENTRIS* (d'Orb. et Lafr.).

San Luis, January 1902.

15. *GUIRA PIRIRIGUA* (Vieill.).

A specimen shot at San Luis, January 16th, 1902, had on the right side of the tail four white-tipped feathers, owing to the fact that a new feather had been fully developed before any of the old had been shed. Iris reddish yellow.

†16. *COCCYZUS AMERICANUS* (Linn.).

Shot at San Luis, February 8th, 1902. Iris yellowish brown, according to the label.

17. *PICOLAPTES ANGUSTIROSTRIS* (Vieill.).

San Luis, February 1902. Iris brown.

18. *SIPTORNIS STRIATICEPS* (d'Orb. et Lafr.).

Tolomosa, January 31st, 1902. Iris brown.

Cap decidedly striated, especially in front. Flanks and crissum washed with brownish (or greyish fulvous); three proximal secondaries with a longitudinal rufous stripe on the outer web. In coloration this bird approaches *Siptornis rufipennis* of Selater and Salvin, but the measurements are those of *S. striaticeps*, of which it is probably only a variety, though perhaps a connecting-link between the two forms.

19. *SIPTORNIS ORBIGNYI* (Reichenb.).

A specimen of this bird was shot at San Luis in February 1902.

This bird was seen and observed daily by Mr. von Hofsten and other members of the Expedition while it was building a very large nest of straws. A pair of *Saltator laticlavus* were also often seen near the place, and the *Saltator* was observed occasionally to enter the nest of the *Siptornis*. The two birds were, however, not on friendly terms, but often fought

with each other. Finally, the pair of *Saltator laticlavus* was shot on January 26th, 1902, and on February 6th the *Siptornis* met with the same fate, after which the nest was investigated more closely. Mr. von Hofsten then found only one "sitting-place" in the nest and in it three eggs of two different kinds lying together. One of these is white, measuring 23.5 mm. in length and 17.5 mm. in thickness. I presume that this egg belongs to the *Siptornis*. The two others are larger, thicker, and more rounded, measuring 24 mm. in length by 20 mm. in thickness. Their ground-colour is greenish white, spotted all over with irregular reddish-brown, or almost red, spots and with fainter bluish violet or bluish-grey blotches. I suppose that these beautiful eggs were deposited by the *Saltator*.

The question now arises, has *Saltator laticlavus* parasitic habits and had it in this case the intention of letting the *Siptornis* hatch its eggs and rear its young? I do not think so. If there had been only one *Saltator* egg in the nest this might have been probable, but I think that the *Saltator* wished to take the whole nest for its own purposes and had laid two eggs. When the *Saltators* were killed the pair of *Siptornis* regained the nest and began to lay eggs.

20. PHYTOTOMA ANGUSTIROSTRIS d'Orb. et Lafr.

A male specimen from San Luis on January 26th, 1902, and a female shot at the same place a day later. Both are said to have had the iris reddish yellow ("gialla," according to Salvadori, *l. c.*).

Especially in the mornings and evenings, single individuals of this species were seen sitting in the tree-tops making a creaking noise similar to that produced when a broken branch of a tree is moved by the wind.

21. CNIPOLEGUS ANTHRACINUS Heine.

Tolomosa, January 31st, 1902. Occurred in flocks.

22. PYROCEPHALUS RUBINEUS (Bodd.).

This beautiful little bird lives in trees like a Flycatcher (*Muscicapa*). Tolomosa, January 1902.

23. TYRANNUS MELANCHOLICUS Vieillot.

San Luis, January 19th, 1902.

+24. ATTICORA CYANOLEUCA (Vieill.).

A young bird, shot January 27th, 1902, at San Luis.

25. PROGNE FURCATA Baird.

Iris dark brown. San Luis, February 6th, 1902. This Swallow flew very high and with great speed.

26. MIMUS DORSALIS (d'Orb. et Lafr.).

Iris brown, according to the label, but stated to be "pale greenish" in Cat. Birds Brit. Mus. "according to d'Orbigny."

The only specimen observed was shot at San Luis, January 29th, 1902.

27. TURDUS FUSCATUS d'Orb. et Lafr.

San Luis, February 1902. Iris brown.

28. EMBERNAGRA OLIVASCENS (d'Orb. et Lafr.).

A male specimen from San Luis, January 23rd, 1902. Iris brown, bill orange.

29. SYCALIS FLAVEOLA (Linn.).

A typical male specimen was shot at San Luis in January 1902. Mr. von Hofsten has labelled a bird shot at the same place a little later (February 5th) as the female of the same species, but it has considerably less yellow in its plumage above than is stated in Cat. Birds Brit. Mus. vol. xii. Very similar to the latter are two young birds, not in full plumage, shot at Tatarenda in April 1902.

Mr. von Hofsten informs me that *Sycalis flaveola* was the most common bird at San Luis and Tarja. It places its nest under the roof-tiles, in stone walls, and in similar places. The eggs vary from 20 to 22 mm. in length and their breadth is about 15 mm. Their ground-colour is whitish, sometimes with a slight tinge of greenish. They are thickly and irregularly spotted with brown, sometimes blackish, sometimes reddish. The spots are occasionally confluent and make large blotches near the larger end, where they are more numerous. They often form a thick broad ring of dark colour. Usually the whitish ground-

colour is predominant, but in some specimens the brown spots almost cover the egg, which in its general appearance has a certain resemblance to that of *Fringilla montifringilla*.

30. *SALTATOR LATICLAVIUS* Sclater & Salvin.

Male and female specimens from San Luis, shot January 26th, 1902. Iris brown. The specimens in question in some respects approach *S. aurantirostris*, for the measurements are rather smaller than those recorded in Cat. Birds Brit. Mus. for *S. laticlavius*, but at the same time they are larger than those of the former, namely, wing 96, tail 98 mm. The white marks on the outer rectrices are very clear in both sexes. The male specimen has a well-developed claw at the bend of the wing, which in the female is only represented by a horny wart. As I have only one example to hand I cannot decide whether this peculiar claw is a normal occurrence in the males of the species or not, but the matter is worth further investigation.

Concerning the nesting of this bird, see above, p. 454, under *Siptornis orbigny*.

31. *MOLOTHRUS BONARIENSIS* (Gmelin).

An adult male from San Luis, January 1902. A young bird in moult shot at the same place, February 23rd, 1902, had partly assumed the shining black plumage of the adult.

This bird often accompanied the cattle and was seen sitting on their backs, picking ticks and parasites from them. The crops of our specimens were filled with ticks, so that these seem to be the principal food.

32. *MOLOTHRUS BADIUS* (Vieillot).

A specimen from San Luis, shot January 25th, 1902. Iris brown.

This species also accompanies the cattle in large flocks.

In addition to the birds already enumerated, the following were observed at Tarija :—

Fulica gigantea.	| Tanagra bonariensis.
Phœnicopterus, sp. inc.	| Zonotrichia pileata sive canicapilla.
Gyparchus papa.	
Cathartes atratus.	

V. BIRDS OF TATARENDA AND FORTIN CREVAUX,
IN THE BOLIVIAN CHACO.

The birds obtained by the Expedition at the fourth Station (Tatarenda) and fifth (Fortin Crevaux) are enumerated together, as both these places are situated in the Bolivian Chaco and are not very far apart. Their natural features have been described above.

1. RHEA AMERICANA Lath.

This bird was often seen at Tatarenda in open places, but as soon as danger threatened it ran in among the spiny bushes, where it could not be pursued.

2. ORTALIS CANICOLLIS (Wagl.).

An adult specimen from Tatarenda, shot in April 1902. Iris brown ("gialla," according to Salvadori).

A young bird, probably of this species, was shot at the same place at the end of May 1902. It is stated to have had brownish-yellow irides. The tail-feathers are not yet visible among the coverts, but the quills of the wings are almost fully developed, and the wings measure 210 mm. in length. The primaries are, however, not quite full-grown and reach only a few millimetres beyond the inner secondaries. The colour of the young bird is a little more brown than that of the adult.

3. PENELOPE OBSCURA Wagler*.

Mr. von Hofsten informs me that this bird is known under the name "*Pavo del monte*," which it shares with other *Cracidae*. It lives in small family-flocks at the edge of the forest. When scared it tries to escape from danger by running along the branches of the trees or jumping from branch to branch rather than by flight. It does not fly well or easily.

* [Dr. Lönnberg has sent us for examination a skin of this *Penelope*, which agrees well with specimens of *P. obscura* in the British Museum from the same district. He calls our attention to the sharply excised outer primaries—a character stated in the B. M. Catalogue (xxii. p. 473) to be peculiar to *Pipile*, *Aburria*, and *Chamepetes*, which, however, is certainly not the case.—EDD.]

4. *COLUMBA MACULOSA* Temm.

In great flocks near water, Colonia Crevaux, in April 1902. Iris greyish yellow ("bianca," according to Salvadori).

5. *COLUMBA PICAZURO* Temm.

Near Colonia Crevaux, April 1902. Common in large flocks. Iris light grey (stated to be "rosso-fiamma" by Salvadori, *t. c.*).

6. *COLUMBULA PICUI* (Temm.).

In great flocks in the dry woods at Colonia Crevaux, April 1902. Iris lilac.

7. *PORPHYRIOPS MELANOPS* (Vieill.).

Two specimens shot at Tatarenda, March 26th, 1902, agree perfectly as regards coloration with the description in the *Cat. of Birds* (xxiii. p. 182) except that the inner secondaries are not "edged externally with white," but have the outer web spotted and mottled with white. In addition to this I may observe that the head does not shew the same colour as the back, but the upper surface of the head from the base of the bill and the frontal shield is quite black, while on the occiput it becomes dark brown and soon passes into the olive-brown of the hind-neck. The dark ashy colour of the sides of the head extends upwards to the eyebrows. The bill seems to have been olive-green.

+8. *GALLINULA GALEATA* Bp.

Tatarenda, March 25th, 1902. Length of wing 190 mm.

9. *FULICA LEUCOPTERA* Vieillot.

A young bird, with the frontal shield not much developed, from Tatarenda, April 1902. The age may account for the fact that the iris was yellow (not "fiery red," as stated in *Cat. Birds*, vol. xxiii. p. 224).

10. *PODICIPES AMERICANUS* Garnot.

Iris crimson.

Two adult birds shot at Tatarenda in March 1902. Iris yellow.

A young specimen, not yet full-grown, shot the same day

is smoky blackish above, washed with brown on the lower back. Rump greyish brown. Under parts greyish white with a faint silky gloss and some grey spots where the basal parts of the down are visible. Neck grey, throat white, sides of head grey, crown blackish with sandy-coloured tips to the feathers.

11. *PARRA JACANA* (Linn.).

The iris is stated by Mr. von Hofsten to be "brown" in an adult as well as in a young bird, both shot at Tatarenda, the former on April 26th, 1902, the latter on March 27th, 1902. In the Cat. Birds Brit. Mus., as well as by Salvadori, it is stated to be "yellow."

This species was common, and was seen in large flocks on the floating water-plants.

12. *VANELLUS CAYENNENSIS* (Gm.).

Specimens were shot at Tatarenda and other places in the Bolivian Chaco in March 1902.

In one example shot on March 3rd some of the rectrices have just been moulted and have rather broad white tips, but the old tail-feathers of the specimens have the white tips almost or quite worn off. Sides of head ashy grey, but washed with brown. The colour is somewhat intermediate between that of *V. cayennensis* and *V. chilensis*; the measurements indicate partly the smaller form. The short wing and short culmen indicate *V. cayennensis*, the rather long tail and short tarsus *V. chilensis*. I suppose that these forms intergrade.

13. *HIMANTOPUS MELANURUS* Vieill.

A specimen was shot at a pool near Carapari, on the way from Tarija to Caiza, in March 1902.

+14. *BARTRAMIA LONGICAUDA* (Bechst.).

Tatarenda, April 1902.

15. *ARAMUS SCOLOPACEUS* (Gmelin).

Tatarenda, March 20th, 1902. Iris brown.

Culmen 120, tarsus 130, wing 345, tail 162 mm. These measurements are larger than those recorded in the Cat. Birds

Brit. Mus., but the description in that work agrees with the present specimen.

†16. *PLEGADIS GUARAUNA* (Linn.).

An adult bird shot at Carapari, March 11th, 1902. Iris hazel.

A young bird from Tatarenda, March 20th, 1902.

This species occurred in flocks on the wet meadows. Mr. von Hofsten says that he thinks that there must be two kinds of this Ibis, as he remembers that he always saw larger birds in one flock and smaller birds in another. The differences in the skins that I have examined are, however, not greater than those recorded for young and adult or male and female birds in the 'Catalogue of Birds.'

17. *THERISTICUS MELANOPIS* (Gm.).

A specimen shot at Tatarenda, March 23rd, 1902 (iris reddish yellow, feet red), has the coloration of the plumage as described in the Cat. Birds Brit. Mus., but the subterminal black band of the dorsal feathers is only faintly visible. Two or three of the inner secondaries are white on the outer web.

†18. *PLATALEA AJAJA* (Linn.).

Iris yellowish white, according the label (according to Salvadori "iride bruna," and according to the Cat. of Birds bright carmine). Length of wing 390, of tail 106, of culmen 180 mm.; these measurements are all larger than those indicated in the Cat. of Birds. The tarsus measures 108 mm., which is the same as in the work just quoted.

The Roseate Spoonbill is common at the borders of all the waters. A specimen was shot at Tatarenda, April 3rd, 1902. This species lives in pairs and is very shy.

19. *MOLYBDOPHANES CERULESCENS* (Vieill.).

Occurs in large flocks along the river, but is very shy. Iris light yellow, legs black. April 1902, Fortin Crevaux.

†20. *ARDEA COCOI* Linn.

Iris yellow; legs yellow, according to the label (said to be "grigio-bruna" by Salvadori, Boll. Tor. x. p. 21). Only one specimen seen and shot, April 1902, at Tatarenda.

† 21. *HERODIAS EGRETTE* (Wilson).

Single specimens were seen here and there on swamps and rivers, but they were very shy. A specimen was shot at Colonia Crevaux, in April 1902.

22. *NYCTICORAX TAYAZUGUIRA* (Vieill.).

March 26th, 1902; Tatarenda. Iris yellow.

A young bird in transitional plumage, probably belonging to this species, was shot at Tatarenda in March.

23. *SYRIGMA CYANOCEPHALUM* (Molina).

Two specimens from Tatarenda. Both have the feathers of the nuchal crest tipped with isabelline or the same colour as the feathers of the neck. The crown is very dark slate-coloured, inclining to black with a bluish-grey tinge. Iris steel-grey. The bill seems to have been red, with black tip. Length of the tarsus in one specimen 85, in the other 90 mm. Otherwise both agree with the description and the measurements in *Cat. Birds Brit. Mus.*

This bird, found in pairs at the lakes, seems to be new to Bolivia.

24. *TIGRISOMA MARMORATUM* (Vieill.).

A young specimen (iris brown) shot at Tatarenda on March 24, 1902, seems to belong to this species. Crown chestnut, with V-shaped black spots. Neck tawny, almost chestnut behind, lighter on the sides, with black transverse bars. Sides of head tawny, with blackish streaks. Middle of throat clothed with white feathers, with small buff and brown spots. Feathers of fore-neck white, with a transverse blackish bar, bordered on both sides with tawny. On the breast there are several bars on each feather. In other respects the coloration resembles that of the young Tiger-Bittern as described in *Cat. Birds Brit. Mus.*

25. *HETEROCNUS BOLIVIANUS*, n. sp.

This bird resembles *Tigrisoma* as well as *Heterocnus* in coloration. That it belongs to the latter genus, however, is proved by the fact that a median feather-stripe is continued on the throat almost to the vertical through

the posterior end of the culmen, and thus a good deal in front of the eye. General colour of the mantle and the wing-coverts dark, almost blackish grey, with a rather strong greenish-olive tinge in some lights. All feathers with a black median shaft-line, and finely mottled with numerous minute dots of yellowish, more ochraceous on the mantle, more whitish on the wing-coverts. This same mottling and general colour extends also over the scapulars and the outer web of the proximal secondaries. Secondaries otherwise dark slaty, with a brownish tinge on the outer edges. Primaries darker slaty with a bluish tinge, and fringed with white at the tips. Bastard-wing and large primary-coverts similar (but without any white bars as in *Heterocnus cabanisi*). Bend of the wing white, with a buffy tinge and with brown spots on the inner web of the feather. Crown of the head black; occipital crest chestnut-red, with black tips to some of the feathers. The whole of the amply-frilled hind-neck and sides of the neck uniform chestnut-red. Lores and orbits naked, a narrow black stripe separating the bare area from the chestnut-red ear-coverts and sides of the nape. This black band extends down the sides of the bare throat, but is there streaked with white. A white feather-band extends forward in the middle of the otherwise bare throat, as has been stated above. This white stripe continues down the middle of the fore-neck, bordered on each side by the narrow black band; further down it becomes broadly spotted with brown and black. Thus the middle of the fore-neck has a brown-and-black central band bordered on each side by a white band, and that again by a narrow black stripe separated from the chestnut-red sides of the neck. The lowermost part of the fore-neck is more irregularly and broadly spotted or rather striped with black, white, and chestnut. Breast slaty grey, with a rufous tinge on the ends of the feathers. Abdomen light, and under tail-coverts dusky cinereous. Flanks and axillaries dark slaty, with narrow white wavy cross-bands. Under wing-coverts similar, except the smallest, which have the same coloration as the upper

lesser wing-coverts. Back and upper tail-coverts dark slaty grey. Tail-feathers dark slaty, with an olive-green tinge. Iris brown. Bill in a dry state black, except the lower side, which is light horn-coloured. Culmen 108, wing 355 (360), tail 148, tarsus 110 mm.

From *Heterocnus cabanisi* this species is easily distinguished by its different coloration. The back is not marked with wavy cross-lines, but minutely dotted; the ear-coverts are not slaty blue, but chestnut-red; the nape and hind-neck are not sandy buff barred with black, but uniform chestnut-red.

The specimen was obtained at Tatarenda on March 20, 1902.

+26. TANTALUS LOCULATOR Linn.

A specimen (of rather small dimensions) was shot at Tatarenda in April 1902.

Tantalus is said by the collector to occur singly here and there on the small swamps. At a place between Tarija and Caiza, however, it was seen in large flocks, soaring very high in the air. It is said to be very shy, and to run a long way before it rises.

27. EUXENURA MAGUARI (Gm.).

Three specimens were seen and shot at a swamp near Tatarenda. They made a clattering noise with their bills, like the European Stork.

+28. MYCTERIA AMERICANA Linn.

The Jabiru was seen at Fortin Crevaux, but was very shy, and Mr. von Hofsten could not get near it.

29. CHAUNA CRISTATA (Sw.).

Several specimens of this bird were shot at Tatarenda in March 1902. It lives in pairs on the swamps and rivers.

30. CHENALOPEX JUBATUS (Spix).

One specimen was observed and shot at Tatarenda. The conjecture that this species would occur in Bolivia is thus proved to be correct. The feet are red.

+31. *CAIRINA MOSCHATA* (Linn.).

Two young birds obtained at Tatarenda. Iris brown.

32. *NETTION BRASILIENSE* (Gm.).

Tatarenda, March 29th, 1902.

33. *NETTION TORQUATUM* (Vieillot).

Tatarenda, March 19th and April 1902.

Some uncertainty seems to have prevailed as to whether this bird belonged to the Bolivian fauna or not.

+34. *NOMONYX DOMINICUS* (Linn.).

Only one specimen observed, at Tatarenda, in April 1902.

+35. *GERANOSPIZIAS CÆRULESCENS* (Vieill.).

Iris brownish yellow. Tatarenda, March 30th, 1902.

+36. *MICRASTUR SEMITORQUATUS* (Vieill.).

A young bird, which quite agrees with the description in the Cat. of Birds, was shot at Tatarenda on the 24th of March, 1902.

37. *URUBITINGA UNICINCTA* (Temm.).

Colonia Crevaux, April 1902.

38. *ACCIPITER PILEATUS* (Temm.).

A young bird from Tatarenda, March 1902.

39. *BUTEO ERYTHRONOTUS* (King).

An adult, but not very old female, was shot at Tatarenda in March 1902.

+40. *HETEROSPIZIAS MERIDIONALIS* (Lath.).

An adult specimen was shot at Tatarenda on March 21st, 1902. The species is stated to be common.

41. *ASTURINA PUCHERANI* Verr.

Iris brown in a young specimen, yellow in an adult. Both were shot at Tatarenda in March 1902.

A third (young) specimen was shot at Aguairenda.

+42. *GAMPSONYX SWAINSONI* (Vigors).

Colonia Crevaux, April 1902. Iris reddish yellow.

43. *TINNUNCULUS CINNAMOMIMUS* (Swains.).

An adult male from Tatarenda, April 1902.

44. *BUBO VIRGINIANUS* (Gm.).

Only one specimen, shot at Colonia Crevaux in April 1902.

45. *SPEOTYTO CUNICULARIA* (Molina).

This Owl was observed sitting in bushes on the grassy plains looking out for small birds and mice, which constitute its principal food. It was plainly diurnal.

Specimens shot at Tatarenda, in March and April 1902, have the length of wing 183–186 mm. Under surface of wing, including the wing-coverts, entirely white with a very faint isabelline tinge, and a few of the outer large coverts with dusky tips, together forming a dark band. The inner webs of the secondaries almost entirely white. The outermost tail-feather dusky white throughout, except for two dusky spots on the outer web; the rest have the whole inner web white, the bars being confined to the outer web. On the third and fourth the dark bars cross over the inner web also, but are much narrower and less well-defined on the inner web, the ground-colour of which is white. The specimens from this station were accordingly decidedly lighter than the specimens from Moreno (see above, p. 418), which had all the tail-feathers, including the outermost, barred across both webs, although on a white ground-colour.

I regard the Owl from Moreno as identical with the typical *Strix cunicularia* from Chile. All other known varieties of *Speotyto* are darker than the Chilean form*; but, on the other hand, as the Burrowing-Owls of the Bolivian Chaco are still lighter than the Chilean, they might be regarded as representing a geographical variety or subspecies.

The size of the Bolivian Owl is comparatively large, as is also that of the Chilean.

†46. *SYRNIUM PERSPICILLATUM* (Latham).

A specimen shot at Tatarenda, March 29th, 1902. Iris yellow.

* Cf. Stone, "On a Collection of Birds . . . with a Review of the South-American Species of *Speotyto* and *Troglodytes*," Proc. Acad. Nat. Sci. Philadelphia, 1899.

47. *CONURUS ACUTICAUDATUS* (Vieillot).

In flocks near the water. March 13th-15th, 1902, Tatarenda, Caiza. Iris yellowish brown.

48. *CONURUS LEUCOPHTHALMUS* (Müll.).

In small flocks, less common than the foregoing. March 17th, 1902, Tatarenda. Iris yellowish brown.

49. *PYRRHURA MOLINÆ* (Mass. et Souancé).

Iris brown. March 20th, 1902, Tatarenda. Occurs in large flocks.

50. *MYIOPSITTACUS MONACHUS* (Bodd.).

Occurs in small flocks numbering about eight or ten. Two specimens were shot at San Diego on our way to the Bolivian Chaco, March 21st, 1902. Iris greyish brown.

51. *CHRYSOTIS ÆSTIVA* (Linn.).

Iris reddish yellow. Occurs in large flocks of several hundreds, but is very shy. In the morning and evening they fly to and from their feeding-places, making a deafening noise. March 17th, Tatarenda; April 1902, Colonia Crevaux.

Not mentioned by Salvadori and believed to be new to Bolivia.

52. *PIONUS BRIDGESI* Boucard.

Feathers of the head green with dark violet, almost blackish, edges. Lores black. On the hind part of the crown and on the occiput the cinereous bases of the feathers are broadly conspicuous. On the throat the edges of the feathers are more broadly coloured with purple or violet. A broad band across the fore-neck purple or violet. Back and wing-coverts olive-green with a slight golden gloss. Tail below green, with a bluish shade. Wing 197, tail 93 mm. Iris reddish yellow.

This specimen was shot by Count E. von Rosen at Tatarenda, April 1902.

53. *CAPRIMULGUS PARVULUS* Gould.

Tatarenda, April 3rd, 1902. Iris brown.

54. *PODAGER NACUNDA* (Vieillot).

This large Goatsucker was seen in small flocks flying

about in broad daylight near a rivulet, and squatting on the sandy ground at Tatarenda.

55. *CHLOROSTILBON AUREIVENTRIS* (d'Orb. et Lafr.).

Specimens were obtained at Tatarenda in April 1902.

+56. *CROTOPHAGA ANI* Linn.

A specimen in moult was shot in April 1902 at Tatarenda. The new feathers are strongly metallic and glossy, the old are not.

This bird occurred in small flocks of from ten to fifteen in number, and was very shy.

57. *BUCCO STRIATIPLECTUS* Selater.

Tatarenda; several specimens shot in April 1902. Iris whitish yellow.

58. *RHAMPHASTUS TOCO* Müll.

Iris brown, as stated on the labels of all three specimens preserved (but according to Salvadori, *l. c.*, it is "gialla").

Two adult specimens were shot in April at Tatarenda, and a young one at Zapatero on the 10th of March, 1902.

59. *DENDROBATES OLIVINUS* (Malh.).

Two female specimens shot at Tatarenda in April 1902. Iris brown according to the label (stated to be "rossa" by Salvadori).

60. *DENDROCOPUS MIXTUS* (Bodd.).

A female, the only one observed, was shot at Colonia Crevaux. The upper surface of the head is uniform dark brown, becoming almost black on the occiput, without any light spot. The feathers of the forehead are lighter brown with buffish shaft-stripes. In some respects this specimen seems to approach *D. cancellatus*.

61. *CHRYSOPTILUS CRISTATUS* (Vieill.).

A specimen was shot at Colonia Crevaux in April 1902.

62. *CAMPOPHILUS LEUCOPOGON* (Valenc.).

Male and female specimens from Tatarenda, March 1902.

In its habits this species resembles the European Black Woodpecker (*Picus martius*) and it emits a similar sound.

63. *THAMNOPHILUS MAJOR* Vieill.

A male specimen, the only one observed, was shot at Tatarenda. Although otherwise agreeing with the description in the *Cat. Birds Brit. Mus.*, it is distinguished by its remarkably long tail, which measures 90 mm.

64. *XIPHOCOLAPTES MAJOR* (Vieill.).

Tatarenda, April 1902. The belly of this specimen is quite unspotted. It is met with only in the palm-woods and resembles a Woodpecker in flight and habits. It has a sharp whistling note.

65. *TÆNIOPTERA IRUPERO* (Vieill.).

Several specimens were procured at Tatarenda in March and April, and at Pilcomaya in April 1902.

This bird usually sits at the top of a tree that stands alone in some open place. Now and then it is seen to fly up in the air and catch some passing insect, but it always returns to the same twig. It is not impossible that the white colour of the plumage of this bird may attract insects in the same way that the yellow throat of *Merops apiaster* (which the author has watched in Transcaucasia) gives one the impression of a yellow flower, when the bird sits on the ground.

66. *MACHETORNIS RIXOSA* Vieillot.

Tatarenda, March 21st, 1902.

67. *EMPIDAGRA SUIRIRI* (Vieillot).

Specimens from Fortin Crevaux and Tatarenda, April 1902.

68. *PYROCEPHALUS RUBINEUS* (Bodd.).

Tatarenda, April 1902.

+69. *MYIARCHUS TYRANNULUS* P. L. S. Müll.

Tatarenda, April 1902.

70. *EMPIDONOMUS AURANTIO-ATRO-CRISTATUS* (d'Orb. et Lafr.).

Tatarenda, April 1902.

71. *PITANGUS BOLIVIANUS* (Lafr.).

A young specimen from Fortin Crevaux, shot in April 1902,

has no yellow on the crown, and shews well-developed rufous margins to the wing- and tail-feathers. The measurements indicate that it belongs to the larger southern species.

This bird was usually seen near water and had the manners of a Flycatcher. Not common.

+72. *MYIODYNASTES SOLITARIUS* (Vieill.).

Only one specimen observed and shot at Tatarenda, April 1902.

+73. *MILVULUS TYRANNUS* (Linn.).

Tatarenda, April 1st, 1902.

A male in much-worn plumage and a young bird with the wing-coverts edged with pale rufous, the yellow of the cap pale and only slightly developed. The most remarkable feature is, however, that the primaries are not yet excised, and that on the left wing the inner web of the outer primaries is somewhat broader than on the right.

When flying *Milvulus* opens and shuts its tail, making movements like a pair of scissors.

74. *STELGIDOPTERYX RUFICOLLIS* (Vieillot).

Tatarenda, April 1902. Only seen among the palms.

75. *MIMUS TRIURUS* Vieill.

Iris brown. Tatarenda, April 1902.

76. *PARULA PITIAYUMI* (Vieill.).

Tatarenda, April 1st, 1902.

77. *GEOTHLYPIS VELATA* (Vieill.).

A specimen from Fortin Crevaux, April 1902.

78. *SYCALIS FLAVEOLA* (Linn.).

Two young birds, not yet fully grown, were shot at Tatarenda in April 1902.

79. *POOSPIZA HYPOCHONDRIACA* (d'Orb. et Lafr.).

I consider a young bird, not yet fully grown, shot at Colonia Crevaux, to belong to this species. It was the only specimen of the kind observed.

80. *CORYPHOSPINGUS CRISTATUS* (Gm.).

Two male specimens in moult were obtained at Tatarenda, April 1902.

81. *PAROARIA CUCULLATA* (Lath.).

Two young specimens from Colonia Crevaux. These birds are said to occur in large flocks along the reed-beds on the river.

82. *GUIRACA ARGENTINA* Sharpe.

A bird shot at Tatarenda in April 1902 I regard as a female specimen of this species, or, rather, subspecies.

83. *TANAGRA CYANOPTERA* (Vieill.).

Rather common, but very shy; lives in open places in the forest or at the edge of the woods.

84. *TANAGRA BONARIENSIS* (Gm.).

Specimens were collected at Fortin Crevaux in April 1902, and others observed at Tarija, Bolivia. This bird occurs here and there in couples along the edge of rivers.

85. *PYRANGA TESTACEA* Sclater & Salvin.

Only one specimen, observed and shot at Colonia Crevaux in April 1902.

86. *MOLOTHRUS BADIUS* (Vieill.).

Only one specimen, shot at Colonia Crevaux in April 1902.

87. *ICTERUS PYRRHOPTERUS* (Vieill.).

Tatarenda, April 1902. In large flocks on the maize-fields.

88. *CYANOCORAX CHRYSOPS* (Vieill.).

Tatarenda, April 1902. This bird resembles the common European Magpie in its habits. It emits various sounds, mimics other birds, and when flying in flocks produces a deafening noise. Usually eight or ten individuals are seen together. It is common near houses, in orange-groves, and other similar places.

XXXVIII.—*Ornithological Results of an Expedition up the Capim River, State of Pará, with Critical Remarks on the Cracidae of Lower Amazonia.* By DR. EMIL A. GOELDI, H.M.B.O.U., C.M.Z.S., Director of the Pará Museum.

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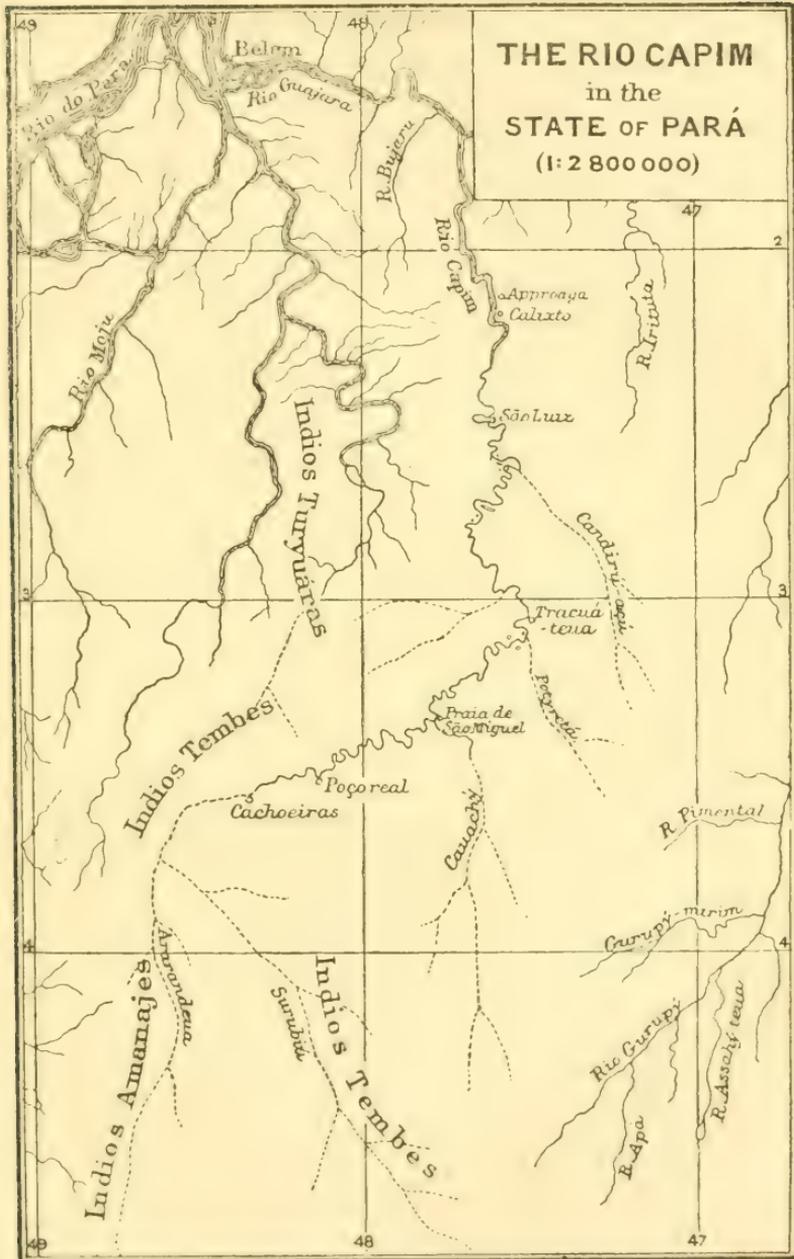
I. INTRODUCTORY REMARKS.

THE Capim River, the mouth of which is near the city of Pará, behind the "Arsenal do Marinha," is the last considerable affluent on the right side of the Amazon. It was important in past times in the history of Portuguese colonization on the Amazonian estuary and relatively well known in former centuries, but has been nearly forgotten in our days and has remained practically unexplored from a scientific standpoint. The examination of this river would thus naturally form for the Pará Museum an object of particular interest and earnest attention. An expedition with this purpose was organized in June and July 1897; a zoologist, a botanist, and two taxidermists of the Museum's staff forming the exploring corps, which, assisted by some important proprietors on the lower course of the river, planned to advance, by a steam-launch, as far as possible towards the headwaters and, depth allowing, to enter one or more of them, thence to return slowly in canoes brought up for the purpose.

A sketch of our itinerary, principally dealing with the geographical results, has already been published in a German periodical*. But our map, our natural history, and our ethnographical results, are only now approaching completion. The scientific results, as a whole, will probably form one of the next "Memorias do Museu," and it may be stated that the large amount of illustrative material is the principal reason of the slow progress of our work. I now

* Goeldi, E. A., "Vorläufige Mitteilung über eine Forschungsreise nach dem Oberlauf des Rio Capim, Staat Pará," Petermann's Geogr. Mitteil. vol. xliv. 1893, pp. 36-40.

Text-fig. 15.



Map of the Rio Capim.

propose to offer to our dear 'Ibis' the ornithological part of these results as a "*primeur*."

The Capim River, so far as we knew, had never been visited by a naturalist before, excepting by Alfred Russel Wallace, who made an excursion there in June 1849. He wrote about his journey in chapter v. of his interesting book, 'Travels on the Amazon and Rio Negro'*. The ornithological results of his visit were worked out and published by Selater and Salvin in the 'Proceedings of the Zoological Society of London,' 1867 †, in their "List of Birds collected by Mr. Wallace on the Lower Amazon and Rio Negro."

Wallace fixed his headquarters at Fazenda Calixto, a formerly important, but now entirely decadent, agricultural property, near the village of Sta. Anna do Capim. I am always interested in investigating the circumstances of Wallace's visit. Among our boatmen we had descendants in the first and second degree of Senhor Calixto, whose opulence is described and whose hospitality is praised in the above-cited book in warm terms. But these descendants were in very poor circumstances—perhaps not much superior to those of the most humble employés of Senhor Calixto of Wallace's time. "*Tempora mutantur!*" I often thought—"What would Wallace say if he could meet with the sons and grandsons of his host among the day-labourers, satisfied to be enlisted as boatmen?" The Fazenda Calixto is now totally ruined.

Wallace did not pass beyond what we call the lower course of the Capim River, so it is of no use to compare his itinerary in 1849 with ours in 1897. Where he finished was just at the beginning of our expedition. Even his mention of the smallest affluent, "about half-a-day's journey further up the river" (*op. cit.* p. 86), which he gives as the limit of his most extended excursion, does not alter this. It was probably the Igarapé Caratá-téua; the next right-hand tributary, the Igarapé Jabotý-maior, being too far off from Fazenda Calixto

* New edition, 1889, pp. 77-92. First edition, 1853.

† P. Z. S. 1867, pp. 566-596.

to have been reached in half-a-day's paddling. But in Wallace's time the Temb  and Tur u ras Indians had their "malocas" considerably lower down the river than at present, and it was easier to reach them than it is now.

Dr. Selater calls the river Capim "a small river issuing into the Rio Par , near the city of Par " (*op. cit.* p. 567). This is quite a mistake, as the Capim River, which measures fully a kilometre in breadth at its mouth, and not less than from 50 to 60 metres at Poço Real and the waterfalls near Acar u aua in lat. $3\frac{1}{2}^{\circ}$ S., and is, moreover, navigable during many weeks for steamers, ought not to be classed as an unimportant and inconsiderable stream. But compared with some others of the great tributaries of the Amazon such as the Tocantins, Xing , and Tapaj z, the Capim River certainly plays a secondary part.

I have done all in my power to give a complete sketch of the bird-life on the Capim River, beginning from the results of Wallace's visit in 1849. This may be allowed to be a useful attempt to form a special and somewhat elaborate picture of the ornithological features of a circumscribed portion of the interior of the State of Par , but will be still more useful, I agree, in the case of its being followed by a series of similar sketches of other localities constructed on the same principle.

It is an agreeable duty to me to state again that the constant help which I have had from Dr. Selater, whose never-ceasing interest in the Neotropical Avifauna is evidenced by a whole series of monumental works, shews that he does not feel the trouble which I am always causing him by my requests for the determination and identification of bird-skins, the comparison of which with type-specimens seems to me to be indispensable for careful work.

II. NARRATIVE OF THE JOURNEY.

Embarking at Par  at 7.15 A.M. on the 15th of June, 1897, in fine weather, on the steam-launch 'Lauro Sadr ,' usually engaged on the Immigration Service and lent to me by the Government, we traversed the distance to Fazenda Approaga

in nine hours, a very good performance, due to an efficacious full-moon tide, as ordinarily the steamers take twelve hours. At São Domingos we passed a spot interesting as shewing in a most striking manner the corroding action of a "pororóca" (bore) on the earth-wall of the river; it is situated just at the confluence of the rivers Guamá and Capim. We reached, at 1.40 P.M., Approaga, formerly a very important agricultural domain, belonging to our hospitable friends the family Vicente Chermont de Miranda. It is situated on the Capim some hours journey higher up, being separated from the small village of St. Anna do Capim by about the same distance—that is, more or less, an hour's journey—as the Fazenda Calixto, where Mr. Wallace stayed in 1849, further up the river. We arrived between 4 and 5 P.M., and sent back our steam-launch to Pará the same evening.

During this first day's course few zoological observations of any importance were made, for reasons easily understood. In the forests on the left and on the right bank animal-life is the same as elsewhere in the vicinity of Pará under similar circumstances. But during the hot hours of the day there is naturally very little chance of getting even a glance at animal or vegetable life, which is hidden from human eyes by the silent shade of the virgin forest. Animal life is certainly not absent, but is latent during these hours, and, if its presence is to be ascertained, requires to be searched for patiently. This is the reason that the mere tourist generally gets a rather meagre idea of the celebrated luxuriance of animal life in equatorial regions—an idea that I have often found apt to induce a want of belief in the veracity of the brilliant sketches of tropical nature contained in the works of some of our best authors. To understand an equatorial fauna and to know how to investigate it need some training.

The first bird we saw on this occasion was a large bird-of-prey describing magnificent circles in the height above us, which was easily recognised as *Urubitinga schistacea*. Soon afterwards we saw two other specimens at the same time acting in a similar manner, evidently in reconnaissance of some dainty bit for breakfast. This was about 9 o'clock.

Among the lower vegetation of the banks we noted from time to time the Hoatzin (*Opisthocomus cristatus*), stupidly frightened and flying heavily into more sheltered quarters. It is a common bird all along the Lower Capim, being met with in flocks of from ten to twenty or more. It feeds hereabouts especially on "Anhinga" (*Montrichardia arborescens*), a large Caladium-like aroid, and on "Aturiá" (*Drepanocarpus lunulatus*), a low bush of the family Leguminosæ, with recurved stinging-spines all over its branches and involved, flat, siliculous fruits. Once we saw a flock of four Muscovy Ducks (*Cairina moschata*) crossing the river.

When we arrived at Approaga the black cook of the fazenda, who had been sent out shooting in the forest, brought home, besides a "Cutia" (*Dasyprocta croconota*), a good specimen of the Red Arára (*Ara macao*). This I was inclined to take for a good omen, as these birds are getting rare in the neighbourhood of the city of Pará.

Approaga is certainly the most important agricultural station on the River Capim. It is pleasantly situated on the border of the river to the right, on a somewhat elevated spot, which is rendered necessary by the "pororóca."

A large white house connected with a lower mass of farm-factory buildings, the whole rendered visible far off on the riverside by four old and tall royal palms (*Oreodoxa oleracea*) and the long chimney of the engine, gives to the domain an aspect imposing as well as agreeable. Coming nearer you will soon understand that it is a "Feudum," suddenly interrupted in the course of prosperity, like thousands of similar fazendas all over the former Brazilian empire, by the suspension of slavery. Externally and internally signs of the rapid cessation of a former activity are seen at every step. It has evidently been one of those important possessions which were still in a prosperous condition when Wallace visited the region about the middle of the last century.

Around the fazenda there is a cleared space, already covered by a tolerably high weed-vegetation. Some negro families inhabiting a series of dilapidated cottages behind

the central buildings seem to be equally afraid of strangers and of work. I obtained there, as well as on many other similar occasions, a very unfavourable idea of these relics of the slavery period. They are generally too lazy for anything except rum-drinking. I received the impression that the moral level among the coloured element on the river Capim is at present lower than that of the free and independent Indians on the headwaters.

Approaga was our headquarters on the Lower Capim. Here, most hospitably treated by Civil-Engineer Sr. Vicente Chermont do Miranda, who had come out from Pará especially for the purpose, and by Major Ayres, his Administrator, we lived, from the 15th to the 24th of June, hunting, collecting, and preparing ourselves for the expedition to the headwaters of the river.

During these nine days I had an opportunity of acquiring a general notion of the ornithological features of the district, so near to that visited forty-eight years before by Wallace. On the very first evening my attention was called to a colony of from twenty to thirty examples of *Cassicus persicus*, with their hanging nests distributed over three "páo d'arco" of moderate height. The birds were building at this season, using, as the people told me, both dry grass and split palm-leaves. I was also told that the "Aráras" (Macaws) had young at the time. In the palm-trees in front of the fazenda was a continuous movement of glittering Tanagers (*Tanagra palmarum*) and other Passerine birds. The small and never quiet Wren (*Troglodytes musculus*) was always to be found busy on the roof of the house, and also in the vast arched basement and in the empty engine-rooms. On the bridge of the landing-place was a favourite resting-corner of some graceful Swallows, particularly *Tachycineta albiventris*; various Kingfishers passed up and down the river, the large *Ceryle torquata* being easily recognised by its size and its penetrating war-cry. From the nearer forests behind the fazenda and on the opposite side of the river we frequently heard the melodious whistling of the White-breasted Toucan (*Rhamphastus erythrorhynchus*), the deafening noise made

by various Parrots, among them especially the "Curica" (*Chrysotis amazonica*) and the monosyllabic soft song of the "Inambú-relojo" (*Crypturus strigulosus*), comparable to an elongated "fū" (in the same pitch as the second note of the dissyllabic song of *Diplopterus navius*).

