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THE

Avicultural Magazine,

BEING THE JOURNAL OF

THE AVICULTURAL SOCIETY

FOR THE STUDY OF

FOREIGN AND BRITISH BIRDS

IN FREEDOM AND CAPTIVITY.

EDITED BY

D. SETH-SMITH, F.Z.S., M.B.O.U.

NEW SERIES, VOL. V.

NOVEMBER 1906, TO OCTOBER 1907.

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R. H. PORTER,

7, PRINCES STREET, CAVENDISH SQUARE, W.

1907.

CONTENTS.

REPORT OF THE COUNCIL FOR THE YEAR 1906-7.

In presenting the fifth complete volume of the New Series —the thirteenth annual volume of the *Avicultural Magazine*— the Council believes that it will be found quite up to, if not above, the average of the past volumes in interest. Six coloured, nineteen uncoloured plates, and some text illustrations have been published, and many very valuable articles have appeared.

Our members have given us a list, of quite a respectable length, of birds which they have bred, it is believed for the first time in the United Kingdom. Accounts of the successful nesting of the following species have appeared: Mrs. Johnstone, Fraser's or the Great-billed Touracou (*Turacus macrorhynchus*) and the Lorikeet (*Trichoglossus johnstoniæ*) which was named after her; Mr. W. H. St. Quintin, the Pine Grosbeak (*Pyrrhula enucleator*); Mr. J. H. Gurney, the Jackal Buzzard (*Buteo jackal*); Mr. E. J. Brook, the White-eared Conure (*Pyrrhura leucotis*); Mr. W. E. Teschemaker, the Yellow-rumped Finch (*Munia flaviprymna*), and the Yellow-rumped or Black-throated Serin (*Serinus angolensis*); and Mr. W. R. Fasey, the Adelaide Parrakeet (*Platycercus adelaidensis*).

Through the enterprise of two of our members—Mrs. Johnstone and Sir William Ingram,—and the energy of their collectors, Messrs. Goodfellow and Pratt, the year 1907 has been marked by the arrival of quite a remarkable collection of living Birds-of-Paradise (pages 242 and 324).

The experiment organized by members of the Avicultural Society, of liberating certain species of foreign Doves in Regent's Park, accounts of which are published in this volume, appears, so far, to have been a success; two species, namely, *Ocyphaps lophotes* and *Turtur senegalensis*, are known to have reared young, the former freely. It would seem to be desirable, from time to time, to liberate additional specimens of these harmless and beautiful birds, in order to keep up the stock.

The membership of the Society remains about the same as

last year as regards numbers, which is not quite satisfactory as we feel sure there are still numbers of persons who only need to know of the Society in order to join us. We would urge upon our present members the desirability of introducing others.

It would greatly lessen an unnecessary drain on our resources if members who intend to resign would communicate the fact to the Honorary Secretary as early in the year as possible instead of allowing numerous notices to be sent out.

Our grateful thanks are due to those members who have helped us in the production of the present volume, either by their contributions to its pages or the introduction of new members. Our sincere thanks are also due to those who have so kindly contributed towards the Illustration Fund.

Bernard C. Thomasset.
E. G. B. Meade-Waldo.
W. P. Pycraft.
Oswald Ernest Cresswell.
Collingwood Ingram.
W. H. St. Quintin.
Marion A. Johnstone.
T. H. Newman.
Arthur G. Butler
Aubyn Trevor-Battye.
W. R. Ogilvie-Grant.
F. L. Blathwayt.
Dyddgu Hamilton.
C. Castle-Sloane.
W. E. Teschemaker.
Arthur Gill.
David Seth-Smith.

ALPHABETICAL LIST OF CONTRIBUTORS

The asterisk denotes in the Correspondence Column.

ILLUSTRATIONS IN THE TEXT.

LIST OF PLATES.

* *Coloured Plates.*

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AVICULTURAL MAGAZINE

THE JOURNAL OF THE AVICULTURAL SOCIETY.

CONTENTS.

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NOTE.—A new volume commences every November.

☛ All Subscriptions

should be sent to the Honorary Business Secretary.

THE AVICULTURAL SOCIETY.

Persons wishing to join the AVICULTURAL SOCIETY are requested to communicate with either of the Hon. Secretaries or the Editor.

NOTICES TO MEMBERS.

The Subscription to the Avicultural Society is 10/- per annum, due on the 1st of November in each year, and is payable in advance. The entrance fee is 10/6. The *Avicultural Magazine* is sent free to members monthly. Members joining at any time during the year are entitled to the back numbers for the current year, on the payment of entrance fee and subscription.

All MSS. for publication in the Magazine, Books for Review, and Private Advertisements should be addressed to the Editor, Mr. D. SETH-SMITH, Glengarry, Canning Road, Addiscombe, Surrey.

All Queries respecting Birds (except *post mortem* cases) should be addressed to the Honorary Correspondence Secretary, Dr. A. G. BUTLER, 124, Beckenham Road, Beckenham, Kent.

All other correspondence, and Subscriptions, should be sent to the Honorary Business Secretary, Mr. T. H. NEWMAN, Newlands, Harrowdene Road, Wembley, Middlesex. Any change of address should be at once notified to him.

Advice is given, *by post*, by members of the Council to members of the Society, upon all subjects connected with Foreign and British birds. All queries are to be addressed to the Hon. Correspondence Secretary and should contain a penny stamp. Those marked "Private" will not be published.

The Magazine is published by Mr. R. H. PORTER (7, Princes Street, Cavendish Square, W.) to whom all orders for extra copies, back numbers, and bound volumes (accompanied by remittance) should be addressed.

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THE

Avicultural Society

FOR THE STUDY OF

FOREIGN AND BRITISH BIRDS

IN FREEDOM AND IN CAPTIVITY.

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LIST OF MEMBERS.

(Corrected to October 14th, 1906).

NOTICE:—*Members are particularly requested to inform the Hon. Secretary of any error in the spelling of their names, addresses or descriptions, so that it may be immediately corrected.*

The date following the Member's name is the date of his election. "Orig. Mem." signifies that the Member joined the Society on its formation in October 1894. The asterisk denotes that the Member belonged to the U. K. Foreign Cage Bird Society, either at the time of the amalgamation or at some time before.

ABRAHAMS, Mrs.; 192, St. George Street, E. (May, 1895).

AINLEY, JOHN WILLIAM; 16, Dalton Green, Dalton, Huddersfield. (June, 1895).*

AITCHISON, ARCHIBALD J. T. F., M.A., F.Z.S.; Bursledon, Gervis Road, Bournemouth. (April, 1906).

ALDERSON, Miss R.; Park House, Worksop, Notts. (April, 1896).

ALEXANDER, Mrs., WILLIAM; 14, West Thirty-Seventh Street, New York City. (June, 1906).

ALSTON, GAVIN; Yondercroft, Darvel, Ayrshire. (June, 1900).

AMHERST, The Honble. FLORENCE M. T.; Didlington Hall, Brandon, Norfolk. (August, 1903).

ANNINGSON, Mrs.; Walt-ham-Sal, Barton Road, Cambridge. (May, 1899).

ANTROBUS, Miss LILY; 69, Cadogan Square, S.W. (Dec., 1904).

10 APPLETON, Miss; Rawden Hill, Arthington, Leeds. (April, 1903).

ARTHUR, CHARLES, P.; Market Place, Melksham, Wilts. (Jan., 1895).*

ASHFORD, Miss; The Birks, Branksome Wood Road, Bournemouth. (Nov., 1896).

ASTLEY, The Rev. HUBERT DELEVAL, M.A., F.Z.S., M.B.O.U.; Benham Park, Newbury, Berks. (June, 1895).*

ASTLEY, REGINALD B.; Acton Reynald, Shrewsbury. (July, 1902).

ATHERLEY, Mrs.; Attingham Park, Shrewsbury. (April, 1903).

ATTEWELL, HAROLD E.; Merriebank, Kingston, Jamaica. (July, 1903).

BAIRD, Sir ALEXANDER, Bart.; Urie, Stonehaven, Kincardine, N.B. (Oct., 1904).

BAKER, E. C. STUART, F.Z.S., M.B.O.U.; District Superintendent of Police, Morven Shillong, Assam, India. (Feb., 1904).

BAKER, JOHN, C., M.B., B.A., M.B.O.U.; Ceely House, Aylesbury. (June, 1903).

BALDELLI, La Contessa TOMMASI ; 4, Via Silvio Pellico, Florence, Italy. (April, 1902).

BAMFORD, WILLIAM ; Shorelea, Wellington Road, Oldham. (March, 1904).

BARBER, Mrs. ; Milestone Cottage, Wickford, Essex. (Jan., 1899).

BARBER-STARKEY, F. W. G. ; Aldenham Park, Bridgnorth, Shropshire. (June, 1906).

BARCLAYWATSON, Miss F. ; The Court House, Goring, Sussex. (July, 1902).

BATESON, The Hon. LILLA DE YARBURGH ; Heslington, York. (Feb., 1900).

BATHE, FRANK ; 5, Montgomery Road, Sharrow, Sheffield. (April, 1903 : dormant 1904-5).

BATHGATE JOHN ; c/o John Miller & Co., 1/1, Vansittart Row, Calcutta, India. (Oct., 1903).

BEARDALL, A. W. ; 12, Middle Hill, Weekday Cross, Nottingham. (July, 1904).

BEDFORD, The Duchess of, F.Z.S. ; Woburn Abbey, Woburn, Beds. : and 15, Belgrave Square, S.W. (Feb., 1903).

BEEBE, C. WILLIAM, Curator of Ornithology ; New York Zoological Park, New York City. (July, 1903).

BELLEW, The Lord ; Barmeath Castle, Dunleer, R. S. O., Ireland. (Nov., 1904).

BENTLEY, DAVID ; 80, St. Hubert's Street, Great Harwood, Blackburn. (July, 1895).

BERESFORD-WEBB, G. M. ; Norbryght, South Godstone, Surrey, (May, 1906).

BERKELEY, The Rev. C. J. ROWLAND ; Belton Vicarage, Uppingham. (Nov., 1902).

BERLEPSCH, FREIHERR HANS von ; 2, Landaustrasse, Cassel, Germany. (July, 1905).

BLAAUW, F. E., C.M.Z.S., M.B.O.U. ; Gooilust s,Graveland, Hilversum, Holland. (Nov., 1901).

BLATHWAYT, A. P. ; The Grange, Northwood, Middlesex. (Jan., 1895).

BLATHWAYT, The Rev. FRANCIS LINLEY, M.A., M.B.O.U. ; 5, Monk Leys Terrace, Lincoln. (Jan., 1902).

BONHOTE, JOHN LEWIS, M.A., F.L.S., F.Z.S., M.B.O.U. ; Gadespring Lodge, Hemel Hempstead, Herts. : and 113, Blenheim Crescent, Notting Hill, W. (Dec., 1894).

BOOTH, H. B., M.B.O.U. ; 40, Spring Royd, Shipley, Yorks. (March, 1906).

BOOTHROYD, ALFRED E. ; The Limes, Fitzroy Park, Highgate, N. (Sept., 1901).

BOUGHTON-LEIGH, HENRY ; Brownsover Hall, Rugby. (May, 1900).

BOUSKILL, GEO., E. ; Romanhurst, Bramall Lane, Stockport. (April, 1896).

BOWES, JOHN, J.P., F.Z.S. ; East Hill House, Herne Bay. (Oct., 1900).

BOWIE, Miss HELEN ; Queen's Parade, Clifton Hill, Melbourne, Victoria. (Nov., 1903).

BOYD, HAROLD ; Barton House, Didsbury, Manchester. (March, 1902).

BRADSHAW-ISHERWOOD, Mrs. ; Maidstone Road, Headcorn. (June, 1892 ; dormant).

BRAMPTON, Miss E.; 8, Chesterford Gardens, Frognal, Hampstead, N.W. (Feb., 1898).

BRELSFORD, JOHN; 75, Wellington Road North, Stockport. (Oct., 1902).

50 BRIDGEMAN, Lieut., The Hon. RICHARD, O.B., R.N., M.B.O.U.; Weston Park, Shifnal, Salop. (Dec., 1904).

BRIDGEMAN, Colonel, The Hon. FRANCIS C.; Neachley, Shifnal. (Oct., 1905).

BROMET, Mrs. HENRY; Highfield, Tadcaster. (Oct., 1903).

BROOK, E. J.; Hoddom Castle, Ecclefechan, N.B. (August, 1905).

BROTHERSTON, G. M.; 18, St. John Street, Edinburgh. (Feb., 1895; dormant 1901-5).

BROWNING, WILLIAM H., 18, West 54th Street, New York City. (March, 1906).

BUBB, Miss; Ullenwood, near Cheltenham. (June, 1904).

BULL, HENRY J.; 166, Upper Kennington Lane, Vauxhall, S.E. (Feb., 1903).

BURGE, SAMUEL; Ivy Cottage, Fairford. (November, 1896).

BURGESS, H. W.; High Street, Bushey, Herts. (Nov., 1900).

60 BURTON, WALTER; Moorefort, East Sheen, Mortlake, S.W. (Dec., 1901).

BUTLER, ARTHUR G., Ph.D., F.L.S., F.Z.S., *(Hon. Correspondence Secretary)*; 124, Beckenham Road, Beckenham, Kent. (Orig. Mem.).*

BUTLER, A. L., F.Z.S., M.B.O.U.; Superintendent of Game Preservation, Khartoum, Soudan. (Aug., 1906).

BUTLER, ARTHUR LARCHIN, M. Aust. O. U.; Waimarie, Lower Sandy Bay, Hobart, Tasmania. (July, 1905).

BUTLER, Colonel SOMERSET J.; Kilmurry, Thomastown, co. Kilkenny. (June, 1904).

CAMPBELL, The Hon. IAN, M.; Bramble Farm, Wye, Kent. (Dec., 1905).

CAMPS, H. T. T., F.Z.S.; Linden House, Haddenham, Isle of Ely. (Orig. Mem.).*

CAPERN, F.; 53, Redland Road, Bristol. (March, 1903).

CARLYON, Mrs.; The Rise, Brockenhurst, Hants. (Dec., 1900).

CARPENTER, The Hon. Mrs.; 22, Grosvenor Road, S.W. (Feb., 1898).

70 CARRICK, GEORGE; 13, King's Terrace, Maryhill, Glasgow. (March, 1898).

CASTELLAN, VICTOR, E.; Hare Hall, Romford, Essex. (Orig. Mem.).

CASTLE-SLOANE, C., F.Z.S.; Oat Hall, near Crawley, Sussex. (March, 1900).

CATLEUGH, W. T.; Clyffe, Richmond Wood Road, Bournemouth. (Dec.. 1894).

CATTLE, C. F.; Thurston, Bury St. Edmunds. (Jan., 1905).

CECIL, The Lady WILLIAM; Hunmanby Hall, Filey, Yorkshire. (Feb., 1901).

CHAPMAN, P. GODFREY; 21, Lennox Gardens, S.W. (Oct., 1898).

CHARRINGTON, Mrs. MOWBRAY ; The Warren, Hever, Edenbridge. Kent. (May, 1896).

CHATWIN, HERBERT F. ; 23, King Street, Nottingham. (Jan., 1902).

CHAWNER, Miss ; Forest Bank, Lyndhurst, Hants. (July, 1899).

80 CLITHEROW, Mrs. CLAUD STRACEY; 20, Park Square, Regent's Park, N.W. (June, 1903).

CLOSE, Mrs. M. FARNHAM ; 17, The Causeway, Horsham. (Feb., 1906).

COCKELL, NORMAN FORBES; 21, Camac Street, Calcutta, India. (Nov., 1905).

CONNELL, Mrs. KNATCHBULL; The Orchard, Brockenhurst, Hants, (Nov., 1897).

CONSTABLE, The Rev. W. J.; Uppingham School, Uppingham. (Sept., 1901).

CONYNGHAM, The Dowager Marchioness; 36, Belgrave Square, S.W. (Jan., 1900).

COOPER JAMES; Killerby Hall, Scarborough. (Orig. Mem.).

CORBET, Lady NINA; Acton Reynald, Shrewsbury. (Oct., 1905).

CORY, REGINALD R.; Duffryn, near Cardiff. (August, 1905).

COXWELL-ROGERS, Miss; Park Gate, Cheltenham. (Dec., 1895).

90 CRESSWELL, O. ERNEST, M.A., J.P.; Morney Cross, near Hereford. (Orig. Mem.).

CRESWELL, WILLIAM GEORGE, M.D., F.Z.S.; Eden Lodge, Kingston-on-Thames. (June, 1900).

CRONKSHAW, J.; 100, Arden Terrace, Plantation Street, Accrington. (Dec., 1894).

CROWFOOT, Miss ELLEN M.; Blyburgate House, Beccles. (Sept., 1904).

CUMMINGS, A.; 16, Promenade Villas, Cheltenham. (Dec., 1896).

CURREY, Mrs.; The Pit House, Ewell, Surrey. (Feb., 1906).

CUSHNY, CHARLES; The Bath Club, 34, Dover Street, Piccadilly, W. (June, 1906).

DALGLIESH, GORDON; Brook Witley, near Godalming, Surrey. (October. 1906).

DARLING, J. FFOLLIOTT, F.Z.S.; C. M. Royal Dublin, Z. S., Salisbury, Rhodesia. (May, 1904).

DART, HENRY; 53, Richmond Road, Kingston-on-Thames. (May., 1903).

100 DAVIES, AMOS; Toar House, Audenshaw, near Manchester. (Jan., 1906).

DAWNAY, The Lady ADELAIDE; Brampton House, Northampton. (July, 1903).

DELL, CHARLES; 12, High Street, Harlesden, N.W. (July, 1900).

DE MANCHA, JOSÉ M.; 1, Gledhow Gardens, Earl's Court, S.W. (Oct., 1902).

DENNIS, Mrs. H. E.; The Beeches, Fay Gate, Sussex. (March, 1903).

DE TAINTEGNIES, La Baronne, Le Clément; Cleveland, Minehead, Somerset. (Feb., 1902).

D'EVELYN, Dr. FREDERICK W., Pres. G. S. Cal., etc. etc.; 2103, Clinton Avenue, Alameda, California, U.S.A.

DEWAR, D.; St. Heliers, Hampton Wick. (Sept., 1905).

DEWING, Miss Z. M.; Rougham House, Bury St. Edmunds. Sept. 1906).

DE WINTON, WILLIAM EDWARD, F.Z.S., M.B.O.U.; Orielton, Pembroke. (August, 1903).

110 Director of the Scientific Institutions and Library of H.R.H. the Prince of BULGARIA; The Palace, Sophia, Bulgaria. (May, 1903).

DONALD, C. H.; c/o Punjab Banking Company, Ltd., Lahore, India. (March, 1906).

DOUGLAS, Miss; Rose Mount, Pitlochry, N.B. (June, 1905).

DOUGLAS, WILLIAM C., F.Z.S.; 9, Trebovir Road, Earl's Court, S.W. (Nov., 1900).

DREWITT, FREDERICK DAWTREY, M.A., M.D., F.R.C.P., F.Z.S., M.B.O.U.; 14, Palace Gardens Terrace, Kensington, W. (May, 1903).

DRUMMOND, Miss; Mains of Megginch, Errol, N.B. (Feb., 1905).

DUFF, The Lady GRANT; 11, Chelsea Embankment, S.W. (Aug., 1905).

DUNLEATH, The Lady; Ballywalter Park, Ballywalter, co. Down, Ireland. (August, 1897).

DUNSANY, The Lady; Dunstall Priory, Shoreham-by-Sevenoaks, Kent. (Feb., 1902).

DUTTON, The Hon. and Rev. Canon; Bibury, Fairford. (Orig. Mem.).

120 EDWARDS, G.; 377, Coldharbour Lane, Brixton, S.W. (August, 1902).

EDWARDS, STANLEY, B.A., F.Z.S.; Blackwater Covert, Southwold. (Sept., 1906).

EVELYN, Dr. FREDERIC, M.D., Pres. G. S. Cal. etc.; 2103, Clinton Avenue, Alameda, California. (1906).

EZZA, DAVID; 59, Ezra Street, Calcutta. (June, 1902).

FARMBOROUGH, PERCY W., F.Z.S.; Lower Edmonton. (June, 1906).

FARRAR, The Rev. C. D.; Micklefield Vicarage, Leeds. (Jan., 1895).

FASEY, WILLIAM R.; The Oaks, Holly Bush Hill, Snaresbrook, N.E. (May, 1902).

FEILDING, The Lady LOUISA; Broome Park, Betchworth, Surrey. (July, 1902).

FFOULKES, Mrs.; St. Melangell, Brighton Road, Rhyl. (August, 1903).

FIELD, GEORGE; Sorrento, Staplehurst, Kent. (March, 1900).

130 FILLMER, HORATIO R.; Brendon, Harrington Road, Brighton. (Dec., 1903).

FINN, FRANK, B.A., F.Z.S., M.B.O.U.; 29, Chalcot Crescent, Primrose Hill, London, N.W. (March, 1895).

FLOWER, Capt. STANLEY S., F.Z.S., M.B.O.U.; Director, Egyptian Government Zoological Gardens; Ghizeh (Giza), Cairo. (Jan., 1903).

FOLLETT, The Lady JULIA; Woodside, Old Windsor. (Oct., 1903).

FORTESCUE, The Countess; Castle Hill, North Devon. (July, 1906).

FORTUNE, RILEY, F.Z.S.; Lindesfarne, Dragon Road, Harrogate. (Nov., 1906).

FOSTER, WM. HILL; 164, Portland Street, Southport. (Jan., 1902).

FOTHERGILL, Major HENRY, J.P.; Copt Hall, Hawkhurst. (April, 1900).

FOWLER, CHARLES; 26, Broad Street, Blaenavon. (Dec., 1894).

FURNEAUX, Miss; 35, Banbury Road, Oxford. (June, 1895).

GIBBS, Mrs. H. MARTIN; Barrow Court, Flax Bourton, R. S. O., Somerset. (April, 1904).

GIBBINS, WILLIAM B.; Ettington, near Stratford-on-Avon. (June, 1895).*

GILES, HENRY M., M. Aust. O. U., (Orig. Mem.); Zoological Gardens, Perth, Western Australia. (June, 1903).

GILL, ARTHUR, M.R.C.V.S.; Veterinary Establishment, Bexley Heath, Kent. (Dec., 1899).

GILROY, NORMAN, M.B.O.U.; 95, Claremont Road, Forest Gate, E. (July, 1906).

GLADSTONE, Miss J.; The Lodge, Parkstone, Dorset. (July, 1905).

GODDARD, H. E.; Rothsay, Thicket Road, Sutton, Surrey. (Feb., 1899).

GODMAN, F. DUCANE, D.C.L., F.R.S., F.Z.S, President of the British Ornithologists' Union; 10, Chandos Street, Cavendish Square, W. (Oct., 1904). (*Honorary Member*).

GOODALL, J. M.; 52, Oxford Gardens, N. Kensington, London, W. (July, 1905).

GOODCHILD, HERBERT, M.B.O.U.; 66, Gloucester Road, Regent's Park, N.W. (Oct., 1902).

GOODFELLOW, WALTER, M.B.O.U.; c/o J. J. Mumford, Esq., The Poplars, Kettering. (June, 1897).

GORTER, Madame; The Delta, Walmer, Kent. (Nov., 1901).

GOW, J. BARNETT; 21, West Nile Street, Glasgow, and Ledcameroch, Bearsden, Glasgow. (Feb., 1906).

GRABOWSKY, F., Director of the Zoological Gardens; Breslau, Germany. (June, 1905).

GRAY, HENRY, M.R.C.V.S.; 23, Upper Phillimore Place, W. (June, 1906).

GREGORY, AUBREY; Gopalichuck, Jherriah, E.I.R., India. (Nov., 1902).

GREGORY, Mrs.; Melville, Parkstone, Dorset. (Dec., 1901).

GRIFFITHS, M. E.: Temple Road, Stowmarket. (May, 1902).

GRISCOM, LUDLOW; 21, Washington Square North, New York City, U.S.A. (April, 1905).

GRÖNVOLD, HENRIK; 26, Albert Bridge Road, Battersea Park, S.W. (Nov., 1902).

GUILFORD, Miss H.; 23, Lenton Avenue, The Park, Nottingham. (March, 1903).

GÜNNING, Dr. J. W. B., F.Z.S., Director of the Transvaal Musum and Zoological Gardens; Pretoria, South Africa. (Sept., 1906).

GÜNTHER, ALBERT, M.A., M.D., Ph.D., F.R.S., F.Z.S., M.B.O.U.; 2, Lichfield Road, Kew Gardens. (Sept., 1902). (*Honorary Member*)

GUNTHER, ROBERT L.; Park Wood, Englefield Green, Surrey. (August, 1904).

GURNEY, JOHN HENRY, F.Z.S., M.B.O.U.; Keswick Hall, Norwich: and Athenæum Club, Pall Mall, S.W. (Dec., 1904).

HAAGNER, A. K., Hon. Sec. S. African Ornithological Union; Dynamite Factory, Moddersfontein, Transvaal. (Nov., 1905).

HAMILTON, Madame; Les Deux Parzes, Champéry, (Valaise), Switzerland. (Nov., 1902).

HAMILTON, Miss; 2, Upper Wimpole Street, W. (April, 1902).

HARDING, W. A., F.Z.S.; Histon Manor, Cambridge. (Dec., 1903).

HARDING, W.; The Duke of Edinburgh Hotel, 85 & 87, Kingston Road, Wimbledon. (August, 1905).

170 HAREWOOD, The Countess of; Harewood House, Leeds. (March, 1903).

HARGREAVES, J. H.; Drinkstone Park, Bury St. Edmunds. (Jan., 1905).

HARPER, Miss; 55, Waterloo Road, Bedford. (March, 1902).

HARPER, EDWARD WILLIAM, F.Z.S., M.B.O.U.; 45, Water Street, Georgetown, Demerara, Br. Guiana, S. America. (Feb., 1901).

HARPER, FREDERICK WM.; East Cottingwood, Morpeth. (May, 1902).

HARRISON, J. H.; 18, East Beach, Lytham. (Sept., 1906).

HARTLEY, Mrs.; St. Helen's Lodge, Hastings. (April, 1897).

HARVEY, The Hon. Lady; Langley Park, Slough. (Oct., 1906).

HAWKE, The Hon. MARY C.; Wighill Park, Tadcaster. (Nov., 1900).

HAWKINS, L. W.; Estrilda, 206, Clive Road, West Dulwich, S.E. (Jan., 1899).

180 HEMELRYK, FRANCIS JOSEPH, F.Z.S.; 4, Lloyd's Avenue, E.C. (Dec., 1905).

HEMSWORTH, The Rev. B., M.A., J.P.; Monk Fryston Hall, South Milford, Yorks. (June, 1901).

HEWITT, H. C.; Saham Mere, Watton, Norfolk. (Jan., 1905).

HILL, Mrs. E. STAVELEY; Oxley Manor, Wolverhampton. (Oct., 1905).

HINCKES, R. T.; Foxley, Hereford. (Feb., 1899).

HINDLE, R. FRANKLIN; 34, Brunswick Road, Liverpool. (Sept., 1898).

HOBSON, F. G.; Villa Delta, Beverley. (May, 1905).

HOCKEN, Dr.; Dunedin, New Zealand. (Jan., 1904).

HODGSON, The Hon. Mrs.; Clopton, Stratford-on-Avon. (March, 1903).

HODGSON, RICHARD, Jun.; Molescroft, Beverley. (Feb., 1903).

190 HOLDEN, RALPH A.; 5, John Street, Bedford Row, London. (May, 1906).

HOLT, EARDLEY-WILMOT BLOMFIELD; Ashurstwood House, East Grinstead. (Dec., 1904).

HOPKINSON, EMILIUS, D.S.O., M.A., M.B. Oxon.; 45, Sussex Square, Brighton, and Gambia, West Africa. (October, 1906).

HOPSON, FRED C.; Northbrook Street, Newbury. (March, 1897).

HORSBRUGH, Capt. BOYD R., A. S. C.; Naval Hill, Bloemfontein, O.R.C., S. Africa. (Jan., 1898).

HORSBRUGH, C. B.; c/o Director, The Museum, (Box 413), Pretoria, Transvaal. (June, 1905).

HORTON, LEONARD W.; Hill House, Compton, Wolverhampton. (Feb., 1902).

HOUSDEN, JAMES B.; Brooklyn, Cator Road, Sydenham, S.E. (Orig. Mem.).

HOWARD, ROBERT JAMES, M.B.O.U.; Shear Bank, Blackburn. (April, 1903).

HOWMAM, Miss; Sherwood, 6, Essex Grove, Upper Norwood. (March, 1897).

200 HOYLE, Mrs.; The Vicarage, Stoke Poges, Bucks. (Nov., 1904).

HUBBARD, GEORGE; 112, Fenchurch Street, E.C. (Jan., 1905).

HUGHES, Lady; Shelsley Grange, Worcester. (Nov., 1904).

HUMPHREYS, RUSSELL; Southborough, Bickley, Kent. (April, 1896).

HUNTERS, FRANK; 7, York Place, Edinburgh, and Knockhill, Ecclefechan. (Feb. 1906).

HUSBAND, Miss; Clifton View, York. (Feb., 1896).

INCHIQUIN, The Lady; Dromoland Castle, Newmarket-on-Fergus, County Clare, Ireland. (Nov., 1897).

INGLIS, CHARLES M.; Boghowni Factory, Laheria Serai P.O., Tirhoot State Railway, India. (Sept., 1902).

INGRAM, COLLINGWOOD; The Bungalow, Westgate-on-Sea. (Oct., 1905).

INGRAM, Sir WILLIAM, Bart.; 65, Cromwell Road, London, S.W. (Sept., 1904).

210 INNES Bey, Dr. FRANCIS WALTER, M.B.O.U.; Curator, Zoological Museum, Government School of Medicine, Cairo, Egypt. (March, 1903).

ISAAC, CHARLES; Craigmore, Egmont Road, Sutton, Surrey. (March, 1906).

IVENS, Miss; Moss Bank, Cuckoo Road, Hanwell, Middlesex. (August, 1903).

JARDINE, Miss EMILY; Zungeru, Northern Nigeria, West Africa. (Jan., 1903).

JOHNSTONE, Mrs. E. J.; Burswood, Groombridge, Kent. (May, 1900).

JONES, H.; 13, Commercial Road, Ipswich. (Oct., 1903).

JONES, Major; East Wickham House, Welling, Kent. (Jan., 1906).

KEMP, ROBERT; c/o Mrs. Warner, Long Sutton, near Langport, Somersetshire. (March, 1903).

KERR, N.; Primrose Club, Park Place, London, W. (Oct., 1906).

KESTERMANN, HERMANN; 3, Südstrasse, Greig-i-Vogtland, Germany. (March, 1903).

220 KEYTEL, P. CASPER; Box 633, Cape Town, South Africa. (June, 1902).

LANCASTER, JOHN; Overslade, near Rugby. (March, 1904).

LANCASTER, Mrs. H. R.; 7, Victoria Terrace, Walsall. (Aug., 1897).

LASCELLES, The Hon. GERALD, F.Z.S., M.B.O.U.; The King's House, Lyndhurst. (Oct., 1896).

LAWSON, Mrs. F. W.; Adel, Leeds. (Nov., 1903).

LEE, Mrs. E. D.; Hartwell House, Aylesbury. (July, 1906).

LENNIE, J. C.; Rose Park, Trinity Road, Edinburgh. (Orig. Mem.).*

LEWIS, W. JARRETT; Corstorphine, Ryde, I. of W. (Oct., 1904).

LIDDELL, Capt. A. F.; Curfew House, Thomas Street, Windsor. (June, 1906).

LILFORD, The Lady; Lilford Hall, Oundle, Northamptonshire. (Jan. 1898).

230 LITTLE, GEO., W., M.D.; 47, Ridge Street, Glens Falls, N.Y., United States of America. (Oct., 1903).

LLEWELYN, Sir JOHN T. DILLWYN, Bart., M.A., D.L., F.Z.S.; Penlleryaer, Swansea. (May, 1903).

LOCKYER, ALFRED; Ashbourne, Selsden Road, Wanstead. (Dec., 1905).

LODGE, GEORGE E., F.Z.S., M.B.O.U.; The Studios, 5, Thurloe Square, S.W. (Aug., 1905).

LOVELACE, The Countess of; Wentworth House, Chelsea Embankment, London, S.W. (May, 1906).

LOWE, SAMUEL; Albert Cottage, Buxton Road, Mile End, Stockport. (Oct., 1902).

LYON, Miss R.; Harwood, Horsham. (Nov. 1894).

MACCALL, Miss; The Rest, Church Crookham, Fleet, R.S.O., Hants. (May, 1904; dormant).

MARSHALL, Mrs.; Ashley Warren, Walton-on-Thames. (April, 1906).

MARSHALL, ARCHIBALD MCLEAN; Bleaton Hallet, Blairgowrie, Perthshire, N.B. (Jan., 1906).

240 MARTIN, H. C.; 178, Victoria Road, Old Charlton, Kent. (Jan., 1897).

MARTORELLI, Dr. GIACINTO, M.B.O.U. etc.; Collezione Turati, Museo Civico di Storia Naturale, Milan, Italy. (July, 1906). (*Honorary Member*).

MEADE-WALDO, E. G. B., F.Z.S., M.B.O.U.; Stonewall Park, Edenbridge, Kent. (Jan., 1895).

MELLOR, Mrs.; Fair Lawn, Lytham, Lancs. (March, 1904).

MERRYLEES, Miss; 16, Harley Street, Cavendish Square, W. (June, 1904).

MICHELL, Mrs.; Crakehall, Bedale. (Sept., 1898).

MILLER, TINNISWOOD; 27, Belgrave Road, S.W. (March, 1905).

MILNE, PRESTON M.; Calverley House, Calverley, near Leeds. (Feb., 1906).

MITCHELL, HARRY; The Duchy House, Harrogate. (Feb., 1904).

MITCHELL, P. CHALMERS, M.A., D.Sc., F.R.S., Secretary to the Zoological Society of London; 3, Hanover Square, W. (Aug., 1905).

250 MOERSCHELL, F.; Imperial Hotel, Malvern. (June, 1895).

MONTAGU, E. S., M.B.O.U.; Trinity College, Cambridge, and 12, Kensington Palace Gardens. (May, 1905).

MOORE, WM. FAWCETT; Ballyanchor Poultry Farm, Lismore, co. Waterford. (Aug. 1903).

MORGAN, Mrs. E. C.; Birdsall Grange, York. (Jan. 1902).

MORSE, D. S.; Bank of Ireland, Mount Bellew, Ireland. (July, 1903).

MORSHEAD, Lady; Forest Lodge, Binfield, Bracknell, Berks. (Dec., 1894).*

MORTIMER, Mrs. ; Wigmore, Holmwood, Surrey. (Orig. Mem.).*

MURRAY, JOHN ; 25, Glasgow Street, Ardrossan. (March, 1903).

MYLAN, JAS. GEORGE, B.A, M.B. (Univ. Cal.); L.R.C.P. & L.R.C.S., (Ed.) &c., 90, Upper Hanover Street, Sheffield. (Dec., 1901).

NEWALL, Miss V. F. ; Ellingham House, Cheltenham. (March, 1905).

260 NEWMAN, T. H., F.Z.S., M.B.O.U. ; Newlands, Harrowdene Road, Wembley, Middlesex. *(Hon. Business Secretary).* (May, 1900).

NEWTON, ALFRED, M.A., F.R.S., F.L.S., F.Z.S.. M.B.O.U., Professor of Zoology and Comparative Anatomy in the University of Cambridge ; Magdalene College, Cambridge. (Nov., 1901). *(Honorary Member).*

NICOLL, MICHAEL J., M.B.O.U. ; Zoological Gardens, Giza, Cairo, Egypt. (July, 1906).

NICHOLSON, ALFRED E. ; 24, Shandwick Place, Edinburgh. (Oct. 1896).*

NOBLE, Mrs. ; Park Place, Henley-on-Thames. (Oct., 1900).

NORWOOD, EILLE ; 28, St. Stephen's Mansions, Smith Square, Westminster, S.W. (Aug., 1901).

OAKEY, W. ; 34, High Street, Leicester. (March, 1896).*

OATES, F. W. ; White House Farm, New Leeds, Leeds. (Oct., 1897).

OBERHOLSER, HARRY C. ; 1349, Harvard Street N.W., Washington, D. C., United States of America. (Oct., 1903).

ODLING, Mrs. ; Duxbury, Sturry, Canterbury. (Aug., 1905).

270 OGILVIE-GRANT, W. R., F.Z.S., M.B.O.U. ; British Museum (Nat. Hist.), Cromwell Road, S.W. (Dec., 1903).

OGILVY, HENRY S. T. HAMILTON ; Biel, Prestonkirk, N.B. (March, 1900).

OGLE, BERTRAM SAVILE, M.B.O.U. ; Steeple Aston, Oxford. (Dec., 1902).

O'REILLY, NICHOLAS S. ; 9, Royal Crescent, Ramsgate. (Dec., 1894).

OSBALDESTON, W. ; 3, Tithe Barn Street, Preston. (June, 1895).*

OSTREHAN, J. ELIOTT, D. ; Bank House, Thame, Oxon. (April, 1903).

PAGE, WESLEY T., F.Z.S. ; 6, Rylett Crescent, Shepherd's Bush, W. (May, 1897).

PALMER, Mrs., G. W. ; Marlston House, near Newbury. (Oct., 1905).

PAM, Capt. ALBERT, F.Z.S. ; 63, St. James Street, S.W. (Jan. 1906).

PANTIN, CHARLES W. ; Heathdene, Vanbrugh Park Road East, Blackheath. (May, 1904).

280 PARKER, DUNCAN, J.P., ; Clopton Hall, Woolpit, Bury St. Edmunds. (June, 1903).

PARKIN, THOMAS, M.A., F.R.G.S., F.Z.S., M.B.O.U. ; Fairseat, High Wickham, Hastings. (Oct., 1903).

PEEL, Lady ; Potterton Hall, Barwick-in-Elmet, Leeds. (June, 1904).

PEIR, P. ; Box 504, G.P.O., Sydney ; and 50, Bondi Road, Waverley, Sydney, N. S. Wales. (July, 1903).

PENROSE, FRANK G., M.D., F.Z.S., M.B.O.U. ; Wick House, Downton, Salisbury. (Dec., 1903).

PERCIVAL, WALTER GILBEY; El Damer, Soudan. (Feb., 1902).

PERREAU, Capt. G. A.; 2/4 Gurkha Rifles, Bakloh, Punjab, India. (Dec., 1903).

PERRING, C. S. R.; Melic House, Waldegrave Road, Teddington. (Sept., 1895).

PERRYMAN, C. W.; Bifrons, Farnborough, Hants. (March, 1902).

PHILLIPPS, NOEL, 21, Addison Gardens, Kensington, W. (Nov., 1901).

290 PHILLIPPS, REGINALD; 26, Cromwell Grove, West Kensington Park, W. (Orig. Mem.).*

PHILLIPPS, Mrs.; 26, Cromwell Grove, West Kensington Park, W. (Orig. Mem.).

PICARD, HUGH K.; 10, Sandwell Crescent, W. Hampstead, N.W. (March, 1902).

PICKFORD, RANDOLPH JOHN; Job's Hill House, Crook, co. Durham. (Feb., 1903).

POCOCK, R. I., F.Z.S.; Zoological Society's Gardens, Regent's Park, N.W. (Feb., 1904).

PORTER, G. C.; 38, Mill Street, Bedford. (Dec., 1901).

POWIS, The Earl of; 45, Berkeley Square, W.: and Powis Castle, Welshpool. (April, 1902).

PRICE, ATHELSTAN, E., M.B.O.U.; 4, Mincing Lane, E.C. (August, 1902).

PROCTOR, Major F. W., M.B.O.U.; Downfield, Maidenhead. (May, 1903).