On the 16th of June my attention was principally directed to observation of the "pororóca," which was expected at 3.10 P.M. I made several photographs of it, but it was not so marked as two days before, the wave attaining a height of only one metre. The ornithological increase of our collections consisted only of a specimen of *Geotrygon montana* and a small Tyrant-bird. On the 17th of June the results were more considerable:—*Troglodytes musculus*, *Todirostrum cinereum*, *Cassicus persicus*, *Geotrygon montana*, *Thryothorus genibarbis*, *Chloronerypes flavigula*, *Bucco hyperrhynchus*, *Penelope superciliaris*, and *Monasa nigra*.

Early that morning I made a trip to a small artificial lake, formerly the reservoir for the farm-factory. In the tangled vegetation of its borders I immediately recognised a bird's cry, well known to me in Pará, especially in the swampy parts of the forest, where it is called "Igapó." This cry is heard everywhere in similar localities so regularly that I named it the "Igapó-cryer." The bird is by no means easily discovered, but I know it to be *Thryothorus genibarbis* (Swainson's Moustached Wren). Approaching the negroes' cottages, I noted in the higher trees many Tanagrine forms (*Tanagra palmarum*, *Rhamphocelus jacapa*, *Calliste*) and smaller Fringillines (*Spermophila*), which formed perhaps four-fifths of the bird-flocks here met with. Among the lower shrubs were quietly climbing dark-coloured Formicarians (*Thamnophilus*) with several species of *Synallaxis*, only seen for a moment, and always disappearing before they could be shot. Parrakeets cried in the forests, coming and going in rapidly-flying flocks, always disposed to discussion and noise. I was told that the Aráras were fond of the flowers of the Acapú-tree (*Andira aubletii*), which furnishes a wonderfully hard, dark, and almost indestructible wood, used on a large scale in Pará, and formerly often exported from the Capim

and Acará Rivers. Along the river flew charming Swallows (*Tachycineta albiventris* and *Atticora fasciata*), while around the buildings flitted *Progne tapera*. The "Tangurú-pará" (*Monasa*) was indefatigable in producing its strange song in the Genipapó-tree near the windows of the dining-room. Having now had many opportunities of studying this song, I may remark that the "ho-tiü," as described in my "Ornithological Results of a Visit to South Guiana" ('Ibis,' 1897, p. 158), is only the initial prelude. The song then changes into a more energetic "hūri-tūri, hūri-tūri," uttered with increasing rapidity, and finishes with a sound like "til-til," frequently repeated, representing the acme of ecstasy. It is evidently the effect of a mutual suggestion, as these mysterious birds are decidedly social, and generally meet in flocks of half-a-dozen or so.

On the same day I myself shot specimens of *Euphonia violacea*, *Progne tapera*, *Volatinia jacarini*, *Tachyphonus melaleucus*, and of a large strong-billed Fringilline bird. Among the flowering shrubs behind the factory I observed *Hylocharis sapphirina* and another Humming-bird with whitish vent; in the trees around the buildings were *Tanagra episcopus* and several kinds of small yellowish and greyish Tyrannids. This most confusing group, which is developed in the Neotropical Avifauna in strange abundance, forms a real "crux" on account of the deceptive similarity of its various forms and the absence of any really striking external characters. We may fairly say that we know almost nothing about this family, which is the New World equivalent for the Old World Muscicapidæ, and contains more than 400 species, of which at least 112 are found within the Amazonian subregion.

Both at morning and evening are heard in the river-forests the calls of the "Saracúra" (*Aramides chiricote*) and of two species of Tinamou—*Crypturus strigulosus* ("Inambú-relogio") and *C. pileatus* ("Sururína"). My hunters brought me specimens of *Selenidera gouldi*, *Crypturus variegatus* ("Inambú-saracuirá"), *Monasa nigra*, *Ortalis araucana*, and of a young "Arapapá" (*Cancroma cochlearia*).

On June 19th I included in my collections *Thryothorus genibarbis* ("Igapó-cryer"), a female *Pipra*, probably belonging to *P. leucocilla*, and a species of *Thamnophilus*. I had also occasion to observe *Coturniculus manimbe* and *Cæreba cyanea*.

On Sunday, June 20th, during a walk in the forest, I saw plenty of Black-and-white Mannikins (*Chromacheris manacus*) and constantly heard their strident penetrating "br-r-r-r" around me. The males, however, seem particularly timorous. We obtained examples of *Euphonia violacea*, *Brotogerys tuipara*, *Chelidoptera tenebrosa*, *Columba plumbea* (here called "Pomba gallega"), and *Rhamphastus ariel*. The beautifully orange-marked *Brotogerys tuipara* was observed opening the fruits of a gigantic Mongúba-tree (*Bombax monguba*) in search of the seeds, and its crop was filled with masses of the substance thence procured. The same predilection for Mongúba-seeds I had already observed several times in Pará.

On June 21st, in the same direction, I again noted *Chromacheris manacus* (still very timorous), *Monasa nigra*, *Synallaxis rutilans*, and along the river *Ceryle torquata* and *C. americana*.

Around Approaga were normally to be seen some five or six individuals of the Yellow-headed Raven-Vulture (*Cathartes urubitinga*), and often an equal number of common Black Raven-Vultures (*Cathartes urubu*). I added to our collection *Chamæpelia passerina*, *Piaya cayana* (here called "Chincoã"), *Rhamphastus ariel*, *Falco rufiocularis*, and *Columba speciosa*.

On June 23rd, during the night (9.10 P.M.), I heard distinctly the characteristic cry of the "Urú" (*Odontophorus guianensis*) from the forest on the left bank of the river, and also, at dusk and afterwards, the not less loud, but less harmonious, call of the "Aracuã" (*Ortalis aracuan*).

The small Finches *Spermophila gutturalis* and *S. hypoleuca* constantly sang on the higher branches of the trees around the buildings. For the first time I saw this morning four of the smaller "Anús" (*Crotophaga ani*) crossing the river

from left to right. In the shady gallery under the house I captured a living specimen of *Pipra auricapilla*, ♂, a charming black-and-crimson-headed little bird, which had ventured to visit this spot.

On June 23rd our steam-launch, the 'Ondina,' arrived at night, too late to depart till next day.

From the 24th to the 30th of June we were steaming up the river on board our strong and comfortable launch, stopping only during part of the night, when complete darkness did not permit our going forward without risk. The first day we arrived at Sitio Saõ Luiz, the private property of Major Ayres, our guide; the second at "Cupijó-tapéra," an old settlement of Tembé Indians, now abandoned. In my notebook I find the following entries referring to ornithological observations made on board:—*Tachycineta albiventris*, *Ardea virescens*, *Calidris arenaria*, *Urubitinga zonura*, *Milvago chimachima*, *Cathartes urubu*, *Ceryle torquata* and *C. americana*, *Crotophaga major*, *Chelidoptera tenebrosa*, and *Cuirina moschata*.

Though we had already passed out of the zone of civilized men and entered far into the district inhabited by half-civilized Indians only, the richness of bird-life, both in species and individuals, was at first not very great, but increased almost imperceptibly from day to day. I may explain that the Lower Capim, inhabited by a white and coloured population, is divided from the true Indian district of the headwaters by a wide space absolutely devoid of human residents, though it was thinly populated up to some twenty or thirty years ago by Tembé and Turýuára Indians. Their abandoned settlements, called "tapéras," are easily recognised by the clearings in the high forest, now occupied by shrubs and low trees, and produce a very melancholy impression on the mind of the visitor.

The constant occurrence of extensive "tapéras" enables us to see that the avifauna has not yet become again equal in richness to that of the virgin forest. Two forms of bird-life prove this immediately by their striking frequency—*Chelidoptera tenebrosa*, the quiet and melancholy

“urubusinho,” and *Falco rufigularis*, the pseudo-“cauré.” The other birds cited above are what I might call “ubiquitous river-forms,” and the series does not contain elements characteristic of any particular portion of the Amazonian subregion.

Early the next morning, June 26th, between 7 and 7.30 A.M., we were at the mouth of the second of the more important affluents of the Capim River, the Potyretá. I noted this day the following birds:—*Falco rufigularis*, *Sarcophamphus papa*, *Ceryle torquata*, *Plotus anhinga*, *Ardea leuce*, and *Lathria cinerea*. We passed the night near the sandy “Praia de São Miguel,” some hours above the mouth of the right-hand affluent, the Cauachý.

On June 27th, in the morning, *Plotus anhinga*, *Falco rufigularis*, *Tachycineta albiventris*, and *Atticora fasciata* were noted. An important bird, long wished for, was seen for the first time on the journey—the large blue Hyacinthine Ara (*Anodorhynchus hyacinthinus*). It seems to inhabit the upper part of the rivers in Lower Amazonia and Guiana, particularly in the vicinity of the rapids (“cachoeiras”).

We arrived at 1 o'clock P.M. at “Acarý-uçáua.” This is at present the principal settlement of those Tembé Indians who inhabit the Capim River and the country between the Capim and the higher branches of the Acará. The “Tucháua” (chief) was absent, having gone to the upper river with a number of young men in search of copaíba-oil, but we requested the remaining Indians to help us in procuring firewood for our steam-launch.

During the afternoon I heard and saw *Pionias violaceus*, *Cathartes urubitinga*, *C. urubu*, *Chelidoptera tenebrosa*, *Tachycineta albiventris*, *Falco rufigularis*, *Asturina magurostris*, *Ardea cocoi*, *Atticora fasciata*, and what I believe to have been *Cotile riparia*. Bird-life here had become decidedly more abundant and more interesting.

“Acarý-uçáua” is a village of some 20 huts of Tembé Indians, situated on an elevated plateau on the left bank of the Capim. As its height is rather considerable for the

country (from 8 to 10 metres), the visitor has to climb by a ladder from the bank to the summit, and thus gets an idea of the great difference of the water-level in the dry and the rainy seasons. A good view is here obtained of the river-landscape below, especially of the forest of spiny Jauarý palms, "jauarizál" (*Astrocaryum jauary*), on the opposite side. Considerable numbers of "Tangurú-pará" (*Monasa nigra* and *M. morpheus*) inhabit the surroundings of this genuine Indian settlement, and by their singular concerts, combined with the old indigenous traditions, give a peculiar idyllic feature to it. I received the impression there that these birds are fond of the neighbourhood of the red man, and that the red man in his turn loves and respects the birds, and I can understand this mutual sympathy—they are both equally mysterious! We passed a bad night on the maloca, owing to the mosquitoes, which were abundant and sanguinary—a strange thing, as generally we had nothing to suffer from this plague anywhere on the expedition.

We continued our journey early in the morning of June 28th up the river with the steam-launch, now freshly provided with several thousand logs of wood, as we intended to go at least as far as the confluence of the two head-rivers of the Capim, the "Surubiú" and the "Ararandéua." About 10 A.M. we arrived at the lowest falls—an anxious moment for us, as we expected to obtain there with our own eyes evidence whether we could continue our trip in the launch or not. The result was unsuccessful; there was not more than $5\frac{1}{2}$ feet of water in the only passage between the rocks, and the steam-launch 'Ondina' required fully $6\frac{1}{2}$ feet. We soon recognised that we had arrived a month too late, and that there was no other plan than to stop here with our expedition. Anchoring with the launch at the foot of the falls, we tried to make the passage in our boats, and continued our reconnaissance of the river upwards for some hours.

The rest of the 28th and the whole of the 29th of June we remained at this spot, collecting and hunting zealously. The list of birds observed became sensibly richer here,

and the other collections also increased considerably, owing principally to the help of the experienced Tembé Indians, of whom we had half-a-dozen in our company. *Crotophaga major*, *Falco rufigularis*, *Ceryle* (of several species), *Cassicus persicus*, *Cotile riparia*, *Tachycineta albiventris*, *Atticora fasciata*, *Monasa nigra* and *M. morpheus*, *Columba plumbea*, *Ara serena* and other small species of *Ara*, *Anodorhynchus hyacinthinus*, *Pionias violaceus*, *Odontophorus guianensis*, *Crypturus strigulosus*, and *Rhamphastus erythrorhynchus* were among our spoils.

The Tembé Indians, especially attentive to the larger birds for the kitchen, brought in from their hunting examples of *Crypturus strigulosus*, *Psophia obscura*, and a large Woodpecker, but in too bad a state to be of use for our collections.

I myself visited the surrounding forest, and became really impressed by its varied and extensive bird-life. It was impossible to determine in many cases all the bird-forms which emitted strange sounds high above our heads in the summits of the gigantic forest-trees, hammered on the branches and on the trunks, and climbed in the foliage of the lower vegetation. True Woodpeckers (Picidæ), as well as the pseudo-Woodpeckers of the family Dendrocolaptidæ, were represented in dazzling multiplicity, and every ornithologist acquainted with the neotropical avifauna will easily understand the extraordinary difficulty which I feel in giving an absolutely exact description of all that may be seen and heard in an Amazonian forest. There is one means only of obtaining full certitude—the “ultima ratio” of bringing specimens down with powder and shot.

On the evening of the 30th of June we returned to Poço Real, a recently commenced plantation of the Tembé Indians about an hour distant down the river. In the morning of the next day we sent the steam-launch ‘Ondina’ back to Pará with part of the collections and some living animals. We were thus left entirely to ourselves, and lived from the 30th of June to the 5th of July along with the Tembés, of whom about a dozen families were assembled there, occupied with their “roças” (plantations) of mandioca and other food.

I shall never forget this week spent among the Indians. It was a most instructive period for us as regards natural history, as well as for ethnography and linguistics.

Poço Real is nothing more than a simple clearing in the forest on a plateau of the river-bank, upon which are scattered a dozen more or less provisional cottages. One of these was lent to us during our stay by its proprietor (a Tembé Indian whose wife was of the Turýúára tribe), and was transformed into our expeditionary headquarters.

The multitude of Parrots and Macaws (among which the blue *Anodorhynchus hyacinthinus* was a daily visitor) at this solitary spot was a good omen for ornithological work. The concert of birds' voices every morning and evening, partially extending into the night, which struck our ears, coming from the low "jauarizál" on the opposite side of the river and from different parts of the forest behind and around us, was quite sufficient to captivate an ornithologist. Employing on an average ten or twelve experienced Indian hunters every day, and hunting and collecting ourselves, the daily result was a mountain of mammals and birds and of all kinds of objects of natural history.

On the 30th June we entered in our lists of collections:—*Ara chloroptera*, *Neomorphus geoffroyi* (Indian name "Acá-netíka"), *Chelidoptera tenebrosa* ("Taperá-perúna"), *Monasa morpheus* ("Zuní"), *Mionectes oleagineus*, and a large-billed Finch with a red-and-black cap, probably *Pitylus erythromelas*.

On the 1st of July we obtained examples of *Deroptyus accipitrinus*, *Rhamphastus ariel*, *Selenidera gouldi*, *Odontophorus guianensis*, *Pipile cujubi*, *Crypturus variegatus*, and *C. strigulosus*. A Kingfisher (*Ceryle torquata*), a *Lathria*, and both sexes of *Phlogopsis nigromaculata* were collected in too bad a state for preservation.

On the 2nd of July I find these names mentioned in my notes—*Piaya macrura*, *Thryothorus genibarbis*, and *Glyphorhynchus cuneatus*, besides a multitude of smaller birds of different families, among which the Yellow-breasted Swallow (*Stelgidopteryx ruficollis*) was of special interest.

We noticed that early in the morning and in the evening, for about an hour, groups of some twenty or thirty small Swallows exercised their mosquito-hunting faculties above the "roça," and disappeared afterwards. They were the two often-mentioned River-Swallows and *Stelgidopteryx*.

On July 3rd we obtained *Anodorhynchus hyacinthinus* (one living example of which we brought to Pará), *Urubitinga* sp. inc., *Pipile cujubi*, and *Rhamphastus erythrorhynchus*. This day and the next I was principally employed in collecting ants and spiders, in taking photographs, and in preparing linguistic notes on the Tembé language.

One of the birds that occupied much of my attention was *Neomorphus geoffroyi*, a large forest Cuckoo, not very rare on the higher Capim. The Tupí name for it is "Tajaçú-uirá," that is, the bird of the "tajaçú-hog" (*Dicotyles tajaçu*); the Tembé Indians, however, call it "Aká-netíka"—that is, "(the bird which) nods with the head." Generally several individuals are met with together in the deep forest, and all the information that I obtained from the Indians about its life and customs agrees with my own. It has the habits and manners of a Formicarian bird, following the Eciton ant-armies and mingling in the flocks of *Phlogopsis*, *Rhopoterpe*, *Formicarius*, *Pyriglena*, *Myrmeciza*, and other ant-birds. It is therefore often met with on the ground.

At Poço Real I also had an opportunity of taking the first steps towards clearing up a confusion about certain species of Amazonian Cracidae, a matter to which I will return later.

During the night of the 4th of July our Tembé Indians organized a dancing festival, called by them "hé-ira," on a clear space in the centre of the plantation near the river-bank. They danced, sang to the rhythm of their "maracá" (rattle), smoked their gigantic cigars (about 2 feet long), and drank with much "entain" till the morning of the next day.

But the same morning at 4 o'clock we embarked in three canoes on our return voyage. We were accompanied by a young Indian, who had been lent to me by his mother for

some weeks. During the first day of our rowing downwards I observed *Ibycter americanus* (several times), *Plotus anhinga*, *Ardea leuce*, and *Geronticus infuscatus*.

Arriving at a sandy spot called "Praia do Ipomonga," we resolved to pass the night there. Our hunters brought, after some delay, a *Tinamus solitarius* (called "Inhambú-peua" in Tupí, but our Tembés called it "Inamuhú," that is, "the large Inhambú") and a large black Eagle (*Urubitinga zonura*). *Ibycter americanus* is one of those birds that does not require much time to make itself known anywhere. Its cry is a violently-expelled "ha-cã-cã-cã-cã," some eight or ten times repeated with diminishing intensity, and is really likely to terrify the visitor who hears it for the first time,—all the more so as several of these brilliantly coloured birds-of-prey are generally found in the same place and cry together or alternately. The Indians told me that *Ibycter americanus* feeds especially on wasps; it seems to be a New World representative of *Pernis apivorus*. But we fed a "Canean" that we brought alive to Pará with small birds. It was an old, savage, and sturdy individual, darting deadly hate from its blood-coloured eyes, and gave us much trouble. *Ibycter americanus* seems to appreciate the solitary Indian "tapéras"; it was a daily visitor during our journey.

On July 6th, early in the morning, we reached the mouth of the "Cauachý," one of the most important right-hand affluents of the Upper Capim, where we had previously resolved to establish our headquarters for some days. This is an absolutely deserted locality, no human creature being met with in a circuit of several days' journey around. The "Cauachý" was some 24 metres broad, and its depth was found by us to be from 4 to 5 metres in the middle. We spent four days in this solitary spot, rich in animal life of every kind, hunting, fishing, preparing specimens, and taking notes.

I observed here *Cancroma cochlearia*, *Ostinops decumanus*, *Monasa morpheus*, *Eurypyga helias*, *Ceryle* of several species, *Lathria cinerea*, *Tigrisoma*, *Falco rufigularis*, *Urubitinga zonura*, *Ibycter americanus*, and *Tinamus solitarius*. Every night we heard in the forest around us the voice of *Nyctibius*

jamaicensis (the Giant Goatsucker). Its cry is "fö-fi-fi-fi-hū-hū-hū," the second part expelled slowly and so lengthened that it is generally the only sound heard, while the first part is audible only when the bird is quite near.

Among the smaller species observed here, I noted two yellowish Tyrannids, *Lathria*, one small blackish *Thamnophilus*, *Thryothorus genibarbis*, *Tachycineta albiventris*, *Atticora fasciata*, and *Stelgidopteryx ruficollis*. The acquisitions of the larger forms of birds were more important, as shown by the following list:—*Mitua mitu*, *Penelope superciliaris*, *Crax fasciolata*, *Urubitinga zonura*, *Ibycter americanus*, *Trogon viridis*, *Tinamus solitarius*, *Falco rufigularis*, and *Psophia obscura*.

The Trumpeters (*Psophia*) collected on the Upper Capim River proved to be of a certain importance in clearing up doubts about the specific distinctness of *P. viridis* Spix and *P. obscura* Natterer, especially concerning the validity of the latter, which was doubted even as recently as the date of vol. xxiii. of the British Museum Catalogue*. Regarding these "Jacamins" (charming creatures, of which I succeeded in bringing two living specimens to Pará), a droll story may be related. One of my Indian hunters brought me one of these "Jacamins," dead. At first sight I was agreeably surprised, but was much disappointed on discovering that the bird had its legs cut off. Blaming the Indian, I enquired the reason of such a barbarous act. The Indian's reply was: "I considered that the legs were too long, and being good for nothing, I thought it better to cut them off." I was at once disarmed by this naive explanation, characteristic of the ingenuous mind of these people, so different from ours.

At their homes our Tembé Indians were always clad in a pair of short breeches, at least when in our company, but as soon as they entered the forest they always took these garments off, and, rolling them up into a small packet, fastened them by means of a liane round their bodies, and remained entirely naked. When asked the reason of doing this they informed me that it was in order to protect

* Cf. Scater, *Ibis*, 1898, p. 320.

the breeches, a rather expensive article, from being torn to pieces by the thorns, with which the forest was always supplied. Naturally I was highly amused by this original appreciation of the greater value of a pair of breeches than of a man's skin.

I will now say a word on the Tinamidæ observed during our Capim expedition, especially as regards the popular and Indian names for the different species, which were four in number.

1. *Crypturus pileatus*, the smallest, is generally called "Sururína" on the Capim River, as well as around the city of Pará. The word is evidently a Tupí word with a Portuguese termination. The Tembé Indians pronounce the word in the somewhat abbreviated form of "Sururý."

2. *Crypturus variegatus* is called by the pure Tupí-speaking tribes, such as the "Turyuáras," "Inhambú-anhánga"—that is, "Tinamou-demon." The Tembé Indians call it "Inamúsaracúira."

3. *Crypturus strigulosus* is called by the non-Indian population of Lower Amazonia "Inhambú-relojo" (tinamou-watch). The Tembés in the interior of the State of Pará call it "Inamúpéua-hý"—that is, the "smaller Tinamou with flattened breast."

4. *Tinamus solitarius*, the largest form, bears the Indian name "Inhambú-péua"—that is, "Tinamou with flattened breast." Our Tembés called it, however, "Inamú-hú," which means "the large Tinamou."*

I may add that all the Tinamous have an excellent whitish-coloured muscular breast-flesh, equally good to eat whether boiled or fried, and so tender and nutritious that it is considered all over Brazil a suitable dish even for sick persons. Naturally, therefore, the Tinamidæ figure here among the first-class indigenous game-birds. *Crypturus pileatus*, the "Sururína," is the most popular member of the

* I met with the same bird in the coast-region of South Guiana with the native names of "Inhambú-serra" and "Inhambú-toró" (see my "Results of a Naturalist's Visit to the Coast-Region of South Guiana," 'Ibis,' 1897, p. 156).

group at the mouth of the Amazon, and without doubt it should be considered the true Amazonian equivalent and representative of *C. tataupa* of Southern Brazil, well known in the State of Rio de Janeiro and neighbouring districts.

Another ornithological result of our Capim expedition was the long-desired clearing-up of the *Crax pinima* problem, dating from the time of Natterer, and the critical revision of a series of allied species, always more or less doubtful, of Cracidae. Some of these results have already been announced in a provisional manner by Dr. Selater in a short note in 'The Ibis'* and by myself †. This is a good opportunity of giving some details on the question.

Natterer had obtained in 1835, at Praia do Cajutúba, Pará, a female specimen of a "Mutúm," which was there called by the Indian name "Mutúm-piníma"—that is, Spotted (or Painted) Curassow. He made of it a new species with the name *Crax pinima*, though it seems from v. Pelzeln's extracts from Natterer's original notes that he was somewhat in doubt whether it was not merely the female of *Crax sclateri* Gray = *Crax fasciolata* Spix.

The type-specimen of *Crax pinima* was first described by v. Pelzeln (Orn. Bras. p. 341) in 1871, and Natterer's MS. name was adopted.

After that time several naturalists who were treating of South-American Cracidae (Gray, Selater and Salvin, Ogilvie-Grant) wrote about *Crax pinima*, identifying with it certain individuals more or less agreeing with v. Pelzeln's description. But it must be repeated that these birds were in every case *female individuals*, and that these individuals shewed considerable variations (leaving a large margin to conjecture as to whether they were due to specific differences or to diversities of age and maturity); and I must add that no figure in books accessible to me, not even in Dr. Selater's two most useful essays "On the Curassows

* Ibis, 1898, p. 462.

† Goeldi, 'Aves do Brazil,' Rio de Janeiro, 1894-98, p. 393.

now or lately living in the Society's Gardens,"* agrees entirely as regards colour-details with the original description, nor does any one of the three individuals recently described by Ogilvie-Grant (Cat. B. xxii. p. 477) under *Crax pinima* absolutely agree with v. Pelzeln's characters. But I have personally seen specimens entirely agreeing with v. Pelzeln's description, and I can assure my readers that the description really gives us a good idea of one of the phases of colouring of the female "Mutum-piníma" of the State of Pará. But I cannot attribute to it any higher value, and I decidedly deny to it the rank of a species.

From June 1894, the date of my arrival at Pará, till the present time a number of "Mutúms" have been received at our Zoological Garden with the popular designation of "Piníma." They all agreed more or less with the sketch or general aspect of v. Pelzeln's description of "*Crax pinima*," but in details of design—cross-barring on the abdominal side, barring of the tail-feathers, extent of dark and ochraceous colour on the upper and lower abdomen, barring of the head-crest, and other respects—they varied extremely, so much so, that every individual represented a particular phase, which by a very anxious systematist might be referred to a distinct species. By a singular chance it happened that at the Museum of Pará we never got a single male of "Mutúm-piníma," living or dead. Thus I was for several years ill at ease with the failure of my attempts to obtain the male of *Crax pinima*, but this discovery I succeeded finally in making on the Capim expedition.

At Acarý-uçáua and Poço Real our Tembé Indians brought in specimens of the female "Mutúm-piníma" corresponding in colour and aspect, as well as in its Indian name, with the individuals in the Pará Zoological Gardens. Naturally the first question I put to the Indians, all exceedingly familiar with the animal life of the surrounding forests, was: "Do you know *the male* 'Mutúm-piníma'?" They replied, without a moment's hesitation, "We do know it!" "How is it

* Trans. Zool. Soc. Lond. ix. p. 273, and x. p. 543.

coloured?" I asked. "It is black, white on the belly, and yellow-billed, like the female." It will be easily understood that I made every possible effort to excite them to bring to me immediately such a male "Mutúm-piníma." They brought me some, and these birds agreed altogether with the oral information given about its exterior aspect. But I made even a further experiment. I asked the Tembé Indians, "How do you know with certainty that the birds you brought are the males of the 'Mutúm-piníma'?" They replied, "There can be no doubt, as hereabouts we have not more than two sorts of Mutúms: one is the red-billed 'Mutúm-cavallo'*; the other is the yellow-billed 'Mutúm-piníma.' And, as you know, these two sorts are easily recognised by every child, and nobody could confound them."

This reason and argument are really uncontrovertible. If, in certain districts, yellow-billed Mutúms appear always in two forms—black ones with white belly and barred ones with ochraceous undersides, and the former are always of the male sex and the latter are always of the female sex, it is manifest that the two forms belong together—that the former is the male and the latter its female. This should be sufficient, but the Indians had another even more weighty proof—the direct observation of their sexual connexion; they knew thoroughly well the details of the reproduction of the "Mutúm-piníma."

As will be seen, circumstances were particularly favourable on the Capim River for removing this old systematic "crux" about the hypothetical *Cra. piníma*, owing to the fact that there exist there only two species of Cracidæ, very easy to recognise—a red-billed and a yellow-billed species, the latter being the "Mutúm-piníma." To this circumstance, together with the especial attention I have directed since 1894 to the solution of the problem, the success must be attributed. The "Mutúm-piníma" is distributed over the interior of the Atlantic side of the right-hand Amazonian shore of the State of Pará, namely, the upper districts of the rivers Capim, Guamá, and the neighbouring parts of the interior

* This is the native name for *Mitua mitu*.

of the States Maranhão and Goyaz. From the Rio Grajaú I have seen several living individuals, and among them one almost entirely agreeing with the colour-phase of v. Pelzeln's original description of *Crax pinima*.

Thus there can remain absolutely no doubt that the name *Crax pinima*, as based only upon female specimens, should be cancelled. If asked to what species the "Mutúm-pinima" of the Pará district must belong, I reply, to *Crax fasciolata* Spix*, though Spix's figure (plate 52*a*), taken from a female, is certainly not at all fit to give a clear idea of the external features of this species.

It is therefore necessary to consider the modifications caused by cancelling *Crax pinima* among the species of Cracidae admitted by modern ornithologists. Opening vol. xxii. of the 'Catalogue of Birds in the British Museum,' written by Ogilvie-Grant, we see (p. 477) that, according to this author, *Crax incommoda* Selater ought to be cancelled too, as synonymous with *Crax pinima*. And necessarily also the numerous species which compose the synonymy of *Crax fasciolata*, according to the views of Grant, should share the same fate, namely, *Crax sclateri* Gray, *Crax discors* Natterer †, *Crax azaræ* Natterer, and *Crax circumatus* Licht. Also *Crax nikani* Pelzeln seems to belong to this cycle of doubtful species, evidently condemned to disappear in the immediate future.

Strict rectitude compels me to state that already in 1875-1879 Dr. Selater, in his monographic essay of the Curassows living in the Zoological Society's Gardens, clearly gave us to understand his doubts as regards the validity of the species *Crax pinima*. He writes (*op. cit.* p. 281) :—"On the whole, I am inclined to believe that *Crax pinima* is founded on a female *Crax sclateri*. But I should be glad

* Plate 52*a* of Spix's work, 'Avium species novæ &c.,' Monachi, 1824, called "*Crax fasciolata*," seems to represent a somewhat dark female specimen. It may be noted that in 1875 Selater identified this figure quite rightly with *Crax pinima* of Pelzeln.

† Established on a specimen in the Berlin Museum collected at Cameté (Pará) by the German Sieber, collector of Graf v. Hoffmannsegg, in the beginning of the last century.

to be able to examine examples of both sexes of the Curassow of Pará, in order to compare it with that of Matto Grosso and Paraguay, the range being rather extensive for one species of the genus."

Not without a certain regret, therefore, I found "*Crax pinima*" restored in vol. xxii. of the 'Catalogue of Birds in the British Museum' in an official manner to its usurped dignity and rank. I hope, however, that ornithologists will now consider the matter settled for ever, and the so-called "*Crax pinima*" definitely cancelled.

On July 9th we made a reconnaissance of the upper part of the Cauachý River. It was an interesting, but at the same time a rather painful excursion, owing to the innumerable obstacles we met with, the river being constantly obstructed by big trees which had fallen from both banks. To cut through a space sufficiently wide for the passage of our boat was often a matter of more than an hour's hard work. Though we met with spots which some years ago had evidently been Indian "roças," the Cauachý at the time of our visit was absolutely deserted, no one being resident, at least on its lower course. Formerly it was inhabited by Tembés and Turyuáras, and often served as a passage from the Capim River to the headwaters of the Gurupý-mirý and neighbouring affluents of the Gurupy River.

On this day and on the 10th of July, when we were already moving downwards as far as the place called "Traçuá-téua," I observed *Heliornis fulica*, *Nauclerus furcatus*, *Asturina magnirostris*, *Chrysotis amazonica*, *Anodorhynchus hyacinthinus* and *Ara macao* (both regularly in couples), *Urubitinga zonura*, *Monasa nigra* and *M. morpheus* (frequent), *Ibycter americanus*, *Ceryle* div. spec., *Thryothorus genibarbis*, *Atticora fasciata*, *Tachycineta albiventris*, *Phlogopsis nigromaculata*, *Plotus anhinga*, *Crax fasciolata* ("Mutúm piníma"), and *Mitua mitu* ("Mutúm cavallo"), the "Mitú-été" of the Tembé Indians.

At "Traçuá-téua," some hours below the mouth of the Potyretá affluent, we made our third headquarters on descending. It is a locality as devoid of human creatures as all the others

in which we had fixed our stations. The exploration of the neighbouring lake, very long but not wide (as these lakes generally are, on both sides of the main river), which lay in the same direction as the Capim and was separated from it only by an elevation of some 80 metres, formed an agreeable task, to which we dedicated two days.

Here we obtained a full-grown Tapir and specimens of *Cairina moschata*, *Monasa nigra*, and *Ara macao*. Exceedingly common hereabouts during the night was the Giant Goatsucker (*Nyctibius jamaicensis*). During the day *Phlogopsis nigromaculata*, called "mãe da taóca," was often heard around our encampment in the forest. A brown-black middle-sized *Thamnophilus* was always crying "br-br-br" in the lower vegetation. On the declivity of a soft earth-wall on the side of a sort of artificial defile, where evidently in former times a way had been cut from the river to the lake, I discovered the entrance-hole of the subterranean breeding-quarters of the "Tangurú-pará" (*Monasa nigra*). Unfortunately I had no implements with me with which to dig out the gallery and nest, as I wished to do, in order to get an exact idea of their architectural structure.

On the 12th of July, at 5 o'clock P.M., we left "Tracuá-téua," rowing downwards the whole night and all the next day. We saw and heard *Columba plumbea*, *Aramides chiricote*, *Ibycter americanus*, *Falco rufigularis*, *Ardea virescens*, *Monasa nigra* (frequently), *Rhamphastus ariel* and *R. erythrorhynchus*, *Chrysotis amazonica*, *Pionias violaceus*, *Momotus brasiliensis*, and *Phlogopsis nigromaculata*. But the most interesting occurrence was a small flock of three individuals of *Hoplopterus spinosus* at Praia Granda on a sand-bank. I shot two of them, the third escaped.

Not far from the mouth of the affluent "Caudirú-açú," we noted *Ara macao*, *Parra jacana*, *Cathartes urubitinga*, *Ardea leuce*, and *Ceryle* of several species. On the whole I was surprised to see so few Herons along the Capim.

We reached São Luiz at 4.45 P.M. on the 13th of July, and remained there the next day. We had a bad night, with incessant rain, followed by an exceedingly hot day;

and it was certainly this unfortunate period of our expedition to which we owed the fevers brought home, which tormented us for several years afterwards. At this station we procured examples of *Pionias violaceus* (three), *Automolus sclateri*, *Momotus brasiliensis*, and *Rhamphocelus jacapa*. A welcome acquisition were three specimens of the most interesting, rare, and beautiful Parrot *Caica vulturina*, called "Periquito d'anta"—that is, "Tapir-Parakeet."

At São Luiz I observed a yellow-breasted Trogon breeding in a white-ants' nest on a Genipapeiro-tree, some 15 feet from the ground. *Monasa nigra* was still frequent; *Momotus* was regularly heard in the morning and evening, as well as *Nyctibius*.

Near the island called Gipióca reappeared the first "Cigánas" (*Opisthocomus cristatus*), characteristic of the lower river-zone only.

On the 15th of July, in the evening, we reached our base of operations—Approága. We had to remain there eight days; during the first three of which I endured sharp attacks of fever. On our return to Pará my companions were also struck down by fever, which obliged us to take a holiday, spent by Dr. H. Huber, our botanist, in Ceará, and by myself in Rio de Janeiro, though not with quite satisfactory results.

III. LIST OF THE BIRDS OF THE RIVER CAPIM.

<i>List of Birds observed by the author on the River Capim, June–July 1897.</i>	<i>List of Birds collected by Mr. A. R. Wallace on the River Capim in May–June 1849.</i>
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+1. *Urubitinga schistacea*.

+2. — *zonura*.

+3. *Sarcorhamphus papa*.

+4. *Falco rufigularis*.

5. *Ibycter americanus*.

6. *Harpagus diodon*.

7. *Asturina magnirostris*.

8. *Cathartes urubitinga*.

9. — *urubu*.

10. *Milvago chimachina*.

+1. *Spizaëtus tyrannus*.

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|-----------------------------------------|---------------------------------------|
| 11. <i>Nauclerus furcatus</i> . | |
| 12. <i>Anodorhynchus hyacinthinus</i> . | |
| 13. <i>Ara chloroptera</i> . | |
| 14. — <i>macao</i> . | 2. <i>Conurus perlatus</i> . |
| 15. <i>Deropytus accipitrinus</i> . | |
| 16. <i>Pionias violaceus</i> . | 3. <i>Urochroma purpurata</i> . |
| 17. <i>Caica vulturina</i> . | |
| 18. <i>Brotogerys tuipara</i> . | |
| 19. <i>Chrysotis amazonica</i> . | |
| 20. — <i>inornata</i> . | |
| 21. <i>Rhamphastus ariel</i> . | |
| 22. — <i>erythrorhynchus</i> . | 4. <i>Pteroglossus aracari</i> . |
| 23. <i>Selenidera gouldi</i> . | |
| 24. <i>Pteroglossus bitorquatus</i> . | |
| 25. <i>Ceelus jumana</i> . | |
| 26. <i>Campophilus rubricollis</i> . | 5. <i>Campophilus trachelopyrus</i> . |
| 27. <i>Chloronerpes flavigula</i> . | |
| 28. <i>Ceryle amazona</i> . | |
| 29. — <i>americana</i> . | |
| 30. — <i>torquata</i> . | |
| 31. <i>Bucco hyperrhynchus</i> . | 6. <i>Bucco tamatia</i> . |
| 32. <i>Malacoptila rufa</i> . | |
| 33. <i>Monasa nigra</i> . | |
| 34. — <i>morpheus</i> . | |
| 35. <i>Chelidoptera tenebrosa</i> . | 7. <i>Jacamerops grandis</i> . |
| 36. <i>Galbula cyaneicollis</i> . | 8. <i>Galbula cyaneicollis</i> . |
| 37. <i>Momotus brasiliensis</i> . | |
| 38. <i>Nyctibius jamaicensis</i> . | 9. <i>Podager nacunda</i> . |
| 39. <i>Nyctidromus albicollis</i> . | |
| 40. <i>Crotophaga major</i> . | 10. <i>Crotophaga major</i> . |
| 41. — <i>ani</i> . | |
| 42. <i>Piaya macrura</i> . | |
| 43. <i>Neomorphus geoffroyi</i> . | |
| 44. <i>Trogon viridis</i> . | 11. <i>Trogon viridis</i> . |
| 45. <i>Ostinops decumanus</i> . | |
| 46. — <i>viridis</i> . | |
| 47. <i>Cassicus persicus</i> . | |
| 48. — <i>hæmorrhous</i> . | |
| 49. <i>Cassidix oryzivora</i> . | |
| 50. <i>Coturniculus manimbe</i> . | |
| 51. <i>Pitylus erythromelas</i> . | 12. <i>Pitylus erythromelas</i> . |
| 52. <i>Spermophila hypoleuca</i> . | |
| 53. <i>Volatinia jacarini</i> . | |
| 54. <i>Tachyphonus melaleucus</i> . | |
| 55. <i>Euphonia violacea</i> . | |
| 56. <i>Tanagra palmarum</i> . | 13. <i>Calliste boliviana</i> . |

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|----------------------------------------|--------------------------------------|
| 57. <i>Tanagra episcopus.</i> | 14. <i>Arremon silens.</i> |
| 58. <i>Rhamphocœlus jacapa.</i> | |
| 59. <i>Cœreba cyanea.</i> | |
| 60. <i>Troglodytes musculus.</i> | |
| 61. <i>Thryothorus genibarbis.</i> | |
| 62. <i>Tyrannus melancholicus.</i> | 15. <i>Colopterus galeatus.</i> |
| 63. <i>Rhynchoicyclus ruficauda.</i> | |
| 64. <i>Saurophagus lictor.</i> | 16. <i>Myiobius erythrurus.</i> |
| 65. <i>Mionectes oleagineus.</i> | |
| 66. <i>Pipra leucocilla.</i> | |
| 67. — <i>auricapilla.</i> | |
| 68. <i>Chiromachæris manacus.</i> | |
| 69. <i>Todirostrum maculatum.</i> | |
| 70. <i>Lathria cinerea.</i> | + 17. <i>Querula cruenta.</i> |
| 71. <i>Pachyrhamphus cinereus.</i> | |
| 72. <i>Thamnophilus nigrocinereus.</i> | |
| 73. — <i>amazonicus.</i> | 18. <i>Thamnophilus amazonicus.</i> |
| 74. — <i>simplex.</i> | |
| 75. — <i>maculicauda.</i> | |
| 76. <i>Hypocnemis melanopogon.</i> | |
| 77. <i>Synallaxis rutilans.</i> | 19. <i>Myrmotherula axillaris.</i> |
| 78. <i>Dysithamnus mentalis.</i> | 20. — <i>brevicauda.</i> |
| 79. <i>Rhopoterpe torquata.</i> | 21. — <i>hauxwelli.</i> |
| 80. <i>Phlogopsis nigromaculata.</i> | |
| + 81. <i>Glyphorhynchus cuneatus.</i> | 22. <i>Glyphorhynchus cuneatus.</i> |
| 82. <i>Dendrobates ruficeps.</i> | 23. <i>Dendromis eytoni.</i> |
| 83. <i>Formicivora grisea.</i> | + 24. <i>Rhamphocœnus melanurus.</i> |
| 84. <i>Phylidor pyrrhodes.</i> | 25. <i>Sclerurus caudatus.</i> |
| 85. <i>Automolus selateri.</i> | + 26. — <i>mexicanus.</i> |
| 86. <i>Progne tapera.</i> | |
| 87. <i>Tachycineta albiventris.</i> | |
| 88. <i>Atticora fasciata.</i> | |
| 89. <i>Stelgidopteryx ruficollis.</i> | |
| 90. <i>Columba speciosa.</i> | |
| 91. — <i>plumbea.</i> | + 27. <i>Columba vinacea.</i> |
| 92. <i>Geotrygon montana.</i> | |
| 93. <i>Chamaepelia passerina.</i> | |
| 94. <i>Odontophorus guianensis.</i> | 28. <i>Odontophorus guianensis.</i> |
| 95. <i>Crypturus pileatus.</i> | |
| 96. — <i>variegatus.</i> | |
| 97. — <i>strigulosus.</i> | |
| 98. <i>Tinamus solitarius.</i> | |
| 99. <i>Psophia obscura.</i> | |
| 100. <i>Pipile cuyubi.</i> | |
| 101. <i>Mitua mitu.</i> | |
| 102. <i>Crax fasciolata.</i> | |

103. *Penelope superciliaris*.
 104. *Ortalis araucan*.
 †105. *Heliornis fulica*.
 106. *Tigrisoma brasiliense*.
 107. *Canceroma cochlearia*.
 †108. *Ardea leuce*.
 †109. — *virescens*.
 110. *Eurypyga helias*.
 †111. *Ploplopterus spinosus*.
 112. *Parra jacana*.
 113. *Aramides chiricote*.
 †114. *Cairina moschata*.
 115. *Opisthocomus cristatus*.
 †116. *Plotus anhinga*.

The number of species of birds observed and identified with certainty by us was thus 116* ; Wallace in 1849 collected examples of 28 species. Together this would give the total number of 144 species of River-Capim birds ; but there is a reduction to make of 7 species common to both collectors, the real total being 137.

As the Avifauna of the whole Amazonian basin includes, according to our recently executed census, 1156 species †, and as the Avifauna of the State of Pará, according to the present state of our knowledge, contains 330 species ‡—that is, one quarter, more or less, of the whole Amazonian Avifauna,—the Capim list, with 137 species, represents between one-third and one-half of the Pará ornithology, manifestly a considerable fraction, sufficient to allow fairly definite conclusions regarding the character and composition of the bird-life of this district to be drawn from it.

Pará, August 1902.

* I have intentionally omitted some species not sufficiently identified, especially among the Trochilids.