PYCRAFT, W. P.; A.L.S., M.B.O.U., &c.; British Museum (Nat. Hist.), Cromwell Road, S.W. (Nov., 1904).

300 RATHBORNE, HENRY B.; Dunsinea, Castleknock, co. Dublin. (May, 1901).

RAWSON, Miss; Millhouse, Halifax. (Nov., 1903; dormant).

REID, Mrs.; Funchal, Madeira. (Feb., 1895).

REID, C. S.; 4, Howard Park Drive, Kilmarnock. (Dec., 1902).

RENAUT, W. E., M.B.O.U.; 15, Grafton Square, Clapham, S.W. (April, 1897).

RENSHAW, GRAHAM, M.B., F.Z.S.; Sale Bridge House, Sale, Manchester. (Feb., 1903).

RICE, Captain G.; Glayquhat, Blairgowrie, N.B. (May, 1902).

RICHARD, E.; Hotel Metropole, Brighton. (Orig. Mem.).

RILEY, JOSEPH H.; U. S. National Museum, Washington, D.C., U.S.A. (June, 1906).

RITCHIE, NORMAN; The Holmes, St. Boswell's, N.B. (Feb., 1903).

310 ROBERT, Madam; Hartland House, Sutton, Surrey. (June, 1906).

ROBERTS, Mrs., M. Aust. O. U.; Beaumaris, Montpelier Street, Hobart, Tasmania. (June, 1903).

ROBERTS, NORMAN B.; The Cottage, West Retford, Notts. (Feb., 1898).

RODON, Major, G. S.; Dharwar, Bombay Presidency, India. (Mar. 1906).

ROGERSON, A.; Fleurville, Ashford Road, Cheltenham. (Dec., 1902).

ROTCH, Mrs., ; 3, Beach Lawn, Waterloo, near Liverpool. (June, 1897).

ROTHERA, CHAS. L., B.A. ; Hazelwood, Forest Grove, Nottingham. (July, 1895).

ROTHSCHILD, The Hon. L. WALTER, M.P., D.Sc., F.Z.S., M.B.O.U. ; The Museum, Tring, Herts. (Jan., 1900).

RUDKIN, F. H. ; Belton, Uppingham. (Oct., 1902).

RYCROFT, MARK E. ; 8, Park Street, Wakefield. (Jan., 1902).

320 ST. QUINTIN, WILLIAM HERBERT, F.Z.S., M.B.O.U. ; Scampston Hall, Rillington, York. (Orig. Mem.).

ST. QUINTIN, Miss ; Scampston Hall, Rillington, York. (Jan., 1902).

SALTER, ALBERT J. ; Thame, Oxon. (March, 1902).

SAUNDERS, HOWARD, F.L.S., F.Z.S., &c., &c. ; 7, Radnor Place, Hyde Park, W. (Feb. 1906).

SAVAGE, A. ; 3, Rue Bihorel, Bihorel, Rouen, Seine Inférieure, France. (April, 1895).

SCHARFF, R. F., Ph.D., Secretary to the Royal Zoological Society of Ireland ; Phœnix Park, Dublin. (Oct., 1905).

SCHERREN, HENRY, F.Z.S., M.B.O.U. ; 9, Cavendish Road, Harringay. N. (Dec., 1902).

SCHWEDER, PAUL E. ; Courtlands, Goring—Worthing, Sussex. (Nov., 1902).

SCLATER, PHILIP LUTLEY, M.A., D.Sc., F.R.S., M.B.O.U. ; Odiham Priory, Winchfield, Hants. (Sept., 1902). (*Honorary Member*).

SCLATER, W. L., M.A., F.Z.S., 1511, Wood Avenue, Colorado Springs, Colorado, U.S.A. (June, 1900).

330 SCOTT, Professor WILLIAM E. D., Worthington Society, Shawnee-on-Delaware, Pennsylvania, U.S.A. (August, 1904).

SERGEANT, JOHN ; 4, Church Road, Birkdale, Southport. (Orig. Mem.).*

SETH-SMITH, DAVID, F.Z.S., M.B.O.U., (*Hon. Editor*) ; Glengarry, 14, Canning Road, Addiscombe, Surrey. (Dec., 1894).

SETH-SMITH, LESLIE M., B.A., M.B.O.U. ; Survey Dept., Entebbe, Uganda. (July, 1902).

SETH-SMITH, Mrs. W., Alleyne, Caterham Valley, Surrey. (Sept., 1904).

SHARP, Miss ; Spring Gardens, Ringwood, Hants. (Orig. Mem.).

SHARPE, RICHARD BOWDLER, LL.D., F.L.S., F.Z.S., M.B.O.U., Assistant Keeper, Zoological Department, British Museum (Natural History) ; South Kensington, S.W. (Sept., 1902). (*Hon. Member*).

SHELLEY, Captain GEORGE ERNEST, F.Z.S., F.R.G.S., M.B.O.U. ; 39, Egerton Gardens, South Kensington, S.W. (August, 1903).

SHEPHERD, Miss B. ; The Den, Walton-on-Thames. (April, 1901).

SHERBROOKE, Mrs. P. ; Douthwaite Dale, Kirbymoorside, Yorks. (March, 1897).

340 SICH, HERBRT LEONARD ; c/o Rev. E. Watson, Bepton Rectory, Midhurst, Sussex ; and Corney House, Chiswick, Middlesex. (Feb., 1902).

SILVER, ALLEN ; Long Melford, Suffolk. (Aug. 1904).

SIMPSON, ARCHIBALD ; 98, Tempest Road, Beeston Hill, Leeds. (Feb., 1901).

SLATER, ARTHUR A.; Prescot Road, St. Helen's. (Nov., 1894).

SMITH, C. BARNBY; Woodlands, Retford. (August, 1906).

SMITH, H. B.; Grangefield, Park Road South, Birkenhead. (June, 1895).*

SONDES, The Earl, F.Z.S.; Lees Court, Faversham, Kent. (Aug., 1905).

SOPP, Mrs., W. M.; 104, Liverpool Road, Birkdale, Southport. (April, 1904).

SORNBORGER, J. D.,; Ipswich, Mass., U.S.A. (Oct., 1905).

SOUTHESK, The Countess of; Crimonmogate, Lonmay, Aberdeenshire. (Feb., 1901).

350 SOUTHPORT CORPORATION: W. JAMES HATHAWAY, Curator; Hesketh Park, Southport. (Jan., 1904).

SPEED, HEDLEY; 12, Victoria Park, Bangor, Wales. (Nov., 1900).

SPICER, The Lady MARGARET; Spye Park, Chippenham, Wilts. (March, 1903).

STANSFELD, Captain JOHN; Dunninald, Montrose, N.B. (Dec., 1896).

STANYFORTH Mrs.; Kirk Hamerton Hall, York. (Nov., 1897).

STARK, W. P.; Hillstead, Basingstoke, (August, 1903).

STIRLING, Mrs. CHARLES; Old Newton House, Doune. (Sept., 1904).

STOCKPORT CORPORATION: FRANK HARRIS, F.R.H.S., Superintendent; Vernon Park, Stockport. (Oct., 1902).

STURTON-JOHNSON, Miss; Orotava House, Ore, Hastings. (May, 1897).

SUGGITT, ROBERT; Suggitt's Lane, Cleethorpes, Grimsby. (Dec., 1903).

360 SUTCLIFFE, ALBERT; Field House, Grimsby. (Feb., 1906).

SUTTON, Lady; Benham Park, Newbury. (Dec., 1901).

SWAILES, GEORGE C.; Beverley, Yorks. (June, 1905).

SWAN, J. A.; 87, Lower Kennington Lane, S.E. (June, 1902).

SWAYSLAND, WALTER; 47, Queen's Road, Brighton. (Orig. Mem.)*

SWIFT, DONALD; 58, Avenue Road, Crouch End, N. (Dec., 1898).

SWINFEN-BROWN, Mrs.; Swinfen Hall, Lichfield. (Feb., 1898).

TANNER, Dr. FRANK L.; Vauvert House, Guernsey. (Jan., 1904).

TANNER, Mrs. SLINGSBY; 62, Cheyne Court, Chelsea, S.W. (Oct., 1906).

TERRY, Major HORACE A., M.B.O.U. (late Oxfordshire Light Infantry); The Lodge, Upper Halliford, Shepperton. (Oct., 1902).

370 TESCHEMAKER, W. E., B.A.; Ringmore, Teignmouth, Devon. (May, 1904).

THOM, A. A.; Nightingales, Adlington (Lancs.), Chorley. (June, 1895).*

THOMAS, HENRY; The Vineries, Boroughbridge, York. (Jan., 1895).

THOMAS, Miss F. G. F.; Hurworth Manor, Darlington. (March, 1899).

THOMAS, Mrs. W. F.; Bishopshalt, Hillingdon, Uxbridge. (Oct., 1904).

THOMASSET, BERNARD C.; Hawkenbury, Staplehurst, Kent. (July, 1896).

THOMASSET, H. P.; Cascade Estate, Mahé, Seychelles Islands. (1906).

THORNILEY, PERCY WRIGHT; Shooter's Hill, Wem., Shrewsbury. (Feb., 1902).

THORPE, CHARLES; Selborne, Springfield Road, Wallington, Surrey. (Dec., 1901).

THORPE, F. C.; Eden Villa, 300, Hedon, Hull. (Jan., 1902).

380 THURSBY, Lady; Ormerod House, Burnley. (June, 1905).*

TOMES, W., J.P.; Glenmoor, 31, Billing Road, Northampton. (Dec., 1902).

TOPHAM, WILLIAM; The Hill, Spondon, Derby. (Feb., 1895: dormant 1902-5).*

TOWNSEND, STANLEY M.; 3, Swift Street, Fulham, S.W. (Sept., 1898).

TOYE, Mrs.; Stanhope, Bideford, N. Devon. (Feb., 1897).

TRESTRAIL, Major ALFRED B., F.R.G.S.; Southdale, Clevedon. (Sept., 1903).

TREVOR-BATTYE, AUBYN B. R., M.A., F.L.S. etc.; Broxton, Chilbolton, Stockbridge, Hants. (July, 1898).

TURNER, THOMAS, J.P.; Cullompton, Devon. (Dec., 1895).

TWEEDIE, Capt. W., 93rd Highlanders; c/o Messrs. Cox and Co., 16, Charing Cross, W.C. (April, 1903).

VALENTINE, ERNEST; 7, Highfield, Workington. (May, 1899).

390 VARDON, The Rev. S. A.; Langton Vicarage, Tunbridge Wells. (July, 1905).

VERE, The Very Rev. Canon; St. Patrick's Presbytery, 21A, Soho Square, London, W. (Sept., 1903).

VERRALL, CLAUDE; Leyton Lodge, Denmark Road, Carshalton. (May, 1897).

VILLIERS, Mrs.; The Shielding, Ayr, N.B. (August, 1906).

VIVIAN, Mrs.; c/o M. C. Tait, 23, Kidderpore Avenue, Hampstead, N.W. (March, 1903).

WADDELL, Miss PEDDIE; 4, Great Stuart Street, Edinburgh, N.B. (Feb., 1903).

WALKER, Miss; Hanley Lodge, Corstorphine, Midlothian. (Jan., 1903).

WALKER, Miss H. K. O.; Chesham, Bury, Lancs. (Feb., 1895).

WALLOP, The Hon. FREDERIC; 48, Eaton Terrace, S.W. (Feb., 1902).

WARDE, The Lady HARRIET; Knotley Hall, Tunbridge. (Aug., 1893).

400 WATERHOUSE, Mrs. D.; 6, Esplanade, Scarborough. (Feb., 1903).

WATSON, JOHN; Wentbridge, Pontefract. (Sept., 1900).

WATSON, JOHN A. S.; Ellangowan, Caterham Valley, Surrey. (Dec., 1905).

WATSON, S.; 37, Tithebarn Street, Preston. (Feb., 1906).*

WEBBER, Mrs. OSWALD; Burwood, Pinhoe, Exeter. (August, 1903).

WEST, COLIN; The Grange, South Norwood Park. (Jan., 1906).

WEST, Miss E. E.; The Homestead, Hawthorne Road, Bickley Park, Kent. (April, 1898).*

WHITAKER, JOSEPH I. S., F.Z.S., M.B.O.U.; Malfitano, Palermo, Sicily. (August, 1903).

WHITEHEAD, Mrs. HENRY; Haslem Hey, Bury, Lancs. (March, 1902).

WIGLELSWORTH, JOSEPH, M.D., M.B.O.U.; Rainhill, Lancashire. (Oct., 1903).

410 WIGRAM, Miss FLORENCE E.; Chesnut Lodge, Cobham, Surrey. (July, 1903).

WIGRAM, Miss MADELINE; King's Gatchell, Taunton. (Sept., 1903).

WILDE, Miss M.; Little Gaddesden, Berkhampstead. (Dec., 1896).

WILLATT, Miss MABEL; The Lodge, Draycott, Derby. (April, 1903).

WILLIAMS, Mrs. C. H.; 49, Okehampton Road, St. Thomas, Exeter. (May, 1902).

WILLIAMS, C. J.; Government Offices, Bloemfontein, O. R. C. (Oct., 1906).

WILLIAMS, Mrs. HOWARD; Oatlands, Sundridge Avenue, Bromley, Kent. (April, 1902).

WILLIAMS, SYDNEY, Jun.; Holland Lodge, 275, Fore Street, Edmonton, N. (Feb., 1905).

WILMOT, The Rev. RICHARD H.; Poulton Vicarage, Fairford. (Dec., 1902).

WILSON, The Rev. C. W.; St. James Vicarage, Holloway. (June, 1904).

420 WILSON, MAURICE A., M.D.; Kirkby Overblow, Fannal S. O., York. (Oct., 1905).

WILSON, T. NEEDHAM; Oak Lodge, Bitterne, near Southampton. (Dec., 1901).

WILTON, The Countess of; The Hatch, near Windsor. (Oct., 1905).

WINCHILSEA and NOTTINGHAM, The Countess of; Harlech, Merioneth. (April, 1903).

WOLFE, Miss GEORGINA; S. John's, 57, Granada Road, E. Southsea. (August, 1904).

WOODS, Miss; North Grimstone House, York. (May, 1902).

WORKMAN, WM. HUGHES, M.B.O.U.; Lismore, Windsor, Belfast. (May, 1903).

WORMALD, H.; The Heath, Dereham, Norfolk. (Dec., 1904).

YEWDALL, P.; Brookfield, Calverley, Leeds. (June, 1903).

RULES OF THE AVICULTURAL SOCIETY.

As amended August 1905.

1.—The name of the Society shall be THE AVICULTURAL SOCIETY, and its objects shall be the study of Foreign and British Birds in freedom and in captivity. Poultry, Pigeons, and Canaries shall be outside the scope of the Society. The year of the Society, with that of each volume of the Society's Magazine, which shall be known as *The Avicultural Magazine*, shall commence with the month of November and end on the 31st of October following.

2.—The Avicultural Society shall consist of Ordinary and Honorary Members; and the latter shall be restricted in number to six, and be elected by the Council.

3.—The Officers of the Society shall be elected, annually if necessary, by members of the Council in manner hereinafter provided, and shall consist of a President, one or more Vice-Presidents, a Business Secretary, a Correspondence Secretary, an Editor, a Treasurer, an Auditor, a Scrutineer, and a Council of Fifteen Members. The Secretaries, Editor, and Treasurer, shall be *ex officio* Members of the Council.

4.—New Members shall be proposed in writing; and the name and address of every person thus proposed, with the name of the Member proposing him, shall be published in the next issue of the Magazine. Unless the candidate shall, within two weeks after the publication of his name in the Magazine, be objected to by at least two Members, he shall be deemed to be duly elected. If five members shall lodge with the Business Secretary objections to any candidate he shall not be elected, but the signatures to the signed objections must be verified by the Scrutineer. If two or more members (but less than five) shall object to any candidate, the Secretary shall announce in the next number of the Magazine that such objections have been lodged (but shall not disclose the names of the objectors), and shall request the Members to vote upon the question of the election of such candidate. Members shall record their votes in sealed letters addressed to the Scrutineer, and a candidate shall not be elected unless two-thirds of the votes recorded be in his favour; nor shall a candidate be elected if five or more votes be recorded against his election.

5.—Each Member shall pay an annual subscription of 10/-, to be due and payable in advance on the 1st of November in each year. New Members shall pay, in addition, an entrance fee of 10/6; and, on payment of their entrance fee and subscription, they shall be entitled to receive all the numbers of the Society's Magazine for the current year.

6.—Members intending to resign their membership at the end of the current year of the Society are expected to give notice to the Business Secretary before the 1st of October, so that their names may not be included in the "List of Members," which shall be published annually in our November number of the Magazine.

7.—The Magazine of the Society shall be issued on or about the first day of every month,* and forwarded, post free, *to all the Members who shall have paid their subscription for the year; but no Magazine shall be sent or delivered to any Member until the annual subscription shall have reached the hands of the Business Secretary.* Members whose subscriptions shall not have been paid as above by the first day in September in any year shall cease to be Members of the Society, and shall not be re-admitted until a fresh entrance fee, as well as the annual subscription, shall have been paid.

8.—The Secretaries, Editor, and Treasurer shall be elected for a term of five years, and, should a vacancy occur, it may be temporarily filled up by the Executive Committee (see Rule 10). At the expiration of the term of five years in every case, it shall be competent for the Council to nominate the same officer, or another Member, for a further term of five years, unless a second candidate be proposed by not less than twenty-five members of at least two years standing, as set forth below.

In the September number of the Magazine preceding the retirement from office of the Secretaries, Editor, or Treasurer, the Council shall publish the names of those gentlemen whom they have nominated to fill the vacancies thus created; and these gentlemen shall be deemed duly elected unless another candidate or candidates be proposed by not less than fifteen members of at least two years standing. Such proposal, duly seconded and containing the written consent of the nominee to serve if elected, in the capacity for which he is proposed, must reach the Business Secretary on or before the 15th of September.

The Council shall also publish yearly in the September number of the Magazine the names of those gentlemen nominated by them for the posts of Auditor and Scrutineer respectively.

9.—The Members of the Council shall retire by rotation, two at the end of each year of the Society (unless a vacancy or vacancies shall occur otherwise) and two other Members of the Society shall be recommended by the Council to take the place of those retiring. The names of the two members recommended shall be printed in the September number of *The Avicultural Magazine.* Should the Council's selection be objected to by fifteen or more members, these shall have power to put forward two other candidates whose names, together with the signatures of not less than fifteen Members proposing them must reach the Hon. Business Secretary

* Owing to the extra pressure of work, the October and November numbers are liable to be late.

by the 15th of September. The names of the four candidates will then be printed on a voting paper and sent to each member with the October number of the Magazine, and the result of the voting published in the November issue. Should no alternative candidates be put forward, in the manner and by the date above specified, the two candidates recommended by the Council shall be deemed to have been duly elected. In the event of an equality of votes the President shall have a casting vote.

10.—Immediately after the election of the Council, that body shall proceed to elect three from its members (*ex officio* members not being eligible). These three, together with the Secretaries and Editor, shall form a Committee known as the Executive Committee. Members of the Council shall be asked every year (whether there has been an election of that body or not) if they wish to stand for the Executive, and in any year when the number of candidates exceeds three there shall be an election of the Executive.

The duties of the Executive Committee shall be as follows:

(i.) To sanction all payments to be made on behalf of the Society;

(ii.) In the event of the resignation of any of the officers during the Society's year, to temporarily fill the vacancy until the end of the year. In the case of the office being one which is held for more than one year (*e. g.* Secretaries, Editor, or Treasurer) the appointment shall be confirmed by the Council at its next meeting;

(iii.) To act for the Council in the decision of any other matters that may arise in connection with the business of the Society.

The decision of any matter by the Executive to be settled by a simple majority (five to form a quorum). In the event of a tie on any question, such question shall be forthwith submitted by letter to the Council for their decision.

The Executive shall not have power

(i.) To add to or alter the Rules;

(ii.) To expel any member;

(iii.) To re-elect the Secretaries, Editor, or Treasurer for a second term of office.