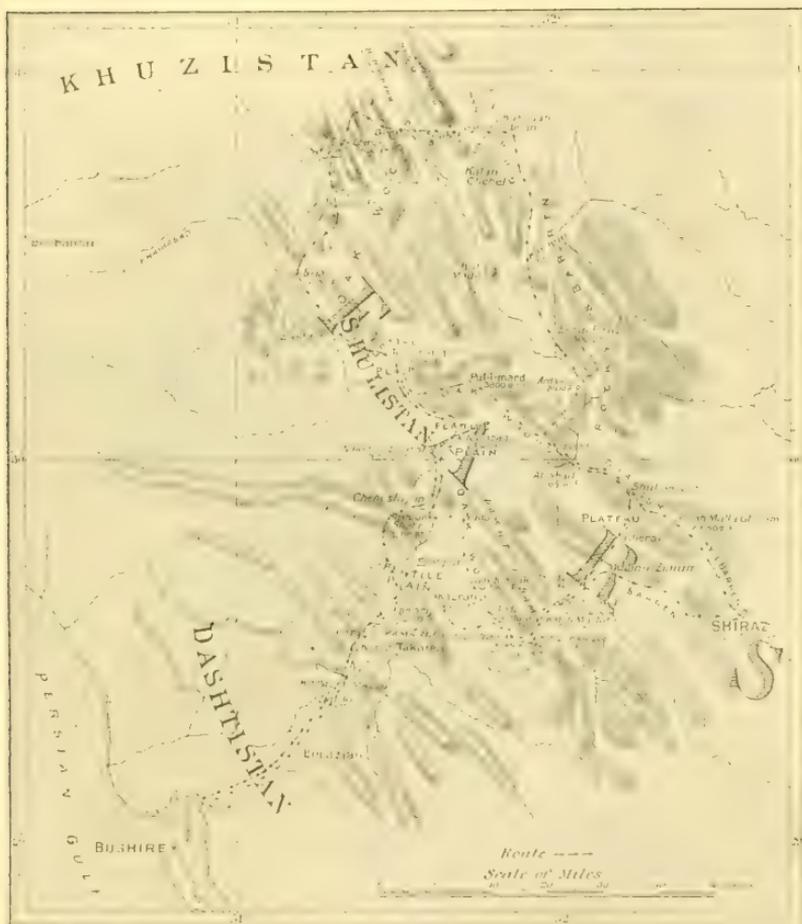
† Our census is based on the 27 volumes of the Brit. Mus. Catalogue.

‡ The census, based on the 27 volumes of the Brit. Mus. Catalogue, gives 329 species of Pará birds ; the census based on our provisional catalogue of the collections of the Pará Museum (manuscript of 1898—the new list is not yet quite ready) embraces 326 species. Selater and Salvin, in their memoir upon Wallace's birds of Lower Amazonia (1867), mention 282 species.

XXXIX.—*An Ornithological Journey in Fars, South-west Persia.* By HARRY F. WITHERBY.

ON February 20th, 1902, I set out for the Persian Gulf, accompanied by Mr. C. F. Camburn, who had been with me up the White Nile, as Taxidermist.

Text-fig. 16.



MAP OF FARS, SHEWING MR. WITHERBY'S ROUTE.

Bombay was reached on March 7th, and transhipping immediately to a British-Indian boat, we started, *via* Karachi and Maskat, for the Persian Gulf. Although stoppages were made at various small ports every day or so between

Karachi and Bushire, quarantine regulations forbade our landing. The sea-birds in the Gulf were disappointingly few, and as I had sent my guns by another steamer, we were able to obtain only one or two with a saloon-rifle—no other weapon being available. On March 18th we arrived at Bushire, and after spending some twenty-four hours on the quarantine island, were permitted to go to the town.

Before leaving England I had experienced great difficulty in getting my guns and ammunition shipped to the Persian Gulf, and it was only with the very kind help of Mr. B. T. Finch of the India Office, of the authorities at the Foreign Office, of His Excellency the Persian Minister, and of the authorities at the British Museum, that I eventually induced the shippers to run what they chose to consider a great risk. On my arrival at Bushire, however, there was no difficulty whatever about the matter, and the polite Belgian custom-house officials passed all my baggage through on the day of my arrival, an *ad valorem* duty of 15 per cent. being paid on the guns and cartridges.

At Bushire we were very hospitably entertained by Mr. and Mrs. W. F. Garden. Mr. Garden gave me the greatest possible assistance in getting together a caravan, and in many other matters helped me greatly, both by word and deed. Assistance such as this from a fellow-countryman abroad is extremely valuable, and travellers have very much to be thankful for when they meet one so capable and willing to give advice and help as Mr. Garden. March 21st is the "No Ruz," or the Persian New Year's day, which is kept as a festive holiday. We accordingly made use of this day and the next in collecting birds in the gardens and fields round Bushire, and I managed to secure representatives of twenty-five species; but vegetation, owing to a three years' drought at the coast, was naturally sparse and birds were few.

On March 25th we took a boat across the bay to Shif, and started on our journey to the interior. Our caravan consisted of our two selves and two Persian servants (a cook and a general servant and interpreter) mounted on mules,

seven baggage-mules, and two muleteers. The rate of mule-hire in Persia is variable. We paid at Bushire the fairly high price of 5 krans (55 krs. at the exchange of the day = £1) per mule per day, while later on at Shiraz we paid only $3\frac{1}{2}$ krs. per day. The rate varies from many causes: corn and fodder may be scarce, a governor may have impressed the services of many thousand mules to take him and his retinue on a journey, or several boats with cargoes for up-country may have arrived together at port. When we got back to Bushire the rate of mule-hire had risen to 8 and 10 krs. per day, owing to the fact that thousands of loads of telegraph material for the new line which is being constructed across Persia were lying at the coast ready to be taken up-country.

I made a mistake in selecting a mule, having had very little experience of these animals before, and good horses it was practically impossible to obtain at Bushire. A mule has two annoying characteristics—he is restless when alone and he will not be led. To be happy he must be in the dust of the caravan along with other mules, and he must be driven. Consequently it took me a long time to train my mule to turn aside from his comrades and to stand still while I shot a bird. If the bird was dead I could generally pick it up without getting off the saddle, but, supposing it was only winged and no one was near to help, I might as well have tried to move a mountain as to lead the mule, and matters generally ended by my letting him clatter off to the caravan while I retrieved my bird; but this involved a great loss of time and energy, and I fared much better on the march when, later, I had an old “yabu,” or pack-horse. This curious animal had a habit of shying towards the edges of precipices, and he was a wonderful stumbler. He became nevertheless a cherished friend, because he soon learnt to stand stock still while I fired and would go where I liked. He was unfortunately stolen just when I had perfected his training.

Mules as baggage-animals were fairly successful. They performed wonderful feats in the way of climbing, and

although they were continually falling, did not seem to damage themselves very much. It was otherwise with the baggage. When the mule fell so did the baggage, but after a time we got quite hardened to seeing a box of skins or photographic plates gaily bumping down from rock to rock. Curiously enough (perhaps on account of our elaborate packing), nothing was ever seriously damaged, except the boxes themselves, and we luckily had a reserve of them. Donkeys would have been more serviceable than mules, perhaps, in some of the wooded country. The packs on the mules were continually torn off by overhanging trees, under which donkeys would generally have passed untouched. As to the muleteers, perhaps I had better say nothing. They are supposed to be a fine race of men in Persia. Physically they are, but otherwise, in my experience, they are not. I will not detail the little annoyances to which we were put by our muleteers. When every other inducement failed, one's end had to be gained by physical force.

Roughly our journey consisted of a march of some 800 miles in the country comprised within a triangle drawn with a line between Bushire and Shiraz as its base and the Kuh-i-Dinar as its apex.

From an ornithological point of view the journey was interesting and instructive. The number of species in any one locality was small, and birds, on the whole, were scarce, but the continually varying altitudes and the abrupt changes in the character of the country produced a striking variety in the bird-life, and this was so apparent that I decided, after a few days' travelling, to march frequently and cover a variety of tracts. A few birds (e. g. *Merops viridis*, *Caprimulgus ægyptius*) which we saw in the coast-region we did not see again, but most of the birds common near the coast were also common in the valleys up to an altitude of 5500 feet or so. And up to this altitude the changes in the bird-life seemed to me to be due, with few exceptions, to the varied character of the country rather than to climatal conditions. Above that altitude, however, a number of birds (e. g. *Argya huttoni*, *Burnesia gracilis lepida*, *Pycno-*

notus leucotis, *Sylvia nana*) were not to be found in similar country to that in which they were common at lower elevations; while in the same way, but more markedly, many birds (e.g. *Montifringilla alpicola*, *Accentor jerdoni*, *Melanocorypha bimaculata*, *Saxicola chrysopygia*, *Cinclus albicollis*, *Linota cannabina fringillirostris*, *Otocorys penicillata*) were confined to various altitudes above 6000 feet. The only bird found at all elevations and in every variety of country was the Chukar (*Caccabis saxatilis chukar*).

The route from Bushire to Shiraz is so well known that it needs little description from me. For two days the traveller passes along the hot and sandy coast-region. Then from the little village of Daliki he steers straight for the hills which fringe the plain, and, entering a gap in the steep rock, begins to climb the first of the celebrated passes, or kotal, as the Persians call them, which lie between the coast and Shiraz. These passes have been called rock-ladders, and with justice, for they are terribly rocky and steep, and the track through them is merely a natural one, worn smooth and slippery in places by the passage of innumerable mules, donkeys, horses, and camels. The life of most of the beasts of burden ends in one or other of these passes. The stones and rocks are often splashed with blood, and there is always a fresh carcase for the Vultures, Ravens, and Kites which haunt the kotal. It is extraordinary that nothing is done to improve the track. Even an Eastern people might be expected to spend a little on a route used continually by thousands of valuable animals.

Our first experience of a kotal was unhappy, for rain had added to the difficulties of the pass by making it exceedingly slippery, and our mules continually fell. Our nerves had many shocks, for we had not yet become accustomed to seeing our precious boxes bouncing like footballs from rock to rock. However, we were greatly consoled by the first sight of Rock-Nuthatches, with their wonderful whistling notes and diverting manners. After some five hours of climbing and slipping in the barren grey rocks of this pass, we emerged suddenly on to the edge of a fertile

basin, covered with corn and grass and dotted with palm-trees—green and luxuriant. It was the height of spring and the flowers were in perfection: every here and there deep crimson poppies and bright blue gentians, growing thickly together with other flowers of yellow, white, and mauve, formed patches of most brilliant and beautiful colour. The birds here were characteristic of all the lower and fertile valleys.

In the next pass we were again unfortunate in having a slippery track and in meeting hundreds of heavily-laden donkeys, the foremost of which struggled to pass our mules, and crashing their loads together, fell down one after the other, until the narrow way was blocked with struggling animals. But here again Rock-Nuthatches came to the rescue of my jaded nerves, and that charming Bush-Robin, *Erithacus gutturalis*, was seen and admired for the first time. At the top of the kotal we passed, as suddenly as usual, from barrenness to fertility, and found ourselves in the small valley of Kamarij, yellow with mustard-plants. In the surrounding hills I first saw the Lammergeier soaring and sweeping along in noble flight with outstretched wings. Red-legged Choughs, with their airy flight and cheerful ways, were also first met with here; and travelling on from this valley into a narrow defile, we saw Great Tits and Syrian Woodpeckers. Passing through the defile, we reached the large valley of Kazran, where fields of opium-poppies gleamed white amongst the corn, and the Nightingales and Goldfinches sang sweetly in the thickly-planted fruit-gardens.

But the greatest surprise of all was in store for us. Ascending from the Kazran Valley by the Maiden's Pass—the Kotal-i-Dokhter—we reached the top after a hot and dusty climb, and on turning a sharp bend in the track we saw before us a charming valley thickly studded with oak-trees. It was as though we had been transported in a flash back to England. The oaks were much the same as ours, and the bird-life at first glance was characteristic of our woods: Nuthatches, Great, Blue, and other Tits, Wood-Pigeons,

Spotted Woodpeckers, Jays, Wood-Larks, Blackbirds, and Kestrels were there, and their notes and songs struck with familiar accents on the ear.

The oak-wood stretches from this point for probably 200 or 300 miles through the mountains to the north-westward. It extends from about 3000 feet to 8000 feet. At the lower elevations the trees are usually larger and more thinly spread, while at the higher altitudes they are small and stunted, but generally grow thickly together. Although much smaller, as a rule, than an average English oak, some specimens of the Persian tree (*Quercus persica*) would be no disgrace to an English park. The wood is used for fuel and charcoal, and the acorns, which are long and tapering, when skinned and ground are used instead of flour for bread by many of the people of the country.

The oak-forest possesses a distinct fauna, a squirrel (*Sciurus fulvus* Blauf.) and several birds being entirely confined to its limits. The birds subspecifically distinct are *Sitta europæa persica* (vide infra), *Parus ceruleus persicus*, *Parus lugubris dubius*, found at all altitudes; while the forms of *Syrnium aluco* and *Gecinus viridis*, met with at higher altitudes, and of *Dendrocopus minor* may prove distinct. In addition *Dendrocopus medius sancti-johannis*, *Alda arborea*, and *Garrulus atricapillus*, so far as I am aware, are not found elsewhere in Persia.

After camping for a few days in these delightful woods, we marched on over the Pir-i-zan—the highest and perhaps the roughest pass between Bushire and Shiraz. In the valley at the top of the Maiden's Pass the oaks were in full leaf and the birds were busily feeding their young; but as we mounted higher and higher the oak-leaves grew smaller and smaller, until, at some fifteen hundred feet above the valley, they had scarcely broken from the bud. Another fifteen hundred feet and we had reached the top of the Pir-i-zan, or Old Woman's pass, and here, at 7000 feet, not a leaf was to be seen and the birds were only beginning to nest. In a space of three hours we had passed from a lively and joyous summer to a scarcely awakened winter. A

thousand feet below us, on the other side of the pass, lay the green basin of Dasht-i-arjan, surrounded by abrupt and rocky hills. To this we descended and found an entirely fresh avifauna, to say nothing of wild pig, in the reedy marsh which covers a large part of the plain.

After working the marsh for a couple of days, we formed a camp for a week at the base of the Pir-i-zan, where the oak-woods bordered on the plain. This was a very good place for birds, but I should undoubtedly have done better with my collection had it not been for a tribe of Iliyats (nomads), who swarmed down the hills with beasts innumerable for three long days and disturbed the whole of my collecting-ground. The Iliyats, or clansmen, of Persia are a very interesting people, and we afterwards visited many of their encampments and found much to admire in these simple sons of nature. But the first encounter with them was discouraging from an ornithological point of view, although one could not help respecting them—men, women, and children—for the way in which they rode their horses, mules, asses, camels, and cows, and for the way in which they drove their great flocks and herds, regardless of any path or track, straight down the steep hill-sides.

Hearing that Shiraz and the neighbouring country were in a very disturbed state, owing to the Prince Governor having been recalled to Tehran while his father was in Europe, we decided to avoid the risk of being delayed there by first making a tour in the oak-forest. We accordingly recrossed the Pir-i-zan and struck northwards up the Dasht-i-Bam. As we travelled on, camping for a day or two here and there, the altitude gradually decreased and the oaks grew thinner, until at Nurabad we reached some large and fertile plains covered with rich crops of high corn, from which the Francolin called continually with frog-like croaking notes. At Tol-i-safid we turned to the east, and striking the Shiraz-Behbahan route, soon came to a long and narrow valley thickly overgrown with oak. After passing Pul-i-mard the valley or gorge led rapidly upwards, and in two days after leaving the plains of Nurabad we found ourselves in a thick

oak-wood at an elevation of some 7500 feet. Here I wished to camp, but for want of food and water was unable to do so, and I could only blame myself for putting trust in the assertions of the muleteer, whose knowledge of this part of the country was supposed to be profound, but whose fertile imagination regarding streams and villages greatly outran the truth. However, we were able to return to this spot well equipped later, and meanwhile we passed on and soon reached the eastern limit of the oak-wood, which stopped abruptly and gave way to an undulating grassy country. Here, again, the bird-life suddenly changed and Nuthatches and Tits were replaced like magic by Larks and Buntings.

On reaching Shul we struck south-westwards across a great grassy plateau at an altitude of over 7000 feet. As we were climbing up this plateau the muleteers came running to me with a circumstantial tale about a band of 600 robbers who were lying in wait for us at the top. We had experienced many robber-scapes, but had never yet seen one brigand in the flesh, so I told the muleteers that it was a good thing that there were 600 robbers, for now we should surely see them. At this they laughed heartily, and naively confessed that they had only sought to frighten the Sahib, as they wished to go straight to Shiraz. It was not of much use to explain to them that I was going back to Dasht-i-arjan for the sole purpose of getting the nest of a tiny bird (*Phylloscopus neglectus*), which was unfinished and eggless a fortnight before. The result, however, was worth the two days' detour.

Personally I was glad to leave Dasht-i-arjan for the second and last time, for it was a wonderful place for sudden and frequent thunderstorms, and after getting wet through I generally had fever—of a mild character, but always annoying. 'Two days' journey through a barren and dusty country brought us to Shiraz, where all again was green.

At Shiraz we received the greatest possible kindness from Mr. J. Wartenby, who entertained us most hospitably in the Bagh-i-Mallock, the charming compound of the Indo-

European Telegraph Department. Here, freed from the trials of the march and soothed by the liquid notes of the Nightingales, we were contented to rest and drink in the rich perfume of the roses, which were in all the glory of perfection. But after a few days, when we were anxious to be on the road again, we found the greatest difficulty in getting mules. Shiraz was without a governor, the whole district was much disturbed, and all the roads being considered very unsafe, the muleteers were in fear of their lives. Colonel and Mrs. C. A. Kemball, who had just arrived from the Residency at Bushire to take up their summer quarters at Shiraz, took much interest in my journey. Colonel Kemball very kindly suggested that I should wait for the arrival of the new governor, when he could obtain an escort for me as well as introductions to the various chiefs whom I might encounter. But I was more willing to run the risk of being attacked and robbed than to have the protection of an escort which would have hampered my movements and would have been a continual nuisance.

I was glad therefore when at last an arrangement was come to with a muleteer and we left Shiraz. We travelled rapidly to the north-west, and in three days reached the high wooded country which we had left with reluctance about three weeks before. We found everything changed. The oak was in full leaf, the resident birds had young in the nest, immigrants had arrived, and butterflies and many unpleasant insects swarmed. When our provisions were becoming exhausted after camping here, we made a short cut to the north towards a largish town by name Ardakun. On the way, however, while we were crossing a rapid stream (the Shir or Lion River) which flows for the most part through a narrow and precipitous gorge, I saw some Dippers, and as I had not met with any of these birds before, and did not know where they might be met with again, I camped for a day to search for them. From this camp we rode through barren and uninteresting country covered with coarse grass and thistles, until we reached the edge of a small and deep basin amongst the hills. Here lay the town of Ardakun shrouded in groves of fine walnut,

willow, and plane trees. Much to the gratification of the inhabitants we camped in the town for the night; but the people swarmed round our tent in hundreds, and their curiosity overcame their politeness to such an extent that we were obliged to obtain the services of two of the chief's strongest servants to keep them at a reasonable distance.

For the next five or six days we were travelling northwards at elevations of between seven and nine thousand feet. We had left the wooded country to the west, and now the mountains, which rose some two thousand feet above the track, were rocky and snow-covered at the top, while their slopes were thickly overgrown with coarse grass and large umbelliferous plants which had a heavy scent. In such a country there were few birds, but we were delighted to find new forms in the shape of Horned Larks, Red-tailed Wheat-eats, and brightly-coloured Linnets. On May 24th we reached the eastern slopes of the Kuh-i-Dinar, the high mountain which I had been anxious to visit. The Pa Dinar (or foot of Dinar) region consisted of undulating grassy country rising gently to the base of the great mountain-ridge, which towered high and dazzling in its whiteness to an altitude of nearly 14,000 feet.

A large tribe of the Iliyats, called Farsi Medun, owners of 2000 tents, had their summer-quarters in this excellent grazing country. Their chief, Abdullah—a fine patriarchal old man—received us most hospitably, as indeed the Ilyat leaders always did, and since these people are implicitly obedient to their chiefs we were universally well treated by them. Although quite uneducated, the Iliyats are in many cases highly intelligent people. They are bold and outspoken and have free and easy manners, but are possessed of a natural and graceful politeness. At this place I had some most enjoyable sport with Abdullah's son, by name Masti. The tribe was celebrated for its fine horses, and they mounted me on a beautiful mare. We set out with a large retinue of mounted men and scoured the hills for "Chabk," as the Chukar Partridge is called. When the flankers signalled that they had marked down birds, Masti and I galloped up and down the

steep, rock-strewn hill-sides to the spot, and, sometimes dismounting, sometimes not, took our shots as the birds rose. To me it was quite a novel method of Partridge-shooting and the most exciting I have ever tried. The faultless way in which the horses galloped over stones and boulders was, perhaps, the most surprising part of the entertainment. Amongst a race of fine riders and good shots, Masti of the Farsi Medun Iliyats was noted. With a rifle he could hit five out of six stones thrown into the air. With a shotgun he was equally clever, and I have seen him canter up to a Calandra Lark and shoot it as he passed when it rose from the ground.

Leaving these Ilyat friends with some regret we rode straight for the Kuh-i-Dinar. At first no way over the mountain was apparent, but as we got nearer to its base a gap opened out, and we passed into a track which led over a narrow neck connecting two of the highest peaks of the range. We had now left the grass-lands behind us and were clambering up a rock-strewn path hemmed in on either side by frowning precipices. Crossing many a steep slope of shingle we reached at about 9000 feet the first patch of snow, and then slope after slope of deep snow was encountered. Although it was the middle of the day, and the sun was broiling hot, these patches of snow were hard and our mules passed over them without difficulty. The top of the pass—the Gardan-i-Bijan, as it is called—my aneroid measured as 10,150 feet. To the east we could see the rolling grassy country of the Iliyats, while in front of us, to the west, the panorama was strikingly different. Here we looked across ridge after ridge of hard grey rock separated by narrow valleys, and as far as the eye could see the oak tree flourished and clothed both hill and gorge. Of birds on this pass there were but few. Chukar Partridges were present as everywhere, and at the very summit of the “Gardan” were a few small bushes and a stunted tree inhabited by a pair of homely Blackbirds and a couple of Tom-Tits. But the birds which interested me most were the Snow-Finches, which flitted like Snow-Buntings about the slopes of snow, and a pair of Accentors, which I saw on returning to the top of the pass

the next day. We descended the western side to about 8300 feet, and then camped some 1000 feet above the little village of Sisakht.

The people about Dinar had seen "Faranghis" before. About 25 years ago a "Faranghi" had come and climbed to the top of Dinar (the roof of the world they called it). I asked why he had done so, and they all answered, "To find a certain herb which had the power of turning everything into gold." When asked why they did not search for this plant, they answered, "The Faranghi alone knew where it grew and how to use it. Have you also come for this plant?" This traveller must have been Captain (now Sir Edward) Durand, while Colonel M. S. Bell, V.C., has also crossed the Gardan-i-Bijan.

From our camp on the west side of the Kuh-i-Dinar we descended to the oak-woods, and travelled for some days over steep ridges and down deep gorges until we came to the Khersun River, where the track was somewhat easier. A day's march further on we came to a fine valley where the oak trees grew more luxuriantly than usual. Here, near Chinar, we had some varied experiences. We were camped amongst the trees in a good place for birds, and I was particularly anxious to stay some days in order to get specimens especially of Tawny Owls and Green Woodpeckers, of which there were a few in the vicinity. But everything seemed against us. On the second night we were visited by robbers, who got clear away, owing to its being moonless and, consequently, very dark in the wood where we were camped. The next morning I sent Camburn to complain to the chief at Chinar, some ten miles distant. But when he arrived within five hundred yards of the village he was fired at from a fort, and such good practice was made that he and his escort were forced to retire. The next night we proposed to give the robbers a warm reception. I placed sentries, and to give courage to our men armed our chief servant, Hassan, with a 12-bore, telling him to be sure to fire into the air and not to aim at anyone. In the middle of the night we were awakened by great shouting, and on jumping out of the tent found that one of the sentries had suddenly arisen to see the most

valuable mule being taken off by a robber. He had promptly picked up a large stone and, aiming at the robber, had hit the mule instead. But this had had the desired effect, for the mule on being hit had reared up and got loose, though the robber had made off before we could get out of the tent. Then Hassan came to me and said, "This gun no good. I had him pointed at robber and he no go off." It was remarkable that both cartridges had missed fire and that they alone did so only out of five or six hundred which were used in all. Besides these little annoyances, almost every hour of the day and night provided a different species of fly with a different way of biting, and my hands became so swollen that I could scarcely hold a gun, while one of my eyes was completely closed. But what eventually drove us away from this camp was want of food. It appeared that the chief of the district had feared that he would not get reappointed by the new governor of Shiraz. Accordingly he had sent all the people of his village into the hills, and having placed some thirty armed men in his castle, had told them to fire at anyone who came near in case they should be the party of a new chief. The country being thus deserted we could get no food, and when our pet kid, which had cleverly balanced himself on the top of a pack mule for many a day's march, had been reluctantly killed and eaten, we had to leave.

We steered southwards, and as we passed within sight of the Chinar fort the chief's "tufangchis" (literally chiefs of the gun), acting strictly according to their master's orders, fired at our peaceful caravan until we turned a corner and were hidden from them. Although the range was fully half a mile, their shooting was excellent, the bullets striking within a few yards of us, and two actually passing under the bellies of the mules. I may here remark that the only bad treatment we received in Persia was in this district. On my reporting the circumstances to Colonel Kemball he made complaints to the Governor of Shiraz, but, so far as I know, the chief of Chinar has not been made to suffer. A cannon which was sent to reduce his fort returned to Shiraz without accomplishing anything.

Between Chinar and Bija (see map, p. 501) we had some

very difficult travelling through an unknown country intersected by narrow gorges. At one place near Bija, in two long days of hard work we advanced only some ten miles. From Chinar to a point near Bija, the altitude ranged from six to nine thousand feet above sea-level. After Bija it began gradually to decrease, and the rocky ridges and gorges gave way to gentler slopes, until at a little beyond Basht the oak-woods ceased and we reached some plains at rather over 3000 feet.

Here, as will be seen from the map, we doubled on our former tracks. It was the middle of June, the corn was cut and the country was parched, and for the most part burning, the smoke being so dense that the hills were hidden from view. In the mountains a cool breeze was generally blowing, so that although the sun was powerful the temperature in the shade rarely exceeded 90° Fahr., while at night it averaged 40° to 50°, and at the end of April sank as low as 21°. On reaching the plains it will be understood that we felt the heat intensely, and therefore travelled by night straight to the coast. By means of forced marches, which involved some exciting experiences with the muleteers, we managed to reach Bushire in time to catch the steamer which left for Bombay on June 23rd. Our homeward voyage was none too pleasant, the damp heat of the Persian Gulf being very trying, while in the Indian Ocean we were treated to some heavy monsoon weather.

I must not omit to state that throughout our journey Mr. Camburn proved a most admirable assistant and companion. The skins which he made, often under most adverse conditions, have justly met with universal admiration.

In addition to friends I have already mentioned, I have to thank Dr. W. T. Blanford, F.R.S., and Mr. W. R. Ogilvie-Grant for having recommended S.W. Persia to me as an ornithological hunting-ground; Mr. B. T. Finch, C.I.E., Mr. C. A. Buchanan, and Major P. Molesworth Sykes, C.M.G., for much help and advice before I started from England; Dr. and Mrs. J. Scott, of Shiraz, and various officials of the Indo-European Telegraph Department for their kindness in Persia.

The birds of Persia were dealt with in a very thorough and careful manner by Dr. W. T. Blanford in the second volume of 'Eastern Persia' (1876). The total number of species enumerated by Dr. Blanford was 384. Of these some 16 were either doubtfully distinct or of very uncertain occurrence in Persia. In 'The Ibis' for 1886 and 1891, Dr. Sharpe described collections made by Mr. W. D. Cumming at Fao, at the head of the Persian Gulf, which, although not actually in Persian territory, may be reckoned such so far as the birds go. In the same Journal for 1886 (p. 493) Dr. Sharpe also described a collection made by Mr. A. J. V. Palmer at Bushire. These collections resulted in the addition of some 20 species to the avifauna of Persia. Of the total obtained from these sources I make 158 species, and am able to add only the following to the list of Persian birds, viz.:—*Lullula arborea*, *Emberiza schœniclus*, *Accentor jerdoni*, *Dendrocopus minor*, and *Syrnium aluco*. The avifauna of Persia may thus be reckoned roughly at 400 species. This estimate, however, does not take into account the work of Mr. Zarudny, who has lately made extensive collections in Eastern Persia, but whose results have been communicated in Russian, a language with which I am not familiar.

Dr. Blanford divided Persia into five zoological regions, making a distinct region for "the wooded slopes of the Zagros, including the oak-forest near Shiraz." In this, so far as my observations go, I think that he was perfectly correct, for the avifauna of this region seems distinct from that of the Caspian provinces; but how much further north than I travelled this peculiar avifauna extends I am unable to say. As already explained, the characteristic birds of these oak-woods are Palæartic species, while those of the plains near the coast are a strange mixture of Palæartic and Indian with one or two North-east African forms. It is also worthy of remark that at the highest altitude we reached, Palæartic, Indian, and African birds were seen side by side (viz. *Turdus merula*, *Accentor jerdoni*, *Erithacus gutturalis*).

There are, I suppose, very few distinct species of Palæartic birds yet to be described, but the work of distinguishing the

various races of known species and tracing their geographical distribution is of equal interest and importance. Work of this character, will, I believe, prove of great assistance in determining the exact migrations of birds, and it is at all events leading us to a clearer idea of the evolution of species. Could the causes which produce these races be more thoroughly investigated, results of much importance might be obtained. My collection of birds from Persia is of considerable interest, for it contains many "intermediate" and more or less local forms. The most striking feature in the collection is the pale coloration of so many of the birds. This feature, which was noticed by Dr. Blanford, is equally apparent in birds inhabiting the woods and in those belonging to the open country. Indeed, of the species I have already enumerated as peculiar to the oak-forests, all are distinguished from the nearly allied forms by their pale coloration. The birds are in most cases pale, on the under as well as on the upper side, and they tend to become of an ashy hue and not of a sandy colour like desert forms. This can only be due, I think, to some physical cause, for I cannot see that a pale coloration is of more advantage to these birds than to those inhabiting, for instance, Southern Europe. Mr. Oldfield Thomas informs me that the few mammals (e. g. *Sciurus fulvus*, *Mus sylvaticus witherbyi*) which I brought back are also remarkable for their pale coloration, and I cannot but think that there is some extraordinary bleaching-quality in the atmosphere of this region.

In the preparation of the list of birds which follows I am greatly indebted for help and advice to Dr. R. Bowdler Sharpe and to Mr. Ernst Hartert.

No specimens were obtained of the species marked with an asterisk.

1. *PYRRHOCORAX GRACULUS (Linn.); Blanf. Eastern Persia, vol. ii. (1876) p. 264.

The Red-legged Chough was seen hopping about on the grass in many of the valleys and flying in airy and cheerful fashion about most of the rocky hills at altitudes of from

3000 ft. to 10,000 ft. In some places the birds were very numerous, and it was not an uncommon sight to see a flock of a hundred or more. They always proved too cunning for me, but I made a point of examining them with my binoculars, and all those which I saw had red bills.

2. *CORVUS CORAX Linn.; Blanf. t. c. p. 261.

Two or three Ravens were to be seen in most places, and in a grassy valley near Shul (about 6800 ft.) we saw forty or fifty feeding on the grass and flying about like a flock of Rooks. They were always exceedingly wild, and I failed to secure a specimen.

3. CORVUS CORNIX SHARPII Oates.

Corvus cornix Linn.; Blanf. t. c. p. 262.

258. ♂ ad. Near Dasht-i-arjan, April 27th.

This pale form of the Hooded Crow was common wherever there were trees. *C. capellanus* Sclat., with its large bill and tarsi and whitish coloration, is very distinct from any other Hooded Crow, and I think that it will prove to be a true species and not merely a form of *C. cornix*. I believe that the two birds are to be found breeding in the same locality, for I saw, inland as well as on the coast, Crows which even at a distance appeared far paler than *C. c. sharpii*. Unfortunately I was never able to obtain one of these white-looking birds.

Hooded Crows had fresh eggs near Kalah Mushir (6700 ft.) on April 11th, and they were incubating near Pul-i-mard (4000 ft.) on April 24th.

4. GARRULUS ATRICAPILLUS Geoffr.; Blanf. t. c. p. 265.

409, 421. Ad.; 422-424. Juv.

The mature birds are slightly paler on the mantle than typical specimens of *G. atricapillus* from Syria and Palestine, but I think that this may be due to the abraded state of the plumage of my specimens. *G. a. krynicki* from the Caucasus and Asia Minor, is, of course, a much darker form.

This Black-headed Jay was fairly evenly distributed through the oak-woods, but it was nowhere common. It was shy and even more difficult to shoot than our Jay. The note appeared

to me to be just the same as that of *G. glandarius*. An old bird was feeding its fledged young near Sadat (7300 ft.) on June 6th.

5. *ORIOLOUS GALBULA Linn.; Blanf. t. c. p. 219; Sharpe, Ibis, 1886, pp. 477 & 494.

The Golden Oriole is a summer resident on the high ground in Persia.

I did not notice it until May 17th, but after that date I often heard its mellow pipe or saw it dip through the trees in many parts of the oak-woods.

6. PICA RUSTICA Scop.; Blanf. t. c. p. 264.

257. ♂ ad. April 7th, near Dasht-i-arjan (6700 ft.).

This example has the white on the quills nearly extending to the tips, while the throat-feathers have concealed white bars, and the wing is rather large; but all these characters are often present in European specimens, and I cannot agree that *P. r. bactriana* Bp. is a good form.

Like the Starling and Spotted Cuckoo, the Magpie was only common in one locality between Dasht-i-arjan and Shiraz, where it was breeding in considerable numbers in a dry river-bed thickly overgrown with thorn-trees and willows. An occasional pair was seen here and there in most parts of the oak-woods.

7. STURNUS VULGARIS CAUCASICUS LORENZ.

Sturnus vulgaris Linn.; Blanf. t. c. p. 266; Sharpe, Ibis, 1891, p. 105.

183, 184. Ad.

These specimens have purple flanks and wing-coverts, and agree with birds from the Caucasus, but the variations in the colour of the Starling are so intricate that one cannot place much reliance upon the constancy of many of the forms described.

Starlings were by no means common in the part of Persia visited, except in one locality near Shiraz, where they were breeding in considerable numbers in holes in willow trees. A few pairs were to be seen here and there in the oak-woods. There were young in the nest at 6000 ft. on April 29th.

8. *EMBERIZA HORTULANA* Linn.; Blanf. t. c. p. 259; Sharpe, Ibis, 1886, pp. 487, 498.

206, 207, 217, 268. Ad.

These specimens are not quite so rufous on the back as European birds and are a little greyer on the head, but the difference is very slight.

I did not notice the Ortolan until April 20th, when I found it fairly plentiful near Naksh-i-Bahram (3300 ft.). It was also common about Shiraz (over 5000 ft.) and in the Berm Firuz-district (over 9000 ft.).

9. *EMBERIZA PALUSTRIS* Sav.

Emberiza intermedia Mich.; Blanf. t. c. p. 258.

123. ♂ ad.

10. *EMBERIZA SCHÆNICLUS* Linn.

124. ♀ ad.

If these two birds be of distinct species, it was curious that the only examples of each seen were of opposite sexes, and were behaving together exactly as though they were a pair. They were shot on the banks of a reedy river at Dasht-i-arjan (6700 ft.) on April 7th.

11. *EMBERIZA MELANOCEPHALA* Scop.; Sharpe, Ibis, 1886, p. 498.

Euspiza melanocephala (Scop.); Blanf. t. c. p. 260.

45, 194, 198, 210, 219, 255, 362, 365, 427, 428, 446, 447. Ad.; 426, 429. Juv.

Except actually in the oak-woods, the Black-headed Bunting was the most evenly distributed and common bird in the country. It was found at all elevations, and was the bird most often used by the Iliyats as a mark whereon to try a gun.

12. *EMBERIZA MILIARIA* Linn.; Blanf. t. c. p. 257; Sharpe, Ibis, 1886, p. 497.

209, 238, 287, 349, 358. Ad.

Specimens from Asia Minor and Persia are generally whiter on the breast than is usual with European birds.

The Corn-Bunting was fairly common in the cultivated districts from the coast to an altitude of over 9000 ft.

A nest at Shiraz contained young on May 2nd.

13. *EMBERIZA CIA STRACHEYI* (Moore).

Emberiza cia Linn.; Blanf. t. c. p. 257.

356. ♂ ad.; 357. ♀ ad. May 25th, Pa Dinar (7000 ft.).

442. ♂ juv. June 11th, near Basht (4100 ft.).

These specimens are pale on the upper parts and the facial markings are white, while the edgings to the median wing-coverts are buff. *E. stracheyi* does not seem to me a very distinct form, because European specimens are often as pale coloured as the Eastern, and although they generally have white edgings to the wing-coverts, they sometimes have not. On the other hand Eastern birds seem never to have these white edgings.

The Meadow-Bunting was only seen at a few places, not below 4000 ft. It appeared to be a rare bird.

14. *LINOTA CANNABINA FRINGILLIROSTRIS* (Bp. & Schleg.).

Linaria cannabina (Linn.); Blanf. t. c. p. 249.

344. ♂; 345. ♀ ad. May 22nd, Berm Firuz (9300 ft.).

My specimens belong to this form of the Linnnet, but the grey edgings to the primary-coverts are nearly worn off by abrasion.

I saw only a few pairs of Linnets at the end of May in the treeless country to the south-east of Kuh-i-Dinar at high elevations (8000 ft. to 9500 ft.).

15. *CARDUELIS ELEGANS MAJOR* Tacz.

Carduelis elegans Steph.; Blanf. t. c. p. 249.

70, 197, 235. Ad.

These specimens are very pale on the upper parts and are large in size, and in these and other respects may be compared with the Siberian form of the Goldfinch.

Goldfinches were numerous in gardens and where willow and other trees grew densely. They were also met with sparingly through the oak-woods up to an elevation of 7000 ft. They were living their nests at Nudan (3200 ft.)

on April 17th, and a nest in a garden at Shiraz (5200 ft.) contained the first egg on May 12th.

16. *PETRONIA FLAVICOLLIS* (Franklin).

Gymnoris flavicollis (Franklin); Blanf. t. c. p. 256.

Passer flavicollis (Franklin); Sharpe, Ibis, 1886, pp. 486 & 497.

79, 436, 437, 438, 439, 440. Ad.

It may be remarked that some females have no chestnut-brown on the wing-coverts.

One specimen of the Yellow-throated Sparrow was obtained in the oak-woods near Kaluni (4400 ft.) on April 3rd, but the bird was not met with again until June 11th, when I found it common in a small willow-jungle near Basht (4100 ft.). At the latter place I heard one singing a long and laboured song, which consisted of an endless succession of warbling chirps.

17. *PETRONIA STULTA* (Scop.).

Petronia stulta (Scop.); Blanf. t. c. p. 255.

366, 373. Ad.; 333. Juv.

This Rock-Sparrow was met with only in two localities, both of them at considerable altitudes and of a rocky and barren nature, viz., Shir River, near Ardakun (about 7000 ft.), and on the Gardan-i-Bijan, Kuh-i-Dinar (about 8000 ft.).

18. *PETRONIA BRACHYDACTYLA* Bp.; Blanf. t. c. p. 255.

191, 213, 218, 220. Ad.

This Rock-Sparrow was only met with in more or less open country, in which mimosa and other bushes grew. The bird sits on the tops of the bushes and continually utters an extraordinary and monotonous note, sounding like the word "wheeze" very much prolonged. The specimens which I procured were all males, and I think that the females must have been incubating, both near Naksh-i-Bahram (3300 ft.) on April 20th and near Shul (6800 ft.) on April 26th.

19. PASSER SALICARIUS (Vicill.).

Passer salicarius (Vicill.); Blanf. t. c. p. 255.

62, 192, 459. Ad.

Specimens from Asia Minor and Persia have the pale markings on the mantle, the sides of the throat, and the abdomen whiter than is usual with European birds. Herr von Tschusi has divided this species into several subspecies (Orn. Monatsb. 1902, p. 96), but I have not been able to distinguish the differences between his *P. s. transcaspicus* and *P. s. palestinae*.

Dr. Blanford considered the Spanish Sparrow scarce in Persia, but I found it in very large numbers in certain localities.

About 20 pairs were building nests in some acacia-trees at Kamarij (2700 ft.) on March 30th. Near Nudan (3200 ft.) we found enormous colonies of these birds nesting in small trees and bushes. There were often a dozen of their large domed nests, made of green grass, in one bush, and the chattering of the colony could be heard at a distance of quite half a mile. The ground round about their nests was very foul and the stench was strong. They were beginning to lay on April 17th, and I took six fresh eggs from a nest on that date.

On June 14th, near Nurabad (about 4000 ft.), twenty or thirty miles from the colony just mentioned, we saw thousands of these birds, both young and old, feeding in the corn-stubbles, while the thorn-bushes round about were weighed down with clusters of their deserted nests.

20. PASSER DOMESTICUS INDICUS.

Passer indicus Jard. & Selby; Blanf. t. c. p. 254.

27, 63, 71, 72, 264, 298. Ad.

This pale Eastern form of the House-Sparrow was the only one seen. It was common in the larger towns and in many of the villages up to an altitude of nearly 8000 ft., but, owing to the scarcity of houses, it could not be called a common bird in the part of Persia visited.

21. *MONTIFRINGILLA ALPICOLA* (Pall.); Blanf. t. c. p. 248.

367. ♀; 272. ♂; 378. ♂ ad. May 28th & 29th, Gardani-Bijan, Kuh-i-Dinar (9000 ft. to 10,000 ft.).

My birds are rather pale on the upper parts. In two of the specimens (♂ and ♀) the bases of both mandibles are of a deep yellow and the tips black, while in the third specimen (♂) the whole bill is black. The bill of this species is usually yellow in winter, like that of *M. nivalis*, but Dr. Blanford's two specimens obtained in the north of Persia in February had black bills.

This Snow-Finch was seen only on May 27th or 28th on the pass over the Dinar range. On both sides of this pass near the top, and not at a lower altitude than 9000 ft., there were a few pairs hopping about on the patches of snow or upon the rocks near the snow. On the wing the birds appear to be white, but, when stationary, the pale brown back exactly matches the rocks. They were shy and difficult to get, because by flitting up the mountain-side they could reach a place in a moment which would take their pursuer perhaps half an hour's climb to gain. They seemed to examine the snow industriously for food, but what they obtained I could not ascertain. A female had a bare incubating spot on the breast and the testes of one of the males were much enlarged.

22. *RHODOSPIZA OBSOLETA* (Licht.).

Erythrospiza obsoleta Licht.; Blanf. t. c. p. 252.

249. ♂ ad. April 26th, Plateau near Dasht-i-arjan (7000 ft.).

A pair of these very beautiful Finches was found amongst some willow trees on a plateau (7000 ft.) north-east of Dasht-i-arjan. We did not see the bird elsewhere.

23. *AMMOMANES DESERTI* Licht.; Blanf. t. c. p. 245.

53, 460, 463. Ad.; 449. Juv.

These specimens agree with typical birds from Egypt.

Desert-Larks were seen only at comparatively low altitudes (below 3000 ft.). They were fairly common near the coast, and I found a nest with four fresh eggs in a niche in a rock on a hill at Kamarij (2700 ft.) on March 30th.

24. GALERITA CRISTATA MAGNA Hume.

Galerita cristata (Linn.); Blanf. t. c. p. 240; Sharpe, Ibis, 1886, p. 467, 1891, p. 106.

3, 29, 30, 36, 67, 68, 69, 267, 283. Ad.; 425. Juv.

These specimens are of a pale and somewhat ashy colouring on the upper parts, and in this respect are like *G. e. magna*, but they average rather small for that race.

The Crested Lark was the only common and universally distributed Lark in the country. It was to be found almost everywhere from the coast to an altitude of over 7000 ft. It was commonest, however, at comparatively low altitudes and in cultivated districts, although it was by no means rare in many very barren places. I found fresh eggs at Bushire on March 20th, and again at Shiraz (5200 ft.) on May 3rd; while young were fully grown at the beginning of June at 3000 ft.

25. *? CETHILAUDA ALAUDIPES (Desf.).

Certhilauda desertorum Stanley; Blanf. t. c. p. 240.

Some large black-and-white-winged Larks, which I take to be of this species, were running about in the plain near Shif in the early morning of June 20th. We had been travelling very hard for two days and two nights, and perhaps that was the reason why I expended my last six cartridges in vain on these birds.

26. CALANDRELLA BRACHYDACTYLA Leisler; Blanf. t. c. p. 242; Sharpe, Ibis, 1891, p. 106.

239, 240, 241, 246, 301. Ad.