It shall not be lawful for the Treasurer to pay any account unless such account be duly initialed by the Executive.

It shall be lawful for the Business Secretary or Editor to pledge the Sociey's credit for a sum not exceeding £15.

Should a member wish any matter to be brought before the *Council* direct, such matter should be sent to the Business Secretary with a letter stating that it is to be brought before the Council at their next meeting: otherwise communications will in the first place be brought before the Executive.

A decision of a majority of the Council, or of a majority of the

Executive endorsed by the Council, shall be final and conclusive in all matters.

11.—The Editor shall have an absolute discretion as to what matter shall be published in the Magazine (subject to the control of the Executive Committee). The business Secretary and Editor shall respectively refer all matters of doubt and difficulty to the Executive Committee.

12.—The Council (but not a Committee of the Council) shall have power to alter and add to the Rules, from time to time, in any manner they may think fit. Five to form a quorum at any meeting of the Council.

13.—The Council shall have power to expel any Member from the Society at any time without assigning any reason.

14.—Neither the office of Scrutineer nor that of Auditor shall be held for two consecutive years by the same person.

15.—The Scrutineer shall not reveal to any person how any Member shall have voted.

THE SOCIETY'S MEDAL.

RULES.

The Medal may be awarded, at the discretion of the Committee, to any Member who shall succeed in breeding, in the United Kingdom, any species of bird which shall not be known to have been previously bred in captivity in Great Britain or Ireland. Any Member wishing to obtain the Medal must send a detailed account for publication in the Magazine within about eight weeks from the date of the hatching of the young, and furnish such evidence of the facts as the Executive Committee may require. The Medal will be awarded only in cases where the young shall live to be old enough to feed themselves, and to be wholly independent of their parents.

The account of the breeding must be reasonably full so as to afford instruction to our Members, and should describe the plumage of the young, and *be of value as a permanent record of the nesting and general habits of the species*. These points will have great weight when the question of awarding the Medal is under consideration.

The parents of the young must be the *bonâ fide* property of the breeder. Any evasion of this rule, in any form whatever, will not only disqualify the breeder from any claim to a Medal in that particular instance, but will seriously prejudice any other claims he or she may subsequently advance for the breeding of the same or any other species.

In every case the decision of the Committee shall be final.

The Medal will be forwarded to each Member as soon after it shall have been awarded as circumstances will permit.

The Medal is struck in bronze (but the Committee reserve the right to issue it in *silver* in very special cases), and measures 2½ inches in diameter. It bears on the obverse a representation of two birds with a nest containing eggs, and the words "The Avicultural Society—Founded 1894." On the reverse is the following inscription: "Awarded to *(name of donee)* for rearing young of *(name of species)*, a species not previously bred in captivity in the United Kingdom.

Members to whom Medals have been awarded.

For a list of the Members to whom Medals were awarded during the First Series see Vol. II. (*New Series*), p. 18.

NEW SERIES.

Vol. I., p. 317. Mr. D. SETH-SMITH, for breeding the Greater Button-Quail, *Turnix tanki*, in 1903.

Vol. I., p. 366 Mr. L. M. SETH-SMITH, for Breeding the Rain-Quail, *Coturnix coromandelica*, in 1903.

,, ,, p. 393. Miss R. ALDERSON, for breeding the White-fronted Dove, *Leptoptila jamaicensis*, in 1903.

,, ,, p. 400. Mr. W. H. ST. QUINTIN, for breeding the Ruff, *Pavoncella pugnax*, in 1903.

Vol. II., pp. 211 & 263. Mr. D. SETH-SMITH, for breeding the Brush Bronzewing Pigeon, *Phaps elegans*, in 1904.

,, ,, p. 270. Miss R. ALDERSON, for breeding the Rufous Dove, *Leptoptila reichenbachi*, in 1904.

,, ,, p. 278. Mr. D. SETH-SMITH, for breeding the Scaly Dove, *Scardafella squamosa*, in 1904.

,, ,, p. 285. Mr. D. SETH-SMITH, for breeding the Tataupa Tinamou, *Crypturus tataupa*, in 1904.

,, ,, p. 339. Dr. ALBERT GÜNTHER, for breeding the Red-backed Shrike, *Lanius collurio*, in 1904.

,, ,, p. 353. Mr. B. FASEY, for breeding the Yellow-rumped Parrakeet, *Platycercus flaveolus*, in 1904.

,, ,, p. 353. Mr. C. CASTLE-SLOANE, for breeding the Talpacoti Dove, *Chamæpelia talpacoti*, in 1904.

Vol. III., p. 64. Mr. W. H. ST. QUINTIN, for breeding *Pterocles exustus* in 1904.

,, ,, p. 75. Mrs. HOWARD WILLIAMS, for breeding the Yellow Sparrow, *Passer luteus*, in 1904.

,, ,, p. 130. Mis R. ALDERSON, for breeding the Solitary Ground-Dove, *Leptoptila chlorauchenia*, in 1904.

,, ,, p. 295. Mr. D. SETH-SMITH, for breeding *Turnix varia*, in 1905.

,, ,, p. 352. Sir WILLIAM INGRAM, Bart., for breeding Gray's Bare-throated Francolin, *Pternistes leucoscepus*, in 1905.

,, ,, p. 363. Mr. D. SETH-SMITH, for breeding the Swamp-Quail, *Synœcus australis*, in 1905.

Vol. IV., p. 24. Mrs. MICHELL, for breeding Forsten's Lorikeet, *Trichoglosus forsteni*, in 1905.

,, ,, p. 30. Mrs. HOWARD WILLIAMS, for breeding the Pileated Finch, *Coryphospingus pileatus*, in 1905.

,, ,, p. 68. Mrs. HOWARD WILLLIAMS, for breeding the Pectoral Finch, *Munia pectoralis*, in 1905.

,, ,, p. 70. Mr. W. E. TESCHEMAKER, for breeding the Green Avadavat, *Stictospiza formosa*, in 1905.

,, ,, p. 117. Mr. A. TREVOR-BATTYE, for breeding the Scaly-breasted Colin, *Callipepla squamata*, in 1905.

Vol. IV. p. 276. Mr. R. FASEY, for breeding Bourke's Parrakeet, *Neophema bourkei* in 1906.

„ „ p. 307. Dr. A. G. BUTLER, for breeding the Tambourine Dove, *Tympanistria tympanistria*, in 1906.

„ „ p. 331. Mr. W. E. TESCHEMAKER, for breeding the Black Tanager, *Tachyphonus melaleucus* in 1906.

„ „ p. 536. Mr. H. BOUGHTON-LEIGH, for breeding the Great-billed Andaman Parrakeet, *Palæornis magnirostris*, in 1906.

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QUAILS OF THE GENUS COTURNIX.

1. Coturnix coturnix. 3. C. japonica. 5. C. delegorguei.
2. C. capensis. 4. C. coromandelica. 6. C. pectoralis.

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SOME NOTES ON THE QUAILS OF THE GENUS *COTURNIX.*

By D. Seth-Smith, F.Z.S., M.B.O.U.

The genus *Coturnix*, comprising the true Quails, consists of but seven species or, if we consider the Cape form to be but a subspecies, six species only, one of which, *C. novæ-zealandiæ* is now extinct or on the verge of extinction.

The species are as follows:

1. *Coturnix coturnix*, the common Migratory Quail which ranges over the greater part of Europe, Africa and Asia.
2. *C. capensis*, the Cape Quail, inhabiting South Africa, Madagascar etc.
3. *C. japonica*, the Japanese Quail, inhabiting Japan, South-East Mongolia and China.
4. *C. coromandelica*, the Rain-Quail, inhabiting the greater part of the Indian Peninsula.
5. *C. delegorguei*, the Harlequin or Delegorgue's Quail, inhabiting Central and South Africa.
6. *C. pectoralis*, the Australian Stubble Quail, confined to Australia and Tasmania.
7. *C. novæ-zealandiæ*, the New Zealand Quail, now said to be extinct.

With the exception of *C. japonica* and, of course, *C. novæ-zealandiæ* I have kept all of the species of *Coturnix* in my aviary, and have reared young from three of them, so I propose to give some notes on these birds from observations made from my living examples.

In the first place it may be well to point out where the members of this genus chiefly differ from those of such nearly-allied genera as *Synœcus* (Swamp Quails) and *Excalfactoria* (Painted Quails). In a very able paper on the genus *Coturnix*, published in the *Annals and Magazine of Natural History* (1892, p. 167), Mr. Ogilvie-Grant writes "The genus *Synœcus* appears to be very doubtfully distinct from *Coturnix;* so far as I can see, the only tangible character by which the two can be distinguished is found in the axillaries, which are shorter and greyer in the former. I think it highly probable that *Synœcus* will have to be merged in *Coturnix*." Thus, so far as cabinet ornithology is concerned, there is practically nothing by which to separate the two genera. They are however perfectly distinct in life. In the first place the appearance of the Swamp Quails is quite different from that of the true Quails, they appear to be much shorter on the legs than the latter, but run much faster. They are much more like miniature Partridges than like Quails. But the most important point in which the two genera differ is in their breeding habits. Both *Synœcus* and *Excalfactoria* are strictly monogamous, and *both sexes brood the young*, whereas *Coturnix* is semi-polygamous, by which I mean that, although a male will pair with only one female at a time, and remain true to her until incubation commences, he will promptly leave her when this period arrives and seek another mate. If the birds are in an enclosure where there is no other hen quail, there is a danger of the cock bullying the hen and perhaps driving her off her nest. When the young are hatched the cock *Coturnix* does not attempt to brood them, in fact if he approaches he is promptly driven off by the hen; or he may prove aggressive and drive her from her young which, without their mother's warmth, promptly die.

To return to the species of *Coturnix* in their proper order:

Coturnix coturnix. I have had little experience in keeping the common Migratory Quail. A pair spent last winter and the early spring in my aviary and I found them very wild and, I think, the least interesting quails I have kept and, as I had not room for them when the nesting season approached, they were despatched to the Zoo. This species would doubtless breed in captivity without trouble, providing they had a fair-sized patch

of rough grass and other shelter such as low bushes or brush-wood, but there are other quails whose habits are practically similar but which are tamer and more beautiful, so that *C. coturnix* seemed to me to be hardly worth troubling about as my space was limited.

Figure I. on the accompanying plate represents a typical male example of *C. coturnix*, but this species is very subject to variation, and many European specimens have the cheeks almost as reddish in colour as the form which is found in South Africa and has been separated as *C. capensis* or *C. africana*. Mr. Frank Finn tells me that in India the quails seem to be very true to type, andhe has never seen one there with the reddish cheeks.

Coturnix capensis. The Cape Quail (see plate, fig. II.) is a resident form and differs from *C. coturnix* only in the red colouring of the cheeks and reddish tinge on other parts of the body. Mr. Ogilvie-Grant considers it entitled to sub-specific rank only, and states that it interbreeds freely with the Common Quail. Mr. W. L. Sclater, who follows Reichenow in using the synonym *africana* for this quail, states that all of the specimens he has come across from South Africa are undoubtedly referable to the red-cheeked form. The pair of *C. capensis* which lived some months in my aviary were sent with the pair of *C. coturnix* to the Zoological Gardens as I had no room for them during the breeding season. I therefore had no opporunity to study the nesting habits of this form. My pair were very wild like the Common Quails.

Coturnix japonica. The Japanese Quail (see plate, fig. III.) is said to be a good species, but it is very closely allied to *C. coturnix* with which it is said to interbreed freely in the wild state. From an examination of the series of specimens in the British Museum I should be very much inclined to call this also a sub-species of *C. coturnix;* but there is one character which Mr. Ogilvie-Grant has pointed out and illustrated (*Ann. & Mag. Nat. Hist.* (6), X. p. 171) which is perhaps sufficient to separate it specifically. In the female the feathers of the chin and throat are elongated and pointed as in none of the other species of the genus. Prjevalsky says that it is easily distinguished from *C. coturnix* by its voice. "From the end of March to the middle of

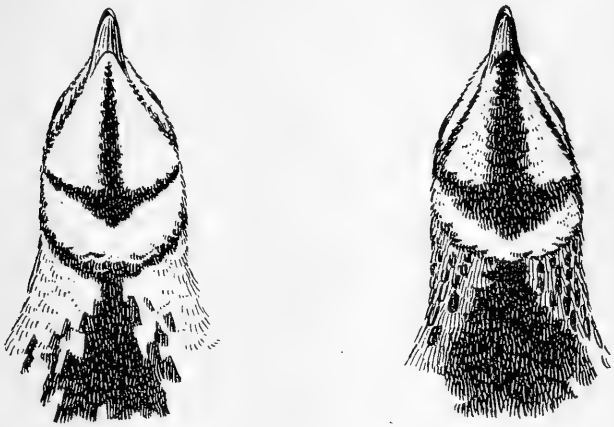
summer the call-note of the males can be heard daily, consisting of some deep hollow sounds several times repeated in quick succession." (Rowley's *Orn. Misc.*, II., p. 424).

Coturnix coromandelica. The Rain-Quail (fig. IV.) is somewhat smaller than the species above referred to and absolutely distinct, its nearest ally being *C. delegorguei* of Africa. The female however is much like the female of the Common Quail only smaller. In fact in all of the true quails the females are very much alike; plain little brown birds without any conspicuous markings, that of *C. delegorguei* being the most distinct.

The Rain-Quail is not very often imported, but it is a very charming bird for a well-turfed aviary, and although very wild when first received, soon gets tame, and breeds quite freely. The hen generally selects for her nest a spot beneath a tuft of grass, or in the midst of a heap of hay and rubbish. The hen is an excellent sitter and her plumage harmonizes wonderfully with her surroundings. The eggs, as in the other species of this genus, vary considerably, but the usual ground-colour is buff or stone-colour which is heavily blotched and spotted with dark brown. Measurement in inches 1·10 × ·85. In my aviary the usual clutch has been six or seven, but nine is no uncommon number for these quails. Incubation is completed in from *sixteen* to *eighteen* days, the period varying slightly according to the temperature of the weather. Here I may remark that it is not always easy to determine the exact period of incubation as the sitting bird does not leave the nest until some hours after the chicks are actually hatched. A hen Rain-Quail which commenced to sit early in the day of July 12th left the nest with her brood on the morning of the 29th, which would apparently fix the period of incubation at 17½ days, but it is probable that she actually hatched late on the previous day or during the night. As a rule two broods are reared during the year, the first in May or June, and the second in July or August. The chicks when first hatched, are covered with a thick fluffy down, the head and underparts being bright yellowish buff-colour, two stripes of the same colour passing down the back. The centre stripe down the back and two

stripes passing down the back of the head are dark brown, the sides of the body being suffused with this colour. The markings of the young of the true quails are practically the same in all of the species, though the colour differs somewhat.

At the conclusion of these notes I propose to explain the method I have adopted for the rearing of the young of this and other species of quails.



Coturnix coromandelica. *C. delegorguei.*

DIAGRAM SHEWING THROAT-MARKINGS.

Coturnix delegorguei (fig. V.). The Harlequin or Delegorgue's Quail is the rarest, the most beautiful and the tamest, so far as my experience goes, of the true quails. In size it is about equal to the Rain-Quail but the male differs from this in having a much broader black patch on the breast, and the flanks deep chestnut brown. It is an exceedingly handsome species, but one that is very rarely imported. The Zoological Society appear to have received their first example in July, 1869,* another in 1873, others in 1883 and 1884, since which the species appears to have been unrepresented in the Society's collection. In the year 1886 others were imported, for Mr. R. Phillipps informs me that one London dealer had fully eighteen living specimens, and he purchased a pair, and an odd female the following spring. Between June 7th and June 22nd, 1887, eight eggs were laid in

* In the *List of the Vertebrated Animals* this species is entered under the synonym *C. histrionica.*

Mr. Phillipps' aviary, but the hen did not sit. In 1889 Mr. Phillipps secured another cock bird, presumably a survivor of the importation of 1886. He writes me "they were very tame nice birds and I liked them very much. They would breed freely and easily if given fair play."

In the autumn of last year Mr. Thorpe, the well-known dealer at Hull, imported a few examples of this species, and I secured a cock and two hens. They spent the winter in a warm aviary, and were transferred to the larger outer aviary in April. On the 23rd of May one of the hens commenced to sit on eleven eggs. The nest was made in some hay that had been thrown down in a corner for the other birds in the aviary to build with. The sitting bird would carefully draw the hay entirely over her so that she was quite invisible. On June 8th she left the nest with eight chicks—incubation having lasted *sixteen* days. I did not expect the bird to hatch so soon and was away from home on the eventful day, not returning until late in the evening. The next morning I found the hen with six chicks only, and subsequently discovered that she had led her brood into an adjoining compartment of the aviary from which she had returned with six only, the other two being unable to climb over a wooden step separating the two compartments. This shows the importance of being on the spot when any young ground birds are hatched. Had I been at home that day I should have reared a brood of eight young Harlequins; as it was I had to be content with six. They were perfectly easy to rear in the way I shall presently describe.

On July 4th the same hen commenced to sit on a second clutch of seven eggs of which she hatched six on the 19th, all of which were reared.

The young quails were very precocious in their development as will be seen from the following dates, which refer to the first brood.

June 8. Hatched.
,, 18. Wing-feathers well grown, able to fly well.
July 2. Young males showing white face-markings.
,, 7. Rapidly assuming adult plumage.
Aug. 1. Young males in full adult plumage and inclined to fight for the hens.

The eggs of *C. delegorguei* are not easy to distinguish from those of the Rain-Quail, though, on the whole, the spots are smaller and more numerous. The newly-hatched chicks are slightly darker in colour than those of *C. coromandelica* but otherwise similar.

The call-note of the Harlequin Quail is much like that of the Rain-Quail but less loud and consisting of three notes instead of two.

Coturnix pectoralis (fig. VI.). The Australian Stubble Quail is very common in Eastern and South-Eastern Australia and Tasmania. It is slightly larger than the other members of this genus, with the exception of the extinct New Zealand Quail. It is rarely imported alive into this country, and I can find no published record of its having been bred here. A pair have spent the past summer in my aviary, where the female has reared a brood of seven.

In May the hen commenced to lay, the nest consisting of a few pieces of dry hay beneath a thick clump of grass. Eleven eggs were laid, but she made no attempt to sit, probably being disturbed by the other quails in the same enclosure. On the 15th of June I discovered another nest, carefully concealed beneath thick grass, and on the 19th of that month she commenced to sit on ten eggs. She sat beautifully and hatched off a brood of seven on July 7th, incubation having been completed in *eighteen* days. The chicks were exactly like young Rain-Quails except for their slightly larger size. They were easily reared, though one was found dead, with its skull broken, probably through flying against the wire roof, when about three parts grown.

The young males commenced to show black streaks on the breast when five weeks old, and were in adult plumage when about eight weeks old.

The call-note of the male *C. pectoralis* during the breeding season sounds like "chucaloi."

Coturnix novæ-zealandiæ. The New Zealand Quail is not shown on the plate, as there was no room for a seventh figure, and a bird that is said by the best authorities to be extinct is of little interest to aviculturists. It was slightly larger than *C.*

pectoralis and considerably darker in colour, especially on the underparts.

At one time, and that not so very long ago, this fine quail was very abundant in New Zealand, especially in the South Island, but with the advent of settlers with their marauding domestic animals, their guns and their bush fires, the quail commenced to vanish, and when it became noised abroad that it was becoming rare, the collector, as is his wont, stepped in to finish the work of extermination, and we are told that a single skin of a *female* was sold, within recent years, for seventy-five pounds.

If only a few pairs of the quails had been taken alive the species could have been kept going by breeding it in captivity. There is little doubt that it would have bred in captivity as readily as the other species of the genus, and probably two broods a year, of from five to ten birds each could have been reared from each pair kept.

THE MANAGEMENT AND REARING OF QUAILS IN CAPTIVITY.

To keep quails of the group we are now considering successfully they must have a fairly large run which is well turfed and in which cover is provided by low bushes or bundles of brushwood. Part of their enclosure should also be roofed over and sanded, so as to provide a place for dusting and scratching. My own aviary, in which no less than three species of *Coturnix* have lived together and reared broods during the past summer measures about 42 feet by 21 feet, and is turfed and planted with various trees and shrubs and has a pond in the centre, and the birds have access to a dry well-lighted shed. The aviary is tenanted by many birds, including Ground Doves (*Geophaps*), besides the quails and two species of *Turnix*. It is therefore not necessary that each pair of quails, in order to breed successfully, should have a place to themselves.

As the nesting season approaches the males are apt to drive one another about, but no serious battles are likely to take place and, in the case of the three species which I have had under observation during the past summer, no cross-breeding

has taken place as I feared it might with such closely allied forms as *C. coromandelica* and *C. delegorguei.* In the spring the call-note of the males is very frequently heard, the shrill double note of the Rain-Quail being audible at a considerable distance.

The female generally selects for a nesting-spot a thick clump of grass, under which she draws together a few blades of dry grass, the growing blades being carefully arranged over her back so as to render her invisible from above when on her nest.

The clutch varies somewhat with the species, six being the lowest number and thirteen about the highest for a single bird. The eggs are laid daily until the clutch is complete when, providing the surroundings are to the birds liking, and she is not disturbed in any way, incubation commences. At this time the male deserts the female entirely and seeks another mate, so that, if the enclosure is sufficiently large, it is well to have two females to each male. If however there is no other female present it is advisable to remove the male as soon as incubation commences, otherwise he may worry the hen and cause her to desert her nest.

A note should be made of the date on which incubation commences so as to be able to calculate the date of hatching. Incubation varies from sixteen to eighteen or nineteen days in the case of *Coturnix*, and probably depends slightly upon the temperature of the weather.

A critical time arrives when the hen leaves the nest with her brood. If she should get frightened she may run some distance, calling her chicks which will do their best to follow her, though some may be too weak to do so and promptly die from cold. My own plan, which has worked most successfully, is to confine the hen and her brood in a small run by themselves for at least the first fortnight. The runs I use are about six feet long by four feet wide, about twelve or eighteen inches high, boarded at the sides and wired over the top, and with one end made to open to facilitate the often difficult task of driving the birds in. Part of the top is made to open for feeding. This run is placed upon a flat piece of ground on which is plenty of good grass, and care has to be taken that no space is left anywhere below the sides through which a chick could squeeze. Over part of the top brushwood is placed as a shelter. The hen and her chicks are

then carefully and gently driven towards this run, and when once in they may be considered perfectly safe from harm and quite easy to rear. In fact I cannot remember ever losing a young bird when once I had them safely confined thus. There is no fear of them being disturbed or robbed of their food by other birds, and there is no chance of their wandering from their mother or she from them and their not being able to get to one another again.

There is nothing better for young quails than living ants' cocoons, and the aviculturist who lives right in the country, where he can procure and supply his birds with an ants' nest a day is much to be envied by his less fortunate brethren. When possible I procure ants' nests for my young quails, filling large biscuit-tins with them, earth and all, and tip a little of this mixture of earth, ants, and their cocoons, into the run twice a day. Besides this they are regularly fed twice a day with soft food consisting of finely-powdered hard-boiled egg, bread-crumbs, preserved ants' cocoons and fine crissel, the last two ingredients having been previously soaked. The young quails may be reared on the soft food and seed alone, but they should certainly have living animal food if this can be procured, especially after the first four or five days, when the growth of their feathers is very rapid. I have found small gentles most useful when ants' cocoons were unprocurable, but it is most essential that these should have been kept for two or three days at least in dry sand before being given to the birds in order that they may be thoroughly clean. After the first week I add green food to the soft-food mixture in the form of finely-chopped chickweed or young grass.

Of course seed must be supplied for the mother, and the young birds will partake of this after the first week if not before. Fine Indian millet is very useful for young quails, and they will eat a good deal of this after the first week of their existance.

When a fortnight old the brood may be let out with their mother into the aviary again, but if there are other quails nesting there, or it is desired that the mother of the chicks should have a second brood, it is best to wait until the young birds are three weeks old and then let the mother go back into the en-

closure in which she had her first brood and leave the chicks in the run another week by themselves, then transferring them to a separate aviary or larger run. If they should be allowed with the nesting quails they would most probably disturb these or be driven about and perhaps killed by the adult males. It is advisable to move the run on to fresh ground at least once during the time it is occupied by the brood.

Quails, whether young or old, have a habit, especially at night-time, of springing into the air, and captive specimens often injure themselves severely by dashing against the wire-netting forming the roof of their enclosure. It is therefore an excellent plan to cut the flight-feathers of one wing or even to pinion the birds when young to prevent this.

All of the species of *Coturnix* are quite hardy providing they have access to a dry place in winter.

SOME NOTES ON THE "URRACA" JAY* AND OTHER SOUTH AMERICAN BIRDS.

By H. C. Martin.

Returning home lately after some years spent in Uruguay I brought with me a couple of these beautiful Jays, which, as far as I can gather, have been but little, if at all, imported before and do not seem to be known to the dealers. My surroundings out there were not such as to make it very easy to do much in the way of aviculture, but the innate love of keeping some sort of "bichos," and particularly birds, had to have its outlet and, in spite of difficulties and the "slackness" after business hours that a warm climate tends to produce, it was not long before I had a small, miscellaneous collection together in a sort of glorified fowl-run, divided into three compartments. There I kept, or keep, for I expect they will most of them still be there when I return in December, some of the common Tinamous and some "martineta" Tinamous, known usually by the names of "perdiz" and "perdiz grande," a pair of a pretty little blue-gray Heron ("mirasol"), some aquatic bird very similar to a Curlew but

* Presumably the Pileated Jay (*Cyanocorax pileatus*).—Ed.

almost wholly of a glossy purple black, the name of which I do not know, though it is locally called "bandurria," the very common "tero-tero," or Spur-winged Plover, which I was soon glad to part with as he is much too noisy a customer for a confined space, though a most beautiful and elegant bird, some pretty wild duck, some pigeons—there are four kinds in my particular district—several pairs of "boyeros," or black Hangnests, I believe, little slim-bodied birds of charming habits though sombre in their garb of black, an "ornero" or Oven-bird—a most interesting species about which I may be one day able to send some special notes—and sundry other small fry. Worth mentioning too, though not an "avis," was a coypú (so called by the natural history books, though in his native country he is always "nutria," the name by which his soft warm pelt is known in the fur trade): he shared the Herons' quarters, and having been caught quite small, was for some time a most pleasing and comical pet, delighting to be rolled over, stroked and tickled, and diving and playing in his tank like a miniature Zoo. sea lion. As he grew larger however his temper became unreliable and he was at times very savage, not to say dangerous, for a bite from the chisel-like teeth of a water rat as big as a fox terrier is no laughing matter.

My first favourites however were the "urracas" and some White-capped Tanagers "Cardinal imperial," very lovely birds, tame and gentle, but which I was unhappily never able to keep for long even in their own climate, though natives have assured me that they are quite hardy and will live well on scalded maize-meal with a little shredded cooked meat and plenty of green food. I was not able to give my birds much attention personally, but I had them supplied with a rather more liberal diet, including fruit. However, I lost them all, apparently by wasting, while I noticed that the moult was very protracted and imperfect. If I try again I shall keep them alone in a large cage and try to discover what it is they need.

To come back however to the "urracas": one of these I obtained as a week-old nestling and it has become about the most ridiculously tame bird I have ever seen: I thought in fact that it never would learn to feed itself as, for a long time, though fully grown and feathered, it used to starve rather than do so,

and even now, though about a year old, when hungry will stand with shuffling wings and baby voice to have tit-bits put down its throat. The other wild-caught bird is also tame and will take food from the fingers in the aviary, but it always remains a little shy and cautious and will not allow itself to be touched, though nothing pleases the other better than to be scratched and tickled, especially with a twig or straw, and he will raise his feathers, stretch his neck and close his eyes in a most laughable way, thoroughly enjoying a dry shampoo.

I unfortunately omitted to take notes of the young bird's nestling plumage, which differed markedly from that of the adult: after one moult he still shows some points of difference from this latter, viz., that his eyes are brown, though I now observe that they are gradually changing to the clear, bright yellow of the other birds; the inside of his mouth too was flesh-coloured, but is gradually becoming black like that of the other, and I have remarked that the soft thick plumage of the breast and vent, practically pure white in the old bird after his moult, was in the young one, right up to the roots of the plumes, of a light creamy yellow: these feathers are, however, so soft and delicate that they get soiled with the greatest ease, and both birds have made themselves so dirty through bathing and afterwards hopping about on the earth floor of the place where I am at present obliged to keep them, that one can no longer distinguish any such difference. I believe, however, that this part of the plumage, cream-coloured in the young bird, becomes throughout gradually lighter with age, though in the wild state even I should think it is very liable to be soiled merely by contact with branches and so on.

They are otherwise very handsome, boldly-coloured birds, considerably larger than the Brazilian Blue-bearded Jay, described by Dr. Butler in the magazine for May 1903: the back, wings and tail, with the exception of a white bar at the end of the latter, are of a deep rich blue which glistens very handsomely in the sunlight: the feathers of the neck and head are of a velvety black and extend to form a semi-circular cravat across the breast while, on the back of the head, they puff out, as it were, into a curious rounded crest like half a black velvet "pom-pom," as I

believe the ladies call it, from beneath which falls away a patch of light lilac-blue feathers, making a very sudden contrast above and blending below into the dark blue of the back. The little brilliant blue eye-patches and darker purplish blue patches at the base of the lower mandible are disposed in almost the same way as in the Blue-bearded Jay above-mentioned. The rounded crest gives the bird a very quaint appearance at first sight and I am unacquainted with any other passerine bird which has a similar one, most crests rising rather from the front of the head: it may perhaps be compared with that of the Tufted Duck on a small scale.

The "urraca" in his wild state is rather a shy bird, though at the same time in one way a bold one, the natives saying that he can be caught in the simplest of traps and that he frequently comes down after a "carneada" (killing of an animal by the cattle-men for food out in the "camp") to try and snatch a tit-bit for himself. But down in the thick and shady "monte" or woods by the riverside which he haunts—I have never seen him elsewhere and even there he is a scarce bird—one seldom sees him clearly but merely hears a ventriloquial "craw," and may just detect a flash of blue and white passing through the dark and creeper-hung trees. Of his nesting habits I can say little as I have never actually found the nest, but believe it to be very like that of our English Jay. I have remarked that the birds are very fond of breaking twigs or sticks into short pieces which they do with a dexterous twist of the head, aided perhaps by a previous hammering with their powerful beaks. There are birds' nests galore to be found in the "camp," and I was much struck at first by the numerous large ones built of sticks, such as those of the "leñatero" (wood-gatherer) and of the little Green Conure, seemingly so exposed and accessible: but if one tries to get at them one soon finds that it is not so easy as it looks: the small hardwood trees are full of thorns and generally so bristly as to be almost unclimbable, even if large enough for that, while the nests themselves are for the most part built of thorny sticks packed together with such strength that it is a difficult matter to break or remove them.

Nor can I well describe the voice of the "urraca"; he has

so many and such varied calls. The old birds will come up to the wires and call, chatter, and whisper in the most curious way, bowing and jerking himself about and evidently doing his best to talk and be sociable. Both have several loud and ringing call notes, one almost like the bark of a puppy which they generally utter when alarmed or surprised: they are said to learn to talk well which I can quite believe, for they undoubtedly mimic various sounds, and the young one can whistle like any parrot. As pets I know of no more interesting or desirable birds; they are very pretty, tame and hardy and almost as intelligent as dogs. A piece of biscuit or a nut tossed to them will be very cleverly caught, sometimes in mid-air, and every new object is thoroughly investigated, being gripped between the feet, just in the manner shown in Mr. Grönvold's illustration of the Blue-bearded Jays, to be hammered by the powerful bill, with which they will very soon split a lead pencil, for example, into splinters. They seem to have all the curiosity and love of bright objects of the Crow tribe, and one particularly noticeable habit is that of concealing pieces of food, especially nuts or fruit stones, in some crevice or on the ground, hammering it home and then piling up quite large stones, lumps of earth and sticks above it.—I have seen them lift and fly away with so heavy an object as an almost entire hard-boiled egg, though their flight is by no means powerful.—They have a quaint way of not appearing satisfied with this burying operation the first time, undoing all their work and repeating the whole business in some other corner, and I believe they never forget where they have hidden something. Another trick they have is that of pouching their food in the front of the throat or bottom of the mouth and carrying it about in this way for quite a long time, until they select a hiding place for it or finally swallow it. The two seem much attached to one another and pay each other many little attentions, but I am unable to say whether they are a true pair; if they are, and given a very roomy home and suitable treatment (to keep them or similar birds in a cage of small dimensions is to my mind a cruelty, apart from which it gives one no opportunity of observing their habits properly) I feel sure they would breed easily in this country, but they should not be subjected out-of-doors to the trials of our

long, damp, foggy winter. These two I have given to another of our members, but shall certainly try to get a couple more to keep when I return, for I know no species I can more strongly recommend to bird lovers, more perhaps as a pet than from the strictly avicultural point of view.

As to feeding, I think what one would give to an ordinary English Jay or Magpie is all sufficient: a little meat, for preference cooked, hard-boiled egg and biscuit, varied with an occasional chicken bone, some sweet cake, fruit or nuts, of which latter they are very fond, and a few mealworms or insects when obtainable, seem to suit them well, though they eat but little for their size. They revel in a good splash and should be allowed a good large bath pretty often.

In an aviary or very large cage I should feel inclined to fix up for them one of those large wire flower-baskets, or else some sort of box, like a small dog-kennel with a wire-work bottom and a perch inside, as basis for a possible nest.

Parts of Uruguay abound in beautiful and interesting birds, very many of which I feel sure have never reached England except as skins. One is struck at first by their greater tameness in the wild state, as compared with our native species, but to obtain them alive is not an easy matter, the professional bird-catcher being out there a scarce individual, while the average native peon fails quite to understand why a mutilated corpse or severely injured bird is not a desirable acquisition to the erratic "inglés." However, far distant be the day when the professional catcher may become a common object of the country.

In conclusion, a few words as to bringing birds home from foreign countries, though what I am about to say is nothing new to most aviculturists. Insist upon a strong, sufficiently large and airy cage of the box pattern, open only in front. (Oh, the martyrdom that I have seen hundreds of unhappy birds subjected to on board ship, throughbad caging, over-crowding, and the appalling ignorance of their owners, who cannot make out why one in ten often cannot survive a three-weeks' passage.) Let your cage be made with small meshed wire even for the largest birds—this to defeat as far as possible the assaults of those strange people who think that all living things were made for them to poke at, as

well as of ship's cats, rats, and other vermin—and of a form to provide shelter from sun and salt water, rain and wind: such cage to have a couple of stout battens nailed on underneath to prevent it from standing in the wet, and to have the food and water tins *in front;* if they are placed at the side and other packages are placed against them, the butcher, who is generally no naturalist and, on a liner, perhaps a rather hard-worked person, will find it too much trouble to move these latter and your birds will only get fresh water and clean tins "sometimes." I have also found it well to have a piece of canvas to roll down the front for occasional protection. Then keep a good eye on your birds *yourself* and go and see them once, if not twice or thrice, a day; but above all, at least so my experience has taught me, be diplomatic and cheerful with Mr. Butcher, for liners do not like live stock and he knows it very well, so that even the prospect of a generous tip—which is more or less obligatory in any case—has not always the desired effect. You must not be fussy with him or expect him to know that bird-seed is not the proper nourishment for Plovers or Bien-te-veos (sulphury tyrant, I believe): a cheery good morning and an occasional cigar will effect much more. Hardy and easy to feed as they are I doubt whether I should have got my Jays home safely from Buenos Aires without all these precautions, through the sheer ignorance and indifference one meets with.

The best way, if one cannot accompany one's birds, is no doubt to ship by some of the faster regular cargo boats, and lucky are you if you can arrange for some officer or other intelligent and interested person on board to take care of them for you. As far as possible, too, always ship a supply of the most suitable food you can.

For anyone taking a short trip, say to Madeira or the Canaries, and thinking of bringing birds home, I should recommend taking a special box-cage with one's luggage, making it to pack in sections, and if one thought of bringing back soft-billed birds one would do well also to provide a tin or two of some special food and perhaps a supply of ants' eggs, so-called.

ON THE BREEDING IN CAPTIVITY OF THE RED-BACKED SHRIKE.

(*Third Notice*).

By Dr. Albert Günther, Hon. M. Avic. Soc.

The same pair of Shrikes, whose breeding operations were reported in the *Avicultural Magazine* for 1904 and 1905, have nested again in their aviary in the present year.

Almost to the day (April 24th) the short period of migratory unrest commenced, and was particularly troublesome in the male bird; even in the day-time he seemed terrified when I approached his cage; the female did not show any signs of seasonal excitement.

After they had been moved into their aviary, it took them some time to settle quietly in their summer quarters; they behaved exactly as last year. The cold weather which continued nearly through the whole of May, repressed their reproductive instincts and the male attended at this period to his nesting operations in the most perfunctory manner, merely preparing a layer of moss at the bottom of last year's nesting basket. The nest was finally completed at the end of June and the first egg laid on the 30th of that month. The clutch consisted of three eggs only. They were unusually brightly coloured, one being spotted all over and so different from the others that a collector might have been excused for supposing it to be a Cuckoo's egg. Only one young was hatched which in due time has grown into a strong bird, and although independent for its food, is still occasionally fed by its father (September 30).

The young reared last year have proved to be a male and female, and if I am right in thinking that the one of the present year is a female, the proportion of the sexes of the young of this pair of Shrikes is, so far, exactly alike.

NOTES ON DOVES.

By C. Castle-Sloane.

I first made the aquaintance of the pretty and graceful Senegal Doves in June of last year; they soon made themselves at home in the aviary set apart for the doves, and started to make a fragile nest of a few twigs and hay, it really could not be called a nest as it was so flimsy, and looked so like coming down with every gust of wind, that I quite expected to see the eggs broken when I went in of a morning; however the birds seem proud of accomplishing such a nest. The eggs were laid on the 6th and 7th of August: of course they chose the most exposed spot possible, and after a few days, when everything was going on nicely, an awful storm of rain which lasted for two or three days came on, luckily a slight shower came first as if to warn me what to expect, so a piece of matting was placed over the top of the aviary and so protected the nest. Contrary to expectations, the young were hatched, and fine big birds they were, the parents being very attentive to them; but one morning, without any warning, they were both found dead in the nest. The bird had not deserted them, as she was sitting on the nest that night. About this time I went away, and heard nothing more till one morning I received a letter stating that they had nested again, the eggs being laid on the 18th and 19th of August, and hatched out on September 2nd. The young grew and prospered and, at the time of writing, are flying about in the aviary. When these doves were nesting they were rather spiteful to the others, and when they left the nest for food they would fly all round the aviary making darts at each occupant as if for the fun of the thing.

About the same time I heard that the Painted Doves had laid on the 16th and 17th of August and hatched out on August 31st. I was rather excited, thinking that this might be a rare species, so I wrote to Mr. Seth-Smith saying that I was away and asking if he could tell me what it was, and he very kindly told me it was the White-winged Zenaida Dove (*Melopelia leucoptera*). This dove also built a very fragile nest, choosing an open spot. Some time ago I bought some basket nests and put them in the

most suitable places, as I thought, but soon found the birds preferred to choose their own spot for a nest, as not one of the baskets was used. I never take any precautions as to the young birds falling out of their nests as there never appeared to be any need for it. The only time that I did have nestlings die was when I handled them, and nothing would then prevent them from falling out, and although I put them back, in the morning they were found dead.

I have bred in the same aviary the Australian Crested Dove (*Ocyphaps lophotes*), the White-fronted Dove (*Leptoptila jamaicensis*), the Rufous Dove (*Leptoptila reichenbachi*), the Cinnamon Dove (*Chamaepelia talpacoti*), and the White-wing Zenaida (*Melopelia leucoptera*), while I had at one time or another the Bleeding-heart, Wonga Wonga, Spotted, Araucana, Crown and White-crowned Pigeons, Indian Green-winged, Red Mountain, Black Spotted, Pigmy, and Geoffroy's Doves, etc.