My specimens have a rufous tinge on the back and lower breast, but this colouring is characteristic of many European examples, and the birds agree in every other particular with typical specimens.

The Short-toed Lark seemed to be greatly restricted in its distribution, and we saw it only in the grassy uncultivated plateaux about Shul at elevations of between 6500 and 7500 ft. At the end of April the birds were in small parties of eight or ten, and even in the middle of May they did not appear to be breeding. Dr. Blanford considered this one of the

most widely distributed birds in Persia. It may be so on the plains in Central and Eastern Persia, but, I suppose, because of the character of the country, it was one of the birds with the most restricted range in the district in which I travelled.

27. *ALAUDA ARVENSIS CANTARELLA* Bp.

Alauda arvensis Linn. ; Blanf. t. c. p. 239 ; Sharpe, Ibis, 1886, p. 497.

28. ♀ ad. Bushire, March 23rd.

This was the only specimen of the Skylark seen. It has the paler breast and white axillaries and underside of the wing characteristic of the Eastern form.

28. *ALAUDA ARBOREA* Linn. ; Blanf. t. c. p. 240.

93, 94, 95, 176, 211. Ad.

My specimens differ in no way from typical birds.

Dr. Blanford did not obtain the Wood-Lark, but he mentions that Ménétries found it near Lenkoran, on the Caspian. Lenkoran is just outside Persia. I found it only in the wooded Dasht-i-Bam, at an altitude of from 3000 ft. to 4500 ft. The birds were in pairs, and generally to be found "squatting" very close amongst the stones under the trees. The males every now and then flew up into the air and sang sweetly. From the condition of their breeding-organs I have no doubt that these birds would nest, or were nesting, in the Dasht-i-Bam.

The Wood-Lark has not been observed, I think, so far to the south-east before.

29. *MELANOCORYPHA BIMACULATA* (Ménétr.) ; Blanf. t. c. p. 244 ; Sharpe, Ibis, 1886, p. 497.

248, 299, 300, 354, 355, 370. Ad.

M. calandra, it appears, from what Dr. Blanford says, nests in Persia at a lower elevation than *M. bimaculata*. I did not obtain examples of the former species, but *M. bimaculata* was common, and seemed to be breeding all along the treeless, rolling, grassy country on the south-east side of Kuh-i-Dinar at elevations of between 6500 ft. and 9000 ft. This Calandra Lark is a beautiful songster.

30. *OTOCORYS PENICILLATA* (Gould) ; Blanf. t. c. p. 240.

339 & 340. ♂ ad. ; 341. ♀ ad. May 21st, Berm Firuz (9300 ft.).

My specimens are typical of this species. It may be noted, however, that the black ear-coverts, although continued to the black throat-band, often form a somewhat broken union, and thus indicate the close relationship between this group of Horned Larks and that with the ear-coverts separated from the throat-band.

I saw Horned Larks only on the rough treeless hill-sides in the Berm Firuz, at an altitude of over 9000 ft. They were fairly common in that district on May 21st, and the males were "bowing and scraping" in pretty fashion to the females. The breeding-organs of the birds shot were much enlarged.

31. *MOTACILLA FELDEGGI* Michah; Sharpe, Ibis, 1886, p. 486.

Budytes melanocephalus (Licht.) ; Blanf. t. c. p. 235.

113, 114, 127, 281, 282, 351. Ad.

In 281 (♂ breeding bird) there is a clear indication of a white eyebrow, but all the other specimens have entirely black heads. *M. paradoxa* (C. L. Brehm) seems to me nothing more than an individual variation.

Black-headed Wagtails were numerous amongst the reeds in the marshes at Dasht-i-arjan (6700 ft.) and near Shiraz (5200 ft.), but I saw only a few elsewhere. Some of the birds appeared to be commencing to breed at Dasht-i-arjan at the beginning of April, and a nest in the marsh near Shiraz contained five eggs on May 3rd.

32. *MOTACILLA BOARULA* Linn.

Motacilla sulphurea Bechst. ; Blanf. t. c. p. 233.

Motacilla melanope Pall. ; Sharpe, Ibis, 1891, p. 106.

31. ♂ ad. March 23rd, Bushire.

This specimen agrees with the long-tailed European form of the Grey Wagtail, and not with the shorter-tailed Siberian form—the true *M. melanope* of Pallas. Both forms seem to be found in India and China in winter, but the short-tailed bird is, so far as I can judge, never found in Europe.

†33. *MOTACILLA ALBA* Linn.; Blanf. t. c. p. 232; Sharpe, Ibis, 1886, pp. 486 & 497, 1891, p. 106.

18. ♂ ad. March 22nd, Bushire.

251. ♀ ad. April 26th, Plateau near Dasht-i-arjan (7000 ft.).

I did not obtain *M. persica* Sharpe.

White Wagtails were nowhere common, but a few were seen here and there on most of the streams at all altitudes.

†34. *ANTHUS CERVINUS* (Pall.); Blanf. t. c. p. 236.

253. ♀ ad.

The Red-throated Pipit appears to be a rare migrant in Persia. My specimen was shot on April 26th on a plateau (7000 ft.) near Dasht-i-arjan, and I saw a few others in small flocks near Shiraz, on May 3rd.

35. *ANTHUS TRIVIALIS* (Linn.); Blanf. t. c. p. 235; Sharpe, Ibis, 1886, p. 486.

166. ♂ ad., near Dasht-i-arjan (6700 ft.).

212. ♂ ad., near Naksh-i-Bahram (3300 ft.).

The Tree-Pipit was seen only at two places on the borders of the oak-woods on April 11th and 20th.

The birds were in pairs, but did not appear to be breeding. Dr. Blanford found this species very rare in Persia.

36. *ANTHUS CAMPESTRIS* (Linn.); Blanf. t. c. p. 237; Sharpe, Ibis, 1886, p. 497, 1891, p. 106.

11. ♂ ad. March 21st, Bushire.

44. ♂ ad. March 29th, Konar Takhteh (1700 ft.).

The Tawny Pipit was seen only at the two places from which the skins were obtained.

37. *ANTHUS SORDIDUS* Rüpp.; Blanf. t. c. p. 237.

230. ♂ ad. April 23rd, near Pul-i-mard (3800 ft.).

408. ♀ ad. June 5th, near Sadat (7250 ft.).

The typical *A. sordidus*, from Abyssinia, appears to be always very dark on the upper parts, and birds from Somaliland are generally but not always so, while specimens from India, Sokotra, and Persia are usually much paler, although

some examples from India are as dark as the Abyssinian birds. My specimens are both of the pale variety, and were the only two obtained. Pipits of all kinds were rare in Persia.

38. *ACREDULA TEPHRONOTA* Günther ; Blanf. t. c. p. 231. 100, 101, 102, 132, 153, 216. Ad.

These specimens are slightly paler than examples from Turkey and Asia Minor.

This Long-tailed Tit was confined to the oak-woods, where it was fairly common at various altitudes. In habits and notes it resembles *A. caudata*.

A nest, containing seven young, found in a thorn-tree, near Kaluni (4300 ft.), on April 4th, might be said to be made of feathers, covered with fragments of dead leaves fastened together with cobwebs. The leaves are of a grey colour and in very small pieces, so that at a little distance the nest looks as if it were covered with rather dull-coloured lichen.

39. *PARUS LUGUBRIS DUBIUS* Hellmayr, J. f. O. 1901, p. 172.

Pæcile lugubris persica Prazak (nec *Parus persicus* Blanf.), Orn. Jahrb. 1895, p. 81.

Parus lugubris? Natt. ; Blanf. t. c. p. 229.

137, 142, 161, 162, 171, 172. Ad. ; 237, 384, 399. Juv.

Dr. Blanford has called attention to the differences between the Persian bird and the typical *P. lugubris*, and I consider that Dr. Hellmayr is correct in upholding Prazak's opinion of its distinctness.

My specimens are all alike, and compared with Western birds they are quite distinct, being very much greyer on the back and of a much purer white on the under parts.

This Tit was met with throughout the oak-woods to which it was confined, but it was nowhere common.

At Pul-i-mard (3800 ft.) I saw fully-fledged young on April 23rd, and again near Aliabad (7300 ft.) on May 18th.

40. *PARUS MAJOR* Linn. ; Blanf. t. c. p. 227.

64, 76, 89, 104, 147, 148, 178, 179, 205, 297. Ad. ; 187, 306. Juv.

The Great Tit appears to vary considerably in shade of colour.

Birds from Cyprus, Palestine, Transcaspia, and Persia are generally less vividly coloured than those from further west, the green of the back being paler and more confined, and the yellow of the under parts being also paler. My specimens are constant in these characters, but Dr. Blanford observed that some Persian specimens had the back rather darker than European birds. On the other hand, I have seen specimens from Spain and Greece as pale or paler than my Persian specimens.

Parus aphrodite Madarász, from Cyprus, seems to be a distinct species, and not merely a subspecies, of *P. major*, for it has grey flanks, and is quite different from the pale form of *P. major* found on that island.

The Great Tit was, with the exception of the Chukar, the commonest and most evenly distributed bird met with during our journey. Except on the plains at the coast and in districts quite bare of trees, it was seen from 2700 ft. at Kamarij, to 10,000 ft. at the top of the pass over Dinar, where a pair was frequenting a stunted tree. Throughout the oak-woods it was especially common.

The dates I noticed for nesting and for fledged young birds were, perhaps, a little earlier than those for the Blue Tit.

41. *PARUS CÆRULEUS PERSICUS* Blanf.

Parus (Cyanistes) persicus Blanf. t. c. p. 230.

82, 86, 88, 145, 146, 169, 180. Ad. ; 307. Juv.

The Persian Blue Tit seems to be a distinct race. It is generally smaller than the European bird and is paler in coloration. The white tips to the greater wing-coverts are, moreover, also broader than in *P. cæruleus*.

This bird was common throughout the oak-woods, but I did not see it elsewhere. Its habits and notes, and its nests and eggs, resemble those of our bird. I noticed, however,

that the Tits in Persia had very small broods (*e. g.* Blue Tit, 3 incubated eggs; Tom Tit, nest of 5 young; Long-tailed Tit, nest of 7 young). I cannot suggest a reason for this, as food appeared to be very plentiful. All the Tits had fledged young by April 23rd at 4000 ft., and by April 28th at 6700 ft.

42. *SITTA EUROPEA PERSICA*, subsp. nov. (type in British Museum).

Differs from *S. e. europæa* Linn. in its smaller size, the distinct creamy wash on the breast and abdomen, and the whitish forehead, this whitish colour being continued into a narrow superciliary stripe.

Differs from *S. e. casia* Wolf in its much paler under surface, its white throat, and its whitish forehead. In the latter character it agrees with *S. e. caucasica* Rehw. (see Orn. Monatsb. 1901, p. 53), but instead of being darker on the breast than *S. casia* it is much paler.

	Wing.	Culmen.		Wing.	Culmen.
87. ♂ ad.	800 mm.	200 mm.	}	140. ♂ ad.	790 mm. 190 mm.
96. ♂ ad.	820 „	200 „		141. ♀ ad.	800 „ 190 „
97. ♀ ad.	810 „	200 „		380 & 388. Juv.	

Hab. Oak-woods of S.W. Persia.

Dr. Blanford obtained a single specimen of the Nuthatch in the Elburz Mountains, in North Persia, but it is probable that his bird would belong to the dark-breasted Caucasian form.

This Nuthatch appears to be very constant in the coloration of its under surface. In the large series of *S. casia* in the British Museum there is a specimen from Hungary which very nearly matches my bird, but other examples from the same locality are much darker.

This Nuthatch was confined to the oak-woods where, however, it was very common. In notes and habits it appeared to be identical with *S. e. casia*. I found several nests in old nesting-holes of *Dendrocopus sancti-johannis*. The nests were of the usual Nuthatch character, but the holes were "mudded" on the inside only, and with horse-dung instead of mud. I suppose the small hole made by this Woodpecker

was of the right size for the Nuthatch, and therefore it did not need mud on the outside, but the use of dung on the inside seemed curious, because there was plenty of mud obtainable. Most seasons, however, are perhaps too dry for the birds to obtain mud when they require it, and the use of dung instead may have possibly become a permanent habit with these birds. At Kalah-Mushir, on April 9th, a nest contained seven hard-set eggs which do not differ from those of *S. e. casia*. At the same place, on April 12th, I found a finished nest without eggs. Young were fledged on May 18th, near Aliabad (7300 ft.).

43. *SITTA NEUMAYERI SYRIACA*.

Sitta syriaca Ehr. ; Blanf. t. c. p. 223.

Sitta rupicola Blanf. t. c. p. 225.

33, 58, 59, 128, 129, 325, 407, 445. Ad. ; 336, 337. Juv.

I can recognise only two forms of the Rock-Nuthatch—*Sitta neumayeri* Michah (smaller and darker ; from Europe, Asia Minor to Caucasus), and *S. syriaca* Ehr. (larger and paler, with the breast white or creamy, outer tail-feathers with or without rust-coloured marks ; from Syria, Palestine, Caucasus, Persia, Turkestan, Baluchistan, and Afghanistan).

Dr. Hellmayr (Tierr. 18 Lief., Paridæ &c., pp. 174 & 175) has distinguished *S. n. syriaca*, with a white breast, and the outer tail-feathers either without rust-coloured markings or with only a narrow edge of that colour. *S. n. tephronota* Sharpe, has a creamy breast and rust-marked outer tail-feathers. But these features are by no means constant ; all my specimens have white breasts, but other specimens from Persia have creamy breasts. Some of my specimens have the outer tail-feathers rust-marked and some have not. The length of the black eye-stripe is also a very variable feature.

The Rock-Nuthatch was very common throughout our journey. We noticed it in the first pass from the coast, and saw it on the Kuh-i-Dinar at an elevation of nearly 10,000 ft.

It is a most amusing bird to watch, and has an extraordinary variety of loud and far-sounding notes. It can whistle

shrilly like a man, cry like a kitten, and repeat a piping note so rapidly that it sounds almost like a Goatsucker jarring. Besides these it has a variety of other notes, many of them very harsh, and is an exceedingly noisy bird.

It climbs about the rocks and trees or sloping ground with equal facility, although it is usually found amongst rocks. When it sees anyone it stands straight up on the top of a boulder and bobs rapidly up and down. Young, well-fledged and well-grown, were in noisy parties at Ardakun (7500 ft.) on May 20th, and were numerous at various places after that date.

44. *LANIUS DEALBATUS* de Filippi; Ogilvie-Grant, Nov. Zool. ix. p. 458, pl. xxvii. fig. 9.

Lanius fallax Sharpe (nec Finsch), Ibis, 1886, p. 484.

24. ♂ ad. March 22nd, Bushire.

65. ♂ ad. March 31st, Kazran (2700 ft.).

185. ♂ ad. April 16th, near Nudan (3200 ft.).

No. 24 is typical of this species, as distinguished by Mr. Ogilvie-Grant. Nos. 65 and 185 have the inner webs of most of the secondaries brown or dusky instead of white; but in some newly-grown feathers the inner web is partially white. In working out my Shrikes I have followed Mr. Ogilvie-Grant in his latest work on the subject, but most of the characters that it is possible to use in distinguishing the Grey Shrikes are variable and unsatisfactory.

Dr. Blanford refers his specimens of Great Grey Shrikes, which were all obtained in Baluchistan and S.E. Persia, to *L. lahtora* Sykes.

Great Grey Shrikes were uncommon, and I saw only a few near the coast and in the oak-woods up to an elevation of 3300 ft. They were very wild and difficult to approach.

The bird shot on April 16th appeared to be breeding.

45. *LANIUS PALLIDIROSTRIS* Cassin; Ogilvie-Grant, t. c. p. 459, pl. xxvii. fig. 11.

35. ♂ ad.

An adult male typical of this species, as distinguished by Mr. Ogilvie-Grant, was obtained at Konar Takhteh (1700 ft.) on March 28th. Its testes were much enlarged.

46. *LANIUS MINOR* Gmel. ; Blanf. t. c. p. 137 ; Sharpe, *Ibis*, 1886, p. 484, 1891, p. 107.

244, 265, 286, 295, 296, 393, 420. Ad.

I did not see the Lesser Grey Shrike until April 25th, near Shul (6800 ft.). It was common at Shiraz, and elsewhere it was locally distributed up to an altitude of about 6800 ft. Judging by the organs of the birds shot, it does not breed before the end of May or beginning of June. It is very much tamer than other Grey Shrikes.

47. *LANIUS COLLURIO* Linn. ; Blanf. t. c. p. 137 ; Sharpe, *Ibis*, 1886, pp. 485 & 497, 1891, p. 107.

338. Juv.

Dr. Blanford did not meet with the Red-backed Shrike, and considered it probable that it was only to be found in North-eastern Persia. Mr. Palmer obtained one specimen at Bushire (Sharpe, *t. c.*), and I obtained an immature example, which appeared to be alone, on May 28th, near Ardakun (7000 ft.). I also winged a mature male, near Shiraz, on April 30th, but was unable to retrieve it owing to the vagaries of a mule. The bird must be rare in this part of Persia.

48. *LANIUS NUBICUS* Licht. ; Sharpe, *Ibis*, 1886, p. 485, 1891, p. 107.

73, 84, 90, 164. Ad. ; 441. Juv.

Curiously enough, Dr. Blanford does not mention the Masked Shrike. Mr. Cumming considered it migratory at Fao (Sharpe, *t. c.*). I found it common and breeding in the oak-woods at various elevations. A nest near Naksh-i-Bahram (3400 ft.) contained three fresh eggs on April 20th, and near Basht (4000 ft.) there were full-fledged young on June 10th.

49. *LANIUS RUFUS* Gmel. ; Ogilvie-Grant, t. c. p. 465.

Lanius auriculatus Müll. ; Blanf. t. c. p. 188 ; Sharpe, *Ibis*, 1886, pp. 485 & 497, 1891, p. 107.

156, 157, 193, 203, 457. Ad. ; 454. Juv.

My female specimens are pale on the head and back, and all the examples have white bases to the middle tail-feathers.

This form of the Woodchat was fairly common in the more southern parts of the country we traversed, but I did not notice it north of Tol-i-safid. Dr. Blanford obtained Woodchats (presumably of this species) near Shiraz only, while the birds found by De Filippi in North Persia may have been *L. pomeranus*, but Mr. Ogilvie-Grant does not include North Persia in the range of either species.

50. *LANIUS PHENICUROIDES* Severtz. ; Ogilvie-Grant, Nov. Zool. ix. p. 486 et p. xi ; Sharpe, Ibis, 1886, p. 485.

? *Lanius isabellinus* Hempr. & Ehr. ; Blanf. t. c. p. 139.

19. ♂ ad. March 22nd, Bushire.

199. ♂ ad. April 19, near Nudan (3200 ft.).

410. ♂ ad. June 6th, near Sadat (7250 ft.).

My specimens are sandy grey on the back and pale rufous on the head, while from his description it appears that all those obtained by Dr. Blanford had rufous heads.

The distinction between this species and the next is, however, in some specimens, very obscure, and it is doubtful whether Mr. Ogilvie-Grant is well advised in separating the rufous-headed examples.

This Shrike was by no means common, and I saw it only occasionally at various altitudes in the oak-woods. The specimen No. 199 appeared to be breeding.

51. *LANIUS ISABELLINUS* Hempr. & Ehr. ; Ogilvie-Grant, t. c. p. 482.

51. ♀ ad. March 29th, Konar Takhteh (1700 ft.).

This specimen is of a pale and uniform sandy-grey colour on the head and back, and the upper tail-coverts and tail are pale rufous.

52. *ARGYA HUTTONI* (Blyth) ; Sharpe, Ibis, 1886, p. 484, 1891, p. 110.

Crateropus (Chatorhea) huttoni (Blyth) ; Blanf. t. c. p. 203, 42, 43, 214. Ad.

This Babbler was common on the plains below 3500 ft. It has a piping note and the same habits as *A. acaciæ*. A nest, built about five feet from the ground in a mimosa-bush

near Naksh-i-Bahram (3400 ft.), contained three eggs on April 20th. I watched the bird return silently and stealthily to the nest. On dissection it proved to be the male.

53. *BURNESIA GRACILIS LEPIDA* (Blyth).

Drymæca gracilis (Licht.); Blanf. t. c. p. 206.

Burnesia lepida (Blyth); Sharpe, Ibis, 1886, pp. 484 & 496, 1891, p. 109.

14. ♂ ad.; 23. ♂ ad. March 22nd, Bushire.

189. ♂ ad. April 17th, near Nudan (3500 ft.).

This charming little bird was fairly common in the fields in the valleys between Bushire and Shiraz. In flight it looks like a bit of straw blown hither and thither by the wind. Besides a squeaky "zit-zit" note and a locust-like song, it makes a curious small sucking noise as it hovers and flits over the corn. Its habits of flitting the wings and jerking the tail from side to side when perched reminded me much of *Spiloptila clamans*. A nest, made of dry grass and feathers and lined with seed-down, and shaped like that of a Long-tailed Tit, was found in a clump of short reeds on the borders of a marsh near Shiraz on May 3rd. It contained one egg, of a pale blue colour thickly spotted with red. The egg measures 155 × 110 mm.

54. *SCOTOCERCA INQUIETA* (Cretzschm.); Blanf. t. c. p. 207; Sharpe, Ibis, 1891, p. 109.

130. ♂ ad. April 7th, near Dasht-i-arjan (7000 ft.).

231, 232, 233. Juv. April 23rd, near Pul-i-mard (3800 ft.).

I saw this little bird in three localities only, viz.: on rocky bush-covered hill-sides near Dasht-i-arjan, at Shul (6800 ft.), and at Pul-i-mard. At the last place a party of seven fully-fledged young birds was seen on April 23rd. As Dr. Blandford remarks, these birds try to hide themselves in the bushes when danger threatens. They have a faint "chuck, chuck" note. They climb about the twigs of the bushes and wag their tails from side to side.

55. *CETTIA SERICEA* (Temm.).

Bradypterus cetti (Marm.); Blanf. t. c. p. 200.

Cettia orientalis Tristr.; Sharpe, Ibis, 1891, p. 108.

226. ♂. April 29th, near Shiraz (about 6000 ft.).

328. ♀. May 19th, Shir River (7000 ft.).

In the large series of Cetti's Warbler in the British Museum I find as much individual variation in the colour of the western as in that of the eastern specimens, and I do not consider that *C. orientalis* is distinct either as a species or a subspecies.

By the sides of streams and in dry river-beds, where bushes grew thickly, Cetti's Warbler was common from 3000 ft. to over 9000 ft. I seldom saw the bird distinctly, but its unmistakable song, which is like nothing else that I have ever heard, was sufficient for identification. This song is really wonderful. From the dense bushes or other vegetation one suddenly hears a burst of loud and stridulous notes rapidly uttered. Then all is abruptly silent and nothing can be seen. Again, a little further on, another crash of song breaks forth from the bushes and as suddenly stops, and at length a small brown bird is seen skulking through the undergrowth. And so every time one tries to trace the performer one catches a glimpse of this little bird, and is obliged to come to the reluctant conclusion that so small a creature really does make so loud a noise.

56. *PHYLLOSCOPUS NEGLECTUS* Hume; Blanf. t. c. p. 182.

259. ♀ ad. April 28th, Kalah-Mushir (6700 ft.).

418. ♀ ad. June 8th, near Bija (5000 ft.).

Dr. Blanford obtained only two examples of this species, one at Shiraz and one in Baluchistan, both in winter. I observed the bird only in the two localities from which my specimens are dated.

On April 11th, at Kalah-Mushir, I saw a pair of these tiny Warblers carrying nesting-materials about on a rough hill-side well overgrown with oak trees. I sat down and watched the birds. They were not at all shy, and flitted from twig to twig, uttering a faint single note like that of a Golderest. Having roughly located the position of the nest by the actions of the birds, I searched for it and soon found it between two bushy branches of a small thickly growing bush about two feet six inches from the ground.

It was then more or less cup-shaped and partially lined with feathers. On the 14th I visited the nest again and found it domed and nearly completed. I then saw that it was almost in the form of a cylinder, with the opening near the top of one end, and was built parallel to the ground. As I had no idea what the birds were, and hoped that either they or their eggs might be unknown, I determined to leave them in peace and return later. This I did on April 28th, making a two days' journey off my route for the purpose. The nest was then finished, being plentifully lined with feathers, and containing four eggs. The hen bird was sitting, and while I watched she returned very quietly and stealthily to the nest. The cock bird I never saw, although I waited some four hours for him, so I secured the hen. It was raining and blowing hard, and so small and inconspicuous a bird it was difficult to see among the moving leaves. The eggs were very slightly incubated, and the bird's ovaries were small, so I presume that she had finished laying. The time occupied by the building of the nest must have been a fortnight or more. It was neatly woven of grass.

The eggs are pure white, unspotted, and large for the size of the bird, each measuring 150×101 mm.

A nest and eggs described and figured by Lorenz under the name of *Phyllopneuste lorenzi* Severtz. (Beitr. Orn. Nord. Kaukasus, p. 28, pl. ii. fig. 2), if belonging to *P. neglectus*, are very different from my specimens. The nest figured is oven-shaped, like that of a Chiffchaff, and was placed amongst small bushes on the ground, while the eggs are described as of a white ground-colour, speckled and spotted with reddish brown, and distinctly zoned. However, my specimens are possibly abnormal.

The late Mr. W. E. Brooks has described this bird as timid and watchful and non-Phylloscopine. My acquaintance with it is slight, but neither the birds that I watched at the nest nor the female when shot later were shy. In habits they were, in my opinion, quite characteristic of *Phylloscopus*. The nest, too, is Phylloscopine.

57. *PHYLLOSCOPUS TROCHILUS* (Linn.); Blanf. t. c. p. 180; Sharpe, Ibis, 1886, p. 481, 1891, p. 108.

182, 170, 221. Ad.

The Willow-Wren was seen at various altitudes, but not later than April 21st.

58. *PHYLLOSCOPUS RUFUS* (Bechst.).

Phylloscopus collybita (Vieillot); Blanf. t. c. p. 181.

Phylloscopus rufus (Bechst.); Sharpe, Ibis, 1886, pp. 481 & 495.

4, 10, 144, 188. Ad.

These specimens are all, I consider, typical *P. rufus*. Dr. Blanford obtained the eastern form of the Chiffchaff (*P. tristis* Blyth) in Baluchistan, but not in Persia proper. The specimen from Fao in the British Museum, identified by Dr. Sharpe as *P. tristis* (Ibis, 1886, p. 481), is, I believe, *P. rufus*, the breast being tinged with yellow and the tarsi being paler than in typical *P. tristis*.

The Chiffchaff was fairly common at various altitudes up to the end of April, but I have no note of seeing it later, and think that it is only a winter migrant to the country.

59. *SYLVIA MYSTACEA* Ménétr.; Sharpe, Ibis, 1891, p. 108

Sylvia rubescens Blanf. t. c. p. 177.

20, 41, 61, 274, 450. Ad.; 190. Juv.

This Warbler was found fairly common in valleys where there were bushes, but I did not notice it at a higher altitude than 5500 ft. On May 2nd I took a nest with fresh eggs from a small bush in the Bagh-i-Mallock at Shiraz (5200 ft.), and on May 31st another with five hard-set eggs from a small bush in the river-bed at Dorah (5300 ft.). Both nests were within a few inches of the ground.

The nests are slight, made of fine roots and grass, and lined with still finer pieces of the same materials. The five eggs of one clutch measure 180 × 135 mm., and the five of the other 170 × 130 mm.

The cock bird has a charming Pipit-like "singing flight," but the song itself is somewhat rasping and unpleasing.

Both sexes are fond of spreading their tails when flying and when perched.

60. *SYLVIA NANA* (Hempr. & Ehr.); Blanf. t. c. p. 178.

39. ♀ ad.; 50. ♀ ad. March 29th, Konar Takhteh (1700 ft.).

The Desert-Warbler was fairly common in the valleys of Konar Takhteh and Kazran (2700 ft.), but I did not obtain it elsewhere.

It frequented small bushes near corn-fields, and was as often as not on the ground underneath them. It was also very fond of skulking along the bottoms of the "hedges" (made of mimosa-boughs) round the corn. Occasionally it took a short flight, and alighting at the top of a bush rapidly made its way through it to the bottom again.

61. *SYLVIA ATRICAPILLA* (Linn.); Blanf. t. c. p. 174; Sharpe, Ibis, 1886, pp. 481 & 495.

53. ♂. March 30th, near Konar Takhteh (1700 ft.).

150. ♂. April 10th, near Kalah Mushir (6700 ft.).

285. ♀. May 2nd, Shiraz (5200 ft.).

These specimens and others in the British Museum from the Persian Gulf are decidedly pale on the upper parts. Two birds from Fao are, however, darker, and birds from Europe vary in coloration, so that I shall not separate the Persian bird. More material, however, may shew that the Blackcap resident in Persia is constantly pale and worthy of sub-specific rank.

Dr. Blanford had no specimens, and I saw only the three which I obtained, and could not be sure whether the bird bred in the country. I never heard it singing, but the testes of the male shot on April 10th were considerably enlarged, although the ovaries of the female shot three weeks later were small.

62. *SYLVIA CURRUCA* (Linn.); Blanf. t. c. p. 175; Sharpe, Ibis, 1886, p. 495, 1891, p. 108.

374, 375. ♂ ad. May 29th, near Sisakht (6500 ft.).

63. *SYLVIA AFFINIS* Blyth; Blanf. t. c. p. 176; Sharpe, Ibis, 1886, p. 495.

85. ♂ ad. April 3rd, near Kaluni (4400 ft.).

139. ♂ ad. April 8th, near Dasht-i-arjan (6700 ft.).

I have distinguished these species by the wing-formula only, the second primaries of Nos. 374, 375 being intermediate between the 5th and 6th, and those of Nos. 85 and 139 between the 6th and 7th.

The colour of the upper parts varies considerably in both forms.

Lesser Whitethroats were common in many parts of the oak-woods, but they did not appear to be breeding, even at the beginning of June.

64. *SYLVIA CINEREA* Bechst.; Sharpe, Ibis, 1886, p. 481; 1891, p. 108.

Sylvia rufa (Bodd.); Blanf. t. c. p. 174.

223. ♂ ad. April 21st, near Naksh-i-Bahram (3300 ft.).

323. ♀ ad. May 19th, Shir River (about 7000 ft.).

The organs of neither of these specimens were in breeding condition, and I am not sure that the Whitethroat breeds in this part of Persia, though it probably does so. It was seen here and there, but was by no means a common bird.

65. *SYLVIA ORPHEA JERDONI*.

Sylvia jerdoni Blyth; Blanf. t. c. p. 172.

133, 134, 135, 136, 196, 201, 311, 411. Ad.

Culmen: males, .7 to .75 inch; females, .68 to .7 inch.

The eastern form of the Orphean Warbler was found here and there from 3300 ft. to over 7000 ft. where there were bushes amongst the trees. On May 17th I found its slightly made nest placed in a thorn-bush about five feet from the ground in an oak-wood at an altitude of 7300 ft. The nest contained four eggs.

66. *HYPOLAIS PALLIDA* (Hempr. & Ehr.).

Hypolais rama Sykes.

Hypolais pallida Hempr. & Ehr. } Blanf. t. c. p. 187.

Hypolais obsoleta Sharpe (nec Severtz.), Ibis, 1886, p. 481. 48, 49, 208, 209, 272, 386, 387. Ad.

The darker colour of *H. rama* and the wing-formula distinguish it easily, I think, from *H. pallida*. My specimens are grey, even for *H. pallida*, on the upper parts.

The specimens in the British Museum from Fao identified by Dr. Sharpe as *H. obsoleta* should have been referred to this species.

The Olivaceous Warbler was especially common in the more or less cultivated valleys. I did not notice it in the oak-woods nor above an altitude of 5000 ft. In the gardens at Shiraz it was nesting in the rose-bushes at the beginning of May, and its soft rambling song was to be heard on all sides. Four eggs were in several cases a full clutch.

67. *HYPOLAIS LANGUIDA* (Hempr. & Ehr.); Blanf. t. c. p. 183; Sharpe, *Ibis*, 1891, p. 108.

154, 302, 324, 383, 406. Ad.

Upcher's Warbler was fairly common where there were bushes either growing amongst the oak-woods or in more barren country. I did not observe it, however, below an altitude of 6500 ft. A nest found on May 30th at that altitude contained four eggs on the point of hatching. The nest was placed in a thorn-bush about three feet from the ground, and the eggs when taken were of a delicate mauve ground-colour.

68. *LUSCINIOLA MELANOPOGON MIMICA*.

Lusciniola mimica Madarász, Vorl. u. c. neuen Rohrsänger, 1903.

Calamodus melanopogon (Temm.); Blanf. t. c. p. 198.

125. ♂ ad.; 126. ♂ ad. April 7th, Dasht-i-arjan (7000 ft.).

254. ♀ ad. April 26th, near Kherak (7000 ft.).

Specimens of the Moustached Warbler from India and Persia are larger, much less rufous, and paler than specimens from Europe and Asia Minor. They are also more striated on the crown, and olivaceous rather than rufous on the flanks. Egyptian birds are somewhat intermediate, but should, I think, be referred to the western form.

I saw this bird only in places where there were thick reed-

beds, while its habits and call-notes appeared to me to resemble those of the Sedge-Warbler.

69. *ACROCEPHALUS PALUSTRIS* (Bechst.); Blanf. t. c. p. 197; Sharpe, Ibis, 1886, p. 482.

316, 317, 322, 350, 363, 364. Ad.

I did not see the Marsh-Warbler until May 18th near Pul-i-mard (6300 ft.). After that date it was met with commonly from 5000 ft. to over 9000 ft., both in the treeless country to the south-east of the Kuh-i-Dinar and in the oak-woods to the south-west of that mountain. I concluded from this that the bird was a migrant and had only just arrived in the country when first I saw it, but Dr. Blanford's single specimen was taken at Shiraz in December. Mr. Cumming, however, considered it migratory at Fao, where it was seen in March and April (Sharpe, t. c.).

70. *ACROCEPHALUS STENTOREUS* (Hempr. & Ehr.); Blanf. t. c. p. 194.

74, 452. Ad.; 455. Juv.

This loud-voiced Reed-Warbler (its notes are even louder and harsher than those of *A. turdoides*) was found only in a few places at low altitudes (1500 ft. to 3500 ft.), but Dr. Blanford obtained it up to 7000 ft. In these places, where reeds grew thickly, the bird was common. The fledged young bird was obtained on June 13th.

71. *AËDON FAMILIARIS* (Ménétr.); Blanf. t. c. p. 210; Sharpe, Ibis, 1891, p. 107.

Sylvia familiaris Ménétr.; Sharpe, Ibis, 1885, p. 495.

37, 149, 389. Ad.

This pale eastern form of that charming bird the Rufous Warbler was found on all the fertile plains between Bushire and Shiraz, and in a few places to the north-west of the latter town.

The bird was breeding at the end of March at Konar Takhteh (700 ft.), at Do Rah (5300 ft.) at the end of May, but not at Dasht-i-arjan (6700 ft.) in the middle of April.

A nest found about 18 inches from the ground, in a small bush in the dry river-bed of the Khersun (5300 ft.), contained

four fresh eggs on May 31st. The eggs are of a pale blue, thinly spotted with brown and mauve, and resemble a clutch taken near Shiraz, now in the British Museum.

The bird's downward flight with uplifted wings always reminds me of the beautiful flight of a *Papilio* butterfly.

72. *ACCENTOR JERDONI* Brooks.

371. ♀ ad. May 28th, Kuh-i-Dinar (9500 ft.).

At first sight this specimen is barely recognisable as being of this species. The pectoral band, instead of being rich rufous, is exceedingly ill-defined and of a pale buff colour, the throat is unspotted, the eye-stripe is white instead of buff, and the upper parts are pale. But the plumage of the bird is considerably worn, and I think that this accounts for much of the difference. Some specimens from Gilgit, in the British Museum, approach my bird nearly, so far as paleness of coloration is concerned, but none have so white an eye-stripe or so faint a pectoral band.

So far as I am aware, *A. jerdoni* has not been found outside India before, and its range in Persia must be limited to the highest mountains. I saw only one pair, which was on a patch of snow near the top of the pass (Gardan-i-Bijan) over Kuh-i-Dinar. They "shuffled" along in the snow with half-closed wings, much as a Hedge-Sparrow does along the bottom of a hedge. Owing to want of small shot at the time I managed to secure only one specimen.

The ovaries were much enlarged, and the bird was evidently breeding.

73. *SAXICOLA CHRYSOPYGIA* (De Fil.) ; Blanf. t. c. p. 151.

343. ♂ ad. May 21st, Berm Firuz (9300 ft.).

369. ♂ ad. May 27th, Kuh-i-Dinar (9500 ft.).

The Red-tailed Wheatear was rare, and only found on the most rocky and barren hill-sides at elevations of over 9000 ft. in the Berm Firuz region and on the pass over Dinar. Both my specimens are males ; and, judging by their actions and by the state of the breeding-organs, the females must have been incubating. Unfortunately, I could not find a nest. It was quite hopeless to search for it, since the country was

covered with stones, under any of which the nest might have been, while the birds were very wild, and there was no cover from which to watch them.

74. *SAXICOLA MELANOLEUCA* (Güld.); Blanf. t. c. p. 150; Sharpe, Ibis, 1886, p. 483.

158, 163, 167, 168, 177, 379. Ad.

The colour of the mantle varies greatly in different individuals. Dr. Blanford considered this a rare bird in Persia, but I found it plentiful in a few localities. At Kalah Mushir (6700 ft.) it was especially so at the beginning of April, and the organs of some of the specimens shot there were in a breeding-condition, while those of others were not. In the oak-woods near Sisakht (6500 ft.) these birds were evidently breeding at the end of May. Like all Wheatears, they were shy and difficult to get near. They generally perched in the bushes and trees, and every now and then darted to the ground for food and returned to their perch in a Shrike-like fashion.

Near Tassi (6800 ft.), where this species was common amongst the oak-trees on the rocky hill-sides, I saw fledged young ones on June 5th.

75. *SAXICOLA ALBICOLLIS* (Vieill.).

Saxicola stapazina (L.) nec auct.; Blanf. t. c. p. 150.

151, 173. Ad.

The Black-eared Wheatear had much the same distribution as *S. melanoleuca*, and was often to be found in company with it.

76. *SAXICOLA MORIO* Hempr. & Ehr.; Blanf. t. c. p. 152; Sharpe, Ibis, 1886, pp. 483 & 496.

6, 55, 99, 103, 152, 159, 227. Ad.

All these specimens have white under tail-coverts, but some of them have the inner margins of the primaries distinctly grey, not black, like typical *S. morio*, nor white, like typical *S. persica* Seeböhm.

This Wheatear was fairly evenly distributed, being observed from the coast up to altitudes of over 6000 feet.

77. *SAXICOLA DESERTI* Temm.; Blanf. t. c. p. 148; Sharpe, Ibis, 1886, pp. 483 & 496.

12, 47. Ad.

The Desert-Wheatear was only noticed at Bushire and Konar Takhteh at the end of March.

78. *SAXICOLA PICATA* Blyth; Blanf. t. c. p. 153.

57. ♂ ad. March 30th, near Konar Takhteh (1700 ft.).

453. ♂ ad. June 13th, near Tol-i-safid (3200 ft.).

Dr. Blanford did not notice this Wheatear west of Shiraz, and it seems to be rare in S.W. Persia, which is, I suppose, the extreme western limit of its range. I observed it only at low altitudes, where it was breeding.

79. *SAXICOLA ISABELLINA* Cretzschm.; Blanf. t. c. p. 147; Sharpe, Ibis, 1886, pp. 483 & 496.

40, 117, 242. Ad.; 202. Juv.

Dr. Blanford remarks that this is probably, on the whole, the commonest Persian Chat, and I also found it to be so. The bird was widely distributed throughout the treeless part of the country. Besides a chirping call, it has a rather loud whistling note, which sounded to me very "un-Chat" like. It has a beautiful fluttering flight while it sings, both the flight and song being much like those of a Crested Lark. On April 29th, near Shiraz (5200 ft.), a pair evidently had young in a long winding hole in a rocky bank; but we very seldom saw holes such as this, and I think that the bird must usually breed under stones. My young bird, which is fully feathered, was obtained on April 19th at 3300 ft.

—80. *SAXICOLA GENANTHE* (Linn.); Blanf. t. c. p. 146; Sharpe, Ibis, 1886, p. 483, 1891, p. 109.

7. ♂ ad. March 21st, Bushire.

243. ♀ ad. April 25th, Shul, 6800 ft.

These were the only specimens of the Common Wheatear seen, and in neither were the breeding-organs developed, but judging from the observations of Dr. Blanford the species breeds sparingly in Persia.

81. PRATINCOLA RUBICOLA MAURA (Pall.).

Pratincola rubicola (Linn.); Blanf. t. c. p. 145.

Pratincola hemprichi Sharpe (nec Ehr.), Ibis, 1886, pp. 480 & 494.

17, 38, 46, 112, 245, 284, 342, 346, 360. Ad.

The amount of white at the base of the tail in specimens of this species from Persia varies considerably, and in my opinion all the skins from Bushire and Fao in the British Museum are referable to this species, and not to *P. hemprichi*. The amount of white in the axillaries is also variable. Typical *P. hemprichi* has white tail-feathers with black tips, and the birds from Persia never have much more than the basal half of the tail-feathers white.

The two forms, however, intergrade, and, although their supposed ranges overlap, I am inclined to think that the true *P. hemprichi* will be found to be a subspecies of *P. rubicola* with a separate residential range.

Dr. Blanford considered Stone-Chats rather scarce in Persia. I did not see them in the wooded country, but they were fairly common here and there in the open country from sea-level to over 9000 ft. Of those shot, the first with organs in a breeding-condition was obtained at Shul (6800 ft.) on April 25th. A nest on the borders of a marsh near Shiraz contained hard-set eggs on May 3rd.

82. RUTICILLA PHENICURUS (Linn.); Blanf. t. c. p. 163; Sharpe, Ibis, 1886, p. 496 [part.].

25. ♂ ad.; 26. ♀ ad. March 22nd, Bushire.

78. ♂ ad. April 3rd, Kaluni (4500 ft.).

138. ♂ ad. April 8th, Dasht-i-arjan (6700 ft.).

385. ♂ juv. May 31st, Khersun River (5300 ft.).

394. ♂ juv. June 1st, Chinar (6600 ft.).

Specimens 25, 26, & 78, and one of those collected by Mr. Palmer at Bushire (now in the British Museum), although in abraded plumage, have distinct indications of white edgings to the secondaries. They thus seem intermediate between *R. phœnicurus* and *R. mesoleuca*. Dr. Blanford was uncertain of the occurrence of the Common

Redstart in Persia, but I believe it be the common breeding Redstart of the region of the oak-woods.

A nest in a hole in an oak tree near Aliabad (7300 ft.) contained eggs on May 18th.

83. *RUTICILLA RUFIVENTRIS* (Vieill.); Blanf. t. c. p. 163.

Ruticilla phœnicura (Linn.); Sharpe, Ibis, 1886, p. 496 [part.].

5. ♀ ad. Bushire, March 21st.

I obtained only one female specimen of this Redstart, but there is a male specimen in the British Museum, procured by Mr. Palmer at Bushire, and inadvertently included by Dr. Sharpe amongst the specimens of *R. phœnicurus*.

Dr. Blanford observed this species only in Baluchistan and in South-eastern Persia.

84. *DAULIAS GOLZI* (Cab.).

Daulias hafizi (Severtz.); Blanf. t. c. p. 169.

66, 224, 262, 271. Ad.

The "Bul-bul" of the Persians was common in the gardens of Kazran and Shiraz, but elsewhere it was local and scarce. The song seemed to me very little inferior to that of our Nightingale.

A nest at Shiraz, placed on the ground and well hidden amongst some weeds at the base of a tree, was made of dry leaves and contained five fresh olive-brown eggs on May 8th.

85. *ERITHACUS GUTTURALIS* (Guér.); Sharpe, Ibis, 1886, pp. 482 & 495.

Cossypha (Irania) gutturalis Guér.; Blanf. t. c. p. 161.

56, 98, 108, 116, 155, 222, 318, 347, 348. Ad.

There is a considerable variation in both the length and breadth of the white wedge-shaped patch on the chin, but I think that this is greatly due to the abrasion of the feathers. No. 347 ♂ has the breast white, very slightly tinged with buff, but is otherwise normally coloured. A male specimen from Somaliland, in the British Museum, approaches my specimen in being pale buff on the breast (see Grant & Reid, Ibis, 1901, p. 656). A male from Asia

Minor, in the same collection, and another from Western Turkestan are pale on the breast. I saw two or three of these white-breasted birds in the Pa Dinar district (about 7500 ft.) in open country, but was only able to obtain one specimen. They were in company with normally coloured birds, and I think must be considered as examples of dichromatism.

This bird was very common throughout the wooded and bush-covered country from 2000 ft. upwards, nor was it uncommon in the treeless grassy districts, wherever there were a few bushes, and we saw a pair on the summit of the Gardan-i-Bijan (10,000 ft.). In its actions it is much like the Rufous Warbler; it flies down with quivering wings, singing delightfully, and then alighting "cocks" its tail and spreads it out. The song, which is of a most erotic character, is a jumble of fine notes mixed with others of a bubbling nature, as though the bird were too excited to sing properly. Both male and female sing on the wing as well as when perched. In April the males and females were continually chasing one another and singing as they flew. When engaged in courting the birds seemed quite regardless of any one's presence, but at ordinary times they were shy and kept to the thickest parts of the bushes. In the open country they were always difficult to approach.

86. *ERITHACUS CYANECULA* (Wolf); Sharpe, *Ibis*, 1886, pp. 482, 496.

? *Cyanecula wolfi* Brehm; *Blanf. t. c.* p. 169.

22. Ad. March 22nd, Bushire.

Dr. Blanford was somewhat doubtful of the occurrence of this Bluethroat in Persia, but Dr. Sharpe received a specimen from Mr. Palmer from Bushire (shot March 28th). I saw only the specimen obtained.

87. *CINCLUS AQUATICUS ALBICOLLIS* (Vieill.).

326. ♀ ad.; 327. ♂ juv. May 19th, Shir River (7000 ft.).

412. ♂ juv. June 6th, near Sadat (7250 ft.).

The only adult specimen is very much worn. The head is of a palish brown, and the back uniform dark slate-grey,

but I think that the dark edgings to the feathers have been worn off. The lower breast is pale rufous, and, except for the paleness of this colour, the specimen agrees very well with worn specimens from Southern Europe and Turkey. I have not been able to examine examples from Palestine, but Mr. Dresser describes them (Man. Pal. Birds, p. 26), under the name of *C. rufiventris* Hempr. & Ehr., as resembling *C. albicollis*, but with rufous brown on the abdomen, and with the brown of the upper parts extending down to the interscapular region without squamations. Western Persian birds may be the same, but my specimen is so worn that it is not possible to decide. The name *C. rufiventris*, by the way, is given by Hemprich and Ehrenberg without any description.

A few Dippers were seen on some of the streams in the country to the north-west of Shiraz at elevations of 7000 ft. and over. They were very shy and difficult to procure. On the Shir River I shot several which were swept down the stream into a narrow precipitous gorge before I could reach them, although I jumped hastily into the torrent after them.

The habits and note of these birds resembled those of *C. aquaticus*.

The specimens obtained by Dr. Blanford in Northern Persia seem to have belonged to *C. a. cashmiriensis* Gould.

88. **MONTICOLA SAXATILIS* (Linn.); Blanf. t. c. p. 156; Sharpe, Ibis, 1886, pp. 482, 496.

I saw a few Rock-Thrushes, which were very wild, in the rocky and barren Berm Firuz region (over 9000 ft.) on May 21st, and again at about the same altitude on the pass over Dinar. Dr. Blanford observed the bird only at high altitudes, but Mr. Palmer obtained one at Bushire on the coast on March 25th (Sharpe, t. c.).

89. *MONTICOLA CYANUS* Linn.; Blanf. t. c. p. 155; Sharpe, Ibis, 1886, p. 496.

15, 16, 34, 60. Ad.

No. 15 is absolutely without spots or bars.

I noticed the Blue Rock-Thrush only as far inland as Kamarij.

90. *TURDUS MERULA SYRIACUS* Hempr. & Ehr.

Turdus merula, var. *syriacus* Hempr. & Ehr. Symb. Phys. fol. bb (1833).

Turdus merula syriacus Hartert, Wander. Naturf. p. 307.

Turdus merula Linn. ; Blanf. t. c. p. 157.

Merula merula Sharpe, Ibis, 1891, p. 109.

236, 390. Ad.

Mr. Hartert has pointed out to me how clearly the Blackbirds can be separated by well-marked differences in the female birds. I have compared my specimens with the series at Tring and find that they agree with this form. The female has the bill yellow with a brown base. The breast of the bird is greyish brown and not rufous as in *T. merula*, while the feathers of the throat are pale grey, mesially streaked with blackish brown. The male is like that of *T. merula*.

Dr. Blanford remarked that the females and young of the Persian Blackbird were decidedly less rufous than European specimens.

Blackbirds were seen here and there throughout our journey at elevations of from 3000 ft. to 10,000 ft., while in a few places they were very plentiful. I found a good many old nests, made of shreds of bark, near Dasht-i-arjan (6700 ft) ; while near Basht (4000 ft.) the young were well able to fly on June 10th.

91. *TURDUS MUSICUS* Linn. ; Blanf. t. c. p. 156 ; Sharpe, Ibis, 1886, pp. 482 & 495.

2. ♀ ad. March 21st, Bushire.

This specimen is paler on the upper parts than any specimen in the British Museum or at Tring, and has no tawny colour on the breast or flanks. Other specimens from the Persian Gulf, however, are darker than my bird, but they are nevertheless decidedly pale. It would be interesting to know where these pale birds breed. There is no record of their doing so in Southern Persia, and all the specimens obtained there have been met with in winter or spring, but I think it possible that they do breed in the country, because my specimen had the ovaries considerably enlarged.

If the Song-Thrush is not a resident in Southern Persia, I can hardly imagine that a few winter months would bleach it, and must conclude that its breeding-places possess the same bleaching qualities.

92. *PYCNONOTUS LEUCOTIS* (Gould); Blanf. t. c. p. 218; Sharpe, *Ibis*, 1886, p. 483, 1891, p. 110.

1, 195. Ad.

My specimens are rather paler on the upper, and whiter on the under parts, than examples from Eastern Persia and India.

This Bulbul was common between Bushire and Shiraz, and I saw a few near Tol-i-safid, some way N.W. of Shiraz, but I did not notice it elsewhere. Its clear flute-like pipe is even sweeter than that of *P. arsinöë*, the only other species of the genus with which I am acquainted.

93. *MUSCICAPA ATRICAPILLA* Linn.; Blanf. t. c. p. 143; Sharpe, *Ibis*, 1886, p. 494, 1891, p. 110.

13. ♂ ad. March 21st, Bushire.

143. ♀ ad. April 9th, Kalah Mushir (6700 ft.).

The specimens agree with typical *M. atricapilla*. I only met with the two specimens noted above, and they were not breeding.

94. *MUSCICAPA GRISOLA* Linn.; Blanf. t. c. p. 143; Sharpe, *Ibis*, 1886, pp. 480 & 494, 1891, p. 110.

250, 273, 275, 294, 416. Ad.

Dr. Blanford says that the Spotted Flycatcher is a common bird throughout the Persian highlands, but I met with it only here and there at various altitudes. It was common in the gardens at Shiraz, but did not appear to have commenced breeding by the middle of May. A female shot on June 6th, near Sadat (6800 ft.), had fairly large eggs in the ovaries.

95. *HIRUNDO RUSTICA* Linn.; Blanf. t. c. p. 215; Sharpe, *Ibis*, 1886, pp. 485 & 497.

52. ♂ ad.

Common in the towns and villages. There were young in the nest at Daliki (about 400 ft.) on March 28th.

96. *HIRUNDO RUFULA* Temm. ; Blanf. t. c. p. 215 ; Sharpe, Ibis, 1886, p. 497.

32. ♂ ad.

The Red-rumped Swallow was locally distributed. Incomplete nests were seen at Daliki (about 400 ft.) on March 28th, at Kazran (2700 ft.) on April 2nd, and at Pul-i-mard (3800 ft.) on April 23rd. The bird seems to line its nest with feathers before the mud portion is finished.

97. *CHELIDON URBICA* Linn. ; Blanf. t. c. p. 216.

107, 174, 175. Ad.

The wings of these specimens are unusually short, as are those of one from Shiraz, in the British Museum. However, I find certain examples in the British Museum from various localities with equally short wings. Measurements of the wings of my specimens and some others are as follows:—

174. ♂.	101 mm.	| ♂. Shiraz.	100 mm.	| ♀. Brighton.	102 mm.
107. ♀.	{ 102 "	| ♂. Lebanon.	102 "	| ♂. "	111 "
175. ♀.		| ♀. Granada.	102 "	| ♂. Gilgit.	111 "

The House-Martin was common about some of the towns and villages, but was unevenly distributed. Great numbers were nesting at the Caravanserai at Mian Kotal (6000 ft.) at the beginning of April. The nests there hung in hundreds from the walls and were often joined together in clusters of six or more.

—98. *COTILE RIPARIA* (Linn.) ; Blanf. t. c. p. 216 ; Sharpe, Ibis, 1886, p. 485.

461, 462. Juv.

A few Sand-Martins were nesting in the steep gravelly bank of a river near Nurabad (about 3600 ft.), but these were the only individuals of this species that I saw.

99. *COTILE RUPESTRIS* (Scop.).

Cotyle (Ptyonoprogne) rupestris (Scop.) ; Blanf. t. c. p. 216. 332, 334, 335. Ad.

These specimens are slightly paler on the breast than is usual with examples from further west.

The Crag-Martin was seen only here and there in the gorges

and where the rocks were perpendicular. They were breeding in such a gorge at the Shir River (7000 ft.) on May 20th.

100. *COTILE OBSOLETA* Cab.

Cotyle (*Ptyonoprogne*) *obsoleta* Cab.; Blanf. t. c. p. 217.

75. ♀ ad.; 443. ♂ juv.

The Pale Crag-Martin seems rare in this part of Persia. I saw a few at Bushire and in the Kotal-i-Dokhter (about 4000 ft.), where they appeared to be breeding in the beginning of April, and also near Basht (4100 ft.).

101. *DENDROCOPUS SYRIACUS* (Hempr. & Ehr.).

Picus syriacus Hempr. & Ehr.; Blanf. t. c. p. 130.

77, 165, 204, 215, 377. Ad.; 352, 431. Juv.

From 2600 ft. upwards, wherever there were trees, this Woodpecker was to be found, often very plentifully. Nests contained young on April 20th at 3400 ft., and on May 29th at 6500 ft., while I saw some fledged young on May 18th at 6000 ft. As I have frequently noticed with *D. major* in England, this species often chooses a place in the trunk of a tree under a bough which has recently been broken off in which to bore its breeding-hole. I suppose that the wood soon becomes softened in such places by the rain. In notes and habits this bird is similar to *D. major*.

102. *DENDROCOPUS MEDIUS SANCTI-JOHAANNIS* (Blanf.).

Picus sancti-johannis Blanf.; Blanf. t. c. p. 133.

80, 81, 160, 313, 397. Ad.; 314, 315, 382, 398, 419. Juv.

The young bird differs from the adult in being much more dully coloured on the head and abdomen, and having the breast speckled with dark brown.

An infertile egg taken from a nest of young was of a dull white colour, and measured 240 × 180 mm.

This near ally of *D. medius* was found only in the oak-woods. I did not observe it below an altitude of 4000 ft., but it was met with as far north as we travelled, viz., about 31° N. lat. It was especially common where the wood was thick, and in some places outnumbered *D. syriacus*.

The bird has a call-note somewhat like the cry of a kitten, but its alarm-note is a reiterated "tack," much like that of

D. major. The young "squawk" in the breeding-hole like those of *D. syriacus* and *D. major*, but not so loudly. A hole examined on April 28th at an altitude of 6700 ft. contained four young about three days old and two infertile eggs.

Fledged young, as well as young in the nest, were seen at an altitude of 7000 ft. on May 18th.

103. *DENDROCOPUS MINOR* (Linn.).

381. ♂ ad. May 30th, near Sisakht (6500 ft.).

This specimen is more or less intermediate between typical *D. minor* and *D. danfordi* (Harg.). It is pale on the breast, whereas *D. danfordi* is almost always dark, but it has profuse striations on the flanks like that form. The branch from the black moustachial stripe, which in typical *D. danfordi* entirely encircles the face and joins the occiput, is in this specimen considerably broken. The bill of the bird is remarkably large, measuring 190 mm. as against 180 mm. in *D. minor* and 175 mm. in *D. danfordi*. Unfortunately I obtained only one specimen, so that it is impossible to say whether these peculiarities are individual or not.

Dr. Blanford did not include *D. minor* in the avifauna of Persia, although he thought it probable that the species was to be found in the Caspian provinces.

I was always searching for the Lesser Spotted Woodpecker, and carefully examined every young *D. sancti-johannis* with my binoculars in the hope of finding it, but I never saw or heard one.

The specimen above mentioned was brought to me by a Persian villager. Usually the Persians and the Ilyats only brought us the commonest things, but this was a notable exception.

104. *GECINUS VIRIDIS* (Linn.).

Gecinus viridis (Linn.); Blanf. t. c. p. 135.

395. Juv. June 1st, near Chinar (6600 ft.).

Unfortunately I obtained only one immature specimen of this bird. Dr. Blanford had one scarcely mature female from the same region, which he described as like *G. viridis*,

but much paler and greyer. The mature birds which I saw, but failed to procure, gave me the impression, even at some distance, of being very grey and unlike *G. viridis*. The young birds of *G. viridis* vary greatly in shades and intensity of coloration, but my specimen is remarkably grey on the mantle, which is only faintly coloured with green, while the under parts have no tinge of green, except perhaps at the vent, where there is a suggestion of that colour.

Green Woodpeckers were very rare in the oak-woods. I saw one or two at three places only (near Aliabad, Sisakht, and Chinar), where there were thick oak-woods at an altitude of between 6500 ft. and 7300 ft.

The note seemed to be exactly like that of *G. viridis*.

105. **CUCULUS CANORUS* Linn.; Blanf. t. c. p. 119; Sharpe, Ibis, 1886, pp. 489 & 498.

The Cuckoo was fairly common at all altitudes, and often in most barren places, from April 1st onwards.

106. *COCYSTES GLANDARIUS* (Linn.); Blanf. t. c. p. 120. 91, 288. Ad.; 401. Juv.

Spotted Cuckoos were met with here and there throughout the oak-woods. They were very common in a river-bed not far from Khan-i-Zinium (near Shiraz). A number of Magpies were breeding in very thick thorn-trees at this place, and the Cuckoos were doubtless using the Magpies as foster-parents. The trees were so thick, however, that it was impossible to climb up to the nests without a great deal of cutting. Major O. B. St. John remarked upon this locality as a favourite one in certain seasons. In some years, he observed, "Spotted Cuckoos are very rare in Persia" (Blanf. l. c.).

107. *CAPRIMULGUS EUROPEUS UNWINI* Hume.

Caprimulgus europæus Linn.; Blanf. t. c. p. 127; Sharpe, Ibis, 1886, p. 487.

280, 432, 433, 434, 435. Ad.

This form is generally smaller and paler than *C. europæus*, and while both these characters are variable, the two together serve to distinguish the races, although rather

unsatisfactorily in regard to specimens from Persia, which sometimes approach the typical *C. europæus* very nearly.

Nightjars were fairly common about Shiraz early in May, and we saw and heard them occasionally in the oak-woods at elevations of between 4000 ft. and 7000 ft. At a camp near Basht (4100 ft.) they were common on June 10th, and were evidently breeding.

108. *CAPRIMULGUS ÆGYPTIUS* Licht. ; Blanf. t. c. p. 128 ; Sharpe, Ibis, 1891, p. 100.

8. ♀ ad. March 21st, Bushire, Persian Gulf.

This specimen from Bushire is very ashy and not so buff on the upper parts as most African specimens. Of the two birds in the British Museum from Fao, one is sandy and the other ashy.

The ovaries of the bird were considerably developed.

109. *UPUFA EPOPS* Linn. ; Blanf. t. c. p. 130 ; Sharpe, Ibis, 1886, p. 498, 1891, p. 110.

321. ♂ ad.

This specimen is rather pale-coloured on its mantle and breast. The Hoopoe was not common, but was fairly evenly distributed. A nest in a hole at the base of a wall at Shiraz contained young on May 10th.

110. *MEROPS APIASTER* Linn. ; Blanf. t. c. p. 122 ; Sharpe, Ibis, 1886, pp. 487 & 498.

263. ♂ ad.

The Common Bee-eater was often seen in great numbers from the coast to an altitude of about 8000 ft. At Dasht-i-arjan (6700 ft.) we saw none until April 12th, when flock after flock passed over, flying northwards. I saw some boring their nesting-holes in a bank at Shiraz on May 6th.

111. *MEROPS PERSICUS* Pall.

Merops ægyptius Forsk. ; Blanf. t. c. p. 123 ; Sharpe, Ibis, 1886, pp. 487 & 498.

451. ♀ ad.

This Bee-eater was rarely seen, and not above an altitude

of 3000 ft. There were a few at Bushire on March 21st, and at Kamarij (2700 ft.) on March 30th, and a good many near Tol-i-safid on June 13th. At the latter place the birds were flying about a river and resting upon high reeds in a swamp.

112. *MEROPS VIRIDIS* Linn.; Blanf. t. c. p. 124.

9. ♀ ad. March 21st, Bushire.

This specimen, which was the only one seen, is of the usual Indian form with blue chin and throat.

113. *CYPSELUS APUS PEKINENSIS* (Swinh.).

Cypselus apus (Linn.); Blanf. t. c. p. 129; Sharpe, Ibis, 1886, p. 498.

289, 413. Ad.

The paler colour of the forehead, wings, and tail of eastern examples of the Swift, although a slight character, is constant and serves to distinguish the two forms. Swifts were fairly common everywhere, and in some places were numerous, from the coast to an elevation of over 7000 ft.

114. *CYPSELUS MELBA* (Linn.).

Cypselus melba (Linn.); Blanf. t. c. p. 130.

414, 415, 458. Ad.

These specimens are rather paler than usual on the upper parts.

The Alpine Swift was very local, but in certain rocky valleys was quite numerous.

115. **ALCEDO ISPIDA* Linn.; Blanf. t. c. p. 121.

Kingfishers, apparently of this species, were seen on a river near Naksh-i-Bahram (3200 ft.), and at a tank near Shahpur at about the same elevation. I failed to procure a specimen.

116. *CERYLE RUDIS* (Linn.); Blanf. t. c. p. 122; Sharpe, Ibis, 1891, p. 111.

448. ♀ ad. June 12th, near Tol-i-safid (3200 ft.).

There are only a few spots at the base of the tail in this specimen, and the streaks on the flanks are few.

The Pied Kingfisher was met with rarely on a few of the streams up to an elevation of 3500 ft.

117. *HALCYON SMYRNENSIS (Linn.); Blanf. t. c. p. 121; Sharpe, Ibis, 1886, p. 488.

This richly-coloured Kingfisher I also failed to obtain, but I saw single birds several times in trees and reeds on the banks of streams, and took careful notes of their colouring by means of my binoculars. They were far too wild to approach. Major St. John observed this Kingfisher in winter at Dasht-i-arjan (6700 ft.), and I saw one at the same place in April.

118. CORACIAS GARRULA Linn.; Blanf. t. c. p. 125; Sharpe, Ibis, 1886, pp. 488, 489, 1891, p. 110.

234, 247, 404, 444. Ad.

The Roller seems to be a summer visitor to Persia. I noticed it at Bushire on March 21st, and after that date we met with a few here and there throughout our journey. Several pairs were breeding in the stone piers of a broken bridge at Pul-i-mard (3800 ft.) on April 23rd, but the holes in the masonry were too deep for me to reach the nests. I did not notice *C. indica*, which is resident on the southern coast according to Dr. Blanford.

119. ATHENE NOCTUA BACTRIANA Hutton.

Athene glaux (Sav.); Blanf. t. c. p. 117.

92, 131, 181, 269, 270, 396. Ad.

This, the palest form of the Little Owl, was fairly common, both in the woods and in the barren rocky country, but it was most abundant in the woods at a comparatively low elevation (between 4000 ft. and 6000 ft.). Although I did not see any young, I think that these birds had already finished breeding at the beginning of April. The bird's cat-like "meow" and its plaintive piping cry were to be heard in the day, but more frequently at nightfall. It often sits on the top of a tree, and will then see an intruder at some distance and fly away, but it will allow him when well hidden to come within a few yards without moving. I have seen it sitting on the telegraph-wires and on rocks in the full glare of the sun.

120. *SCOPS GIU* Scop.; Blanf. t. c. p. 115; Sharpe, Ibis, 1886, pp. 477, 494.

119, 120, 376. Ad.

The Scops Owl is always difficult to hunt out of its hiding-place, and is therefore very seldom seen; while its monotonous note of a single piping whistle uttered at short intervals sounds to me so exactly like that of the Little Owl that I have no idea of its distribution over the country through which we travelled. I obtained a pair which frequented the telegraph rest-house at Dasht-i-arjan (6700 ft.); and near Sisakht (7000 ft.) on May 29th a boy brought me a female and three fresh eggs, which he said that he had obtained from a hole in a house.

121. *SYRNIUM ALUCO* (Linn.).

308. ♂ ad. May 17th, near Aliabad (7300 ft.).

This specimen is very much paler, both on the upper and under parts, than any specimen in the British Museum or at Tring. The feathers of the breast are also more narrowly marked mesially. The plumage is considerably abraded. It would be unwise to make a subspecific separation on the basis of one specimen, but should the Persian Tawny Owl be found to be constant in these peculiarities, I think that it certainly should be separated.

Near Kalah Mushir (6700 ft.) and near Sisakht (6500 ft.) I heard Owls hooting exactly like our Tawny Owl, and near Chinar (6600 ft.) I saw two Owls which appeared to be of this species. I was always on the look out for it, and examined hundreds of suitable holes in the trees in the hope of finding it nesting. The bird is evidently rare, is confined to the oak-woods, and probably to the highest altitudes at which the oak grows. The specimen obtained appears to have finished breeding.

122. **ASIO ACCIPITRINUS* (Pall.); Sharpe, Ibis, 1886, p. 477.

Otus brachyotus (Gmel.); Blanf. t. c. p. 116.

I saw an Owl, which I took to be of this species, on March 21st at Bushire.

123. *TINNUNCULUS ALAUDARIUS* (Gm.); Blanf. t. c. p. 105.
Cerchneis tinnunculus Sharpe, Ibis, 1886, p. 494, 1891,
 p. 104.

304, 310, 331, 400. Ad.

The Kestrel was almost universally distributed and in many places was very common.

124. *TINNUNCULUS CENCHRIS* (Cuv.); Blanf. t. c. p. 106.

109, 110, 330, 402. Ad.

One of the males is quite unspotted on the breast.

The Lesser Kestrel was seen in many places where there were rocky cliffs. It was especially common in a gorge at Shir River near Ardakun (about 7000 ft.).

125. *FALCO SUBBUTEO* Linn.; Blanf. t. c. p. 105; Sharpe, Ibis, 1886, p. 477, 1891, p. 104.

305. ♀; 403. ♀ ad.

The band on the nape of these specimens is of a rich rufous.

There were a few Hobbies in the thickest parts of the oak-woods at high altitudes (above 6000 ft.). I saw one attack a Hooded Crow and a Black Kite one after the other and defeat both most valiantly.

126. *MILVUS MIGRANS* (Bodd.); Blanf. t. c. p. 114.

Milvus korschun Sharpe, Ibis, 1886, p. 476.

319. ♂ ad. May 18th, Aliabad (7300 ft.).

The Black Kite was the only species of Kite obtained. It was nowhere abundant, but a few were seen in most places. It was often in company with the Ravens and Vultures which gathered about the much frequented passes, and especially the steepest where dead animals were always to be found.

A nest with two fresh eggs was found on April 13th near Dasht-i-arjan (6700 ft.).

127. **GYPAËTUS BARBATUS* (Linn.); Blanf. t. c. p. 101.

Every here and there I used to see a Lämmergeyer sweeping in glorious flight over the highest and rockiest hills. Dr. Blanford did not observe it below 4000 ft., but one sailed over my head on March 30th near Kamarij (about

3000 ft.). This individual was the only one that ever came within shot of me, and at the time I was carrying a .410 bore.

128. *ASTUR BREVIPES* Severtz.

Astur (*Micronisus*) *brevipes* Severtz.; Blanf. t. c. p. 109.

309. ♀ ad. May 17th, near Aliabad (7300 ft.).

417. ♂ juv. June 16th, near Sadat (7200 ft.).

In the young bird the brown mesial markings of the breast-feathers are at first drop-shaped, but by the abrasion of the feathers they become lance-shaped before the first moult takes place.

Dr. Blanford did not obtain this Hawk in Persia, but he presumed that a Sparrow-Hawk noted by Major St. John as a bird of passage there was *A. brevipes*.

The bird evidently breeds in this part of Persia, but must, I think, be rare. The female had the ovaries well developed, and the young bird was scarcely able to fly.

129. **CIRCUS ÆRUGINOSUS* Linn.; Blanf. t. c. p. 110.

A pair of Marsh-Harriers were swooping at one another playfully in the marsh at Dasht-i-arjan on April 7th. The place was in every way suitable for them to breed.

130. **CIRCUS MACRURUS* (Gm.); Blanf. t. c. p. 110; Sharpe, Ibis, 1886, p. 476.

I saw a few Pallid Harriers in the plains up to 3000 ft.

131. **GYPS FULVUS* Gmel.; Blanf. t. c. p. 99.

The Griffon was nowhere numerous, probably owing to the scarcity of carrion. The only places in which it was at all common were the "kotals," or steep ladder-like passes, on the road between Bushire and Shiraz. These passes are so steep, and so many thousand heavily laden animals are driven up and down them, that they provide a continual supply of carcasses for carrion-eaters.

The reason given by Dr. Blanford for large birds being so very wild in Persia still holds good. The Persians, and especially the Iliyats, use every large bird that comes in sight as a target for their rifles.

132. *NEOPHRON PERCNOPTERUS (Linn.); Blanf. t. c. p. 101.
The Egyptian Vulture was fairly evenly distributed, but was nowhere numerous.

133. *PHALACROCORAX CARBO (Linn.); Blanf. t. c. p. 298.
One or two Cormorants, apparently of this species, were seen on the Daliki River on March 28th.

134. *PHÆNICOPTERUS ROSEUS Pall.
Phænicopterus antiquorum Temm.; Blanf. t. c. p. 300.
A few Flamingos were seen at Bushire on March 18th.

135. *BRANTA RUFICOLLIS (Pall.).
Anser ruficollis Pall.; Blanf. t. c. p. 303.
A brightly coloured Goose is fairly common at Dasht-i-arjan. They are excessively wild, and everyone with a rifle shoots at them, but they are very rarely hit, I believe. I was told, however, that they had greatly decreased in numbers at this place.

I could not obtain a specimen, nor could Major St. John; but Dr. Blanford puts the bird down as of this species, and I think that he is correct. It has a loud trumpeting note.

+136. *ANAS BOSCAS Linn.; Blanf. t. c. p. 300.

137. *QUERQUEDULA CRECCA (Linn.); Blanf. t. c. p. 301.
There were a few Mallards and a good many Teal in the marsh at Dasht-i-arjan at the beginning of April, but these were the only Ducks of any kind that we saw.

138. *CICONIA ALBA Bechst.; Blanf. t. c. p. 297.

The "Haji," as the Persians call it, was migrating over Dasht-i-arjan (6700 ft.) on April 6th. Near Shiraz, on May 2nd, many had young standing up in the nests on the house-tops, while a number were feeding in the stubbles near Tol-i-safid (about 3500 ft.) on June 13th.

139. ARDETTA MINUTA (Linn.); Blanf. t. c. p. 296.

297. ♀ ad.

The only Little Bittern which we saw was on a marsh near Shiraz on May 3rd. The "shikari" with whom we were walking crept up to it as it was skulking through some rushes, and, throwing his hat at it, knocked it over and caught it.

It was a female, with the ovaries small, and it did not appear to be breeding.

140. GALLINAGO MAJOR (Gm.); Blanf. t. c. p. 282; Sharpe, Ibis, 1886, p. 492.

121. ♂ ad.

I shot one Great Snipe on April 7th in the marsh at Dasht-i-arjan (6700 ft.).

Dr. Blanford had no record of it for Southern Persia. Mr. Cumming obtained it in April at Fao (Sharpe, *l. c.*), and Dr. Scott writes that he shot one or two this winter (1903) in a marsh near Shiraz.

†141. GALLINAGO CÆLESTIS (Frenz.).

Gallinago scolopacinus Bp.; Blanf. t. c. p. 283.

122. ♂ ad.

There were a good many Snipe at Dasht-i-arjan (6700 ft.) on April 7th, and we saw a few on a marsh near Shiraz (5200 ft.) on May 3rd, but by that date most of the birds, which are common there in winter, had left.

†142. MACHETES PUGNAX (Linn.).

Tringa pugnax Linn.; Blanf. t. c. p. 284.

252. ♀ ad.

A remarkably tame Reeve was shot on April 26th on a grassy plateau (7000 ft.) near Dasht-i-arjan.

Dr. Blanford remarks that, according to Eichwald, this bird is found on the Caspian.

143. *TOTANUS CALIDRIS (Linn.); Blanf. t. c. p. 285; Sharpe, Ibis, 1886, p. 492.

I saw and heard Common Redshawks at Dasht-i-arjan (6700 ft.) on April 6th.

†144. TOTANUS OCHROPUS Linn.; Blanf. t. c. p. 285; Sharpe, Ibis, 1891, p. 114.

111. ♂ ad.

A male was shot at Dasht-i-arjan (6700 ft.) on April 6th.

145. TOTANUS HYPOLEUCUS (Linn.).

Tringoides hypoleucus (Linn.); Blanf. t. c. p. 285.

Totanus hypoleucus (Linn.); Sharpe, Ibis, 1891, p. 114.

225. ♂. April 21st, near Naksh-i-Bahram (3300 ft.).

359. ♀. May 25th, Pa Dinar (8000 ft.).

On the banks of the streams there were a few Common Sandpipers. I also saw a good many in the Pa Dinar district (7000 to 8000 ft.) at the end of May, and it seemed likely that the birds might be breeding there, but a male shot on May 25th had the testes small.

Mr. Cumming obtained two immature specimens at Fao on September 10th (Sharpe, *l. c.*).

Dr. Blanford observed it only in winter.

146. *NUMENIUS PHÆOPUS (Linn.); Blanf. t. c. p. 286; Sharpe, Ibis, 1886, p. 492.

+147. *NUMENIUS ARQUATA (Linn.); Blanf. t. c. p. 286; Sharpe, Ibis, 1886, p. 492.

A few seen at Bushire, March 18th.

+148. ÆGIALITIS DUBIA (Scop.); Sharpe, Ibis, 1886, p. 492, 1891, p. 113.

Ægialitis fluviatilis (Bechst.); Blanf. t. c. p. 279.

256. ♂. April 27th, Dasht-i-arjan (6700 ft.).

There were a few Little Ringed Plovers on most of the streams with shingly or sandy beds. Some seen in the Pa Dinar region at the end of May certainly had the appearance of breeding birds, and the male shot at Dasht-i-arjan had the testes considerably swollen.

Dr. Blanford saw a bird near Shiraz in June, and concluded that it "probably breeds on the plateau."

149. CHETTUSIA LEUCURA (Licht.).

Chettusia villotæi (Sav.); Blanf. t. c. p. 280.

Chettusia leucura (Licht.); Dresser, Ibis, 1902, p. 177, pl. vi. figs. 1 & 2 [eggs].

276. ♂; 277. ♂; 278. ♀. May 3rd, Shiraz (5200 ft.).

There were a good number of these Plovers nesting on the short grass on the borders of a marsh near Shiraz on May 3rd.

The eggs, which are much like those of the Lapwing, have already been figured in this journal by Mr. Dresser (*l. c.*). The nest he describes as a mere heap of dry herbage, but

one which I found was like that of a Lapwing, consisting of a little grass lining a "scoop" in the ground. The eggs were three in number, and measured 430×280 , 400×280 , and 410×280 mm. respectively.

The birds were very noisy, and appeared to have much the same actions and flight as the Lapwing.

+150. **HÆMATOPUS OSTRALEGUS* Linn.; Blanf. t. c. p. 281; Sharpe, Ibis, 1891, p. 114.

A few seen at Bushire, March 18th.

151. *LARUS CACHINNANS* Pallas.

Larus argentatus Blanf. (nec Gmel.) t. c. p. 290.

Larus leucophæus Licht.; Sharpe, Ibis, 1891, p. 115.

B. Ad. March 14th, Bandar Abbas, Persian Gulf.

Iris pale straw-coloured, granulated with black; bill greenish grey streaked with dark brown; legs and feet very pale creamy flesh-coloured.

Although this specimen has a dark mantle, the colouring of its soft parts do not altogether correspond with those of the Yellow-legged Herring-Gull.

152. *LARUS HEMPRICHI* (Bruch); Blanf. t. c. p. 292.

A. ♂ ad. March 12th, Maskat.

This Gull was common in the Persian Gulf in March.

153. *LARUS RIDIBUNDUS* Linn.; Blanf. t. c. p. 292.

115. ♂ ad. April 6th, Dasht-i-arjan (6700 ft.).

This specimen is in full summer plumage, and the brown head is of a paler shade than usual.

Dr. Blanford considered this Gull somewhat uncommon on the Baluchistan coast.

From April 6th to 13th I found a considerable flock in the marsh near Dasht-i-arjan (6700 ft.), some 100 miles inland, but the birds had left the place on my return there on April 28th.

154. *STERNA ANGLICA* Montagu; Sharpe, Ibis, 1886, p. 493, 1891, p. 116.

21. ♂ ad. March 22nd, Bushire.

The Gull-billed Tern was fairly common at Bushire,

March 20th–25th. Dr. Blanford did not include this species in the avifauna of Persia, but has mentioned that it was likely to occur there (*t. c.* p. 294).

155. *? *RALLUS AQUATICUS* Linn.; Blanf. *t. c.* p. 288.

While travelling on May 15th near Shul (about 7000 ft.) a Water-Rail, apparently of this species, rose from some rushes in an open grassy place. I winged the bird, but unfortunately failed to find it.

156. *COLUMBA PALUMBUS CASIOTIS* (Bp.).

Columba casiotis (Bp.); Blanf. *t. c.* p. 269.

312. ♂ ad. May 17th, near Aliabad (7000 ft.).

The tips of most of the feathers on the neck-patch of this specimen are white, and at a first glance the bird looks like *C. palumbus*. But on turning up these feathers they are found to be of the buff-colour characteristic of *C. p. casiotis*. Dr. Blanford's specimens obtained in June had the neck-patch buff; the feathers of my bird are much abraded, and this may be the cause of the loss of colour. Unfortunately I did not keep more than one skin, chiefly, I confess, because the bird looked like our Wood-Pigeon and was always much wanted for food. It was fairly common and breeding throughout the oak-woods. There were fresh eggs and young in a nest on June 3rd at 6000 ft.; fledged and fully-grown young on June 10th at 4000 ft. The note and general habits are the same as those of our bird.

157. *COLUMBA INTERMEDIA* Strickl.; Blanf. *t. c.* p. 268.

329. ♂ ad.

This specimen is pale blue-grey on the mantle and rump. We did not see many Rock-Pigeons, and they were always difficult to shoot, and when shot usually managed to fall down some precipitous place whence it was impossible to retrieve them. I am confident that I saw many birds with white rumps breeding in the same places as the grey-rumped birds. Is it possible that the grey-rumped bird is nothing more than an individual variation of true *C. livia*? Domestic Pigeons, even when half-wild, are often grey-rumped.

158. *TURTUR TURTUR ARENICOLA* Hartert, Nov. Zool. 1891, p. 42.

Turtur auritus Gray; Blanf. t. c. p. 270; Sharpe, Ibis, 1886, p. 489, 1891, p. 111.

260, 261, 391, 456. Ad.

My specimens agree exactly with the type (from Fao, Persian Gulf) of this subspecies in the Tring Museum. Compared with *T. turtur*, it is very much paler on the wings and back and much less vinous on the upper breast, while its wing does not measure more than 165 mm., and that of *T. turtur* is not less than 172 mm.

This Turtle-Dove was common in the oak-woods and in cultivated districts, but I did not notice it, as might be expected, in the treeless country nor above 8000 ft. It was plentiful up to 3000 ft. in the first week of April, but had not arrived at Dasht-i-arjan (6700 ft.) by April 15th, and I think that it must spend the winter on the plains near the coast.

A specimen obtained at Dasht-i-arjan is a partial albino.

159. **PTEROCLES ARENARIUS* (Pall.); Blanf. t. c. p. 271; Sharpe, Ibis, 1891, p. 111.

A few Black-breasted Sand-Grouse, presumably of this species, were seen on a sandy plain near Shiraz on May 14th, and between Borazjan and Shif on June 19th.

—160. *COTURNIX COMMUNIS* Bonn.

Coturnix communis Bonn.; Blanf. t. c. p. 278.

Coturnix coturnix (Linn.); Sharpe, Ibis, 1886, p. 489, 1891, p. 111; Ogilvie-Grant, Ann. & Mag. Nat. Hist. (6) x. pp. 167, 170, 171 (1892).

290, 291, 292, 293. ♀ ad. May 4th, Shiraz (5200 ft.).

My specimens are of the form described by Mr. Ogilvie-Grant as intermediate between *C. communis* and *C. capensis*.

I did not see or hear Quail until arriving at Shiraz (5200 ft.) at the beginning of May. They were common in the fields round that town, and I heard them calling in the fertile valley of Ardakun (7400 ft.) on May 20th. I did not notice the bird elsewhere. Dr. Scott, of Shiraz, tells me that

Quail are shot there in January. At Shiraz, an old Persian shikari shewed me an ingenious method of catching Quail. His call was fashioned out of a piece of wood fitted with a brass whistle, which was connected to a drum made of the skin from the head of a Mallard. By tapping twice on the drum, a soft whistle, like the note of the female Quail, is produced. The shikari walks along the corn-fields tapping his call and listening. Presently a male answers, and the shikari, by repeated calls, gradually locates the answering bird and draws nearer to it. When within fifty yards or so of the spot, he stops and spreads a large green net, which rests on the top of the corn or clover, and then lying down with the net between himself and the bird, he continues to make the call. The male rapidly approaches. When within a yard or two of the shikari, it suddenly catches sight of him and flies up into the net. The shikari jumps up excitedly, disentangles the Quail, and, after pulling out all its primaries, carefully puts it away alive into his bag. I have seen male Quail so fascinated by this call that not content to run they flew to it.

161. *FRANCOLINUS VULGARIS* Steph.; Blanf. t. c. p. 273; Sharpe, Ibis, 1891, p. 111.

226. ♂ ad. April 21st, near Naksh-i-Bahram (3400 ft.).

The Francolin or *Durraj*, as it is called in Persian, was common in the marshes near the coast and in the plains near Naksh-i-Bahram and Nurabad, where corn and grass abounded, but I saw it nowhere else. The harsh and frog-like note is unmistakable, so that, although the bird lies very close, its presence can be easily detected.

162. *AMMOPERDIX BONIAMI* (Fraser); Blanf. t. c. p. 274; Sharpe, Ibis, 1886, p. 498.

228. ♂ ad.; 229. ♀ ad. April 22nd, near Pul-i-mard (3800 ft.).

The delicately coloured Sec-see Partridge was very local in its distribution. It was found at various altitudes, but was numerous only in two or three localities, and I did

not notice it in the Dinar region. Rock-strewn hill-sides, whether overgrown with trees or not, seem to be its favourite resort. Its flight, as it swings round a rock or sweeps down a hill-side, is very perplexing to the gunner, especially when he is balancing himself on a toppling boulder. One bird quite puzzled me by disappearing suddenly and then, while I was searching for it, flying up with a whirr from the depths of a narrow crack in the rock.

163. *CACCABIS SAXATILIS CHUKAR* Gray.

Caccabis chukar Gray ; var., Blanford, t. c. p. 275.

Caccabis chukar Gray ; Sharpe, Ibis, 1886, p. 498.

118, 303, 320, 361, 368, 405. Ad. ; 392. Pull.

The Chukars from Western Persia are always exceedingly pale in coloration. The heads of some of my specimens are almost white, and the upper parts of all of them are of a pale ashy grey. A careful examination of the large series of these birds in the British Museum has resulted in a resolution to leave the matter alone so far as further division of the species is concerned. The great variation in the shades of colour of these birds is very puzzling. These are not due, I am sure, to individual peculiarities, for almost every district for some reason seems to produce a form with a slightly different coloration. Birds from Mesopotamia, Turkestan, and other countries are almost as pale as South-west Persian birds ; while those from Eastern Persia are dark, but not so dark as others from some parts of India ; then some are pinker, some greyer, some browner. The causes of these variations are not apparent ; for instance, one would hardly expect from the woods of Western Persia a paler bird than one from the desert-country of Eastern Persia. It would be interesting to make a thorough study of these variations in connexion with the nature of the localities, and especially, I think, with the prevailing colour of the ground from which each variety is derived.

The Chukar was the most widely distributed bird we saw. It was found at all altitudes and in all sorts of country, but I think that it was most numerous on the stony hill-sides,

whether they were treeless or studded with oak. This bird is, of course, almost invariably met with on the ground, but I have seen it perch in trees.

We found fresh eggs on April 25th at 7000 ft., young in down, with both old birds in attendance, at about the same altitude on June 1st, and young fully grown and in small coveys at 4000 ft. on June 15th.

XL.—*Field-notes on some of the Birds of Cyprus.*

By DOROTHY M. A. BATE.

DURING my stay in Cyprus, from May 1901 until November 1902, I was unfortunately unable to devote much time to observing or collecting the birds of the island. Consequently I can contribute very little to the information that we already possess from Dr. Guillemard's two interesting papers which appeared in 'The Ibis' (1888, p. 94, and 1889, p. 206), and Lord Lilford's "List of the Birds of Cyprus" (Ibis, 1889, p. 305). Besides these there is the list given by Drs. Unger and Kotschy in 'Die Insel Cypem' (Wien, 1865), and a paper on the ornithology of Cyprus by Herr Aug. Müller (J. f. O. 1878, p. 390).

On arriving at Larnaka, which is the chief port, the first glimpse of Cyprus, from an ornithologist's point of view, is distinctly discouraging, inasmuch as a large portion of the island consists of flat, or low hilly, country, parched up and almost destitute of vegetation for the greater part of the year. In early days the island was celebrated for its forests "which not only clothed the whole of its mountain-ranges, but covered the entire central plain with a dense mass, so that it was with difficulty that the land could be cleared for cultivation"*. At the present day this great central plain, or "Mesoraë," stretching right across the island, which is about sixty miles broad from Morphou in the west to Famagusta in the east, is practically bare of vegetation after the harvest is over. The only exception is an occasional spot

* Encycl. Brit. vi. p. 747.

near a village, or where a well has been dug, which supplies sufficient water for the cultivation of a garden.

When riding along it is rare to see any birds other than the flocks of Larks which abound in the dusty plain, or a company of Griffon Vultures from the crags of the Kerynia range attracted by some carcase lying on the outskirts of a village. These are sometimes joined by the more uncommon Black Vulture, and occasionally by an Eagle. I distinguished two species of the latter, and I believe them to have been the Imperial and Bonelli's Eagles, both of which were procured by Dr. Guillemard. Again, on Troödos, which rises to 6406 ft., and is the highest point of the range which bears its name, there is but little variety among the birds found in the pine-forest. Several of these are restricted to the forest or descend only a short way below its limits—such are the Jay, Crossbill, Cole-Tit, Creeper, and Wren. Besides these the traveller seldom sees any bird but the Raven, which is extremely common, the ubiquitous Eastern Pied Chat, and a few Warblers, Spotted Flycatchers, Chaffinches, and two or three others. In late autumn, when the Blackbirds and Robins arrive in the island, great numbers are found in the hills, and during a day spent in the forest on Troödos in the latter part of November I could see every few yards a Robin hopping among the undergrowth or searching for food on the ground. Although they are extremely common in the plains, I very rarely saw Hawks at any great height on Troödos, though Vultures were not uncommon, and occasionally an Eagle might be seen sailing past. Two other species which are plentiful in the plains, but which I never saw in the Troödos forest, are the Little Owl and the Magpie; the latter was seen at Prodromo about 4500 ft., but seemingly it does not venture further than the edge of the forest.