FOOD FOR NIGHTINGALES AND OTHER DELICATE INSECTIVOROUS BIRDS.

By the Rev. HUBERT D. ASTLEY, M.A.

May I be allowed to assist in digging up some of the truth with regard to the most satisfactory food for nightingales, etc.? During an automobile tour in Umbria and Tuscany last springtime I purchased two of these birds. One at Arezzo at the commencement of the tour; the other at Siena at the finish thereof.

My Arezzo bird—the native town of Petrarca—sang beautifully whenever and wherever the motor-car came to a standstill —in hôtels strange to him, at railway stations when the motor-car was no longer with us—and even in the motor-car before we actually started for a day's journey.

It was through purchasing the Sienese bird that I obtained the most valuable tips as to food. I had gone to a small bird-shop (oh! how dirty and smelly it was) to buy some mealworms, telling the man that I wanted them for a Nightingale, upon which he asked me whether I should like another one. At first

I said "no," but on his telling me that it belonged to a shoemaker who would be glad to part with it because it sang so loudly, I consented to be conducted to view it. It was evidently a young bird like the Arezzo Nightingale: that is—as the owner indeed assured me—a bird of the previous year. I heard him singing as I walked down the street, for the cage in which he lived was hanging outside.

Like the one already purchased, this bird was extremely tame, pecking at the fingers of his owner, and I could not resist buying him for 30 lire.

Upon asking the shoemaker what he gave his bird to eat, he answered as follows: Fresh heart (no meat but heart, be it heart of bullock, chicken or any other heart) chopped extremely small and mixed well up with flour of Indian corn. Then add some "bachi de seta" [silk worm cocoons] finely powdered, and mix altogether. Chop finely some radish leaves, and mix in thoroughly. To this may be added a little grated cheese, and some olives, which must be unsalted. They are dry olives, and must be soaked in water, and then chopped up. This then is what I give my Nightingales to eat, adding also some pieces of grape, elder berries, apple and other fruits.

I feed a Blue-winged Siva, a White-capped Himalayan Redstart and a Shâma on the same. I give them the mixture twice a day, making it all up in the morning, but putting aside some part of it [in a refrigerator if the weather is hot] and giving the birds their second course during the afternoon.

I suppose one could import to England dried olives (unsalted) and also a sack of the dried cocoons which are put aside after the silk has been wound off them. Grilli, 100 Via Ghibellina, Florence—a bird dealer—would supply them. Unfortunately these cocoons have rather a strong odour.

The above recipe is undoubtedly a good one, for if not how could Nightingales thrive as I found them thriving when I bought them, in filthy cages, with unclean drinking water, and living by day in a draughty street, and by night in extremely stuffy shops?

THE NESTING OF *TRICHOGLOSSUS JOHNSTONIÆ.*

By Mrs. Johnstone.

An interesting account of the importation of these Lorikeets, by Mr. Walter Goodfellow, was published in the January number of this magazine, and makes a description of these birds and their native home unnecessary, so I must take up their Life Story from the time they reached my hands.

Three birds reached me alive—a fourth reached England but died at the Docks—one of the three looked like dying, but after twenty-four hours care and warmth, quite recovered. They were turned into their new quarters about November in last year and lived in perfect peace and friendship until February, when signs of a break up of the happy party were to be noticed. Two of the birds kept much together, roosted together, and together combined in making the life of the third bird a burden and misery. She—for it turned out to be a female—was chased, pecked, and not allowed to feed, until fearing fatal results, she was moved into the next aviary, and so the pair had the place to themselves.

The aviary measures 10 ft. square by 8 ft. high, with a small outside flight, the inside aviary has several fir boughs nailed up, the outside a few perches, but no growing trees. Amongst the inside perches a cocoa nut husk was fixed, and on the wall one or two nesting boxes of different patterns. The pair of Lorikeets billed and cooed, otherwise made funny little twittering sounds, and played like kittens, or as only Lories and Lorikeets can do. The cock fed the hen and the pair roosted together in the cocoa nut husk, out of which they had scratched most of the fibre. This went on for about three weeks, when a change was noticeable in the behaviour of the cock. This fickle fellow now spent much of his time talking to the odd Lorikeet in the next division, the very bird he had so cruelly ill used a few weeks previously. He and she were always to be seen chattering, scrambling up and down the wires, and generally disporting themselves like two sad and separated lovers; the poor little deserted hen sitting inside the aviary looking the

picture of misery. Once more the three were allowed together, but this time the deserted hen had quickly to be captured, as she had had her tail pulled out and been almost scalped by the new wife and her fickle mate.

These birds now took possession of a small wooden box, measuring about 7 in. by 10 in. high, and a cocoa nut husk cemented at the bottom. The hen almost at once commenced to sit, or rather they both did, for the cock spent nearly as much time in the box as the hen, always roosting in it together and he feeding the hen several times a day on the nest.

Three weeks passed, and at last I fancied I heard more than one sound when the feeding took place, the hen rarely appeared and I made sure there were youngsters. At last, as the hen appeared to be neglecting the babies, I took courage and peered into the box, the old birds solemnly looked on and showed no annoyance. To my great disappointment there was *nothing*, not an egg, or even an egg shell, and to this day I cannot imagine why this farce was carried through, it was such a ridiculous waste of time and energy and so annoying to their owner.

About three weeks after this the hen commenced to sit again, but I took very little interest in her affairs, as I quite believed she was going to play this little game again. The cock fed her industriously and as before roosted and spent much time in the nest box, which considering the weather—86 deg. in the shade—must have been warm work. I still kept count of dates in case of success, and just three weeks after the hen disappeared little squeaks and sounds of young birds proceeded from the nest box. I was sceptical at first, but as the sounds got stronger I took advantage of the old birds' absence and once more examined the nesting box. The old birds flew in at once with cries of rage and fright, but I had time to see two little bare red bodies with large beaks—baby Lorikeets about a week old!

And now, day by day, the sounds grew louder from the box, the calls for food stronger but at longer intervals. The old birds fed largely on spray millet and sweetened bread and milk; half an orange was also consumed daily.

Just a calendar month after the young ones were first heard in the box, they appeared perfectly fledged, in faultless

feather, exactly like the old birds, with the following exceptions: the beaks are black, a fine white ring of skin is noticeable round the eye, the edges of the flight features in the wings are edged with white—they are slightly smaller. The maroon marking from the eye to eye is not so clearly defined at the back of the head, but starts in a wide band from the eyes.

"Them there Johnstonians," as my bird boy gravely calls them, are a most devoted family, the old birds' fondness is pretty to watch. As a rule they roost alternately, first the old cock, then a young bird, then the hen, then a young bird—packed close together they chatter and twitter and preen each others' feathers.

And now I discovered the only point in which these birds differ in their nesting from other Lorikeets. In taking down the nesting box and cocoa nut husk, for the autumn cleaning, I was surprised to find in each a rough nest. The little ends and twigs of fir, tiny scraps with the needles attached had been carried into the box, the cocoa nut fibre had been scratched up and quite a nest constructed. The cocoa nut husk had been similarly treated, several pieces of twig and fir had been carried in, in fact both the box and husks were half full of scraps and bits of twig and fibre.

In conclusion, may I add, that these birds are absolutely hardy; since I have had them they have been perfectly well, and all through last winter were out on every passable day, scrambling and playing, when most Lories and Lorikeets would have looked puffy and miserable. This is not of course surprising, as they come from a very high altitude, but it is refreshing to find a hardy beautiful creature, and one as ready to reproduce its species in captivity.

QUEEN ALEXANDRA'S PARRAKEET.

The Rev. H. D. Astley has kindly sent us the photograph which we publish of the interior of one of his aviaries showing his male Queen Alexandra Parrakeet, *Spathopterus (Polytelis) alexandræ*. These very rare and beautiful Parrakeets nested during the past summer, the female laying no less than three clutches of eggs, in April, May and June. All however proved to be unfertile, though she sat splendidly.

Interior of one of the Rev. H. D. Astley's aviaries showing male Queen Alexandra's Parrakeet and Blue Robin.

Bale, Sons and Danielsson, Ltd.

REVIEWS.

THE STORY OF HEDGEROW AND POND.*

In the December (1905) number of this journal we had occasion to notice a delightful book for young people entitled "The Birds and their Story," by Mr. R. B. Lodge, of which the volume now before us is a companion. As may be gathered from the title the author deals with the many wonders of Natural History that are revealed at every season of the year, and in every hedgerow and pond, to those who have eyes to see them. Mr. Lodge is a naturalist who knows well how to observe nature and to teach his readers how to do so also.

Many very charming little etchings are inserted in the margin of the pages, and there are no less than eight full page coloured plates by the author's brother, Mr. George Lodge, who is perhaps second to none as a naturalist artist.

We can very strongly recommend Mr. Lodge's book to those who wish to give their children and young friends a book that will interest and instruct them in nature study.

GARDEN AND AVIARY BIRDS OF INDIA.†

Mr. Frank Finn is well known to our members as an authority on Indian Birds, and a new book on this subject from his pen will be welcomed by many. The book is written chiefly for Anglo-Indians, and the birds dealt with are those which are commonly to be met with in the gardens of India; but as these are sometimes brought home to this country, where some of them, such as the Dhyal or the Shama, make very delightful aviary inmates, the book is of great interest to aviculturists generally.

At the end the author deals with many of the better known aviary birds belonging to other countries, and which are often to be seen in the Calcutta markets or in private aviaries.

A chapter dealing with classification is written in such a way that it can be easily understood by every one; and seven black and white plates add to the usefulness of the volume.

---

* *The Story of Hedgerow and Pond*, by R. B. Lodge, London; Chas. H. Kelley, 26, Paternoster Row, E.C. Price 5/- net.

† *Garden and Aviary Birds of India*, by FRANK FINN, B.A., F.Z.S., M.B.O.U, Calcutta; Thacker, Spink & Co, London; R. H. Porter,

CORRESPONDENCE, NOTES, ETC.

FOREIGN BIRDS FOR LONDON PARKS.

Several members have shown that they take an interest in the proposed experiment of liberating some foreign doves in Regent's Park by sending contributions towards the purchase of the birds. The following donations, for which I am most grateful, have reached my hands:

	£	s.	d.
Rev. Hubert D. Astley	1	1	0
Sir Alexander Baird, Bart.	2	2	0
Mr. C. Castle-Sloane	2	2	0
Dr. F. D. Drewitt	1	1	0
Mr. W. B. Gibbins	5	0	0
Mr. W. J. Lewis	0	10	0
	£11	16	0

Besides these very generous money-donations Mr. W. J. Lewis has given two pairs of Necklace Doves, the Hon. Gerald Lascelles has promised a pair of Palm Doves and, as previously announced, Sir William Ingram, Bt. six Bronzewing Pigeons.

The species which I believe would be most likely to succeed is the Australian Crested Dove. This is an exceedingly graceful and beautiful bird, hardy and well able to take care of itself, and it is proposed, if the birds are to be had, to spend almost all of the sum subscribed on the purchase of examples of this species. The Bronzewing Pigeon would also be a good one for our purpose, and possibly some of these may also be purchased, but I think the Crested Dove (*Ocyphaps lophotes*) is the most suitable species.

Dr. Drewitt is also of this opinion, for he writes me as follows concerning this bird: "This bird seems to have all the necessary qualifications, being hardy, beautiful and harmless. It bred freely in the aviaries of the late Lord Lilford; and a pair I once had seemed quite happy even in a cage in London.

"The usual argument against acclimatization cannot be applied to it. Rabbits, Starlings, Sparrows, and Thrushes were known to be harmful long before they were introduced into our Colonies. There can be little danger of the graceful little dove competing with the Woodpigeon, if it did no great harm would be done.

"Of course the first of them will share the pioneers' fate. Some will be "obtained" and stuffed; some greedily eaten by cats. But others will survive. May they become the ancestors of a prosperous race."

Any member who has Crested Doves to sell at a reasonable price, or to give for the experiment will greatly oblige by communicating with me.

It is proposed to form a small Committee to manage the experiment, and of course a full statement as to how the money has been spent will be published in due course. D. SETH-SMITH.

SIR,—I have just received my copy of the *Avicultural Magazine* for September and have read with horror, not to say disgust, the suggestion to turn out a number of Australian Crested or Bronze-wing Pigeons in Regent's Park. Are we dissatisfied with our own avifauna that we should try and establish birds beautiful and harmless enough perhaps in their own country, but which when once started in England might and probably would completely drive out many interesting species of birds?

I have been to most civilised and uncivilised countries in the world and have seen many "introduced" species of birds, that is to say birds introduced into continents and islands outside of their range, and I have never yet come across a single instance where this has not done harm to the original avifauna, and I defy anyone to prove otherwise. Once let a foreign species of bird or mammal become established, and then, either good-bye to some interesting original species or, if this does not happen, the "introduced" species multiplies accordingly and quickly becomes a curse. I need here only mention a few instances. Mynahs introduced into Fiji, the Sandwich Islands, and Tahiti are fast outnumbering and destroying many of the smaller peculiar passerine birds of those islands. Sparrows in Australia need no comment from me here. The Mongoose in the West Indies is quickly becoming, or rather has become, an absolute menace to the resident fauna. The American Opossum (*Didelphis marsupialis*), perhaps a harmless mammal in its own country, has now, owing to its being introduced into the West India Islands, *completely exterminated* the Capped Petrel (*Œstrelata hesitata*) in the two Islands Guadeloupe and Dominica, when and where it is known to have bred. There is no need to further enlarge upon the "introduction" follies, and if we in England, one of the few countries in the world whose avifauna has been kept comparatively pure, and which is probably one of the most interesting in the world, if we, I say, will not take warning by the follies of our Colonies, may we, or at least those who intend to perpetuate this new folly, live to repent it.

Zoological Gardens, Giza, Egypt. MICHAEL J. NICOLL.

[We regret that we cannot agree with Mr. Nicoll. We are very fully aware of the amount of harm that has been done by ill-considered acclimatization, and the instances quoted in the above letter were all ill-considered. In almost every instance prolific species from cool climates have been introduced into countries where the temperature is warm enough to admit of a *perpetual breeding season.* The introduced species moreover have been more powerful than the native species with the result that the latter have been overpowered. Had the introducers of the Sparrow, Rabbit, or Mongoose, or any of those species mentioned by Mr. Nicoll, stopped for one moment to consider what would be the result of their experiment they could not have failed to see its folly.

With the experiment we propose to try we maintain that no harm could possibly result. We are introducing species from a warm climate

into a country with a much cooler temperature. Hence their natural breeding season would be reduced. Moreover the Australian Doves, which we propose to liberate, are far less robust in constitution than the indigenous Woodpigeons which at present have the Parks to themselves. It seems unlikely that they would spread much farther than the London Parks if indeed they manage to hold their own there for any time, but even if they ever managed to spread to the surrounding country they could never do much harm, none in fact compared with the Woodpigeon. Moreover, being rarities, they would be immediately shot by the ubiquitous collector.

Again the introduction of these Australian Doves could not affect the records of the occurrences of rare migrants such as the introduction of foreign Palæarctic birds would be likely to do, for no one would expect them to have migrated to this country of their own free will. If this were the case we could understand Mr. Nicoll's objection. As it is, it is difficult to do so. As before stated in this Journal, the Crested and Bronzewing Pigeons have already been liberated and become more or less established at Woburn.—ED.].

SIR,—I am afraid the scheme of turning out Bronzewings, etc., will not answer very well. My own experience has only been with Barbary Doves, but I found after a few years that (after increasing up to about thirty in number) the birds gradually decreased till only one was left. They had perfect liberty, and there is a park close to our garden, so they had plenty of space and were regularly fed.

I think, if any experiment is made, it seems a pity to do so with such expensive kinds of doves as Bronzewings and Crested Doves, it would be wiser to try with Java Doves or Barbary. R. ALDERSON.

[We imagine that the purely wild species would be more likely to succeed than those which have been domesticated for centuries, such as the Barbary Dove and its white form known as the Java Dove.—ED.]

POST MORTEM EXAMINATIONS.

DEMOISELLE CRANE. (Mrs. Gregory). There was extensive disease of the mesenteric glands, and although your bird ate ravenously he was unable to assimilate the food given him. He died of heart failure through weakness.

CURLEW. (Mrs. Gregory). Your bird died of syncope. No doubt the emaciation and weakness were caused by the want of more insect food, and although you ultimately gave him this in quantity it was too late, he being too weak to digest it.

YOUNG GOULDIAN FINCH. (Miss Alderson). Your young bird died as a result of cold I expect owing to getting out of the nest too soon. I did not find hemp very good for Gouldians.

ARTHUR GILL.

NOTICES TO MEMBERS—*(Continued from page ii. of cover).*

NEW MEMBERS.

Mr. N. KERR; Primrose Club, Park Place, London, W.

Mr. H. P. THOMASSET; Cascade Estate, Mahé, Seychelles Islands.

Dr. EMILIUS HOPKINSON, D.S.O., M.A., M.B. Oxon.; 45, Sussex Square, Brighton.

The Honble. Lady HARVEY; Langley Park, Slough.

Mrs. SLINGSBY TANNER; 62, Cheyne Court, Chelsea, S.W.

Mr. GORDON DALGLIESH; Brook, Witley, near Godalming, Surrey.

CANDIDATES FOR ELECTION.

Mr. COLIN MCLEAN; The Heath, East Dereham, Norfolk.
Proposed by Mr. HUGH WORMALD.

Mr. EWART SOUTHCOMBE; Manager of the Zoo., Stoke-under-Ham.
Proposed by Mr. F. H. RUDKIN.

Mr. LAWRENCE HARDY, M.P.; Sandling Park, Hythe, Kent.
Proposed by Mr. W. H. ST. QUINTIN.

Miss CONSTANCE E. POWER; Winterstrip, near Newbury.
Proposed by Mrs. F. C. HOPSON.

Mr. RICHARD A. LIEBERT; Hylands, Chelmsford.
Proposed by Mr. DONALD SWIFT.

Lady HEATHCOTE AMORY; Knightsheyer Court, Tiverton, North Devon.
Proposed by Mr. M. L. MARSHALL.

Mr. KENNETH COOKSON; Oakwood, Wylam-on-Tyne.
Proposed by the Editor.

Mrs. H. H. WILLS; Barley Wood, Wrington, Somerset.
Proposed by Mrs. H. MARTIN GIBBS.

Mr. HOWARD VYSE; Stoke Place, Slough: *and*

Mr. CECIL LEIGH; Lyburn Park, near Lyndhurst, Hants.
Proposed by Mrs. ATHERLEY.

The Lady MAGDALEN WILLIAMS BULKELEY; 24A, Portland Place, W.
Proposed by Mrs. C. STACEY CLITHEROW.

NEW MEMBER OF COUNCIL.

Mr. A. E. L. BERTLING having resigned his membership of the Society, the Committee have chosen Mr. W. E. TESCHEMAKER to temporarily fill the vacancy on the Council, in accordance with Rule 10.

THE ILLUSTRATION FUND.

The Committee acknowledge with thanks the following donations:

Mr. E. G. B. Meade-Waldo	£0 10 0
Mr. W. B. Gibbins	0 10 0

(Continued on opposite page).

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Persons wishing to join the AVICULTURAL SOCIETY are requested to communicate with either of the Hon. Secretaries or the Editor.

NOTICES TO MEMBERS.

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All MSS. for publication in the Magazine, Books for Review, and Private Advertisements should be addressed to the Editor, Mr. D. SETH-SMITH, Glengarry, Canning Road, Addiscombe, Surrey.

All Queries respecting Birds (except *post mortem* cases) should be addressed to the Honorary Correspondence Secretary, Dr. A. G. BUTLER, 124, Beckenham Road, Beckenham, Kent.

All other correspondence, and Subscriptions, should be sent to the Honorary Business Secretary, Mr. T. H. NEWMAN, Newlands, Harrowdene Road, Wembley, Middlesex. Any change of address should be at once notified to him.