The best places for obtaining wild fowl and other marsh-frequenting birds are near Famagusta and Kouklia, in the east of the Mesoræa, and at Morphou in the west; in winter the salt-lakes at Larnaka and Limassol are also visited by a good many water-birds. Warblers are generally seen in numbers only where water is found during the greater part

of the year, as for instance near Papho, where there are several streams lasting into the middle of July, if not throughout the summer. In the spring, when travelling about the Kerynia range, I noticed many small birds in the well-cultivated and watered strip of country running at the foot of the limestone-hills west of the Aghirdhir pass. Another good collecting-ground is to be found among the hills for some distance round the large village of Akanthou, on the northern side of the range, which is much damper and comparatively more fertile owing to its proximity to the sea.

Since 1889, when Lord Lilford's "List" was published, the ornithology of Cyprus appears to have been quite neglected until within the last two or three years, during which Mr. C. Glaszner has been sending specimens to the Vienna and other museums. From his collections Dr. J. von Madarász has described the Scops Owl and the Great Tit of the island as distinct species—*Scops cypria* and *Parus aphrodite* respectively (Termés. Füzetek, xxiv. p. 272). Besides these, he has also separated the Jay (*Garrulus glaszneri*) (Orn. MB. x. p. 163, 1902), the Dipper (*Cinclus olympicus*) and the Crossbill (*Loxia guillemardi*) (Orn. MB. xi., Jan. 1903) as distinct.

During a good winter, and with ample time for observation, I believe that it would not be difficult to make several additions to the "List," especially in the matter of marsh-frequenting birds.

It is hoped that the following notes on a few species may be of interest, as adding a little to our knowledge of their distribution and habits in the island. Before commencing them I should like to take this opportunity of expressing my thanks to Dr. R. Bowdler Sharpe for his continual kindness in furthering my work in the Bird Department of the British Museum (Natural History), and for his and Mr. W. R. Ogilvie-Grant's kind help in determining some of the species.

1. MUSCICAPA GRISOLA.

This bird was found commonly not only in the plains in spring but also on Troödos during the summer.

2. *MONTICOLA CYANUS*.

I found the Blue Rock-Thrush not uncommon in the Kerynia range of hills, on the higher portions and on the northern slopes of which there is always a certain amount of scrubby vegetation, and here and there some water which lasts throughout the summer. This Rock-Thrush evidently breeds in the island, for early in June 1902 I saw several individuals among the ruins of Kantara Castle, one of which could only have left the nest a very short time. I also saw some near Buffa Vento about the same date, and during the winter I observed others in many different places in these hills.

3. *RUTICILLA PHENICURUS*.

I saw a few Redstarts among the pine-trees on Troödos during the summer, and in winter I found them common in the low hills north of Nikosia.

4. *SAXICOLA MORIO*.

This is most certainly, as Lord Lilford remarks, the characteristic Chat of Cyprus, and is one of the commonest birds all over the island from the sea-level to the top of Olympus, over 6000 ft.

Specimens procured on Troödos in summer appear to be unusually dark in colour on the back.

5. *SAXICOLA FINSCHI*.

It seems curious that Dr. Guillemard, during his two visits to Cyprus, should only have met with this Chat once, at Cape Greco in February. In winter I found it not at all uncommon on the lower slopes of the Kerynia range, and also met with it in the Larnaka district, and once near Papho. It evidently arrives in the island about the end of October, as I first saw it at that time both in 1901 and 1902. The latest date on which it was observed in the spring was on March 23rd close to Papho.

I only succeeded in securing one specimen of this Chat (a fine male), for it is very wary, keeping well out of gun-shot, although when riding I was often able to approach it within a few yards.

Though there might be a number of these Chats on a hill-

side, they almost invariably went about singly or at most in pairs. It would seem as if when once an individual settled anywhere it remained within a short distance of the same place, for I noticed that wherever one had been seen I was certain to find it again.

6. *HYPOLAIS PALLIDA*.

This Warbler is very common all over the island, and near Papho numbers of nests were found, built in the brambles and bushes overrunning the steep banks of the streams. Eggs were found hard-set on the 8th of May, but were also procured fresh up to the 4th of June. The old bird sits very closely, almost allowing itself to be touched while on the nest.

7. *SYLVIA MELANOTHORAX*.

Lord Lilford and Dr. Guillemard seem to have found this bird chiefly in the low country wherever there was sufficient scrubby vegetation, though the latter mentions having shot specimens "from the sea-level up to 2000 ft. or more in altitude." Mr. Glaszner has procured specimens from Stavro Vouni, in the Larnaka district, which rises to 2260 ft. above the sea.

There is a specimen in the British Museum, which was procured by Mr. Pearse in November at Kykkou, at about 4300 ft., and in the summer I found the bird common on Troödos at 4600 ft. There it spends its time skulking among the low ilex, arbutus, and other shrubs, moving about always very near to, and sometimes on, the ground.

Thus it is evident that it is distributed over the whole of the island wherever suitable vegetation prevails.

8. *TROGLODYTES CYPRIOTES*.

Anorthura cypriotes, Bate, Bull. B. O. C. xiii. p. 51 (1903).

Unfortunately I have only been able to examine five skins of this bird from Cyprus, but, so far as it is possible to judge from such scanty material, it is believed to be sufficiently distinct to be described as a new species. As already mentioned in the 'Bulletin of the British

Ornithologists Club,' it differs from the typical form in being more extensively barred on both the upper and under surface, while the tail is only slightly more rufous than the back, and in the general brown colour of the upper parts and flanks being of a more chestnut shade. It may be described as follows:—

Head, neck, and back reddish brown, the mantle, entire back, and wing-coverts marked with irregular dusky black bars. Rump and tail only slightly more rufous than the back, the tail marked with slightly irregular dark brown bars, of which there are about nine visible on the central feathers. Lores and ear-coverts lighter than the crown of the head, the latter having darker markings to the feathers. There is also a distinct light eyebrow. Chin, throat, breast, and abdomen pale brownish white, the throat slightly marked with dusky bars, the rest of the under parts crossed by narrow transverse bars of dusky black; under tail-coverts similar, but having strongly marked white tips to the feathers. Flanks and axillaries washed with rufous brown. Primaries dark brown, the outer web darkest and crossed by transverse bars of pale brownish white, which are visible on the under surface. The metacarpal region and under wing-coverts brownish white with narrow, dark brown bars. Irides brown, legs and feet light brown. Total length 3·7 inches; wing 2·8; tail 1·3; culmen 0·55; tarsus 0·65.

One immature specimen is of a much darker colour throughout, and the dusky transverse bars extend over the entire under parts; it closely resembles some of the specimens of *T. neglectus* in the British Museum.

This Wren I found plentiful on Troödos, particularly among the bracken and low bushes by the streams close to Government House and near the government offices, which are about 5300 ft. above the level of the sea. Its range appears to be restricted, for on the southern slopes of the hills I never found it below about 3500 ft., between Kato Platraes and Mandria. At about the same height on the northern side of the range I was told that a nest of this species had been found near Kalapanyoti.

I invariably found this bird close to one of the streams, which on Tröodos are plentiful and perennial.

9. *CERTHIA FAMILIARIS.*

The Creepers from Cyprus are of an interesting dark race which appears to agree with the subspecies, *Certhia familiaris harterti*, from Asia Minor, described by Herr C. E. Hellmayr (J. f. O. 1901, p. 189). It seems to be a constant form, as I have before me a series of seventeen specimens, procured from May to October, all agreeing in coloration with one another. In the British Museum there are two skins from Turin, one from Bordighera, and another from Switzerland, which hardly differ from those from Cyprus. On the other hand, this dark race is not the only form found in Asia Minor.

As, presumably, the Creeper of Cyprus originally came from the same stock as those now found in Asia Minor and the south-east of Europe, it would be interesting if some one who has travelled in these countries could suggest any cause, such as difference in climate, vegetation, &c., which might have led to the sole survival or independent evolution of the darker and the non-occurrence of the lighter form in this island.

It appears to be a very suggestive fact that it is not the Creeper alone that is remarkable for the darkness of its coloration, but also the Cypriote Scops Owl, Jay, Crossbill, Cole-Tit, and Eastern Pied Chat, all of which, with the exception of the last named, have been described as peculiar to Cyprus.

Mr. Heron, of the British Museum, tells me that in the butterflies of Cyprus the colours are, as a whole, richer, and perhaps slightly darker, than in the typical forms, and I have noticed the same thing in a moth—*Zamacra flabellaria*—from this locality*.

It is possible that when the whole fauna of the island comes to be thoroughly worked out this dark coloration may be found a characteristic feature thereof.

It is a well-known general rule that animals inhabiting

* See 'The Entomologist,' vol. xxxvi., May 1903, p. 107.

warm or tropical forest-regions are more richly coloured and contrast markedly with those found in barren or desert countries. This, together with the fact that Cyprus within historic times was well wooded and presumably well watered and fertile, may possibly help to throw some light on what may be the partial persistence of a former general darker coloration in the fauna of the island.

Dr. Hartert, in his key to the Certhiidae (Nov. Zool. 1887, vol. iv. p. 138), gives as the distinguishing characteristic of *C. familiaris* with its subspecies, "Fourth primary with a very pale fulvous mark in the middle of the outer web." This certainly does not obtain in the birds from Cyprus, as in all the seventeen skins which I have examined the pale fulvous mark first occurs on the "fifth" primary. As in *C. f. brachydactyla*, the bill is slightly longer and the hind claw shorter than in the typical *C. familiaris* and the British form.

The Cyprian Creeper is confined to the pine-forests of Troödos, the central range of the island, where it is not uncommon. I do not believe that it is ever seen lower than about 4000 ft., and then only where the edge of the forest extends so far.

10. COCCYSTES GLANDARIUS.

During the spring of 1902, when travelling about the island, I found the Great Spotted Cuckoo not uncommon. It appeared to be most plentiful close to the Kerynia range and among the gardens on the lower slopes of the same hills west of the Aghirdhir Pass. On one occasion when at the Larnaka salt-lake an individual, which was sitting on the low stump of a tree, allowed me to approach within a few yards.

11. CORACIAS GARRULA.

Lord Liford, in his "List," says that this bird "breeds abundantly in Cyprus in soft banks of marl and sand." During the two springs which I spent in the island I found numbers of their "nests," but always in holes in cliffs or in the walls of houses, and never in situations such as he describes.

12. MEROPS APIASTER.

Lord Lilford was informed that these birds finally left the island before the middle of July, but this was contrary to my experience. I shot one on the 17th of July close to Papho, where they were flying about in large numbers, and on the 17th of the following month they were said to be still found on the plains. I was told that about this time they desert the plains and go up to the hills, finally leaving the island about the beginning of October. Certainly I both saw and heard them continually on Troödos during the summer and up to the end of September, but met with none on my return to the plains on the 7th of October.

Although I have seen flocks flying about overhead when I was at an elevation of 5000 ft., I never noticed any of them settling on trees above the edge of the forest, which is about 4000 ft. at the point where these observations were made.

13. PTEROCLES ARENARIUS.

Both Dr. Guillemard and Lord Lilford mention having heard of a Sand-Grouse occurring in Cyprus, but they do not appear to have procured it. The latter includes it in his "List" under the name of *Pterocles alchata*, which is that also given in the lists published by Drs. Unger and Kotschy (Die Insel Cypem, 1865, p. 571) and Aug. Müller (J. f. O. 1879, p. 385). I only succeeded in procuring one specimen, from the bazaar in Nikosia in November 1901, and this proves to be an immature male of *P. arenarius*. Although believing Sand-Grouse to be not uncommon in the central plain, I never saw an example, though I picked up some feathers belonging to this species not far from Nikosia. An individual kept in a cage appeared to be quite tame; but in a wild state they are said to be very shy and difficult to approach, which probably accounts for my failure to get other specimens from the bazaar, for the native sportsman has a great dislike to wasting his powder over a long shot.

I was told that some of these birds remain all the year

round in the Mesoræa, where they breed and where their eggs have been found. It is said that their numbers are increased in the autumn by fresh arrivals in the island.

14. *FRANCOLINUS VULGARIS.*

Soon after arriving in Cyprus I was fortunate enough to see a good many of these handsome birds not far from Papho, and later was shown a nest which had been found

Text-fig. 17.



Nest and Eggs of Francolin.

by a shepherd. This consisted merely of a hollow in the ground lined with dead grass, and was situated under a small bush in the middle of some standing corn. On the 28th of May it contained eleven eggs (see text-fig. 17). The hen bird sat very closely, allowing me to fix my camera within a few yards, and only leaving the nest when I pushed aside some tufts of grass with a long stick, after which she remained close at hand, uttering a shrill and plaintive noise.

15. *FULICA ATRA.*

The Coot is said to have increased largely in numbers since the completion of the irrigation works in the Famagusta district. In October 1901 I saw enormous numbers of these birds on the large reservoir at Kouklia, and made an entry in my note-book to the effect that the water in places was black with them. I was told that they build in the corn-fields round the edge of this water, and that the natives collect and eat great quantities of their eggs.

16. *CICONIA ALBA.*

Apparently the only notice of the White Stork occurring in Cyprus is that made by Lord Lilford in his "List." He writes, that when at Galinaporni, in the Karpass, he saw a large flock of these birds flying landwards from the south, but did not see them alight on the island. On October 27th, 1901, when on the way to Kouklia Marsh I observed three standing in some low-lying cotton-fields, but there being no cover behind which to approach them we failed to secure one. After being fired at they circled overhead and remained in the air for some time, while later we noticed that they had returned and settled again in the same cotton-fields.

XLI.—*On a presumed new Species of Redstart from the Island of Sardinia.* By HENRY H. GIGLIOLI, H.M.B.O.U. &c.

ON the 1st of December, 1902, I received from a correspondent at Lanusei, in the island of Sardinia, two small birds, which were evidently Redstarts, but were quite new to me and caused me no small surprise, being totally different from anything I had seen during well-nigh forty years of experience in Italian ornithology.

They had been captured alive on the 25th of November, 1902, in a haystack during a northerly gale, at Loceri, a village in the hills above Lanusei, in the Ogliastra district, just beneath the Gennargentu mountain group, on the east side of Sardinia. The shepherd who caught them put them

alive into a lamp or lantern, not having a cage, and took them down to Lanusei to my correspondent Signor Meloni, who bought them while yet alive but in a bad plight with soiled and ruffled plumage. He tried to revive them, but was unsuccessful, so he skinned them and at once sent me the two skins and fortunately the bodies also, which he had dipped in alcohol. He had determined the sexes himself, and is a reliable person; it was well that he did so, for when I examined the bodies I was only able to confirm the sex in the male, in the female the genital organs had been taken out along with the viscera.

The most striking character of these birds is the colour of their plumage, for both male and female are entirely of a sooty black, the tail-feathers alone shewing traces of the orange-brown so characteristic of the genus *Ruticilla*. At first sight I thought that they were specimens of *R. titys*, dyed black; but a closer inspection dispelled this idea at once; and I felt puzzled at the strange and unexpected case, though I was fully convinced that the two birds before me were specimens of a distinct and hitherto undescribed species, for which I have suggested the appropriate name of *Ruticilla nigra**

The two skins were quite fresh, but in a rather ruffled condition; the orange-yellow of the inside of the mouth was fresh and brilliant. The generic characters were patent, and there could be no doubt that the birds belonged to the genus *Ruticilla*. I had them mounted, and the pectoral arch and sternum of each prepared; I also got a sternum of an adult male *R. titys*, for comparison. Finally, I wrote to Signor Meloni asking him to get me, if possible, more specimens of this singular bird, but up to the present he has not been successful in doing so. The two specimens, adult male and female, types of *Ruticilla nigra*, are now in the Central Collection of Italian Vertebrates in the Royal Zoological Museum at Florence, where they bear respectively the Nos. 3906, 3907 of the Bird Series.

I shall now give briefly the distinctive characters of this

* See Bull. B. O. C. xiii. p. 79 (1903).

new form, comparing it with *R. titys*, which appears to be its nearest ally.

Compared with the last-mentioned species, the general dimensions of *R. nigra* are decidedly less, as will be seen clearly from the measurements given below.

In the *male, evidently adult in full autumn plumage*, the general colour of the upper parts is deep black slightly glossed with dark olive on the back; quills black, the outer webs of the secondaries narrowly margined with dark grey; wing-coverts black; upper tail-coverts of a dull blackish orange-brown; tail-feathers of the same colour, especially on the basal portion of their inner webs, becoming of a sooty brownish black towards their extremities, the two central entirely of this colour; the shafts of all the tail-feathers are, however, orange-brown, brighter on the underside, where the dirty orange-brown of the webs is more widespread and evident. Throat, sides of head and neck, breast, flanks, under wing-coverts, and axillaries deep black with a very slight olivaceous sheen; inner margin of quills greyish; abdomen and vent grey tinged with black; under tail-coverts blackish-olive. Bill, legs, feet, and claws black; inside of mouth orange-yellow; eyelids black.

	<i>Ruticilla nigra.</i>		<i>Ruticilla titys.</i>	
	♂. mm.	♀. mm.	♂. mm.	♀. mm.
Length of wing	83	83	86	84
" tail	62	62	65	60
" culmen	10	9½	11	10
" tarsus	22	21½	24	23

The *adult female in full autumn plumage* differs very slightly from the male, and this constitutes one of the main features of this extraordinary species, for it is quite exceptional in the genus *Ruticilla*, in all the other known species of which the plumage is notably different in the adults of either sex. In *R. nigra* the coloration of the female is the same as that of the adult male, only the black on the upper and on the under parts is slightly duller, and on the latter the greyish tinge and olive gloss are more marked;

the grey margins of the secondaries are more apparent on the wings, and the tail-feathers are somewhat darker. The measurements compared with those of two adult examples of *R. titys* are given above (p. 583).

The comparison of the sternum of the two species has shown differences far greater than I ever expected to find in members of the same genus, especially in a "compact" genus such as *Ruticilla*, in which the species are so closely allied.

Thus, in *R. titys* the pectoral arch is more robust in its general characters, for, in both sterna of *R. nigra*, we observe the more slender and less curved *clavicles*, and the shorter and thinner *scapulæ*; the *coracoids* are, however, decidedly longer than in *R. titys*, but have a less prominent crest. The *sternum* is narrower than in the latter species and longer, the difference being quite a millimetre; finally, the *pre-sternum* or *manubrium* is also larger in *Ruticilla nigra* and the *episternal apophyses* are larger and more slender. On the whole, we may say that the sternum is more robust in *R. titys*, slighter and more slender in *R. nigra*.

XLII.—*A Contribution to our Knowledge of the Birds occurring in the Southern Shan States, Upper Burma.* By Lt.-Col. C. T. BINGHAM.

(Plates XI. & XII.)

IN the 'Journal of the Asiatic Society of Bengal,' vol. lxxix. pt. ii. (1900), Mr. H. N. Thompson, Deputy-Conservator of Forests, and I gave a list of the birds collected or observed by us during a short tour we made in the Southern Shan States, Upper Burma. Since my return to England, Mr. Thompson has continued collecting and in company with Mr. W. H. Craddock, also of the Forest Department, who has materially assisted him, has visited various parts of the same States, including the remote and little-known valley of the Mékong, and the high ranges, rising to 8000 or 9000 ft., between that valley and the Salween. Messrs. Thompson and Craddock have been good enough to forward their collection to me. It contains examples of many species not seen or

obtained by Mr. Thompson and myself previously, including two new species of *Suthora* and a *Urocichla* very distinct from the two forms recorded respectively from Sikhim and the hills of Assam. In addition, a number of species that were obtained by us on Loi San Pa, in the Mōng Kōng State, are recorded over a wide range from Byinkyi Mountain, close to the border of the Pyinmana district in the west, to the Mékong Valley on the eastern frontier of the States.

The area in which this collection was made may be roughly said to extend from 18° to 21° N. lat., and from 97° to 99° 30' E. long., though only an occasional place, generally a high mountain, was actually investigated over this vast extent of country.

My best thanks are due to Messrs. Thompson and Craddock for kindly entrusting me with their collection, and to Dr. R. Bowdler Sharpe for great assistance in the identification of the specimens.

The species not included in the list given in the 'Journal of the Asiatic Society of Bengal,' mentioned above, are marked with an asterisk. The numbers in parentheses refer to the 'Fauna of British India: Birds.'

Family CORVIDÆ.

1 (25). GARRULUS LEUCOTIS Hume.

Oates, Faun. Brit. Ind., Birds, i. p. 39.

Pang Paw, 4000 ft., 8.11.01. Ranges up to 6000 ft.

2 (32). PARUS MINOR Temm. & Schleg.

Oates, Faun. Brit. Ind., Birds, i. p. 48.

Loi Maw, 6000 ft., 5.4.02. Differs from specimens previously procured at Kalaw and Loi San Pa, and is identical with those from Tenasserim so far as the extent of the green on the neck is concerned.

*3. ÆGITHALISCUS PULCHELLUS Rippon.

Rippon, Bull. B. O. C. xi. p. 11 (1900); Ibis, 1901, p. 528, pl. xi. fig. 2.

Ménétaung, 6000 ft., 26.1.02; Loi Un, Loi Sali range, 10.1.01. Numerous specimens.

4 (41). *MACHLOLOPHUS SPILONOTUS* (Blyth).

Oates, Faun. Brit. Ind., Birds, i. p. 54.

Loi Un, Loi Sali range, 5000 to 7000 ft., 7.1.01. Numerous specimens.

5 (52). *PARADOXORNIS GUTTATICOLLIS* A. David.

Loi Moheng, 7000 ft., 26.1.02.

Ordinarily this bird is found in high grass and reeds, but Mr. Craddock notes that the specimen sent was shot in dense evergreen jungle.

*6. *SUTHORA THOMPSONI*. (Plate XI. fig. 2.)

Suthora thompsoni Bingham, Bull. B. O. C. xiii. p. 63 (1903).

“♀. Resembles *S. davidiana* Slater, from Fohkien, but is distinctly smaller and differs in the points noted below. Forehead, crown, sides of the head, and nape chestnut, of a much deeper colour than in *S. davidiana*, and not, as in that species, extending to the upper back, the chestnut colour being somewhat paler along the posterior margin of the nape; back, rump, and wing-coverts clear, rather dark, ashy grey; wings brown, primaries and secondaries with narrow outer margins of light chestnut; upper tail-coverts and outer webs of the tail-feathers chestnut, of a lighter shade than the colour of the head, inner webs of tail-feathers brown; chin and throat uniform deep black, without the white spots so conspicuous in *S. davidiana*; upper breast albescent; lower tail-coverts and tail beneath ochraceous. Bill (in the skin) yellow, (in the flesh) ‘fleshy pink; irides reddish brown; legs and feet fleshy yellow’ (*Craddock*).

“Length, ♀, 3·7”–3·8”, wing 2·1”, tail 1·45”, bill from gape 0·3”, tarsus 0·65”.”

Kyatpyin, Paunglaung, 2500 ft., Loilong State, 18.3.02.

*7. *SUTHORA CRADDOCKI*. (Plate XI. fig. 1.)

Suthora craddocki Bingham, Bull. B. O. C. xiii. p. 54 (1903).

“♂. Forehead, crown, nape, back, rump, and upper tail-coverts orange-brown, shaded on the nape and back with olive-brown; wings brown, the primaries edged externally



W. B. Hoopes sculp. and del.

Western Bros. imp.

1. *SPIZELLA CRADDOCKI*
2. *SPIZELLA THOMPSONI*

with white, the secondaries all broadly edged with bright orange-brown; the primary-coverts brown, forming a conspicuous patch on the upper portion of the wing; tail brown, the outer webs of the feathers bright orange-brown for three-fourths of their length from base; lores, cheeks, and a long supercilium white, the white of the cheeks extending to the neck; ear-coverts brown; chin and throat black, shading into grey on the upper breast; abdomen and under tail-coverts bright orange-brown, flanks anteriorly more or less white: upper mandible horny, lower mandible fleshy yellow; legs and feet in life apparently fleshy brown.

“Length about 4", wing 1 8", tail 1·9", bill from gape 0·3", tarsus 0·7".”

Valley of the Mékong River at 8500 ft., April 1902.

*8 (61). *SCÆORHYNCHUS GULARIS* (Horsf.).

Oates, Faun. Brit. Ind., Birds, i. p. 69.

Byinkyi, Loilong State, 4500 ft., 10.3.02. ♂. “Length in the flesh 7·5". Iris reddish brown, legs dull green.”

Family CRATEROPODIDÆ.

9 (64). *DRYONASTES CHINENSIS* (Scop.).

Oates, Faun. Brit. Ind., Birds, i. p. 74.

Wanhat, Cis-Salween, Mawkmai, 1200 ft., 3.1.01.

I never found this bird common, though it occurs over a wide range, and at elevations from 500 ft. to 5000 ft.

10 (67). *DRYONASTES SANNIO* (Swinhoe).

Oates, Faun. Brit. Ind., Birds, i. p. 76.

Méncétaung, 6000 ft., 20.1.02; Loi Kaw, 4500 ft., 8.4.02.

*11 (71). *GARRULAX DIARDI* (Less.).

Oates, Faun. Brit. Ind., Birds, i. p. 79.

Pan Long, Wanhat Circle, Cis-Salween, Mawkmai, 1200 to 1500 ft., 3.1.02. Four specimens.

12 (72). *GARRULAX PECTORALIS* (Gould).

Oates, Faun. Brit. Ind., Birds, i. p. 80.

Loi Sali range, 5600 ft., 5.1.01. Has a wide range, and occurs plentifully both in the low hot valleys and at heights up to 6000 ft.

13 (86). *TROCHALOPTERUM MELANOSTIGMA* (Blyth).

Oates, Faun. Brit. Ind., Birds, i. p. 92.

Yengyi Palaung, 5000 ft., 11.1.02; Loi Maw, 6000 ft., 4.4.02; Loi Pangnaw, west of the Mékong, 8400 ft., April 1902. ♀ ♂.

This species seems to vary very much in the colour of the under parts and of the tail. The specimen from Loi Maw has the "ferruginous" or reddish-brown colour of the throat extending to the breast and faintly over the abdomen, the tail being dark greyish brown, its margins washed with green. Among the Mékong specimens, on the contrary, some have only the throat reddish brown, others have that colour extending to the upper breast; while the tail in all is green or dark greyish brown, washed all over, and not only on the margins, with green. Quite recently, also, Mr. Craddock, who is now in Pahang, Malay Federated States, has kindly sent me a specimen of this bird which has the whole of the under parts from the chin to the under tail-coverts very dark ferruginous brown, the tail brown above washed with olive-yellow, and black beneath.

14. *TROCHALOPTERUM RIPPONI* Oates.

Oates, Bull. B. O. C. xi. p. 10 (1900); Ibis, 1901, p. 529, pl. xi. fig. 1.

Ménétauung range, Loilong State, 5000 to 6000 ft., 23.1.02.

Trocnalopteron ripponi is a race of *T. phæniceum* (Gould), under which name I recorded it in my previous paper on the birds of the Shan States. I there, however, drew attention to the differences between it and true *T. phæniceum*.

*15 (117). *POMATORHINUS NUCHALIS* Tweed.

Oates, Faun. Brit. Ind., Birds, i. p. 117.

Kanlaung chaung, Loilong State, 1000 ft., 19.3.02; south of Homam, Mawmai State, 4500 ft., 14.5.02; Kalaw, 4200 feet, 22.1.02; Pyaunggaung, 2500 ft., Dec. 1900. ♂ ♂ ♀.

These examples, though not typical, agree best both with the description and with the type specimen of *P. nuchalis* Tweeddale. This is a most puzzling bird, varying greatly

in total length, in size of bill, and in the depth and amount of chestnut or brown streaks on the sides of the neck and upper breast. The total length varies in the six specimens from 7.1" to 9.5", the bill from the gape from 0.98" to 1.2".

*16 (126). *POMATORHINUS OCHRACEICEPS* Wald.

Oates, Faun. Brit. Ind., Birds, i. p. 123.

Byinkyi, 5000 ft., 10.3.02.

17 (129 a). *POMATORHINUS IMBERBIS* Salv.

Oates, Faun. Brit. Ind., Birds, iv., App. p. 479.

Loi Maw, 5000 ft., 4.4.02; Yengyi Palaung, 5200 ft., 11.1.02.

18 (145). *PELLORNEUM SUBOCHRACEUM* Swinh.

Oates, Faun. Brit. Ind., Birds, i. p. 142.

Taunggyi, 5000 ft., 6.8.1900; Thaton State, 3000 ft., 29.3.02.

19 (151). *DRYMCATAPHUS TICKELLI* (Blyth).

Oates, Faun. Brit. Ind., Birds, i. p. 146.

♀. Hlwegyi chaung, Loilong State, 2000 ft., 11.3.02.

20. *DRYMCATAPHUS CINNAMOMEUS* Rippon.

Drymcataphus cinnamomeus Rippon, Bull. B. O. C. xi. p. 12 (1900).

Kaungpho, Ménétaung, 6000 ft., 26.1.02.

21 (153). *CORYTHOCICHLA BREVICAUDATA* (Blyth).

Oates, Faun. Brit. Ind., Birds, i. p. 148.

Taunggyi, 5000 ft., 1.7.1900; Byinkyi, Loilong State, 5000 ft.; Kalaw, 4000 ft., 15.2.02; Loi Maw, 4500 ft., 7.4.02; Pinlikun, Loilong State, 23.3.02.

*22 (165). *ALCIPPE PHAYRII* Blyth.

Oates, Faun. Brit. Ind., Birds, i. p. 158.

Yatsawk, 2000 ft., 10.12.01; Ménétaung, 5500 ft., 20.1.02; Pyaunggaung, 4000 ft., 1.12.1900.

The specimens seem to me intermediate between typical *A. phayrii*, such as I was familiar with in Tenasserim, and the recently described *A. fratercula* of Rippon (Bull. B. O. C. xi. p. 11, 1900).

*23 (169). *STACHYRIS NIGRICEPS* Hodgs.

Oates, Faun. Brit. Ind., Birds, i. p. 162.

♂. Kanlaung chaung, Loilong State, 1000 ft., 19.3.02.

*24 (171). *STACHYRIS ASSIMILIS* Wald.

Oates, Faun. Brit. Ind., Birds, i. p. 163.

Byinkyi, Loilong State, 5500 ft., 9.3.02, ♂; Loi Pang Naw, near the Mékong River, 6500 ft., April 1902.

25 (176). *MIXORNIS RUBRICAPILLUS* (Tick.).

Oates, Faun. Brit. Ind., Birds, i. p. 167.

Mawkmai State, 3000 ft., 21.5.02.

26 (182). *SITTIPARUS CASTANEICEPS* (Hodgs.).

Oates, Faun. Brit. Ind., Birds, i. p. 172.

Ménétaung, 6000 ft., 26.1.02; Loi Un, Loi Sali range, 5500 ft., 6.1.01; Loi Maw, 6000 ft., 3.4.02; Loilong State, 5500 ft., 26.3.02.

I have never seen this pretty little Tit-Babbler under an elevation of 5000 ft.

27 (188). *MYIOPHONEUS EUGENII* Hume.

Oates, Faun. Brit. Ind., Birds, i. p. 179.

Hwè Heng, Mong Hta, 3000 ft.

*28 (197). *DRYMOCHARES CRURALIS* (Blyth).

Oates, Faun. Brit. Ind., Birds, i. p. 188.

Ménétaung, 6000 ft., 9.1.02.

*29 (201). *TESIA CYANIVENTRIS* Hodgs.

Oates, Faun. Brit. Ind., Birds, i. p. 192.

Mékong Valley, 2000 ft., 10.1.02.

30 (203). *SIBIA PICAOIDES* Hodgs.

Oates, Faun. Brit. Ind., Birds, i. p. 195.

Loi Pang Naw, 7500 ft., April 1902.

31 (208). *LIOPTILA ANNECTENS* Blyth.

Oates, Faun. Brit. Ind., Birds, i. p. 199.

Ménétaung, 5500 ft., 23.1.02.

*32 (218). *STAPHIDIA STRIATA* (Blyth).

Oates, Faun. Brit. Ind., Birds, i. p. 206.

♀. Byinkyi, 5500 ft., 10.3.02.

Four specimens of this rare bird were obtained by Mr. Craddock; one a female, with nest and eggs. "Nest of moss lined with fibres placed on road-cutting near Byinkyi, 5500 ft." The eggs are broad ovals, $0.7'' \times 0.55''$ and $0.71'' \times 0.55''$, white, with a faint wash of pale blue, spotted thickly at the broad end, where the markings are more or less confluent, with brown and purple.

*33 (220). *SIVA CASTANEICAUDA* Hume.

Oates, Faun. Brit. Ind., Birds, i. p. 209.

Loi Pang Naw, 8000 ft., west of the Mékong, April 1902. Several specimens.

*34 (227). *ZOSTEROPS AUREIVENTER* Hume.

Oates, Faun. Brit. Ind., Birds, i. p. 215.

Ménétaung, 6000 ft., 13.1.02.

Zosterops simplex Swinh., so common at Kalaw and on Loi San Pa, seems not to have been obtained in the Mékong valley.

*35 (232). *IXULUS FLAVICOLLIS* (Hodgs.).

Oates, Faun. Brit. Ind., Birds, i. p. 218.

Loi Pang Naw, from 6500 to 8000 ft., April 1902. Several specimens.

*36 (233 a). *IXULUS CLARKI* Oates.

♀. Byinkyi, 5500 ft., Loilong State, 9.1.02.

*37 (234). *HERPORNIS XANTHOLEUCA* Hodgs.

Oates, Faun. Brit. Ind., Birds, i. p. 219.

The locality is not given, but the bird was probably procured in one of the low hot valleys.

38 (236). *CUTIA NEPALENSIS* Hodgs.

Oates, Faun. Brit. Ind., Birds, i. p. 222.

Ménétaung, 6000 ft., 3.1.02; Loi Maw, 6000 ft., 3.4.02. Two pairs.

*39 (237). *PTERUTHIUS ERYTHROPTERUS* (Vigors).

Oates, Faun. Brit. Ind., Birds, i. p. 224.

♂♂. Loi Un, Loi Sali range, 6000 ft., 3.4.02.

40 (238). *PTERUTHIUS AERIALATUS* Tick.

Oates, Faun. Brit. Ind., Birds, i. p. 225.

Loi Sali range, 5400 ft., 5.1.01; Yengyi Palaung, 5200 ft., 10.1.02.

*41 (239). *PTERUTHIUS MELANOTIS* Hodgs.

Oates, Faun. Brit. Ind., Birds, i. p. 226.

Loi Pang Naw, west of the Mékong, 8000 ft., April 1902.
A pair.

42 (243). *ÆGITHINA TIPHIA* (Linn.).

Oates, Faun. Brit. Ind., Birds, i. p. 230.

Thaton State, 4000 ft., 27.4.02.

43 (249). *CHLOROPSIS HARDWICKII* Jard. & Selby.

Oates, Faun. Brit. Ind., Birds, i. p. 236.

Panghi, Loi Sali range, 4200 ft., 4.1.01; Loi Maw, 4000 ft., 8.4.02; Ménétaung, 6500 ft., 26.1.02.

44 (257). *MESIA ARGENTOURIS* Hodgs.

Oates, Faun. Brit. Ind., Birds, i. p. 244.

Byinkyi, 5500 ft., 8.3.02.

45 (261). *PSAROGLOSSA SPILOPTERA* (Vigors).

Oates, Faun. Brit. Ind., Birds, i. p. 249.

Yengyi Palaung, 5200 ft., 4.1.02.

*46 (264). *CRINIGER BURMANICUS* Hume.

Oates, Faun. Brit. Ind., Birds, i. p. 256.

Mawkmai State, 2000 ft., 15.4.02.

47 (270). *HYPSIPETES CONCOLOR* Blyth.

Oates, Faun. Brit. Ind., Birds, i. p. 261.

Ménétaung range, 6500 ft., 27.1.02; Loi Kaw, 4500 ft., 8.4.02.

48. *CERASOPHILA THOMPSONI*. (Plate XII.)

Cerasophila thompsoni Bingham, Ann. & Mag. Nat. Hist.

(7) v. 1900, p. 358.

♂ ♀. "The whole head and neck snow-white, the white of these parts abruptly defined from the colour of the back and breast, but extending further down on the upper back than on the sides of the neck and breast; the back, rump,



J. J. Kennerly del. et lith.

Mintern Bros. imp.

CERATOPHILA THOMPSONI

upper tail-coverts, wing-coverts, scapulars, the outer webs of the two inner secondaries, the breast, sides, and abdomen clear ash-grey; the primaries, secondaries (with the exception noted above), and the tail hair-brown; the vent and under tail-coverts light bright chestnut; the under wing-coverts and axillaries, the lower portion of the abdomen, and some of the lower feathers on the thighs pale grey with a wash of light chestnut. Bill, legs, and feet coral-red; claws horny; a bare patch of skin round the eyes, conspicuously wider below the eye than above it. greyish, tinged with yellow, the eyelids with a rim of bright vermilion-red; iris whitish yellow to pale yellow.

"The sexes are alike in plumage, and differ only very slightly in size. Dimensions in the flesh:—

"♂. Length 7·8", wing 3·8", tail 3·8", tarsus 0·7", bill from gape 0·85".

"♀. Length 7·8", wing 3·7", tail 3·85", tarsus 0·7", bill from gape 0·85"."

Kaunghpo, Ménétaung range, 6000 ft., 25.1.02.

It is remarkable that this conspicuous bird was not obtained on the high range dividing the Salween and Mékong valleys. It was procured first on Loi San Pa at and above 6000 ft.; Col. Rippon obtained it from Na Noi; and Mr. Craddock has now sent it from the high hills in the west of the Shan States.

*49 (274). *HEMIXUS HILDEBRANDI* Hume.

Oates, Faun. Brit. Ind., Birds, i. p. 264.

Foot of watershed between Mông Kyat and Mông Hang, 3600 ft., 6.2.01.

50 (275). *HEMIXUS MACCLELLANDI* (Horsf.).

Oates, Faun. Brit. Ind., Birds, i. p. 265.

Ménétaung, 6000 ft., 24.1.02; Loi Kaw, 5000 ft., 5.4.02; Loi Maw, 6000 ft., 4.4.02.

*51. *HEMIXUS HOLTII* (Swinh.).

Loi Pang Naw, 6000 ft., April 1902.

This is the species, I think, separated by Mr. Hartert as a subspecies of *H. tickelli* under the name *H. tickelli*

binghami. It agrees fairly well with specimens of *H. holti* in the British Museum.

52 (277). *ALCURUS STRIATUS* (Blyth).

Oates, Faun. Brit. Ind., Birds, i. p. 266.

Salween-Mékong watershed, 7000 ft., 16.2.01.

53 (287). *XANTHIXUS FLAVESCENS* (Blyth).

Oates, Faun. Brit. Ind., Birds, i. p. 275.

Byinkyi, 5500 ft., 9.3.02; Loi Sali, Mawkmai State, 5000 ft., 5.1.01.

54 (292). *SPIZIXUS CANIFRONS* Blyth.

Oates, Faun. Brit. Ind., Birds, i. p. 280.

Ménétaung, 6000 ft., 12.1.02.

55 (296). *IOLE VIRESCENS* Blyth.

Oates, Faun. Brit. Ind., Birds, i. p. 284.

Foot of watershed between Möng Kyat and Möng Hang, 3500 ft., 6.2.01.

Family SITTIDÆ.

*56 (315). *SITTA HIMALAYENSIS* Jard. & Selby.

Oates, Faun. Brit. Ind., Birds, i. p. 300.

This species, so far as I know, has not previously been procured in Burma.

57 (318). *SITTA NAGAENSIS* Godw.-Aust.

Oates, Faun. Brit. Ind., Birds, i. p. 302.

Loi Un, Loi Sali range, 5600 ft., 7.1.01.

58 (319). *SITTA MAGNA* Wardl. Rams.

Oates, Faun. Brit. Ind., Birds, i. p. 303.

This bird does not seem to be rare at an elevation of 6000 ft. and upwards. Over a dozen specimens were obtained at various localities, from Ménétaung, in the Loilong State in the west, to the Mékong Valley on the eastern frontier of the Shan States.

*59 (324). *SITTA FORMOSA* Blyth.

Oates, Faun. Brit. Ind., Birds, i. p. 306.

Salween-Mékong watershed, east of Möng Hang, 7000 ft., 16.2.01.

60 (325). *SITTA FRONTALIS* Horsf.

Oates, Faun. Brit. Ind., Birds, i. p. 307.

Loi Un, Loi Salii range, 5000 ft., 8.1.01.

Family DICRURIDÆ.

61 (339). *BHRINGA REMIFER* (Temm.).

Oates, Faun. Brit. Ind., Birds, i. p. 324.

Loi Un, Loi Salii range, 5000 ft., 8.1.01.

Smaller than typical *B. remifer*, with metallic-green, not violet, gloss.

Family CETHIIDÆ.

62 (344). *CERTHIA DISCOLOR* Blyth.

Oates, Faun. Brit. Ind., Birds, i. p. 331.

Pang Paw, Mawkmai State, 4800 ft., 11.11.01; Loi Pang Naw, near Mékong, 7000 to 7500 ft., April 1902.

*63. *UROCICHLA REPTATA* Bingham.

Urocichla reptata Bingham, Bull. B. O. C. xiii. p. 55 (1903).

“♂. Entire upper plumage umber-brown, the posterior margins of the feathers of the head, back, rump, wing-coverts, and upper tail-coverts narrowly barred with black, giving a squamate appearance to the plumage; wings and tail pale brown, the primaries and secondaries edged with brighter umber-brown; lores, ear-coverts, and chin ashy grey; throat, breast, and flanks umber-brown, the feathers on the throat and upper breast rather indistinctly speckled with grey; middle of the abdomen dark bluish grey; vent and under tail-coverts umber-brown. Bill horny; legs and feet in life apparently fleshy brown.

“Length 4.5”, wing 1.8”, tail 1.5”, bill from gape 0.55”, tarsus 0.7”.”

♂. Loi Pang Naw, Mékong Valley, 8300 ft., April 1902. Shot in dwarf bamboo.

*64 (357). *PNOEPYGA PUSILLA* Hodgs.

Oates, Faun. Brit. Ind., Birds, i. p. 343.

Loi Un, Loi Salii range, 5000 ft., 11.1.01.

Family SYLVIIDÆ.

65 (414). *PHYLLOSCOPUS PULCHER* (Hodgs.).

Oates, Faun. Brit. Ind., Birds, i. p. 407.

Ménétaung, 6000 ft., 7.1.02; Loi Pang Naw, 7000 ft.,
April 1902.

*66 (432). *CRYPTOLOPHA TEPHROCEPHALA* (Anderson).

Oates, Faun. Brit. Ind., Birds, i. p. 423.

Cheindaungkyi, Loi Maw, 5000 ft., 23.1.02.

Family LANIIDÆ.

67 (474). *LANIUS COLLURIOIDES* Less.

Oates, Faun. Brit. Ind., Birds, i. p. 462.

Thaton State, 4000 ft., 27.4.02.

*68 (477). *LANIUS TEPHRONOTUS* (Vigors).

Oates, Faun. Brit. Ind., Birds, i. p. 465.

Mong Hta, 2.2.01.

*69 (481). *LANIUS CRISTATUS* Linn.

Oates, Faun. Brit. Ind., Birds, i. p. 468.

Mawkmai State, 2000 ft., 8.12.01.

*70 (485). *HEMIPUS CAPITALIS* (McClelland).

Oates, Faun. Brit. Ind., Birds, i. p. 472.

Kaunghpo, Ménétaung, 6000 ft., 26.1.02.

*71 (491). *PERICROCOTUS FRATERCULUS* Swinh.

Oates, Faun. Brit. Ind., Birds, i. p. 481.

West of Pinlaung, Loilong State, 4000 ft., 23.2.02.

Family ORIOLIDÆ.

72 (515). *ORIOLOUS TENUIROSTRIS* Blyth.

Oates, Faun. Brit. Ind., Birds, i. p. 503.

♂. Loi Un, Loi Salii range, 5600 ft., 7.1.01.

This specimen has all the appearance of a hybrid between
O. indicus and *O. tenuirostris*.

73 (521). *ORIOLOUS MELANOCEPHALUS* Linn.

Oates, Faun. Brit. Ind., Birds, i. p. 506.

South of Honan, Mawkmai State, 4500 ft., 14.5.02.

74 (522). *ORIOLOUS TRAILLI* (Vigors).

Oates, Faun. Brit. Ind., Birds, i. p. 508.

Panghi, Loi Sali range, 4000 ft., Mawkmai State, 5.1.01.

Family EULABETIDÆ.

75 (524). *EULABES INTERMEDIA* (A. Hay).

Oates, Faun. Brit. Ind., Birds, i. p. 511.

Ménétaung, 6000 ft., 26.1.02.

Family MUSCICAPIDÆ.

76 (560). *SIPHIA STROPHIATA* Hodgs.

Oates, Faun. Brit. Ind., Birds, ii. p. 8.

Loi Pang Naw, 8000 to 9000 ft., near Mékong, April 1902; Loi Un, Loi Sali watershed, 5500 ft., 7.1.01; Ménétaung, 6000 ft., 25.1.02.

*77 (565). *CYORNIS HODGSONI* (Verr.).

Oates, Faun. Brit. Ind., Birds, ii. p. 14.

Loi Maw, 7000 ft., 6.4.02.

*78 (566). *CYORNIS HYPERYTHRUS* (Blyth).

Oates, Faun. Brit. Ind., Birds, ii. p. 15.

Loi Maw, 7000 ft., 6.4.02; Loi Pang Naw, 8000 ft., 1.4.02.

*79 (567). *CYORNIS LEUCOMELANURA* (Hodgs.).

Oates, Faun. Brit. Ind., Birds, ii. p. 16.

Kaungpho, Ménétaung, 5000 ft., 26.1.02.

80 (569). *CYORNIS MELANOLEUCUS* (Hodgs.).

Oates, Faun. Brit. Ind., Birds, ii. p. 18.

Kaungpho, Ménétaung, 6000 ft., 25.1.02.

81 (571). *CYORNIS SAPPHIRA* (Tick.).

Oates, Faun. Brit. Ind., Birds, ii. p. 20.

Chendawgné, Ménétaung, 4500 ft., 23.1.02.

82 (572). *CYORNIS OATESI* Salvad.

Oates, Faun. Brit. Ind., Birds, ii. p. 20.

Byinkyi, 5500 ft., 9.3.02; Loi Maw, 7000 ft., 6.1.02; Ménétaung, 6500 ft., 26.1.02.

83 (575). *CYORNIS RUBECULOIDES* (Vigors).

Oates, Faun. Brit. Ind., Birds, ii. p. 23.

Loi Pang Naw, west of Mékong, 1.4.02.

84 (579). *STOPAROLA MELANOPS* (Vigors).

Oates, Faun. Brit. Ind., Birds, ii. p. 28.

Loi Maw, 4000 ft., 7.4.02.

85 (593). *NILTAVA GRANDIS* (Blyth).

Oates, Faun. Brit. Ind., Birds, ii. p. 40.

Ménétaung, 6000 ft., 21.1.02.

86 (594). *NILTAVA SUNDARA* Hodgs.

Oates, Faun. Brit. Ind., Birds, ii. p. 41.

Loi Maw, 6000 ft., 4.1.02.

87 (603). *CHELIDORHYNX HYPOXANTHUS* (Blyth).

Oates, Faun. Brit. Ind., Birds, ii. p. 51.

Loi Pang Naw, 7000 ft., April 1902.

Family TURDIDÆ.

88 (615). *OREICOLA FERREA* (Hodgs.).

Oates, Faun. Brit. Ind., Birds, ii. p. 66.

South of Homam, Mawkmai State, 4000 ft., 11.4.02.

89 (641). *RUTICILLA AUROREA* (Pall.).

Oates, Faun. Brit. Ind., Birds, ii. p. 93.

Loilong State, 5000 ft., 25.3.02.

*90 (654). *IANTHIA RUFILATA* (Hodgs.).

Oates, Faun. Brit. Ind., Birds, ii. p. 106.

Loi Sali range, 5500 ft., 5.1.01; Loi Pang Naw, 7000 ft.,
April 1902.

*91 (659). *NOTODELA LEUCURA* (Hodgs.).

Oates, Faun. Brit. Ind., Birds, ii. p. 112.

Taunggyi Crag, 5700 ft., June 1900.

92 (664). *CITTOCINCLA MACRURA* (Gm.).

Oates, Faun. Brit. Ind., Birds, ii. p. 118.

Loilong State, 2500 ft., 18.3.02.

- 93 (679). *MERULA PROTOMOMELÆNA* (Cab.).
Oates, Faun. Brit. Ind., Birds, ii. p. 133.
Bank of Mékong River, 2.2.01; Loi Maw, 5000 ft., 7.4.02.
- *94 (680). *MERULA OBSCURA* (Gm.).
Oates, Faun. Brit. Ind., Birds, ii. p. 134.
Loi Sali range, 5000 ft., 5.1.01.
- *95 (682). *MERULA FEE* Salvad.
Oates, Faun. Brit. Ind., Birds, ii. p. 135.
Loi Maw, 6000 ft., 5.4.02.
- 96 (690). *PETROPHILA ERYTHROGASTER* (Vigors).
Oates, Faun. Brit. Ind., Birds, ii. p. 143.
Salween-Namkha watershed, 5000 ft., Jan. 1902.
- 97 (693). *PETROPHILA CYANUS* (Linn.).
Oates, Faun. Brit. Ind., Birds, ii. p. 146.
Loi Un, Loi Sali range, 5500 ft., 7.6.01.
- 98 (694). *OREOCINCLA DAUMA* (Lath.).
Oates, Faun. Brit. Ind., Birds, ii. p. 152.
Linboocé, Mékong bank, Feb. 1901.
- *99 (705). *ZOOTHERA MARGINATA* Blyth.
Oates, Faun. Brit. Ind., Birds, ii. p. 157.
Ménétaung, 6000 ft., 20.1.02; Zawgyichaung, Ywangan State, 15.1.02.
- *100 (706). *COCHOA PURPUREA* Hodgs.
Oates, Faun. Brit. Ind., Birds, ii. p. 159.
Loi Maw, 7000 ft., April 1902.
- 101 (710). *CINCLUS PALLASI* Temm.
Oates, Faun. Brit. Ind., Birds, ii. p. 164.
Foot of Salween, Mékong watershed, 3000 ft., Dec. 1901.

Family PLOCEIDÆ.

- 102 (735). *UROLONCHA PUNCTULATA* (Linn.).
Oates, Faun. Brit. Ind., Birds, ii. p. 189.
Ménétaung, 4500 ft., 23.1.02; Wan Mah, Mawkmai, 3000 ft., 23.4.02.

Family FRINGILLIDÆ.

*103 (744). *MYCEROBAS MELANOXANTHUS* (Hodgs.).

Oates, Faun. Brit. Ind., Birds, ii. p. 201.

Htitamaung, Loi Maw range, 6000 ft., 2.4.02.

104 (761). *CARPODACUS ERYTHRINUS* (Pall.).

Oates, Faun. Brit. Ind., Birds, ii. p. 219.

Ménétaung, 6000 ft., 26.1.02.

105 (797). *EMBERIZA AUREOLA* Pall.

Oates, Faun. Brit. Ind., Birds, ii. p. 259.

Pangkwa, Thaton State, 4000 ft., 27.1.02; Hpaimai, Mawmai State, 4000 ft., 24.4.02.

106 (801). *EMBERIZA RUTILA* Pall.

Oates, Faun. Brit. Ind., Birds, ii. p. 263.

Loi Maw, near Mékong, 6000 ft., 4.4.02; Loi Un, Loi Sali range, 5500 ft., 7.1.01; Loilong State, 1000 ft., 20.3.03.

Family NECTARINIIDÆ.

107 (889). *ÆTHOPYGA DABRYI* (J. Verf.).

Oates, Faun. Brit. Ind., Birds, ii. p. 353.

Ménétaung, 6000 ft., 23.1.02.

108 (890). *ÆTHOPYGA SATURATA* (Hodgs.).

Oates, Faun. Brit. Ind., Birds, ii. p. 354.

Loi Un, Loi Sali range, 5600 ft., 6.1.01; Loi Maw, 4000 ft., 8.4.02.

*109 (891). *ÆTHOPYGA SANGUINEPECTUS* Wald.

Oates, Faun. Brit. Ind., Birds, ii. p. 354.

Pingué, Loilong State, 2000 ft., 22.3.02; Loi Maw, 6000 ft., 3.4.02.

*110 (892). *ÆTHOPYGA NEPALENSIS* (Hodgs.).

Oates, Faun. Brit. Ind., Birds, ii. p. 355.

Loi Maw, 8000 ft., 6.4.02; Loi Pang Naw, west of Mékong, 8000 ft., April 1902.

111. (895). *ARACHNECTHRA ASIATICA* (Lath.).

Oates, Faun. Brit. Ind., Birds, ii. p. 359.

Hpaimai, Mawmai State, 4000 ft., 24.4.02.

112 (906). *ARACHNOTHERA MAGNA* (Hodgs.).

Oates, Faun. Brit. Ind., Birds, ii. p. 369.

Panghi, Loi Sali range, 4000 ft., 5.1.01; Ménétaung, 5000 ft., 23.1.02.

Family *PITTIDÆ*.

*113 (926). *ANTHOCINCLA PHAYRII* Blyth.

Oates, Faun. Brit. Ind., Birds, ii. p. 387.

♂. Myitha chaung, Ywangan State, 1500 ft., 11.2.02.

*114 (928). *PITTA OATESI* Hume.

Oates, Faun. Brit. Ind., Birds, ii. p. 390.

♂. Yengyi Palaung, 5200 ft., Yatsawk State, 13.1.02.

*115 (935). *PITTA CUCULLATA* Hartl.

Oates, Faun. Brit. Ind., Birds, ii. p. 395.

Myitgné, Yatsawk State, April 1900.

Family *EURYLEMIDÆ*.

*116 (942). *SERILOPHUS LUNATUS* (Gould).

Blanford, Faun. Brit. Ind., Birds, iii. p. 9.

Karain chaung, Maw State, 4200 ft., 28.1.02.

*117 (944). *PSARISOMUS DALHOUSIE* (Jameson).

Blanford, Faun. Brit. Ind., Birds, iii. p. 11.

Locality not given, probably Yatsawk.

Family *PICIDÆ*.

*118 (951). *GECINUS CHLOROLOPHUS* (Vieill.).

Blanford, Faun. Brit. Ind., Birds, iii. p. 23.

♂ ♀. Yatsawk, 2000 ft., 11.12.01.

*119 (955). *CHRYSOPILEGMA FLAVINUCHA* (Gould).

Blanford, Faun. Brit. Ind., Birds, iii. p. 28.

Maunghtoo, Thaton State, 3000 ft., 8.5.02.

*120 (959). *GECINULUS VIRIDIS* Blyth.

Blanford, Faun. Brit. Ind., Birds, iii. p. 31.

♀. Yatsawk, 2000 ft., 20.12.01.

121 (960). *HYPOPICUS HYPERYTHRUS* (Vigors).

Blanford, Faun. Brit. Ind., Birds, iii. p. 32.

♂ ♀. Kalaw, 15.2.02; Ménétaung, 6000 ft., 8.1.02.

*122 (962). *DENDROCOPUS CABANISI* (Malh.).

Blanford, Faun. Brit. Ind., Birds, iii. p. 35.

♀. South of Homam, Mawkmai State, 4500 ft., 14.5.02;

♂. Kalaw, 4500 ft., 16.2.02; ♀. South of Bampon, 4000 ft., 16.5.02.

*123 (966). *DENDROCOPUS PYRRHOTHORAX* (Godw.-Aust.).

Blanford, Faun. Brit. Ind., Birds, iii. p. 38.

♂. Loi Maw, 6000 ft., 5.4.02.

124 (968). *DENDROCOPUS ATRATUS* (Blyth).

Blanford, Faun. Brit. Ind., Birds, iii. p. 40.

Loi Pang Naw, 7500 ft., April 1902; Taunggyi, 5500 ft., June 1902; Loi Un, Loi Sali, 5600 ft., 6.1.01; Ménétaung, 6000 ft., 27.1.02.

125 (975). *IYNGIPICUS CANICAPILLUS* (Blyth).

Blanford, Faun. Brit. Ind., Birds, iii. p. 46.

Loi Maw, 5000 ft., 5.4.02.

126 (978). *PYRRHOPICUS PYRRHOTIS* (Hodgs.).

Blanford, Faun. Brit. Ind., Birds, iii. p. 50.

Loi Maw, 6000 ft., 4.4.02.

*127 (983). *MICROPTERNUS PHŒOCEPS* Blyth.

Blanford, Faun. Brit. Ind., Birds, iii. p. 55.

North-east forests, Yatsawk State, April 1900.

128 (988). *TIGA JAVANENSIS* (Ljungh).

Blanford, Faun. Brit. Ind., Birds, iii. p. 61.

♀. Hills east of Wanhat, Cis-Salween, Mawkmai, 1100 ft., 4.1.01.

*129 (1001). *PICUMNUS INNOMINATUS* Burton.

Blanford, Faun. Brit. Ind., Birds, iii. p. 76.

Byinkyi, Loilong State, 5500 ft., 9.3.02.

*130 (1002). *SASIA OCHRACEA* Hodgs.

Blanford, Faun. Brit. Ind., Birds, iii. p. 77.

Paunglaung, Loilong State, 1000 ft., 26.2.02.

Family CAPITONIDÆ.

- 131 (1007). *MEGALĒMA VIRENS* (Bodd.).
Blanford, Faun. Brit. Ind., Birds, iii. p. 86.
Ménétaung, 6000 ft., 25.1.02.
- 132 (1012). *CYANOPS ASIATICA* (Lath.).
Blanford, Faun. Brit. Ind., Birds, iii. p. 92.
Yengyi Palaung, Yatsawk State, 5500 ft., 10.1.02.
- 133 (1018). *CYANOPS RAMSAYI* (Wald.).
Blanford, Faun. Brit. Ind., Birds, iii. p. 97.
Loi Maw, 6000 ft., 3.1.02; Loi Pang Naw, 7500 ft., April
1902; Ménétaung, 6000 ft., 18.1.02.

Family MEROPIDÆ.

- 134 (1030). *MELITTOPHAGUS SWINHOU* (Hume).
Blanford, Faun. Brit. Ind., Birds, iii. p. 114.
Boyathat, foot of Taunggyi, 11.11.1900.

Family ALCEDINIDÆ.

- 135 (1044). *HALCYON SMYRNENSIS* (Linn.).
Blanford, Faun. Brit. Ind., Birds, iii. p. 132.
Yatsawk, 3000 ft., April 1900.

Family CYPSELIDÆ.

- *136 (1071). *CYPSELUS PACIFICUS* (Lath.).
Blanford, Faun. Brit. Ind., Birds, iii. p. 167.
Loi Un, Loi Sali range, 5700 ft., 7.1.1900.

Family CAPRIMULGIDÆ.

- *137 (1093). *CAPRIMULGUS MACRURUS* Horsf.
Blanford, Faun. Brit. Ind., Birds, iii. p. 188.
Thaton State, 2500 ft., 2.5.02.

Family PSITTACIDÆ.

- *138 (1138). *PALÆORNIS TORQUATUS* (Bodd.).
Blanford, Faun. Brit. Ind., Birds, iii. p. 250.
Homam, Mawkmai, 4000 ft., 15.5.02.

139 (1150). *LORICULUS VERNALIS* (Sparrrn.).

Blanford, Faun. Brit. Ind., Birds, iii. p. 261.
West of Kazaw, Loilong State, 3000 ft., 4.3.02.

Family STRIGIDÆ.

140 (1152). *STRIX FLAMMEA* Linn.

Blanford, Faun. Brit. Ind., Birds, iii. p. 265.
Yatsawk, 1.1.1900.

Family ASTONIDÆ.

141 (1158). *SYRNIUM NIVICOLA* (Hodgs.).

Blanford, Faun. Brit. Ind., Birds, iii. p. 273.
Taunggyi, 5500 ft., 7.7.00.

*142 (1178). *SCOPS BAKKAMÆNA* (Pennant).

Blanford, Faun. Brit. Ind., Birds, iii. p. 297.
Taunggyi, 4500 ft., April 1902.

143 (1183). *GLAUCIDIUM CUCULOIDES* (Vigors).

Blanford, Faun. Brit. Ind., Birds, iii. p. 305.
Yatsawk, 2000 ft., 11.12.1900; Naung Hton, Thaton
State, 3000 ft., 8.5.02.

*144 (1186). *GLAUCIDIUM BRODIEI* (Burton).

Blanford, Faun. Brit. Ind., Birds, iii. p. 307.
Loilong State, 3000 ft., 13.3.02.

Family FALCONIDÆ.

145 (1205). *AQUILA MACULATA* (Gm.).

Blanford, Faun. Brit. Ind., Birds, iii. p. 340.
Wanhat, Cis-Salween, Mawkmai, 1400 ft., 3.1.02.

146 (1208). *HIERAËTUS PENNATUS* (Gm.).

Blanford, Faun. Brit. Ind., Birds, iii. p. 344.
No precise locality.

147 (1217). *SPILORNIS CHEELA* (Lath.).

Blanford, Faun. Brit. Ind., Birds, iii. p. 357.
♀ & ♀ juv. Yatsawk, 11.11.1900.

Both specimens belong to the smaller Eastern form
S. rutherfordi Swinhoe.

- *148 (1227). *POLIOAËTUS HUMILIS* (Müller & Schleg.).
Blanford, Faun. Brit. Ind., Birds, iii. p. 371.
Nam Lun, Möngpu State, 1500 ft., Feb. 1901.
- 149 (1247). *ACCIPITER NISUS* (Linn.).
Blanford, Faun. Brit. Ind., Birds, iii. p. 402.
Ménétaung, 7000 ft., 27.1.02.
- *150 (1251). *BAZA LOPHOTES* (Temm.).
Blanford, Faun. Brit. Ind., Birds, iii. p. 409.
Loi Pang Naw, 4000 ft., 4.1.02.
- 151 (1262). *ERYTHROPUS AMURENSIS* Gurney.
Blanford, Faun. Brit. Ind., Birds, iii. p. 424.
Mongpan, 3000 ft., 27.4.02.
- +152 (1265). *TINNUNCULUS ALAUDARIUS* (Gm.).
Blanford, Faun. Brit. Ind., Birds, iii. p. 428.
Ywangan State, 2000 ft., 3.2.02.

Family COLUMBIDÆ.

- *153 (1273). *OSMOTRERON PHAYRII* Blyth.
Blanford, Faun. Brit. Ind., Birds, iv. p. 8.
No locality given, except Shan States.
- 154 (1281). *TRERON NEPALENSIS* (Hodgs.).
Blanford, Faun. Brit. Ind., Birds, iv. p. 14.
Yatsawk, 3000 ft., April 1900.
- 155 (1291). *CHALCOPHAPS INDICA* (Linn.).
Blanford, Faun. Brit. Ind., Birds, iv. p. 26.
Byinkyi, Loilong State, 4500 ft., 9.3.02; Loi Pang Naw,
6000 ft., 3.4.02.
- 156 (1297). *DENDROTRERON HODGSONI* (Vigors).
Blanford, Faun. Brit. Ind., Birds, iv. p. 33.
Loi Maw, 6000 ft., 4.1.02; Loi Maung, Loilong State,
5500 ft., 26.3.02.
- *157 (1301). *ALSOCOMUS PULCHRICOLLIS* (Hodgs.).
Blanford, Faun. Brit. Ind., Birds, iv. p. 37.
♀. Loi Maw, 7200 ft., 6.4.02.

158 (1312). *MACROPYOGIA TUSALIA* Hodgs.

Blanford, Faun. Brit. Ind., Birds, iv. p. 49.

Loi Un, Loi Salii range, 5600 ft., 6.1.02; Loi Maw, 6000 ft., 3.4.02.

Family PHASIANIDÆ.

159 (1352). *BAMBUSICOLA FYTCHII* Anders.

Blanford, Faun. Brit. Ind., Birds, iv. p. 110.

Ménétaung, 5000 ft., 23.1.02.

160 (1363). *ARBORICOLA RUFIGULARIS* Blyth.

Blanford, Faun. Brit. Ind., Birds, iv. p. 126.

Loi Un, Loi Salii range, 6000 ft., 3.1.01.

*161 (1367). *ARBORICOLA BRUNNEIPECTUS* Tick.

Blanford, Faun. Brit. Ind., Birds, iv. p. 128.

Loi Un, Loi Salii range, 4000 ft., 23.12.1900.

Family TURNICIDÆ.

162 (1382). *TURNIX PUGNAX* (Temm.).

Blanford, Faun. Brit. Ind., Birds, iv. p. 151.

Loi Maw, 6000 ft., 3.4.02.

Family RALLIDÆ.

*163 (1401). *AMAURORNIS PHŒNICURUS* (Penn.).

Blanford, Faun. Brit. Ind., Birds, iv. p. 173.

Ywangan State, 4000 ft., 31.1.02.

164 (1402). *GALLINULA CHLOROPUS* (Linn.).

Blanford, Faun. Brit. Ind., Birds, iv. p. 175.

Yatsawk, 3000 ft., April 1900.

XLIII.—*Notices of recent Ornithological Publications.*

[Continued from p. 431.]

107. *Arribalzaga on the Birds of Paraguay.*

[Apuntes criticos sobre las Aves del Paraguay descritas por el Señor A. de Winkelried Bertoni. Por Enrique Lynch Arribalzaga. An. Mus. Nac. Buenos Aires, vii.]

It appears that a young naturalist of Paraguay, Señor A. de Winkelried Bertoni, published at Asuncion in 1901, in a

periodical called 'Anales Cientificas Paraguayas' (of which we can find no copy in London), an article entitled "Aves nuevas del Paraguay." In it he gave descriptions of about 100 supposed new species of birds of Paraguay, and proposed no less than 23 new generic names for some of these novelties. Señor Arribalzaga's memoir contains a free criticism of M. Bertoni's article, and shews clearly that the latter must be absolutely unacquainted with the modern literature on the birds of Paraguay, and, indeed, with that on South-American birds in general. Señor Arribalzaga goes through Señor Bertoni's species, one after the other, and endeavours to shew upon what they were really based. We will not reprint any of the new generic and specific names proposed by M. Bertoni, as we do not wish to give further publicity to this unfortunate paper. The best thing that can happen is that its existence should be forgotten as soon as possible.

It is right to mention that our valued correspondent, Dr. H. v. Ihering, of São Paulo, sent us a critical review of M. Bertoni's paper last year, but that, for the reason just given, we thought it better not to publish it.

108. 'Avicultural Magazine.'

[Avicultural Magazine. The Journal of the Avicultural Society. New series. Vol. I. Nos. 5-10. 1903.]

These six parts include, as usual, original papers from the pens of well-known Aviculturists on individual species or groups of birds, as well as reprints of articles interesting to the subscribers. A coloured plate is given in each part. The Rev. H. D. Astley writes on the only two living specimens of *Myiophonus temmincki* known to exist in Europe, Mr. W. H. St. Quintin records his success in hatching the egg of the Reeve, Mr. R. Kemp discusses the cage-birds of Sierra Leone, Mr. E. W. Harper the methods of bird-catching in India, and so forth.

But far the most important article, in our eyes, is that by Mr. D. Seth-Smith on the breeding of *Turnix tanki* in his aviaries, for he was able to ascertain that the rufous

nuchal collar of the female was completely lost in winter, when the plumage resembled that usually considered to belong to the immature bird; that the male alone incubated and tended the young; and that the period of incubation was only twelve days, or about half the time usual in game-birds. These are excellent results from a single experiment, and will very possibly hold universally in the genus *Turnix*. Moreover, we are informed that the rufous collar was discernible in a female chick 23 days old.

In part 5 Mr. W. P. Pycraft gives an admirable sketch of the "topography" of a bird, not only naming the different regions, but giving instructions for accurate measurements and descriptions. In the course of the article he takes care to make plain the meaning of "diastataxic," "cutaxie," "overlap," and other terms relating to the wing, while he also gives a complete glossary.

109. *Barrett-Hamilton on Birds' Legs in Flight.*

[On the Position occupied by the Legs of Birds during Flight. By G. E. H. Barrett-Hamilton. *Zoologist*, 1903, pp. 139-149.]

The chief object of this paper is to point out that, although many birds carry their legs stretched out beneath the tail and many carry them bent forward, these members are not kept stationary in either position, but from time to time are called to the assistance of the bird when real work has to be done and difficulties have to be overcome, each foot acting independently of the other. Lists are given of various species according to the way in which the legs are carried.

110. *Butler on Cage-Birds.*

[Hints on Cage-Birds (British and Foreign). By Arthur G. Butler, Ph.D., F.L.S., F.Z.S. Illustrated. 8vo. London. 80 pp. Price 1s. 9d.]

Mr. Butler gives us a summary of the results of twenty-one years' study of cage-birds in a pamphlet which will form a most useful guide to the Aviculturist. The chapters on sexual differences and on the study of the habits of birds are of the most general interest.

111. 'Cassinia.'

[Cassinia, a Bird Annual. Proceedings of the Delaware Valley Ornithological Club of Philadelphia, no. vi. 1902. 66 pp. Price 50 cents.]

This periodical, as its title denotes, is chiefly concerned with the ornithology of a single district; but the Report on the Spring Migration of 1902 by Mr. Witmer Stone and the life of Edward Harris, a friend and companion of Cassin and Audubon, are matters of wider interest.

112. Coburn on a supposed British Goose.

[On a lost British Wild Goose, *Anser paludosus* (Strickland). By F. Coburn. Zoologist, 1902, pp 441-448, pl. iii.]

Mr. Coburn believes that he has rediscovered the Long-billed Carr-lag Goose (*Anser paludosus*) of Arthur Strickland. A bird procured by him from St. Abbs Head on Feb. 25th, 1896, can be distinguished from *A. segetum* by its great size, its enormously lengthened Swan-like neck, its large and also Swan-like feet, and its remarkably and distinctly shaped and coloured bill.

113. Degen on Ecdysis.

[Ecdysis, as Morphological Evidence of the original Tetradactyle Feathering of the Bird's Fore-limb, based especially on the perennial Molt in *Gymnorhina tibicen*. By Edward Degen. Trans. Zool. Soc. xvi. pt. 8, pp. 347-418, pls. xxxvi.-xxxviii.]

This is a complete description of the moult of the whole plumage of *Gymnorhina*, with minute measurements, chronological observations, and calculations, arranged in many tables and diagrams. It is a splendid "mémoire pour servir," and the goal which the author has set before himself is very ambitious, being nothing less than the reconstruction of the wing, with bones and quills complete, of the very first bird.

Few will doubt that this problematic creature was a descendant of some five-fingered reptile. But *Archæopteryx*, beyond which we cannot possibly speculate, had already reduced its hand to the three first fingers, which correspond with our own and those of recent birds. Now we are expected to believe, from the evidence of the moult of an Australian

Crow, that the missing fourth finger had its complement of quills, that these have survived past the *Archæopteryx*-stage, and have in recent birds slipped on to the ulna as part of the series of secondaries.

The hypothetical scheme works out as follows:—The primaries are nowadays composed of those originally carried by the phalanges of the third finger (primaries 1–5) and those of the phalanges of the index (6–11). Those which originally belonged to the third metacarpal, those of the missing phalanges and equally missing metacarpal of the fourth finger, now form the 1–4th, 5–7th, and 8–11th cubitals; and, should there be more than 10 cubitals, this surplus alone belongs to the original ulnar feathering. The quills of the alula are those of the first metacarpal, behave as such in their moult, and are in reality not primaries.

Undoubtedly the moult is a much more complicated process than has been hitherto suspected, and the same applies, to a still greater extent, to the evolution of the “wing,” with its many disturbances, suppressions, and readjustments; but it is a long and dangerous flight of imagination from a Piping Crow to the ancestors of *Archæopteryx*.—H. G.

114. *Dresser's 'Manual of Palearctic Birds.'*

[A Manual of Palearctic Birds. By H. E. Dresser, F.L.S., F.Z.S., &c. Part II. London, 1903. Price 12s. 6d. net.]

In our notice of the first portion of this book (*suprà*, p. 252) we have expressed our opinion on its merits in a very decided way, and the second and concluding portion (containing pp. 499–922) gives us no reason to alter our views. It is a most useful and careful piece of work, and will be much appreciated by all students of Palearctic birds, amongst whom may, probably, be included nearly all the members of our Union. We therefore strongly recommend it to their notice.

In the first part Mr. Dresser gave an account of the Passeres, Picariæ, and Striges, which, according to his views, comprise 709 species. The remaining Orders from the Accipitres to the Pygopodes are dealt with in the

present part, and consist of 510 species, so that the total number of species of the Palearctic avifauna in the present work is 1219. To make a comparison, the last edition of the 'Check-list' of North-American birds enumerates about 780 species. Moreover, although Mr. Dresser in some cases admits subspecies under trinomial names, he does not carry this practice to anything like the extent that is usual in America. The mode of treatment has, therefore, rather unduly increased the number of Nearctic species when compared with those of the Palearctic Region. Again, there still remains a large extent of unexplored country in the mountains of China and other parts of Asia which is likely to produce a certain number of new species. But our energetic friends on the other side of the Atlantic have so thoroughly worked out every hole and corner of North America that little more in the way of new species can be expected to be found there. The great northern region of the Old World is, therefore, certainly much richer in bird-life than the corresponding region of the New World.

In the present work Mr. Dresser has followed pretty closely the classification adopted in the 'Birds of Europe.' He has wisely cut his synonymy rather short, the book being primarily intended for the use of field-naturalists and travellers. But native names and references to leading authorities are always added. It will also be observed that the extreme subdivision of genera and species, now so much in vogue, has not been followed in this 'Manual.' In his preface Mr. Dresser well remarks that "the endless manufacture of subspecies, often based on very trifling differences in tint, is calculated rather to puzzle and discourage than to assist the beginner." We may add that the "subdivisional" mode of treatment occasionally produces the same effect even on the practised naturalist!

115. '*The Emu.*'

[The Emu, a Quarterly Magazine to popularize the Study and Protection of Native Birds. Official Organ of the Australasian Ornithologists' Union. Vol. II. 1903, pts. 3, 4, pls. vii.-xii. (one coloured).]

These two parts of our contemporary (*cf.* 'Ibis,' 1903,

p. 118) include an account of the Melbourne Congress of the Union, with an address by the President (Col. W. V. Legge) on the advance of Ornithology in Australia—the meeting having been followed by a “camp-out” excursion to the Mutton Bird “rookeries” on Phillip Island in Bass Strait—and a Report for 1901–2, mainly concerned with the efforts of the Council to induce the Governments of the various States to extend the protection afforded to native birds.

Apart from articles chiefly of local interest, Mr. D. le Souef continues his important paper on birds' eggs from the Port Darwin district, in which he describes those of *Pseudogerygone brunneipectus*, *P. lavigastrea*, *P. chloronota*, and *Zosterops gulliveri* for the first time, and draws attention to the extraordinary extent of the breeding-season, which, as is truly said (p. 174), seems in North Queensland to last throughout the whole year. The same author follows with a discussion of the change of colour of plumage without moult in certain birds; but it should be noticed that he does not give instances of a single feather changing colour, but only of different feathers gradually producing lighter tints in the progress of a bird to maturity. Mr. R. Hall writes on “Colour Reversion in Kingfishers' Eggs,” and Mr. A. J. Campbell on the Protection of Native Birds.

Four, or possibly five, new species are described, viz.:—*Melithreptus leucogenys* and *Calamanthus montanellus* from the Stirling Ranges, W.A.; *Megalurus striatus* from Lake Yanchep, W.A.; *Acanthiza magnirostris* and *A. rufifrons* (?) from King Island, Bass Strait.

From the shorter notices we learn that the male Lyre-bird incubates, that young Harriers (*Circus gouldi*) of very different ages have been found in the same nest, and that the Tooth-billed Bower-bird is a particularly clever mimic.

In a Review of the Catalogue of Birds' Eggs in the British Museum a doubt is raised as to the identification of the egg of the Australian Dotterel there figured.

As the Editors of ‘The Ibis’ so fully recognise the good work that is being done by Australian Ornithologists,

perhaps they may be pardoned in conclusion for expressing their feeling that 'The Emu' is at present being conducted on somewhat too popular lines.

116. *Figgins on the Food-birds of the Eskimos.*

[Some Food-birds of the Eskimos of North-west Greenland. By J. D. Figgins. Abstr. Proc. Linn. Soc. New York, Nos. 13, 14, pp. 61-65.]

The author shews that the Eskimos of North Greenland use the flesh of birds for food in very large quantities. Whenever there is a shortage of Seals and Walruses, which often occurs, the natives, who are purely carnivorous, depend almost entirely on birds. The species usually utilized are the Dovekie (*Alca alle*), Brünnich's Murre (*Uria lomvia*), and the Kittiwake (*Rissa tridactyla*), but Puffins and Eider Ducks are also much prized. Mr. Figgins describes in an interesting manner the various modes in which the natives catch the birds.

117. *Finsch on the Honey-guides.*

[Zur Catalogisirung der ornithologischen Abtheilung. Von Dr. O. Finsch. X. *Indicatoridæ*. Notes Leyden Mus. xxiii. pp. 162-179.]

The tenth of Dr. Finsch's series of notes on the birds of the Leyden Museum is devoted to the Indicatoridæ, which are there represented by 26 examples referable to 8 species. Dr. Finsch reviews the whole of the described forms, which consist of 16 species of *Indicator*, 1 of *Meligonomon*, and 4 of *Protodiscus*. But, as will be seen by his remarks, many of these supposed species are more or less doubtful, and much has yet to be done before our knowledge of this interesting group can be considered at all satisfactory.

Indicator willcocksii of Alexander, we may remark, has now been more fully described and figured (see *Ibis*, 1902, p. 364, pl. viii.).

118. *Finsch on some new Hornbills.*

[1. Ueber einen neuen Nashornvogel der Gattung *Penelopides*. Von Dr. O. Finsch. Notes Leyden Mus. xxii. pp. 190-194.

2. Ueber die Arten der Bucerotiden Gattung *Ortholophus* Grant. Von Dr. O. Finsch. Notes Leyden Mus. xxiii. pp. 195-205.]

During his recent examination of the specimens of Hornbills in the Leyden Museum Dr. Finsch has found examples of two new species. One of them is a representative form, from Northern Luzon, of the Philippine genus *Penelopides*, proposed to be called *P. talisi*. The other belongs to the African genus *Ortholophus*, and has hitherto been confounded with *P. albocristatus*. Dr. Finsch has named it *O. cassini*. It comes from Gaboon and Cameroon.

119. *Fuerbringer on the Genealogy of Birds.*

[Beitrag zur Genealogie und Systematik der Voegel. By Max Fuerbringer. Jenaische Zeitschrift f. Naturwiss. xxxvi. (1902) pp. 587-736.]

Fourteen years have elapsed since Professor Fuerbringer's two gigantic volumes 'Untersuchungen zur Morphologie und Systematik der Voegel' were issued. In 1902 he published in the 'Jenaische Zeitschrift' a condensed account of that monumental work, and the present 'Beitrag' of 150 pages is a reprint of the genealogical and systematic observations. It contains an additional list of almost everything that has been written on the subject since 1888; not exactly a bibliography, since only the names of the authors, with date, and one or two catchwords concerning the organs and groups of birds described, are mentioned. The importance of the present work lies in the fact that the discussions of the systematic position and the mutual affinities of the various groups, have been brought up to date, but it is almost entirely an historical review, with only here and there a definite criticism of what has been done since 1888. The result is that, with a few slight modifications, the author stands by his system, as elaborated in his great work.

There is a long disquisition on the "Ratite question." They are a polyphyletic assembly, and are now divided into two groups—"LONGI-HUMERALES," viz. *Struthio* and *Rhea*, which are the oldest, and are derived, independently, from somewhere out of the Order Pelargornithes, and BREVI-HUMERALES: *Casuarii*, *Epyornithes*, and *Apterygiformes*. On p. 670 we are told that the Apteryges and Dinornithes have really very little in common with the Ralli, but that their

nearest relations are the Crypturi. At first sight it is not easy to understand how this categorical statement is to be reconciled with the equally emphatic rejection of the "Palæognathæ," but the combination of the Ratitæ with the Crypturi *versus* all the other Carinatæ is on p. 672 rightly dismissed as "a quite extraordinary overestimation of the taxonomic value of the palatognathous apparatus." The Brevi-humerales are traced towards the stock of the Gallatores in the wider sense, an Order, for which the terrible name "Kolobathrornithes" has been invented; this Order comprising the three suborders Charadrii-, Gruï-, and Ralli-formes.

The combination of Pici and Passeres is vehemently upheld.

There is a final chapter on the relation of birds to other Vertebrata, with the comforting conclusion that the pro-avine ancestor was not a dinosaur, crocodile, turtle, or lizard, but some other reptile, name unknown. We must bear in mind that the author, with his extensive morphological experience and absolutely unique knowledge of the literature, is the very man who, if he would but brace himself to do away with the many "intermediary" groups and other subterfuges, could give us by far the best system ever produced.—II. G.

120. *Goeldi on the Destruction of Birds in Amazonia.*

[Against the Destruction of White Herons and Red Ibises on the Lower Amazon, especially on the Island of Marajó. By Prof. Dr. Emil A. Goeldi, C.M.Z.S. Translated from the Portuguese into English by Wm. H. Clifford. 8vo. Pará, 1902.]

This is a translation into English of a vigorous appeal made by our friend Dr. Goeldi to the Governor and Legislature of the State of Pará in 1890, and repeated in 1895, to take some steps to stop the slaughter of the White Herons and other birds carried on by the "plume-hunters" on the Lower Amazon. "Must hundreds of thousands of Herons perish every year," he says, to trim ladies' bonnets in the United States and France? "Let the ladies put something else in their hats." Dr. Goeldi maintains: (1) that the killing of Herons and Ibises during the breeding-season should be rendered illegal; (2) that the nesting-places of

these birds both on private property and on public ground should be made inviolable; (3) that prohibitive export-duties should be laid on the feathers of Herons and Ibises. The State Legislature of Pará appears to have got rid of this unpleasant appeal by handing it over to the Municipal Council of the Island of Marajó. But, as Dr. Goeldi points out, it would be of little use to stop the slaughter in Marajó if it is permitted elsewhere, and he demands that restrictive measures should be applied to the whole State of Pará. We hope that our excellent friend will not relax his efforts in so good a cause.

121. *Goeldi and Hagmann's List of Amazonian Birds.*

[*Aves Amazonicas. Lista das aves indicadas como provenientes de Amazonia nos 27 volumes de 'Catalogue of Birds of the British Museum,' de Londres (1874-1898). Bol. Mus. Paraense, vol. iii. 1902. 53 pp.*]

As described in the title, this is a List of the birds mentioned in the 27 volumes of the 'Catalogue of Birds' as being found in Amazonia. It contains the names of 1156 species, and short indications of the locality and authority for each of them. It will be very useful for reference to all who are working at the great Avifauna of Amazonia, and especially to Dr. Hagmann himself, who is now engaged in cataloguing the specimens in the Museum of Pará.

122. *Hagmann on his Visit to Mexiana.*

[*Ein ornithologischer Streifzug durch den Campo der Insel Mexiana (Amazonas). Von Dr. Phil. Gottfried Hagmann aus Basel. Schweiz. Ornith. Blätter, xxvi. No. 23.*]

The island of Mexiana, in the mouth of the Amazon, is classical ground to the ornithologist, having been visited by Wallace in 1848, and described in his well-known work. Dr. Hagmann has recently made an excursion to it from Pará, where he is Assistant in the Goeldi Museum, and gives us a short account of the wonders of its bird-life. Ibises, Storks, Herons, and waterfowl of all kinds swarm in its lagoons, while many interesting land-birds are abundant.

123. *Hartert and Hellmayr on the Genus Masius.*

[Ueber die Pipriden-Gattung *Masius* Bp. Von Ernst Hartert und Carl Hellmayr. Ornithol. Monatsb. 1903, pp. 33-35.]

Two species of this genus of pretty little Piprine birds are usually recognised—*Masius chrysopterus* from Colombia, and *M. coronulatus* from Ecuador. The authors now propose to divide the latter into two subspecies—*M. chrysopterus coronulatus* from Western Ecuador, and *M. chrysopterus bellus*, subsp. nova, from Antioquia. There are some grounds for such a proceeding (as has been already pointed out), though they are slight. But we are quite unable to understand why it is proposed to degrade *M. chrysopterus*, which the authors themselves acknowledge to be quite distinct from both of the others, to the rank of a subspecies.

124. *Harvie-Brown on the Birds of the Hebrides.*

[On the Avifauna of the Outer Hebrides, 1888-1902. By J. A. Harvie-Brown. Reprinted from Annals of Scot. Nat. Hist. 1902-1903.]

We are always glad to receive papers which keep us in touch with the changes that are taking place, or the new discoveries that are made, in the Avifauna of any district, and to British ornithologists the islands of Scotland invariably provide matter of much interest from time to time. Mr. Harvie-Brown here gives all the information that he has been able to gather, since 1888, as to the birds of the Outer Hebrides, full details being thus added to the shorter record already published in our pages ('Ibis,' 1902, pp. 275-278). In the two papers we have a most satisfactory account of the Avifauna up to date, and we hope that similar articles on other areas of Scotland will appear in the 'Annals' before long.

125. *Hose on the Birds of Northern Celebes.*

[List of Birds collected in Northern Celebes. By Charles Hose, D.Sc., Resident in the Baram District, Sarawak. Ornithol. Monographs, xii. p. 77 (1902-03).]

Dr. Hose made an excursion to Northern Celebes in
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October 1895, and spent most of his time on Mount Masurang, especially at Rurukan, a village situated at an elevation of 4000 feet on the mountain, where he found excellent collecting-ground for his "Dayak hunters." His principal object was to procure small mammals, but he also obtained examples of 132 species of birds. Celebes has been well worked, and none of the species are new, though many are of interest. Good details are given concerning the nesting of *Megapodius cumingi*.

126. *Hudson on Hampshire Birds.*

[Hampshire Days. By W. H. Hudson. 1 vol. 8vo, 344 pp. London: Longmans, Green & Co. 1903. Price 10s. 6d. net.]

All members of our Union and other lovers of Nature will welcome this new book from the pen of Mr. Hudson, although it may not be strictly ornithological. On the present occasion its subject appeals strongly to our sympathies, for the County of Southampton comprehends the New Forest and Selborne—two of the most interesting districts in England to the lover of birds; and Mr. Hudson specially calls our attention to these localities. Though animals of all sorts and many other matters are spoken of in the present volume, birds, as in most of Mr. Hudson's writings, form a prominent topic. Of special interest is the careful description of the process of ejection from the nest by the new-born Cuckoo of the eggs and young of the legitimate owners, and of the way in which they leave their own young to perish, while their whole attention is absorbed by their greedy foster-child. Of course, as we all know, this has been observed before, but it is good to have confirmation of these acts from the eyes of such a reliable witness.

We need not say more about this attractive volume, except that we advise all our bird-loving friends to read and digest it. The illustrations, mostly by well-known pencils, are good and appropriate.

127. *Kolthoff on the Migration of Marsh-birds.*

[Zur Herbstwanderung der nordischen Sumpfvögel über die Insel Öland. Von Gustav Kolthoff. Festschrift für Lilljeborg, pp. 123-136. Upsala, 1896.]

The author of this paper discusses the spring migration of northern Marsh-birds, as observed at the south point of the Island of Öland, which he finds to be a very good station, since two lines of flight seem to converge towards the district. After treating of the various species separately, he gives a table of the observations from June to October, with the time of day at which the occurrences took place. There were comparatively few in the first and last month.

128. *Lorenz-Liburnau on Birds from New Zealand.*

[Zur Ornithologie Neuseelands. Vom Custos L. V. Lorenz-Liburnau. Sep.-Abdr. v. d. xvii. Bande Ann. d. k.-k. Naturh. Hofmus. Wien, 1902.]

This is the first part of an account of the valuable addition made in 1891 to the Vienna Museum by the acquisition of the collection of birds formed in New Zealand and the adjacent islands by the late Andreas Reischek. Reischek went out to New Zealand in 1877 as taxidermist to the Christchurch Museum, and subsequently made numerous voyages and excursions to every part of New Zealand and its islands. In 1889 he returned to Europe, and, after depositing his ethnographical and zoological collections at Vienna, retired to his native place, Linz, and became Custos of the Upper Austrian Land-Museum in that city. His name and the observations made by him are of frequent occurrence in Sir Walter Buller's works on the birds of New Zealand, and he was the author of several papers on birds in the 'Transactions of the New Zealand Institute.'