Advice is given, *by post*, by members of the Council to members of the Society, upon all subjects connected with Foreign and British birds. All queries are to be addressed to the Hon. Correspondence Secretary and should contain a penny stamp. Those marked "Private" will not be published.

The Magazine is published by Mr. R. H. PORTER (7, Princes Street, Cavendish Square, W.) to whom all orders for extra copies, back numbers, and bound volumes (accompanied by remittance) should be addressed.

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Vols. I., III. & IV., are out of print. Second-hand copies sometimes reach the Publisher, to whom application should be made.

(*Continued on page iii. of cover*).

H. Grönvold, Del.] [*Witherby & Co., Sculp. et Imp.*

WHITE BELLIED PLUMED-DOVE ♂.

Lophophaps leucogaster. (*From life.*)

THE

Avicultural Magazine,

BEING THE JOURNAL OF THE

AVICULTURAL SOCIETY.

New Series—VOL. V.—NO. 2.—*All rights reserved.* DECEMBER, 1906.

NOTES ON THE PLUMED DOVES.

By D. SETH-SMITH, F.Z.S., M.B.O.U.

Three species, or perhaps two of them should be ranked only as local races or sub-species, are known of the genus *Lophophaps*. They are exceedingly beautiful little Doves, entirely terrestrial in their habits, running over the ground as rapidly as Quails, and springing into the air with the same rapid buzzing flight.

The Plumed Doves inhabit the heated and arid plains of Australia, where their plumage harmonizes with the reddish sandy soil, and they love to bask in the tropical heat of the sun's rays. They never perch on trees although they delight to sit on rocks.

The three species or races which comprise this genus are as follows:

1. *Lophophaps plumifera*, Gould's type of the genus, differing from *L. leucogaster*, the bird now figured, by its darker colour and by the absence of the white pectoral band so conspicuous in *L. leucogaster*. Habitat: North West Australia.
2. *L. ferruginea* (Gould), differing from *L. plumifera* only in the cinnamon colour of its plumage being of a much deeper hue. It inhabits Western Australia and perhaps is merely a local race of *L plumifera*.
3. *L. leucogaster* (Gould) figured in the accompanying plate, inhabits "the whole of Central Australia, the Gulf District and the interior of Northern and North-Western Australia." (North).

It is of the last only of these three forms which, accord-

ing to Mr. North, is a perfectly distinct species, that I have had any experience, and of which I propose to offer a few brief notes.

In the first place it may be as well to quote from the writings of those who have met with this bird in its native wilds. In the *Report of the Horn Expedition to Central Australia* in 1894, Mr. Keartland writes: "At Crown Point, on 18th May, Mr. Belt secured the first pair of these birds. They proved to be adults, and the female contained a well-developed egg in the oviduct. Subsequently I obtained them in numbers at Lawrie's Creek, Petermann Creek, Hermannburg, and in fact wherever rocks and water existed, until we reached Crown Point on the return journey on 26th July. On several occasions they made a welcome addition to our table, where their beautiful white flesh was much appreciated. Their love of rocky country has gained for them the appellation of 'Rock Pigeons.' They are strictly ground birds and never perch on trees, but assembled in small companies on the rocky sides of the gorges through which we passed, where they seemed to enjoy basking in the hot sun. Owing to their colour they are not easily seen on the red sand and rocks. They are easily approached, and when disturbed rise with a 'whirr' like a quail; but as soon as they are on the wing they gently glide away, giving a tempting shot. At Stokes' Pass, Hugh Edgar, one of our camel drivers, found a nest, if such it might be called, containing two young ones nearly able to fly. They were entirely brown, but others probably a week older were found, which had developed the white and black on the throat and head, which were invisible on the nestlings, as the feathers had not formed on those parts. The birds lay their eggs on the ground, generally near a tussock of porcupine grass, and place a few loose straws around, but in such a careless manner that it scarcely deserves the name of nest. Subsequently, at Haast's Bluff, Dr. Stirling found several nests containing eggs or young ones. There were never more than two eggs, which are about one-third smaller than those of *Ocyphaps lophotes*, and are of a dull, creamy-white colour, with a rather rough surface and lacking the usual glossy surface of pigeon eggs."

The first Plumed Ground-Doves to reach the London Zoological Gardens appear to have been a pair purchased on May

4th 1894. These were entered as *L. plumifera;* nevertheless they belonged to the white-banded form—*L leucogaster*, and, so far as I am aware, all that have been imported since (quite a large consignment was received by a London dealer in 1904, most of which, I understand, went to America), have belonged to this species. The pair which reached the Zoological Gardens in 1894 nested in the grass of one of the outer flights of the Western Aviary in 1905, and hatched and successfully reared two young birds.

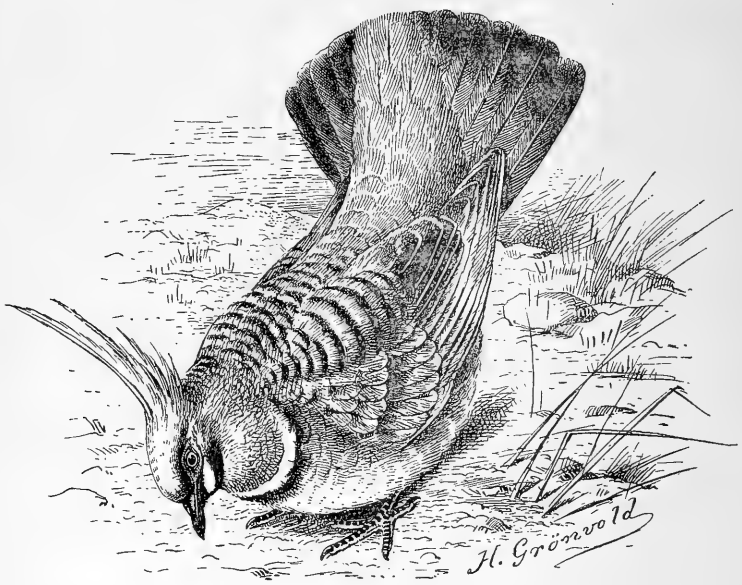
This species was represented in the Zoological Gardens up to the present year 1906, where it was still labelled as *L. plumifera*, a species which has probably never been seen alive in this country if indeed in Europe.

My experience of *L. leucogaster* in captivity has been limited to five specimens, two males and three females, which I obtained in 1905. At first they were very shy, but they soon became tame, and then I found that it was impossible to keep more than one pair together. They are terrible bullies, and a cock will soon clear the place of every ground bird except the hen he is mated to. I therefore kept only one pair, the others going to another member of the Society. Another difficulty with these birds is that the cock every now and then commences to chase and bully his own hen. The pair will caress each other most affectionately for a time, and then the cock will suddenly turn on the hen and chase her all over the enclosure in which they are kept. This habit is, of course, by no means conducive to successful nesting, and so far I have been entirely unsuccessful.

In the spring of the present year (1906) I put this pair into my largest outdoor aviary, and here I think they would have succeeded, but before they had been out an hour they commenced to chase and worry the Quails and Hemipodes to such an extent that my only course was to confine them in a smaller aviary. This was a fair-sized place, about equal to one of the smaller compartments of the Western aviary at the Zoo., and the outer part was well turfed. They had not been here long before the hen laid a pair of eggs in one corner, without any pretence at a nest, and commenced to sit. No sooner had she commenced however than a thunderstorm with tropical rain caused her to

desert. Since this several clutches of eggs have been laid but no attempt has been made to incubate.

The display of the male Plumed Dove is very pretty and frequently performed. He bows to his mate in the most courteous manner, at the same time expanding his tail and wings, and showing off his wonderful patch of irridescent purple-bronze to the best advantage. My pair became so tame that the cock used to run and display to me as I entered the aviary, and then



The Display of *Lophophaps leucogaster*.

he would run at me making quite a savage grunting "coo" with the evident intention of driving me out of the aviary.

These little Doves are fairly hardy and, providing their aviary is well sheltered and dry, would probably do without artificial warmth during the winter in this country. Canary and millet seed seems to be all that they require in the way of food. They are fond however of plucking off the green seeds of grasses and other weeds. A lump of rock salt should not be omitted from the aviary.

A description of this species is unnecessary with Mr. Grönvold's beautiful plate before the reader.

The sexes are alike in plumage, the male being perhaps a shade larger than the female. It is about 8 inches in length.

BREEDING OF THE PINE GROSBEAK IN CAPTIVITY.

By W. H. St. Quintin, F.Z.S.

If anyone wants a charming pet for the garden aviary, which will be tame with its owner, and gentle to its fellow captives, and at the same time one which will never give him a moments' anxiety in time of bad weather, let me recommend the Pine Grosbeak. I have now kept several for nearly two years, and know no hardy bird which shows itself better, and is so lively, without being restless and timid.

Though the aviary is rather a large one, and is secluded from traffic of persons passing, my birds are extraordinarily familiar, and I can stand within a yard or two while the Grosbeaks are busy with the hawthorn sprays, or larch branches, or whatever delicacy is in season.

I started the summer with three males and a female, having lost one of each sex in the spring as I will describe later on. Of these males one had a slightly injured wing, but he was otherwise sound ; and, like the other males, in fine rosy plumage.

Several Missel-Thrushes' nests were put up in likely positions, but the Grosbeaks took no particular notice of them. On the 28th May my man Arthur Moody saw the hen Grosbeak arranging some twigs in the fork of a yew, in rather an exposed position, but to some extent screened by the upper branches of the bush. To his surprise, she took up a small bit of a dry spruce branch which he tossed on the ground, and carried it up and laid it with the others, and for some twenty minutes or so she picked up twig after twig as fast as he threw them down for her.

The solid foundation of the nest was made altogether in this way, the male not assisting at all. Possibly the inconvenience of a slightly stiffened wing prevented him from helping.

Pine roots, and coarse bents were used as a lining, but no feathers or soft material ; the nest being much like that of the Hawfinch.

On June 3rd the first egg was laid. On the 6th she had three eggs and began to sit. On the 20th June a young bird was hatched in the morning, the other in the evening of the same day. During incubation one egg was cracked, and was found

sticking to a branch of the yew. Whether it was accidentally broken by the hen, or by some other inmate of the aviary, Tits, Crossbills, or Waxwings, we could not make out; but no fighting or quarrelling was noticed. The cock assisted in feeding the young, but the hen alone incubated.

The hen Grosbeak would come on to the fingers of one's hand, and take off the palm the fresh ants' eggs (pupæ), small caterpillars, and sawfly grubs which alone were given at first to the young. To my great delight I saw her while sitting on the edge of the nest, take as many of the ant pupæ as she could swallow, from a teaspoon gently held out to her, and after sitting a few minutes, probably to moisten them, she disgorged them into the mouths of the half-fledged young.

On the 4th July the young birds left the nest. There was no further difficulty with them, and they soon began to eat the parents' food, and became strong on the wing.

At present they closely resemble the female parent (of course they may both be females) but are rather more green than she is on the face and nape, where she is yellow. Their flanks and breasts are also slightly paler; but unless they are all together, it is not easy to distinguish them.

It was strange that with three males to choose from, the hen bird should have mated with the one with the injured wing. But though slightly crippled, this bird was clearly master; and though he did not follow them far, he would, when the nesting was going on, hunt off all the other birds from the immediate neighbourhood of the bush.

My Grosbeaks have a variety of small seeds, including hemp; and a little sunflower-seed as a treat. Of the last they are very fond, and I think it was due to giving this too freely that I lost the two Grosbeaks, and a Crossbill or two, in the spring. At the time I thought perhaps that the deaths were due to the birds having nibbled the growing yew shoots (as they freely do); but since the sunflower seed has been reduced, the birds have kept healthy.

Elder berries, hips and haws, and fresh larch branches, also slices of apple, are much appreciated, but I think that an excess of oily seeds is to be carefully avoided.

BREEDING OF THE JACKAL BUZZARD.

By J. H. Gurney, F.Z.S.

My pair of Jackal Buzzards *Buteo jackal* (Daud.) arrived from the Zoological Gardens in the autumn of 1904 and stood their first winter in Norfolk in an out-of-doors cage well. Being supplied with nesting materials early in the following spring, they in June built themselves a nest but laid no eggs. However in the spring of 1906 materials being again supplied early and in greater variety than before, building commenced at the end of February, and in about a fortnight the nest, which was chiefly composed of small sticks, was finished, and the Buzzard was sitting on it.

On March 16th the absence of the female for a short time enabled my man to see that there were two eggs in the nest, one of which was chipped on April 18th and this had hatched out by the morning of the 19th. The other egg unfortunately proved to be rotten. As the eggs are believed to have been laid successively on March 14th and 15th, this would give 39 days as the period of incubation of this Buzzard.

At the age of five days the nestling was covered with palest grey down, but on the throat, chin, and face the down was white. On the 16th of May the first feathers were just visible, on the 19th it was a month old and could stand, and by the 28th it was two thirds the size of its parents and growing rapidly, red feathers coming over most of its breast.

By June 5th I think it might have been called full grown, the upper part of its breast being by that time very dark and the sides streaked, the eye much greyer than the eyes of its parents and its legs a paler yellow. On July 4th the eye was assuming a yellow tint, the bird being in excellent health but still showing two or three flecks of down which were not yet shed.

At the age of six months (October 24th) all the underparts were a fairly bright rufous, without any indication of dark flanks or belly, nor had any of the under feathering those broad white margins which add so much to the beauty of an adult. Head and upper parts brown, tail brown, underside of spread wing partly white, eyes pale yellow. I have been thus particular in the description, because the early stages in the life of this species do not seem to have been described in detail before.

BREEDING OF THE AUSTRALIAN "PEACEFUL" DOVE IN ITALY.

By the Rev. HUBERT D. ASTLEY, M.A.

A pair of these extremely pretty doves, which I have had in an outdoor aviary for three years have reared several young this season [1906]. They commenced in April and have continued steadily ever since, and as I write, have a pair of newly-hatched young. [14th October.] As I have not been in Italy during the summer months, I cannot record with exactitude all their failures or successes, but there are representatives of at any rate three families flying about in good condition and health. That is, there are three birds in adult plumage and one in semi-nestling plumage, which birds must represent three separate nests. In May one bird was successfully reared from the first nest, its comrade having fallen out when about ten days old, and been killed.

Both the young birds hatched in April died in the nest when well feathered. Perhaps the parent birds had not yet gained sufficient experience in feeding, for the hen bird was still brooding her young after life had departed from their bodies.

Between June and October there must have been two more broods, represented by three birds. The first of these broods having two, and the second, one young one. So that altogether there have been at least four broods in seven months; and I rather believe there was another pair of eggs which came to nothing. The nest has been always built in the same place within a covered box, partly open on one side and entirely open underneath. A small bunch of heath (*Erica*) was fixed within, and on this the Peaceful Doves built a fairly compact nest of hay.

The young when first hatched are covered with a fawn-coloured down; but I regret that I cannot describe them more in detail, as I did not care to disturb the parent bird too much.

When they leave the nest they have a *very* spotted appearance. The crown, hind neck, upper back, shoulders, greater wing-coverts and secondaries, have each feather spotted with cream-buff on the ends, and within this spot there is a bar (almost a spot) of *dark* brown. These creamy spots form two

very distinct bars across the wings, on the secondaries and greater coverts.

Over the eyes is a line of buffish white, a spot of the same colour over the ears, and a shorter line *under* the eyes. The bluish colour and the pale pink round the eyes and on the breast of the adult is absent. The general ground colour of the young birds is a dull mouse brown.

As far as I can see, the white of the feathers in the tail is much the same as in the parent birds'. The longer feathers of the secondaries in the wings are somewhat square at the ends, and are tipped with a creamy spot edged interiorily with a line of deep blackish-brown.

I do not pretend that this description is an exhaustive one, and my more particular friends must be content with what to them will probably be an extremely sketchy description! if they are not already acquainted with the Peaceful Dove in its nestling plumage. I am not aware of the exact period of incubation, but I believe it to be about thirteen days.

The cooing of these doves is peculiar, composed of high melodious notes repeated rapidly; and the male bird lifts his tail in the air expanding the feathers as he does so, when courting. As the young birds hatched in June and July are now in full plumage, it is evident that they assume it in at least two to two and a half months.

SUCCESSFUL BREEDING OF THE WHITE-EARED CONURE.

By E. J. Brook.

As I understand that there is some doubt whether the White-eared Conure has been successfully reared in captivity on any previous occasion, perhaps my success will not be without interest.

My birds are in a large outdoor aviary with an inner house, and they share this aviary with a pair of Golden-headed Conures. The White Ears went to nest in a large natural log, laying the first egg on the 3rd of August, and commenced to sit

when the second egg was laid. Eight eggs were laid, and hatched in about 21 days, producing seven birds which are now flying in the aviary. The first young birds left the nest in about five weeks from hatching.

The young White-Ears differ from the old birds in that the inner web of the flight feathers and larger wing-coverts is yellow, and when very young they showed a good deal of yellow on the back. The old birds are most excellent parents, and at once go to the assistance of any one of their young that may seem to be in a difficulty. I may mention that at night the whole occupants of this aviary, Golden Heads and all, retire into the same nesting box; they must be a bit crowded, but there is no fighting.

[We cannot find any record of previous success with *Pyrrhura leucotis*, but cases in which these birds have nested and even partially reared young, are not rare, and it is hardly likely that so well-known a species has never before bred successfully in captivity in this country. Has any member ever heard of a previous instance in which the young of this species have been reared? ED.]

WHAT IS "THE BENGALEE"?

By Captain STANLEY S. FLOWER.

Giza, Egypt, 18th Oct., 1906.

1st. Consideration: What is the Bengalee?
2nd. Consideration: The application of the name Bengalee.
3rd. Suggested names for this bird.

1st. WHAT IS "THE BENGALEE"?

In the "Avicultural Magazine," Vol. IV., No. 12 (Oct. 1906) Dr. Arthur G. Butler, in an interesting and valuable article "On Hybrid Ploceidæ," brings up the question of the Bengalee, (loc. cit. p. 351); he remarks of it:

1st. "Now generally regarded as the domesticated representative of *Uroloncha striata*."

2nd. "If, as seems probable, the Bengalee is only *Uroloncha striata* in various domestic guises,"

and he writes of it in the article under the scientific name of *Uroloncha striata var.*

I do not wish to differ from such a good authority as Dr. Butler, to whom I would like to take this opportunity of acknowledging my grateful thanks for much useful information obtained from his writings, but I venture to think that more knowledge of this common but pleasing little cage-bird is required before we can settle its exact affinities, and it also appears to me that it requires a more definite name.

In Dr. Butler's "Foreign Finches in Captivity," (1894), the bird is called:

> "The Bengalee, *Aidemosyne malabarica* × *Uroloncha striata*, Linn.,"

and a very beautiful coloured plate by Mr. Frohawk faces page 222, with a picture of each of the three varieties.

In "Foreign Bird Keeping," Part I., p. 52, Dr. Butler uses the same names for this bird.

In Cassell's "Canaries and Cage Birds," the late Mr. August F. Wiener, on page 385, calls this bird:

> "The White and Variegated Bengalese *(Munia acuticauda? Munia striata?)*, Japan.
> *Spermestes acuticauda* (Russ).
> English dealers' name—White Bengalese.
> German name—'Japanesische Mövchen.'
> French name—'Muscades Blanches,' 'Bengalis Blancs.'"

And he gives coloured figures of two varieties, under the names

> "Pied Mannikin (Fawn and White),
> Pied Mannikin (Chestnut and White)."

I am interested to know whether anyone has actually succeeded in producing "the Bengalee" from typical *Uroloncha striata*, or by crossing *U. striata* with any other species, and also to what extent the three chief varieties of "the Bengalee" breed true?

As regards this second question, Mr. Wiener (loc. cit. p. 386) writes, "It should be stated that in the same nest may be found pure white and piebalds of various shades," but he does not mention the colour of the parent birds. While Miss Emily

Brampton in her excellent account "Bengalese as Cage-Birds," "Avic. Mag." Vol. II., No. 4, (Feb. 1904), pp. 134-135, expressly states: "By putting together birds of different colours I have had chocolate and white, fawn and white, and pure white young ones in the same nest."