The present portion of Dr. v. Lorenz's memoir contains an account of about 50 species, extending from the Passeres to the Pigeons, with exact dates and localities of the specimens and many important remarks. *Anthus novæ-zealandiæ reischeki*, from the North Island, *A. n.-z. chathamensis* from Chatham Island, and *A. n.-z. steindachneri* from Antipodes Island, are separated as new subspecies. *Nesierax* is a new

name proposed in place of *Harpa*, previously used in conchology. Amongst the rarer birds mentioned as obtained by Reischek are *Pogonornis cincta*, now supposed to be extinct (10 specimens), and the lately described *Miro dannefaerdi*, from the Snares Islands. A coloured plate contains figures of *Pseudogerygone sylvestris* and of the heads of two species of *Bowdleria* and of two species of *Anthus*.

129. Lorenz and Hellmayr on South-Arabian Birds.

[Ein Beitrag zur Ornith. Südarabiens. Von Dr. L. v. Lorenz und C. E. Hellmayr. Denkschr. Ak. Wiss. Wien, lxxi. 1902.]

The authors now give us a more complete account of the interesting collection of birds made by Mr. Bury in Hadramaut, Southern Arabia, already described in the 'Journal für Ornithologie' for 1901 (pp. 231-245)*, and add the field-notes of the Collector, as also an account of another collection made by Frau Dr. W. Hein in the district of Gischin, which contains 44 skins referable to 12 species.

Altogether the list contains the names of 62 species, three of which (*Fringillaria arabica*, *Zosterops arabs*, and *Nectarinia muelleri*) are figured in the accompanying plate. The occurrence of an example of *Turdus atrigularis* at Yeshbum (4.1.00) is remarkable.

130. Madarász on the Birds of Hungary.

[Magyarország Madarai &c. Von Dr. Madarász Gyula. Auszug in Deutscher Sprache. Budapest, 1899-1903. 1 vol., 666 pp.]

We have been favoured with a copy of Dr. Madarász's volume on the birds of Hungary, which is now complete. Being intended mainly for Hungarians it is written in their language, but an abstract in German, which is appended, enables us to obtain a good idea of its contents.

The materials for the book are mainly taken from the great collection of Hungarian birds in the National Museum at Budapest (under the author's charge), which contains

* See also Mr. Ogilvie-Grant's comments on the subject, 'Ibis,' 1901, p. 518.

more than 5000 specimens of the birds of Hungary and of the adjoining Crown lands of Croatia and Slavonia. So nearly perfect is this series that only 16 out of the 364 species of Hungarian birds fail to be represented in it, and these are mostly *unica* of other museums or private collections.

In 1881 the author published his 'Systematische Aufzählung der Vögel Ungarns,' in which 345 names were included, some of them of doubtful species. The present work, as already mentioned, gives us an account of 364 species belonging to the Hungarian Avifauna, of which 87 are constant residents and 151 are known to breed in Hungary. The winter-visitors are 24, the more or less regular passing visitors 46, and the accidental visitors 46. The arrangement and nomenclature used by Dr. Madarász follow generally those of the British Museum Catalogue. Homonyms are employed throughout.

Amongst the rarer stragglers enumerated in the present work we observe *Linaria exilipes* (Coues), *L. brevirostris* (Bp.), *Melanocorypha sibirica* (Gm.), *Budytes taiwanus* Swinhoe, *Ruticilla mesoleuca* (Hempr. et Ehr.), *Buteo zimmermannæ* Ehuncke, *Anthropoides virgo*, and *Somateria mollissima*.

Phæoparus is proposed as a new subgeneric term for *Parus palustris* and its allies, and the southern form of *Glaucidium passerinum* is named *G. setipes*.

Besides numerous figures in the text there are 9 plates, one of which (by Keulemans) illustrates the somewhat problematical *Buteo zimmermannæ*.

131. Madarász on a new Asiatic Warbler.

[Vorläufiges über einen neuen Rohrsänger (*Luscinola mimica*). Von Dr. Julius von Madarász. Budapest, 1903. 2 pp.]

Dr. v. Madarász's *Luscinola mimica* will be an interesting species to Palearctic ornithologists, if future researches should result in confirming its distinctness from *L. melanopygon*, of which it is stated to be the eastern representative. Its coloration, however, is nearly similar to that of *Calamodyta phragmitis*. Six examples of this supposed new species

were transmitted to the National Museum at Budapest by its collector Hürms, who obtained them at various localities in Transcaspia and Eastern Persia.

132. *Meyer on new Birds from Celebes.*

[Neue Vögel von Celebes. Von A. B. Meyer. Notes Leyden Mus. xxiii. pp. 185-189 (1903).]

Dr. A. B. Meyer here shortly describes the novelties in the collection of birds made by the two Sarasins during their second expedition to Celebes. Altogether 74 specimens were obtained, which are referable to 57 species. Of these the following 6 are described as new:—*Microstictus intermedius*, *Meropogon forsteni centralis*, *Siphia hoevelli*, *Graucalus temmincki tondeanus*, *Acrocephalus orientalis celebensis*, and *Ptilopus centralis*.

Dr. Meyer is contemplating the publication of a new general work on the birds of Celebes.

133. *North on the Nests and Eggs of Australian Birds.*

[Nests and Eggs of Birds found breeding in Australia and Tasmania. By A. J. North. Part III. Sydney, 1903.]

We have received from the Trustees of the Australian Museum the third part of Mr. North's account of the nests and eggs of Australian Birds, the two former instalments of which we have already noticed (see 'Ibis,' 1902, pp. 156, 666). In the present section of this excellent work the breeding-habits of numerous Australian members of the family Muscipidæ are discussed at length, while their nests and eggs are accurately described, and illustrated by figures in the text and by accompanying plates. The work does great credit both to the author (one of the new Colonial Members of the B. O. U.) and to the artist, Mr. Neville Cayley, who is responsible for the illustrations.

134. *Salvadori on Birds from Annobom and Fernando Po.*

[(1) Contribuzioni alla Ornitologia delle isole del Golfo di Guinea.—III. Uccelli di Annobom e di Fernando Po. Per Tommaso Salvadori. Extr. Mem. Acc. Sc. Torino, ser. 2, vol. liii. Torino, 1903.]

(2) Caratteri di due nuove specie di Uccelli di Fernando Po. [Per] Tommaso Salvadori. Boll. Mus. d. Zool. e Anat. comp. d. R. Univ. Torino, xviii. No. 442, 1903.]

The first of these papers concludes Count Salvadori's memoir on the birds of the four islands in the Gulf of Guinea (see above, p. 429) by an account of what is known of the ornithology of Annobom and Fernando Po. In Annobom Sig. Fea obtained 49 specimens of birds, which are referred by Count Salvadori to 8 species. Two of these, *Scops fea* and *Haplopelia hypoleuca*, are described as new. The author reviews the known species of Annobom, including those added by Sig. Fea's researches, and shews them to be 16 in all, among which are 4 restricted to this island, so far as is at present known.

In Fernando Po, Sig. Fea suffered from bad health and was not so successful, having obtained only two specimens of *Xylobucco scolopaceus*. But in order to complete his subject Count Salvadori reviews all the work that has been done on the ornithology of this island up to the time of writing the present paper, and shews that 146 species had been recorded up to that date. As regards Capt. Alexander's recent discoveries, Count Salvadori had only the short diagnoses of new species issued in the Bulletin of the B. O. C. before him, and not Capt. Alexander's complete account published in the last number of this Journal. A very useful tabular comparative statement of the birds of the four islands concludes an excellent memoir.

The second paper contains short diagnoses of two new species from Fernando Po (*Speirops brunnea* and *Turdinus bocagei*) without further information.

135. *Slater's Birds of South Africa.*

[The Fauna of South Africa. The Birds of South Africa. By W. L. Slater, M.A., F.Z.S., Director of the South African Museum, Cape Town. Vol. III. London: R. H. Porter, 1903. Price 21s. net.]

At the time of his sad death at Ladysmith, Stark had finished his rough MS. for the second volume of the present work (see 'Ibis,' 1902, p. 161), but had not commenced the

third. For this volume, therefore, Mr. W. L. Selater is solely responsible, although he has had the advantage of consulting Stark's notebooks and journals, and has made good use of them.

The third volume of the 'Birds of South Africa' has been drawn up on exactly the same lines as the first and second. It contains an account of the Picarians, Parrots, Owls, and Hawks of Africa south of the Zambesi, which number altogether some 183 species. The text is illustrated by 141 figures drawn, with very few exceptions, by Mr. Grönvold specially for this work.

A fourth volume, now in an advanced state of preparation, will finish the work, but it must not be supposed that our knowledge of the birds of the vast country treated of is by any means complete. There are enormous areas, especially in the north and east of South Africa, almost untouched by the ornithologist, and the present work constitutes merely a basis upon which further information on the subject may be built.

136. *Scott's 'Story of a Bird-lover.'*

[The Story of a Bird-lover. By William Earl Dodge Scott. New York: The Outlook Company, 1903. 1 vol. 8vo. 372 pp.]

This is one of the most interesting books to the ornithologist that we have met with for a long time. It contains an account of the life and adventures of Prof. W. E. D. Scott, of Princeton, one of the most active and experienced field-naturalists of North America, and author of many excellent papers on American Birds, of which a list is given in the Appendix. Mr. Scott was evidently devoted to birds in his childhood, and has been fortunate in passing the greater part of his life in contact with them. At Harvard he studied under the direction of Louis Agassiz, Prof. Shaler, Dr. Wyman, and Mr. Allen, all names well known to us in Europe, and was one of the original members of the Nuttall Ornithological Club—the parent, so to speak, of the A. O. U. After other experiences in observing and collecting, Mr. Scott obtained in 1874 a post as Curator of

the Museum of Zoology at Princeton College, New Jersey, which we believe he holds at the present moment, although he has only recently returned to it after some years of wanderings elsewhere. During this interval the plains of Colorado, the coast-lands of Florida, and the deserts of Southern Arizona have alike become familiar to him, so that few individuals can be better acquainted with the varied features of the Nearctic Ornis than our author. This, indeed, will be at once apparent to those who read Prof. Scott's lively account of his adventures in the above-mentioned and other specially selected collecting-spots. Mr. Scott also passed several months in Jamaica in 1890, and gave his brother ornithologists of Europe the pleasure of his company in the spring of 1900, his special object being to examine the South-American specimens in the British Museum for a work on the birds of Patagonia, upon which he is now engaged. But we invite all the readers of 'The Ibis' to peruse Prof. Scott's ornithological adventures for themselves, and not to be content with the mere outline of them contained in our notice of his most attractive volume. Above all, let them mark the account of the ravages caused by the odious "plume-hunters" in the heronries of Florida, as personally witnessed by Prof. Scott, who found "vast piles of carcasses of the dead parents stripped of their beautiful plumes lying about, and thousands of young birds left to starve to death in misery in their nests."

137. *Seth-Smith's 'Parrakeets.'*

[Parrakeets: being a practical Handbook to those Species kept in Captivity. By David Seth-Smith, F.Z.S., M.B.O.U. Parts 3-5. Pp. 81-216, 10 pls. London: R. H. Porter, 1902-1903. Price 6s. per part, net.]

In these parts the author continues his account (*cf. supra*, p. 131) of the various species of Parrakeets, with notes on their habits, either as observed in captivity or as recorded by those who have met with the birds in their native haunts. The description of the nesting-habits of *Agapornis roseicollis* is especially noteworthy. The genera treated are *Brotojerus*,

Tanygnathus, *Palæornis*, *Polytelis*, *Spathopterus*, *Ptistes*, *Aprosmictus*, *Pyrrohulopsis*, *Psittinus*, *Agapornis*, *Loriculus*, *Platycercus*, *Porphyrocephalus*, *Barnardius*, *Psephotus*, and *Neophema*. The coloured figures are of *Brotogeris virescens*, *B. tui*, *Palæornis caniceps*, *P. nicobarica*, *Polytelis barra-bandi*, *Loriculus sclateri*, *L. chrysonotus*, *Platycercus elegans*, *P. flaveolus*, *P. browni*, *Barnardius barnardi*, *B. zonarius*, *Psephotus xanthorrhous*, *P. hematorrhous*, *P. chrysopterygius*, and *P. multicolor*.

138. Sherborn's 'Index Animalium.'

[Index Animalium sive Index nominum quæ ab A.D. MDCCCLVIII. generibus et speciebus Animalium imposita sunt Societatibus Eruditorum adjuvantibus a Carolo Davies Sherborn confectus. Sectio prima, a Kalendis Januariis MDCCCLVIII. usque ad finem Decembris MDCCC. Cantabrigiæ e Typographico Academico. MDCCCCL. 8vo. Pp. lix+1195. Price 25s. net.]

This is not a specially ornithological book, but, when complete, will be very useful to workers in every branch of zoology; it is, in fact, a dictionary of the names of all animals whether generic or specific. Darwin was so convinced of the necessity of such a work for botanists, that he left a sum of money to be employed in compiling what is now known as the 'Index Kewensis,' which contains an alphabetical list of the names of plants and references to their descriptions. Mr. Sherborn proposes to bestow the same favour on his brother zoologists, and the present volume is the first instalment. The 'Index Zoologicus' will contain a complete list of all the generic and specific names applied to animals since 1758, when Linnæus inaugurated the binomial system, with dates and references. Acting under the advice of a Committee of the British Association, Mr. Sherborn has divided his work into three portions. The first of these, now published by the Cambridge University Press, contains all the names proposed by zoologists from January 1st, 1758, to the end of December, 1800, and will be found most useful and accurate so far as it goes. The energetic author is now hard at work on the second division, which will contain the names given during the first half of the last century, to which

a third division relating to the zoological work of the years 1851 to 1901 will ultimately be added.

139. *Stone on Birds from Sumatra.*

[A Collection of Birds from Sumatra, obtained by Alfred C. Harrison, Jun., and Dr. H. M. Hiller. By Witmer Stone. Proc. Acad. Nat. Sci. Philadelphia, 1902, pp. 670-691.]

This is a catalogue of a collection of birds made at several localities in Sumatra by Mr. A. C. Harrison, Jun., and Dr. H. M. Hiller, which was presented to the Academy of Natural Sciences of Philadelphia. The collection contains examples of 138 species, mostly well-known forms. Having under his charge in the Wilson Collection (received from Verreaux) what is supposed to be the typical specimen of *Trichostoma umbratile* of Strickland (Contr. Orn. 1849, p. 128), which is usually held to be the same as *T. rostratum* Blyth, Mr. Stone, with the assent of Dr. C. W. Richmond, pronounces it not to be a *Trichostoma* at all, but identical with *Rhinomyias pectoralis* Salvad. Knowing, however, the accuracy of Strickland's work and the careless manner in which many of the specimens which passed through the Maison Verreaux in former days were labelled, we should be disposed to doubt this identification, unless it were confirmed on examination of the typical specimens of *Napothera umbratilis* Temm. in the Leyden Museum.

A subspecies of *Rhinomyias*, based on specimens obtained by Dr. Abbott on the coast of Sumatra, is characterized as *R. umbratilis richmondi*.

We may say, in conclusion, that we are among those who still "believe in the propriety of ignoring names which are geographically misleading," and should not be disposed to adopt as the title of a Bornean Kingfisher "*Pelargopsis capensis javana*"! Truth, in our opinion, is more important than priority!

140. *Strong on the Colour of Feathers.*

[The Development of Colour in the Definitive Feather. By R. M. Strong. Bull. Mus. Comp. Zool. Harvard College, xl. pp. 147-185 & pls. 1-9 (1902).]

This paper trenches too much upon histology to make it

possible for us to give a full analysis of it, but the summary of results should certainly be carefully studied by all interested in the subject, and compared with those of other writers. We often have to draw attention to the full and accurate work of our American cousins in articles of this description, while here the details are illustrated by nine excellent plates of sections of feather-germs and parts of the feather. Mr. Strong does not consider that the question of change of colour without moult can be properly studied apart from a thorough consideration of the causes of colour and its development, and he therefore conducts us afresh through the details of both these processes, on the strength of material obtained from specimens of *Sterna hirundo*, the Common Dove, *Megascops asio*, and various Passeres, his conclusion being "that there is no satisfactory evidence of a process of repigmentation, and that the histological conditions of the feather render such a process highly improbable."

141. *Strong on the Study of Variation.*

[A Quantitative Study of Variation in the smaller North-American Shrikes. By R. M. Strong. *American Nat.* xxxv. pp. 271-298 (1901).]

This elaborate article attempts to apply the "Precise Criticism of Species" of Davenport ('*Science*,' n. s. vii. p. 685) to *Lanius ludovicianus* and its races *excubitoroides* and *gambeli*, 294 specimens of which were obtained for the purpose from the United States, Mexico, and South Canada. The characters taken into consideration, and for the most part expressed in "frequency polygons," are:—Length of wing, tail, and bill; depth of bill; colour of top of head, upper tail-coverts, and breast; while the curvature of the bill is measured in 47 individuals by an ingenious method of ascertaining the angle between certain chosen lines.

The relative variability of the different characters in different geographical areas is thus made evident; and the author asks us to consider whether it is worth while encumbering nomenclature with the names of races based on such slight variations, since the process of "splitting" could be carried on *ad infinitum* by a well-trained eye. We are

quite in agreement with his remark that "it seems highly desirable that the question of limiting the establishment of new subspecies or varieties by some generally accepted criteria be considered"; but the difficulty of so doing lies, of course, in the words "generally accepted."

142. *Ussher on Irish Birds.*

[The Bird Fauna of Ireland as affected by its Geography. By R. J. Ussher. Rep. Brit. Assoc. 1902, pp. 658-660.]

In this article Mr. Ussher gives a useful summary of the effect of the geographical character of Ireland on the distribution of its birds and on their occurrence in the country. Isolated mountains and abundance of lakes are important factors in the distribution, while the lack of manufactures in many places, and the absence of persecution of birds, apart from game, conduce greatly to the preservation of rare species.

Though the Common Buzzard, the Capercaillie, and the Bittern are no longer to be found in the island, and Eagles, Harriers, the Red-throated Diver, and so forth are now extremely rare, the Mistletoe-Thrush, Crossbill, Starling, Magpie, Shoveler, Redshank, and Woodcock have decidedly increased—not to mention other species—while the abundance of suitable haunts make Waders, Ducks, Grebes, and more particularly cliff-birds, exceptionally plentiful.

The Irish coasts bear a certain resemblance as regards their avifauna to those of Scotland, while the Common Gull and the Red-breasted Merganser here find their most southern breeding-quarters.

Mr. Ussher also discusses the routes of migration of birds with respect to Ireland.

143. *Wiglesworth on St. Kilda Birds.*

[St. Kilda and its Birds. A Lecture delivered before the Liverpool Biological Society on an Ornithological Expedition to the Island in the Summer of 1902. By J. Wiglesworth. Reprinted from the Trans. Liverpool Biological Soc. 8vo. Liverpool, 1903. 69 pp., 5 pls. Price 2s.]

Many books and articles have been written on St. Kilda and

its Ornithology, but the present pamphlet cannot be said to be superfluous, for we are much pleased with the clear and life-like description of the island and its inhabitants, their methods of fowling, collecting eggs, and so forth. The account of the capture of a Great Auk about 1840 is once more given from the lips of the grandson of one of the men concerned, and a complete list of the birds of St. Kilda is appended, to which the White Wagtail is an addition. A new breeding-station of the Fork-tailed Petrel was discovered by Mr. Wigglesworth on Levenish, but it is with the greatest regret that we find corroboration of the large numbers of its eggs (300-400) that are taken annually by the natives.

144. *Winge on the Fossil Birds of Denmark.*

[Om jordfundne Fugle fra Danmark. Af Herluf Winge. Vidensk. Meddel. fra den Naturh. Foren. i Kjöbenhavn, 1903, pp. 61-110, tab. 1.]

In this well-arranged memoir the author has put together a summary of what is at present known concerning the fossil birds of Denmark, which, though numerous, are all from the most recent formations. Altogether bones belonging to 65 species are recognised, nearly all of which are members of the existing avifauna. A left humerus, found by Steenstrup in 1854 in Ordrup Moss, near Christiansholm, appears to belong to one of the smaller species of *Æstrelata*. It is described and figured, along with corresponding bones of other Petrels for comparison. Many bones of *Alca impennis* are registered from various localities. A portion of a sternum of *Pelecanus crispus* is attributed to the Older Stone-age, so that the Polican certainly visited Denmark in former days.

XLIV.—*Letters, Extracts, Notices, &c.*

WE have received the following letters addressed to "The Editors of 'The Ibis'":—

SIRS,—In 'The Ibis' for 1897, pp. 364-5, I wrote an article on the nesting of *Cassicus persicus* and other birds of the Lower Amazon. I there stated that the Japu (*Ostinops*

decumanus) employs among its building-materials in this district large quantities of a black hair-like substance, much like horsehair or delicate and elongated roots in appearance, which botanical researches, made in our Museum, had proved to be a Lichen, but of which it was not then possible to ascertain the exact scientific name. Some time afterwards Dr. v. Ihering, Director of the São Paulo Museum, wrote and told me that I was in error, and had mistaken for a Lichen what was nothing more than the fibre of the well-known Bromeliacean epiphyte *Tillandsia usneoides*. I answered him at once that such a mistake was out of the question, from the simple fact that the *Tillandsia* (well-known to me from many years' residence in Southern Brazil) was not found on the Lower Amazon. To this Dr. v. Ihering replied that here again I had made a mistake, my assertion that the *Tillandsia* did not exist on the Lower Amazon being contrary to the fact!

As may be supposed, I was rather surprised at the courage of Dr. v. Ihering in denying, without the slightest evidence, facts that were known to us on the Lower Amazon as matters of daily observation. But I was still more surprised when I found that my colleague in São Paulo, in the 'Revista do Museu Paulista' (vol. iv. pp. 195, 218), had proclaimed to the whole world my supposed errors in such terms as could not be taken otherwise than in an unfriendly sense.

It was obvious that my colleague Dr. J. Huber, Head of the Botanical Section of the Pará Museum, could not allow such an attack against his professional capacity to pass without remark. He has, therefore, written and published in the 'Boletim do Museu Paraneses' (vol. iii. pp. 328, 343) an article on the question ("Sobre os materiales do ninho do Japu"), of which I send you a copy. In this article Dr. Huber has demonstrated most clearly the incorrectness of Dr. v. Ihering's assertions respecting the nest-building materials used by the *Ostinops* in this district, and has shown by description and figures the structural differences between the supposed Lichen on the one hand and the fibres of the *Tillandsia* on the other; the only modification to be made

in my original assertion of 1897 being that the Cryptogam, to which the hair-like substance supposed to be a Lichen appertains, turns out, on further examination, to be a rhizomorph of the genus *Marasmius* and therefore not a Lichen. Dr. Huber's studies on this subject have been confirmed, it will be observed, by Herr Paul Hennings, the Mycologist of the Royal Museum of Berlin, to whom examples of the disputed substance have been furnished.

As regards the existence of *Ostinops decumanus* in the State of Pará, which Dr. v. Ihering appears to question in a recent letter addressed to me, there can really be no doubt at all. The presence of this species in many places on the Lower Amazon has been testified by well-known Naturalists of former and recent days—such as Natterer, Prince Adalbert of Prussia, and other authorities whom I need not mention. In the vicinity of Pará the Japu has been regularly seen and obtained since 1894 by the taxidermists of our Museum, and, I may add, has been personally observed by the Director. It is, in fact, found throughout the Lower Amazonian district, and in certain localities is rather a common bird, well known to everyone.

Thus, whatever may be said to the contrary, the employment of the mycelium of a species of *Marasmius* in the nests of *Ostinops decumanus* and the frequent occurrence of this bird in Lower Amazonia are two *scientific facts*, the truth of which cannot be fairly disputed.

Yours &c.,

Goeldi Museum, Pará, Brazil,
July 15th, 1903.

DR. EMIL A. GOELDI.

SIRS,—In an article "On the Eggs of the Moa," by Dr. A. B. Meyer, in the April number of 'The Ibis' (above, p. 188), there are some statements which, with your permission, I desire to correct.

In discussing the entire Moa's egg, now in the Otago University Museum (No. 2 in the article), Dr. Meyer has been misinformed as to several of the facts, which are, however, correctly stated in my brief note on the egg in the

Trans. New Zealand Institute for 1901 (p. 149), to which, it is true, he refers, but in rather a casual fashion, although it is the only authoritative account of the egg hitherto published.

The first sentence (p. 190) on this subject leads the reader to suppose that the locality in which the egg was found is uncertain: the writer appears to rely on Sir W. Buller's information, which, in several instances, is erroneous and in all cases is at any rate secondhand. The sentence runs: The egg "was found . . . in one of the Otago rivers, the Clutha or Molyneux." As a matter of fact, both these names are given to one and the same river, but are applied to different parts of its course. My note above referred to records the precise spot at which the egg was found in the river.

Again, though this is of little general importance, the "Government" had nothing whatever to do with the matter of the purchase or disposal of the egg: the egg was claimed by the Directors of the Dredging Co., who, however, to avoid litigation, permitted the finder (one of their employés) to sell it; in fact, one of the Directors purchased it from the latter for our Museum.

The specific name of the Moa, which, as I suggested, may have laid this egg, is misprinted in Dr. Meyer's article; it should read "*Euryapteryx ponderosus*"—a species described by Hutton in Trans. N.Z. Inst. vol. xxiv. p. 137.

The "rather insufficient illustration" given by me, to which Dr. Meyer refers, is a photograph, not well produced, shewing the true shape of the only perfect specimen of Moa's egg. The previously published figures, being from "reconstructions of the egg," such as those made by Mantell, or from casts of the same, are not always correct in outline. My figure seemed to be of value in this direction, and as the markings on Moa's eggs had already been accurately figured by more than one writer I did not deem it necessary to repeat the details.

"Egg 3" (p. 190).—I believe that Dr. Meyer is correct in associating the egg mentioned by his informant, Mr. Barnekow, with that referred to by me in 1901 on p. 150 of the above-mentioned article; but, as Mr. Barnekow writes

from the North Island and the egg was found in the southern part of the South Island of New Zealand (something like 500 miles away), the statement "some hundred miles" should have been "some hundreds of miles" from his place.

"Egg 5" (p. 192) is the same as "Egg 7." It belonged to Miss Turton, who was good enough to deposit it in this Museum; but, on my obtaining the complete egg (No. 2), I returned it to her. It was found at Clyde and Miss Turton lives at Queenstown, hence the confusion.

"Egg 6" (p. 192).—Mr. Hamilton informs me that the fragments in his possession "are too imperfect to be called an egg."

Many fragments of eggs of Moas are in the possession of this Museum and of various private individuals in the Colony.

I may refer here to certain fragments of a *green* egg-shell found in 1875 by Mr. T. White in a cave near Mt. Nicholas, Otago, which was identified by Capt. Hutton as that of a Moa (see *Trans. N.Z. Inst.* 1875, p. 101): these are now exhibited in this Museum.

Let me add another to the list of eggs given by Dr. Meyer. I have, in addition to egg No. 2, a nearly complete egg, rather larger than it, but broken at one end. It was found in the same locality as Nos. 2 and 3 and by the same individual. It was evidently laid by the same species of Moa as most of the other Otago specimens. The surface of the shell is very little corroded, and shews the typical markings much better than that described by me in 1901.

Finally, there is a misprint in Dr. Meyer's article (p. 196): the illustration given by Owen is referred to as "plate exix," which should read "xcix."

Yours &c.,

Otago University Museum,
Dunedin, N.Z.,
July 27th, 1903.

W. BLAXLAND BENHAM.

SIRS,—

In the year 1900 Mr. Harry F. Witherby contributed a very interesting article to 'The Ibis' (p. 475) on the birds of the Kola Peninsula, Russian Lapland. During our visit to that country this year we met with examples of the

following six species which do not appear to have been previously recorded by him or by others as occurring there:—

Eversmann's Warbler (*Phylloscopus borealis*), Sedge-Warbler (*Acrocephalus phragmitis*), Swallow (*Hirundo rustica*), Rook (*Cervus frugilegus*), Hen-Harrier (*Circus cyaneus*), Golden Eagle (*Aquila chrysaëtus*).

Yours, &c.

HENRY PEARSON,

J. P. CHAWORTH MUSTERS.

Bramcote, Notts.

19th September, 1903.

Report of the British Museum (Natural History) for 1902.

—The Annual Report to Parliament on the progress of the British Museum contains much that is interesting concerning the great National Collection of Birds, from which we extract the following particulars:—

Among the "publications in preparation" are announced vols. iv. and v. of the 'Hand-list of Birds,' by Dr. R. Bowdler Sharpe, and vols. iii. and iv. of the 'Catalogue of Birds' Eggs'—vol. iii. prepared by Mr. E. W. Oates and Capt. Savile Reid and vol. iv. by Capt. Savile Reid. These works are of primary importance to all ornithologists and their completion is anxiously awaited.

A large series of the eggs of the Guillemot (*Uria troile*) has been placed in the "Index Museum," in order to shew the great variation in shape, ground-colour, and markings of the egg which may occur in a single species of Bird.

Under the heading "Aves" we are informed that the re-arrangement of the specimens in the Public Gallery has been "greatly retarded by want of funds." The remounting of the Birds of Prey and Owls has been completed, and many of the British Passeres have been replaced by more artistically mounted specimens. The preparation of these has been carried out by Mr. Cullingford of Durham.

The accessions to the bird-collection during the past year amounted to 8628, among which the following are mentioned as worthy of special notice:—162 birds from New Zealand and the Cook Islands, presented by the Earl of Ranfurly; 48 birds from Mashonaland, presented by Mr. J. Ffolliot Darling; 48 birds from the Sudan, presented by

Mr. R. M. Hawker; 212 birds from Nyasaland, presented by Sir Alfred Sharpe, K.C.M.G.; 68 birds from New Guinea, including examples of two species new to the Collection, presented by Capt. F. R. Barton; 485 birds and 102 eggs from Fohkien, presented by Mr. C. B. Ricketts; an example of the nearly extinct Antarctic Merganser (*Merganser australis*) from Auckland Island, presented by Lieut. Kennett Dixon, R.N.; 2220 eggs from Eastern Asia, Australia, and North America, presented by Mr. W. H. Radeliffe Saunders, C.E.; 3 specimens of the Sicilian Long-tailed Titmouse (*Acredula sicula*), presented by Mr. J. I. S. Whitaker; the types of 17 new species of birds from Mount Ruwenzori and the Toro forests, presented by Mr. F. J. Jackson, C.B.; 118 birds from the vicinity of Buenos Ayres, presented by Mr. Ernest Gibson; 32 specimens of Birds of Prey from Western Australia, presented by the Perth Museum; 617 birds from Western Yunnan, including the types of several new species, presented by Col. C. Rippon; 8 Bean and Pink-footed Geese from Holland, presented by Mr. T. M. Pike and Mr. H. Leybourne Popham; 20 birds from the Liu-kiu Islands, presented by the Hon. N. C. Rothschild; 10 birds from Australia, including an example of *Pseudogerygone tenebrosa*, presented by Mr. Robert Hall; 60 birds from the Egyptian Sudan, presented by Capt. H. N. Dunn; 46 eggs from various localities received in exchange from Mr. H. E. Dresser; 7 birds from the Caspian, including examples of *Bernicla ruficollis* and *Anser rhodorrhynchus*, received in exchange from Mr. S. Nerontcheff; 2300 birds from Ecuador, collected by the late P. O. Simons, purchased; 231 birds from Cameroon, collected by Mr. G. L. Bates, purchased; 91 birds from Harar, collected by M. P. Zaphiro, purchased; 91 birds from Cyprus, collected by Mr. C. Glassner, purchased; 87 eggs from Assam, collected by Mr. E. C. Stuart Baker, purchased; and 160 birds from the Yemen frontier, collected by Mr. C. W. Bury, purchased.

In the report of the Geological Department we are told that important bird-bones from Madagascar, received in the last "Sikora" Collection, have been registered and arranged

in drawers for future study; also that 13 bones of birds from the Santa Cruz Formation in Patagonia have been presented by Mr. C. Arthur Pearson, and that some bones of *Æpyornis* from caverns in Madagascar have been acquired.

Return of the 'Valhalla.'—The Earl of Crawford, F.R.S., returned to the Solent in August last after a successful passage round the world in the R.Y.S. 'Valhalla.' Mr. M. J. Nicoll, M.B.O.U., who accompanied him as Naturalist, and whose progress we have already recorded (*cf. supra*, p. 456), has made a collection of some 1500 specimens, which will be arranged and determined at the British Museum. The birds, with which we are immediately concerned, are about 250 in number, the short stays at the various halting-places having somewhat interfered with this branch of the Collection; but series were obtained in the Magellan Straits, Valparaiso, the Fiji Islands, and the Samoan Islands, besides the specimens collected at sea, among which are sure to be found some of considerable interest. We hope that Mr. Nicoll will be able to give us an account of his adventures and observations in this Journal.

The Meeting of American Ornithologists in California.—Both 'The Auk' and 'The Condor,' in their lately issued numbers, give accounts of the conjoint meeting in May last of the "American Ornithologists' Union" and the "Cooper Ornithological Club" in California, which appears to have been very well planned and successfully carried out. The Eastern Members of the A. O. C. assembled at Chicago, and left that city on May 3rd for San Francisco by the Santa Fé route. Halts were made at Santa Fé, at Adamana, and in the Little Colorado desert of Eastern Arizona, where the wonderful petrified forests were inspected. A "side-trip" of two days enabled the travellers to visit the Grand Canyon of the Colorado, and halts were also arranged at Hesperia (where the famous Yucca-trees were examined) and Los Angeles, where a hospitable reception was tendered to the party by the southern members of the Cooper Club. The first meeting of the two Societies was held at San Francisco on May 15th in the hall of the Academy of

Sciences of California, when Dr. C. Hart Merriam, President of the A. O. U., took the Chair; while Mr. Charles R. Keyes, of the Cooper Club, acted as Secretary. During this and the following meetings 13 papers were read, the titles of which are given in Dr. Allen's report in 'The Auk.' Among these is a remarkable essay by Mr. L. M. Loomis on the recognition of geographical varieties in Nomenclature, which is printed at full length in the same number of 'The Auk' and deserves special attention. Thirteen Eastern Ornithologists were present at the Meeting, amongst whom we observe the names of Dr. Allen, Mr. F. M. Chapman, and other well-known naturalists.

The Penguins of Gauss-land.—The Penguins of the newly discovered Gauss-berg seem to belong to the same two species as those of South Victoria Land, namely, *Aptenodytes forsteri* and *Pygosceles adeliae*. They are thus described by Dr. Drygalski (see Geogr. Journ. 1903, vol. xxii. p. 198):—"We met with two species of Penguin, the small Adelia Penguin and the Emperor Penguin. The former we noticed on our way through the pack, and for a short time in autumn (February to March) at the Station before the ice had quite come to rest, and again from November onwards when it began to get loose again. The Emperor Penguins were less common in the pack, but increased in numbers southwards towards the fixed ice, and were our constant companions at the Station throughout the year. Both shewed the same unsuspectingness of man, and only on our return voyage through the pack were they at all shy of us. They differed, however, decidedly in temperament. While the small Penguins hurried towards us full of life and movement, croaking, almost snarling like angry dogs, and barring our way as if ready to attack us, though merely acting in absolute innocence of danger, and many got among the dogs and lost their lives, the larger Penguins made off slowly with philosophical composure. They stopped before strange objects, making their presence known by trumpet-like tones or loud croaking, and only attempted to escape, if at all, when one stood close to them. Then they let them-

selves down on to the ice, and skimmed over it quickly, using their feet for propulsion, and steering with their wings. We noticed the small Penguins only in small groups, while the larger ones passed by the ship in spring and autumn in flocks numbering as many as two hundred. We found especial pleasure in watching them in the leads, whence they would spring up on to the ice, and there continue their way in a swimming posture. The spectator had need to take care that the birds, some of them as much as 75 lbs. in weight, did not strike him in springing out of the water.

“The larger Penguins were very useful to us as food, especially for the dogs. These consumed for some time three Penguins a day. The skins and fat were burned, and so saved our fuel. The consumption of the expedition amounted in all to more than five hundred Penguins. Others fell a prey to our dogs.”

The Red-cheeked Ibis in Europe.—A further article on this bird and on its former existence in Europe (*cf.* *Ibis*, 1898, p. 454) is given in the lately issued seventh volume of the new edition of Naumann (*Nat. Vög. Mitteleuropas*, vii. p. 199). Additional information on this interesting subject will also be found in a paper by Herr Schuster of Mainz (*Orn. Monatschr. d. Deuts. Ver. z. Schutze d. Vogelwelt*, 1902, p. 520), from which it appears that the Red-cheeked Ibis was formerly found on the high rocks on the Danube in the vicinity of Passau and Kehlheim. We agree with Herr Schuster that the best name of this bird is *Geronticus eremita*, as it is not necessary to separate it generically from *G. calvus* of South Africa. Our readers may also be referred on this subject to pp. x, 95, of Mr. A. H. Evans's translation of Turner's 'Avium . . . Historia' just issued.

Death of Capt. H. F. Francis.—In his Report on the South African Museum for the year ending Dec. 31st, 1901, which has been lately published, Mr. W. L. Selater laments the death of Capt. H. F. Francis, of Steinacker's Horse, who was killed in action on the Sabi River, in the Eastern Transvaal, towards the close of the war. His younger brother, Walter Francis, had fallen previously

when proceeding to the relief of Mafeking. The South African Museum thus lost two excellent correspondents, who had largely contributed to its collections from the Eastern Transvaal and Portuguese East Africa (*cf.* Ibis, 1900, pp. 111, 283).

“Their work was specially valuable, as every specimen collected was very carefully and thoroughly labelled with all the necessary details, and in addition with notes on the habits.”

Mr. W. Eagle Clarke.—We are much pleased to hear that Mr. W. Eagle Clarke, whose very successful experiences at the Eddystone Lighthouse we have had the pleasure of recording in this Journal, has obtained permission from the authorities at Trinity House to pass a month during the present season of migration on the lightship off the mouth of the Thames at the Kentish Knock, which is about 21 miles from the nearest point of land. In this position Mr. Eagle Clarke will have excellent opportunities of studying the autumnal passages of migratory birds from east to west across the German Ocean, concerning which accurate information is much required.

Twelfth Supplement to the Check-list of North-American Birds.—‘The Auk’ for July contains a new Supplement to the ‘Check-list of North-American Birds,’ prepared by the Committee of the A. O. U. The “Additions to the List and accepted Changes in Nomenclature” are more than 120 in number. We have no wish to criticize these, but may express a fear that such changes as the proposed substitution of “*Tinnunculus*” for “*Æsalon*” will create much confusion and that the revival of the (happily forgotten) generic term *Erolia* will not be generally accepted. It cannot be truly stated that Vieillot’s *Erolia variegata* refers “*unquestionably*” to the Curlew Sandpiper. Amongst the “species and subspecies not adopted,” we see three of the subspecies of *Otocorys* recently proposed by Mr. Oberholser (*cf. supra*, p. 128). There is a formidable list of names “deferred for future consideration,” so that the Committee has by no means as yet concluded its labours.

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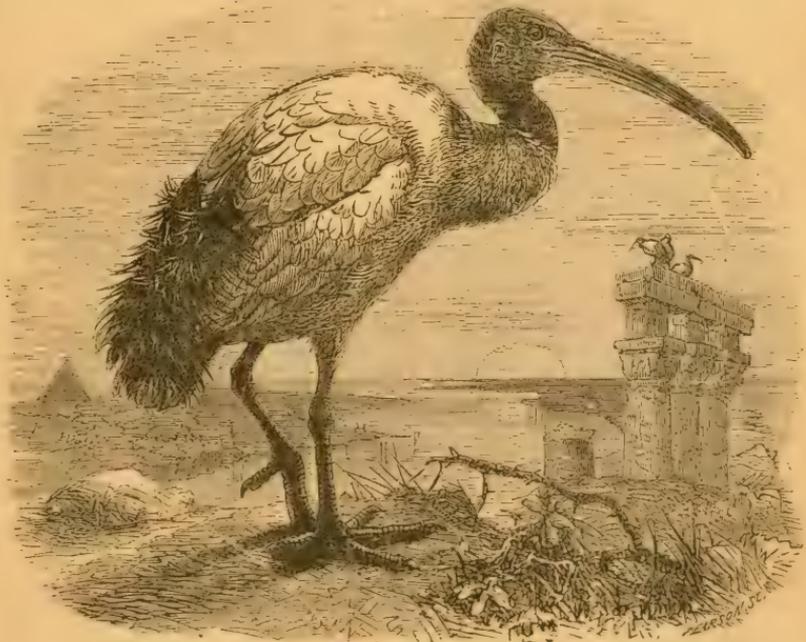
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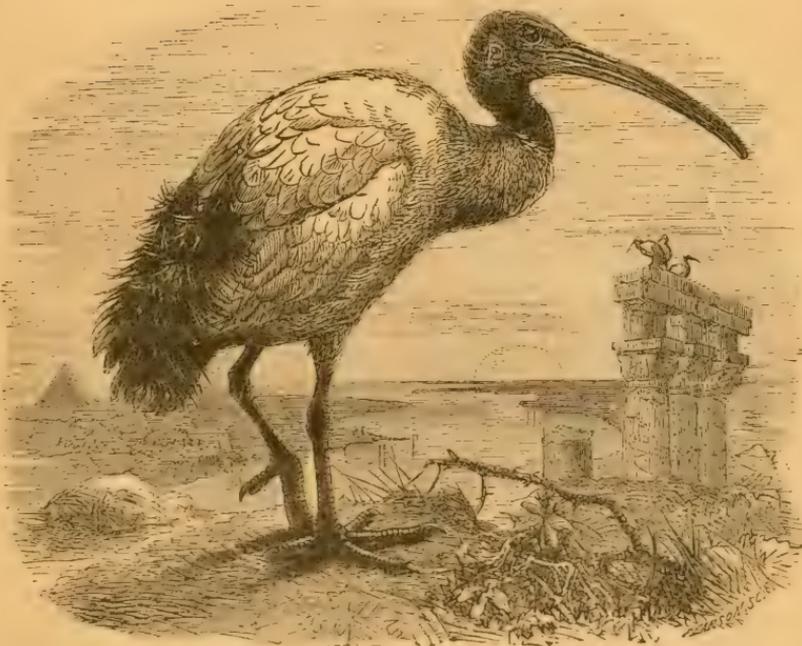
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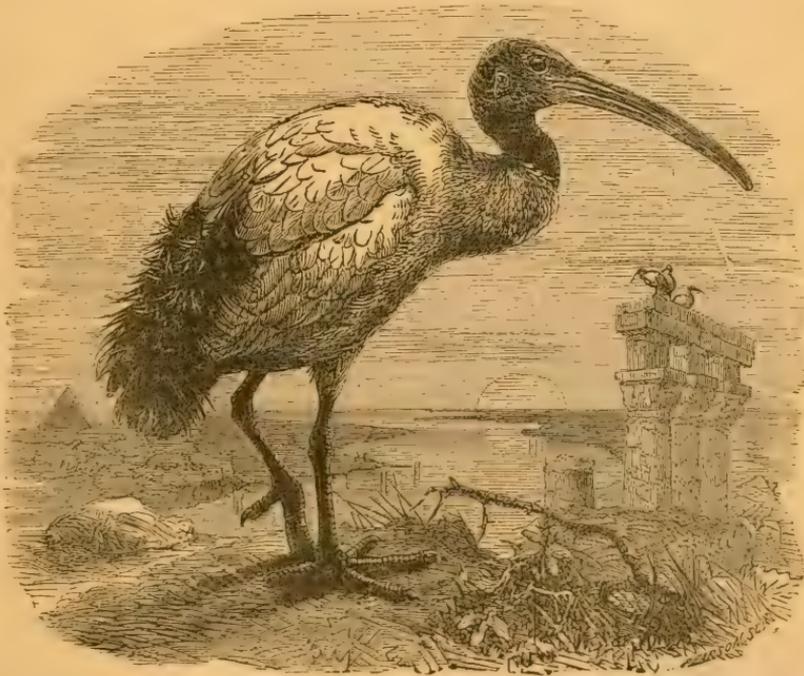
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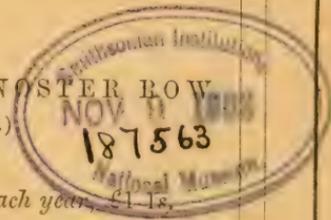
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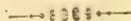
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