This bird being so easily obtainable, making such a charming pet, and being essentially an inhabitant of a cage—(has it ever been found wild?)—should make an ideal subject for experimental breeding.

In the "Avic. Mag." Vol. I., No. 3, (Jan. 1903), p. 112, the Reviewer writes: "Domestication is also responsible for the white form of the Java Sparrow, and the white and pied forms (Bengalese) of the Sharp tailed Finch, *Uroloncha striata*. We perfectly agree with Mr. Finn that there is no reason for supposing the latter birds to be hybrids."

In the British Museum Catalogue of Birds, Vol. XIII., by Dr. R. Bowdler Sharpe (1890), I have failed to find this bird, but one notes that no species of *Uroloncha* or *Aidemosyne* occurs in Japan, where most authors seem to state our "Bengalee" originated; the nearest geographical approach being *Uroloncha squamicollis* Sharpe (loc. cit. p. 359), whose habitat is given as "China, Formosa, and Hainan." Neither apparently does any species of *Munia sens. strict.* extend nearer to Japan than Formosa and Hainan (i.e. *Munia formosa* Swinhoe and *Munia topela* Swinhoe).

Of course that the energetic Japanese and the cage-bird loving Chinese should import and breed birds whenever they have had the chance is most probable, but with other closely allied *Ploceidæ* nearer at hand, it appears to me to want further proof before we can accept *Uroloncha striata* of "Central and Southern India and Ceylon" as the origin of their domestic breeds. On the other hand, I (with no access to a general library) do not know on what grounds the statements rest that our "Bengalee" originated with the Japanese (or Chinese): it may have been evolved in India, but that does not appear to me to be at all probable.

Moreover it must be remembered that our knowledge of the avifauna of Eastern Asia is by no means yet complete:

regarding the Ploceidæ of China, the latest information appears to be:

Mr. J. C. Kershaw, "Birds of the Quantung Coast, China," in the "Ibis," 1904, p. 240, mentions:

"*Munia atricapilla.* Not common.

,, *topela.* One of the commonest resident birds.

,, *orizivora.* Not common.

Uroloncha squamicollis. A very common resident."

And Messrs. J. D. La Touche and C. B. Rickett, "Further Notes on the Nesting of Birds in the Province of Fohkien, S.E. China," in the "Ibis," 1905, p. 43, record:

"*Uroloncha acuticauda* and *Munia topela*" as common residents.

2nd. THE APPLICATION OF THE NAME "BENGALEE."

Professor Alfred Newton, "Dictionary of Birds," (1893), p. 31, writes: "BENGALI, the dealers' name for the beautiful little African bird, *Fringilla bengalus* of Linnæus, and some of its allies, belonging to the *Ploceidæ* (Weaver-bird), and referred by later writers to the genus *Estrilda, Pytelia* or *Uræginthus*. The name originated with Brisson ("Ornithol." III., p. 203), who believed these birds came from Bengal." But as pointed out by Capt. G. E. Shelley, "Birds of Africa," Part I., p. 186, "Bengala" may equal Benguela in West Africa, and not the Indian province of Bengal.

There seems to me no doubt that the name "Bengalee" originally and by right belongs to the Crimson-eared Waxbill, or Cordon-bleu, called "Le Bengali" by Brisson as long ago as 1760! A lovely little bird we have all known as the *Estrelda phoenicotis* of Swainson, but whose scientific name in both the books on African birds now in progress (Shelley's and Reichenow's) is amended to *Uræginthus bengalus*.

The word Bengalee, variously spelt, has been used in various European languages to indicate almost any of the smaller Weaver-birds, and is still commonly so used in the trade, but thanks largely to Dr. Butler the term is now generally restricted by English aviculturists to the bird that forms the subject of

these notes: and as far as the "English" name is concerned I trust it will remain so, and that our dainty Crimson-eared friend will retain his appropriate name of "Cordon-bleu." If it is necessary in the case of "scientific names" to bow to the "priority-at-all-costs" fetish, there is fortunately no need to do so in the case of vernacular names.

3rd. SUGGESTED NAMES FOR THIS BIRD.

Most aviculturalists, more especially those that have to carry on animal-business in several different modern languages, will agree that a Latin or Latinized name is essential, not only for every species of wild animal, but also for every well marked variety or race, wild or domesticated; some years back, when first dealing with the "Bengalee" of these notes, I could find no Latin name applicable,—Dr. Butler's *Aidemosyne malabarica* × *Uroloncha striata* was not only cumbrous but implied a derivation not generally believed in, I therefore in 1903 coined the name *Munia domestica*.

As regards the first part of this name, the genus *Munia* (1836) in its wider sense may be taken to include the other two genera to which this bird has been assigned, *Uroloncha* (1850) and *Aidemosyne* (1861): the application of *domestica* seems obvious.

Therefore until we can ascertain for certain the origin of this bird, I propose for convenience that it should be called:

The Bengalee, *Munia domestica*;

and the three varieties, as shown in Mr. Frohawk's plate in Dr. Butler's book mentioned above, may be called:

Brown-and-White Bengalee,
Munia domestica griseomaculata (Russ);
Fawn-and-White Bengalee,
Munia domestica flavomaculata (Russ);
White Bengalee, *Munia domestica alba* (Russ).

THE GREAT CRESTED GREBE.

Bale, Sons and Danielsson, Ltd

NOTES ON THE INDIAN *PODICIPEDIDÆ*.

By Gordon Dalgliesh,

(Member of the Bombay Natural History Society).

The genus *Podicipes*, as far as India is concerned, consists of three species. Though the little Grebe is sometimes kept separate the simple plan of including all the Indian genera in one family is most convenient. The three species are:

1. *Podicipes cristatus*, the Great Crested Grebe. Found in temperate Europe, Asia, Africa, and Australia.
2. *Podicipes nigricollis*, the Black-necked Grebe. Inhabiting temperate Europe, and Asia, N. and S. Africa.
3. *Podicipes albipennis*, the Indian Little Grebe or Dabchick. Found throughout India, Burma, Ceylon, and Fao at the mouth of the Euphrates.

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1. *PODICIPES CRISTATUS*, L.

The Great Crested Grebe.

Podicipes cristatus. Jerdon, *B. I.*, iii. p. 821; Barnes, *Birds of Bombay*, p. 418; Oates in *Hume's N. & E. of Ind. B.*, 2 ed. iii. p. 401; Bulkley, *Journ. Bomb. N. H. Soc.*, vi. p. 501; *Podicipes cristatus*, Blanford, *Fauna Brit. Ind. Birds*, iv. p. 473; Dalgliesh, *Journ. Bomb. N. H. Soc.*, xvii. p. 518.

This Grebe is common in Northern India and parts of Bengal on the large *jheels*, and on the sea coasts of Mekrán and Karáchi; Hume saw a few specimens in Manipur. At least one specimen appears to have been obtained in Burma, and one from Assam. It has not yet been recorded from Ceylon. Although it is a winter visitor to India it has been found breeding in Oudh by Mr. A. Anderson, in Guzerat by Mr. Buckley—these two instances in August, in Kashmir by Mr. Theobald in May, and my friend Mr. C. M. Inglis of Darbhanga tells me he believed it once bred in the Madhubani Sub-Division of Tirhoot Bengal, but I have no date of the occurrence. As I had exceptionally good opportunities of watching this splendid bird in the breeding season, I made notes on the spot which were published in the

Journal of the Bombay Natural History Society, and I cannot do better than quote what I wrote to that journal.

The birds were first seen on April 17th (1904) and almost at once commenced nesting. On the morning of the 19th I again visited the place and found the two birds swimming apart from each other. After a short time they met and began to spar with their bills—no doubt a pairing gesture. What I took to be the female bird then scrambled up on a small islet and disappeared among the reeds. A pair of Coots (*Fulica atra*) were nesting on the same place, and tried to drive what I took to be the male bird away. Once they were successful, but after a time the Grebe became master of the situation and drove the Coots away. The way he drove off one Coot was distinctly ingenious. Diving some little distance away, he suddenly came right up under the Coot and fairly "torpedoed" the Coot out of the water. The male bird then rested on the water near the islet, drying and preening its feathers. When it wished to clean its breast it would turn right over on its back, with one leg sticking up in the air. The female bird when she landed on the islet did not stand upright, but dragged herself along on her belly. I did not revisit the place until May 1st, and found the female sitting close. The male was swimming near at hand and again drove some Coots away that came too near the nest. On September 2nd I saw the young birds (two in number) in company with their parents which were very attentive to them, feeding them on small fish. On September 11th I could only see one young one with the old birds. On October 30th I only saw the young one, the old ones had left.

The next year (1905) the Grebes returned to the place on February 25th. At first I only caught sight of one bird which was in full breeding plumage. On looking through my field-glasses I saw it treading water, splashing with its wings, and spinning round and round like a teetotum, with crest raised to its full extent. Presently with neck stretched in front of him (I say "him" for this was the one I took to be the male) he uttered a hoarse croak, and lay flat on the water, flapping his wings vigorously. I saw then the cause of his excitement, for coming towards him was another Grebe also stretched along the

water in the same strange position as the first. The two met breast to breast and chattered together and sparred with their bills. This second bird was not like the first, and still retained the winter plumage and was probably an immature female. The two then swam in company with each other and visited the nesting place of last year. This was, however, covered with water, with the exception of a few stumps of wood and reeds. The male bird appeared, however, to recognise the place, and dived, bringing up a bunch of weed which he offered to the female. The two played with it for a long while, then left it. What made the Grebe bring up this weed? For they do not feed on it; it is the stuff their nests are made of. Could he have mistaken the time of the year and thought the new nest ought to have been commenced? No, it was only perhaps a passing whim, or he would not have finally left the weed. I am certain this young bird was not the female of last year, and probably this action, on the part of the male, of lifting the weed, was to shew the female how and where to build the nest.

The cries of these two Grebes sounded like "Erak erak erak ka ka' and at other times like 'Ak ah ak ah' and 'er erak er erak' mingled with a buzzing sound. On February 28th I again visited the place and saw the Grebes meet, shake their heads, and indulge in the usual "spar."

When these birds are at rest the head is drawn back between the shoulders, with the bill either straight out in front or else tucked under a wing, and usually one leg sticking out of the water. They are constantly preening their feathers, and their breasts shine in the sun as silver, especially that of the young bird, which is a brighter colour than the older one, and has a purer white breast. The time these birds remained under water after a dive I noted was from three to five minutes. When diving they either roll sideways under and disappear without a ripple, or in head first. On March 5th I saw the female Grebe was much more advanced about the head than she was a week ago, and shewed a decidedly more bushy crest. It is remarkable that birds of this genus come into breeding plumage so early. They are frequently found thus long before winter is over.*

* A lengthy and comprehensive account of the nesting habits of this species, by Mr. E. Selous, may be found in the *Zoologist* for 1901, pp. 339 and 454.

A friend of mine at the British Museum once pointed out to me slight differences in the size of the bill of the Indian bird to that of the European one, the Indian ones being smaller, but I doubt if these differences are constant.

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2. *PODICIPES NIGRICOLLIS*, Brehm.

THE BLACK-NECKED GREBE.

Podicipes nigricollis. C. L. Brehm, *Volg. Deutschl*, p. 693 (1831); Hume, *Cat.* No. 947 *bis*; Barnes, *Birds of Bombay*, p. 419; *Podicipes nigricollis*; Blanford, *F. B. I. Birds*, vol. iv. p. 454; Dalgliesh, *Zool.* (1902) p. 454.

Found sparingly at Karáchi, common on the Mekrán Coast; once recorded from Calcutta by Mr. F. Finn, who obtained alive a specimen there in the Market. This is the rarest of the Indian Grebes and is not known to have ever bred in India. I believe I saw once a specimen of this bird in Tirhoot Bengal, but as I did not shoot it the record is not wholly satisfactory. As I can find nothing respecting this bird's habits in India, I shall quote a few remarks on them as observed in England by Mr. O. Y. Aplin (*Zoologist*, Nov. 1904, p. 417). He says: "This bird which we watched for an hour or so, did not feed in the open water, but passed from one bed of pond weed to another, frequently diving for short periods in a limited area. . . . . When both birds of a pair were side by side, the larger size of the male bird was quite apparent, but little or no difference was to be seen in the plumage of the sexes. The neck, black before and behind, was clearly divided from the dull white of the breast and belly (the colour of the under parts was only seen when the birds raised themselves in the water and flapped their wings, or rolled on one side to preen themselves); when they flapped their wings the white on the primaries and secondaries showed clearly. A black frontal crest stood up, showing off the silky ear coverts which shone like golden oat straw; eyes a bright clear ruby, something like a ripe red-currant with the light shining through it; bill black. The rufous feathers of the flanks, which covered much of the wings when the birds were swimming in a normal position, shone in the sun with a bronze

lustre. The black neck and wings also showed metallic green reflections. . . . The birds never travelled far under water, but dived in a limited area, as Dabchicks do. The consecutive dives of one bird, which we timed, were 25, 10, 25, 24, 9, 14, 12, 25, 9, and 23 seconds respectively."

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3. *PODICIPES ALBIPENNIS*, Sharpe.

THE INDIAN LITTLE GREBE OR DABCHICK.

Podiceps philippensis. Jerdon, *B. I.*, iii, p. 822; *Podiceps minor*, Hume, *N. & E. of Ind. B.* p. 646; id *Cat.* No. 975; Barnes, *Birds of Bombay*, p. 420; id *Jour. Bomb. N. H. S.* i, p. 61; *Podiceps fluviatilis*, Legge, *Birds of Ceylon*, pp. 1059, 1222; *Podiceps albescens*, Mandelli, Blan. *S. F.* v, p. 486; *Tachybaptes fluviatilis* apud Oates, *B. B.* ii, p. 441; id in Humes' *N. & E.*, 2nd ed. iii, p. 401; *Tachybaptes albipennis*, Sharpe, Bull, *B. O. C.* iv, p. iv (1894); id *Ibis*, 1895, p. 139; *Podicipes minor*, apud Sharpe, *Yark. Miss. Aves.* p. 148; *Podicipes fluviatilis*, Dresser, *Man. Pal. Birds*, vol. ii, id *Podicipes fluviatilis* sup. spec. *albipennis*; *Podicipes albipennis*, Blan. *F. B. I. B.* vol. iv. p. 475, id *Podicipes albescens*, p. 476; *Podicipes capensis*, Ogilvie-Grant, *Cat. B. B. M.*; Finn, *Zool.* 1902, p. 300.

The Indian Dabchick or Little Grebe differs very little from its European ally *P. fluviatilis* and by many ornithologists is only regarded as sub-specifically distinct.

Blanford says: "*P. albipennis* is distinguished . . . by having the secondaries white throughout in adults, and by the black on the chin and sides of the face being less extended."

In habits, mode of nesting, etc. it does not differ one wit from *P. fluviatilis*. In the cold season it is to be found in small parties on all large *jheels* and tanks. In the summer it migrates locally, and the paired birds resort for breeding purposes to almost anywhere where there is sufficient water and shelter, being then found among paddy fields, quite small ponds, or even on moderate sized ditches. It is thoroughly aquatic and is rarely seen on the wing. Like all other members of its family it is a "professional" diver, and on the slightest approach of danger

disappears under water like magic, leaving hardly a ripple on the surface, to appear again some yards farther off from where it dived, only to immediately disappear again and so on until it fancies itself safe. In Bengal at any rate it commences breeding in July, and many a time have I watched these most interesting little birds whilst nesting. Both birds during this time kept up a curious rattling cry, though they are, as a rule, quite silent at other times of the year. The nest is very untidy, being a large floating structure, not fastened to any weeds, nor is any attempt made at binding the materials together in any way; it is simply a rotting mass of weeds and leaves. It is a mystery to me how some of the eggs are ever hatched lying as they do in a nest soaked through and through with water, and I feel sure the eggs are mostly incubated by the heat of the sun as I have never seen the birds sitting during the day. The eggs are always covered up with damp weeds, and these, combined with the heat of the sun, no doubt set up a sort of fermentation that aids incubation. During this period they are very restless and keep on taking short flights across the pond and make a good deal of noise. The male is most attentive to the female and always keeps close to her, feeding her on small fish and aquatic insects. The young when first hatched are pretty little creatures, covered with greyish down and striped black. I once surprised a party of these birds, consisting of one old one and five young. The young at once tried to conceal themselves by hiding among the weeds, while the old one tried to draw my attention from them by fluttering as if wounded in front of my boat. Constant persecution makes them exceedingly wary, but on the other hand, if not molested, they get comparatively tame. The Indian Dabchick undergoes two phases of plumage. In winter the upper parts are light brown and lower parts silky white. In summer the upper parts are a very dark brown almost approaching to black; the neck, chestnut red; lower parts silky grey, suffused with streaks of brown. Some birds retain traces of the breeding dress until November. This is my experience and that also of the writers of numerous books I have consulted on the subject; but Mr. Finn makes the startling statement (*Zoologist*, 1902, p. 303), that: "The so-called winter plumage is merely that of immaturity in

this species. I have never seen the pair of birds whose actions I have noted in any but full adult summer plumage at any time. It is possible, of course, that this pair are abnormal, or very old individuals, but there is no proof of this; and they are free birds leading a perfectly normal life." In this I cannot agree, and I have never seen the birds in mid-winter in anything but the usual winter dress, and very likely, as Mr. Finn himself suggests, these birds of his *were* abnormal.

The usual number of eggs I have found were from three to five, pure white when first laid, but like all Grebes' eggs they soon get soiled by the action of decaying vegetation on which they are laid. If a side-blown egg of any of the Grebes be held to the light it will be seen that the inner texture is a most delicate and beautiful green. All Grebes, especially the Dabchick, have a most peculiar odour that clings persistently to the skin, even after it has dried and lain for years in a cabinet.

It would never do in a paper of this sort to pass over in silence the so-called Sikhim White Grebe, and I cannot do better than quote what Blanford says: "A single specimen of a peculiar whitish Grebe was obtained by the late Mr. Mandelli from a lake in Native Sikhim. No other skin has been obtained. At Mr. Mandelli's request I described the birds as *Podiceps albescens*. The skin is, by most ornithologists who have examined it, thought to be a partial albino of *P. albipennis*. . . . I add a description. Broad forehead, sides of head anteriorly, including the orbits and chin, black; hind neck and upper neck chestnut all round, lower hind neck brownish; remainder of plumage white, except the primaries, which are brown; feathers of the back, scapulars, and secondaries with dark brown shaft stripes. Bill and feet coloured as in *P. albipennis*. Wing 3·75; tarsus 1·3."

I have examined the skin now in the British Museum, and, if I may offer an opinion, I should certainly say that it is merely a variety of *P. albipennis*, though Dabchicks, as a rule, are not subject to variation. In March 1900, on the Hattowrie lake in Darbhanga, Bengal, on more than one occasion I myself saw a peculiar whitish specimen of *P. albipennis*, but though I went out for the express purpose of shooting it, I failed to do so. It may, perhaps, not be out of place here to mention that I have a

skin of a Grebe labelled "*Podicipes fluviatilis*, Morocco," which shows quite as much white on the secondaries as *P. albipennis*, but has the black on chin and throat much more developed than on any skin of *Podicipes fluviatilis* I have ever seen.

NOTE.—The works quoted in the Synonymy are:—

A Handbook to the Birds of the Bombay Presidency. By Lieut. H. Edwin Barnes. Calcutta, 1885.

The Nests and Eggs of Indian Birds. By A. O. Hume. 3 vols. London, 1889-90.

The Journal of the Bombay Natural History Society.

Fauna of British India. Edited by W. T. Blanford. Birds. Vols. i.-iv.

Handbuch der Naturgeschichte aller Vögel Deutchlands. von C. L. Brehm. Ilmenau, 1831.

Hume Cat. A rough tenative list of the Birds of India. By A. O. Hume. *Stray Feathers*, vol. viii. pp. 73-150. 1879.

The Zoologist.

The Birds of India. By T. C. Jerdon. 3 vols. Calcutta, 1862-64.

A History of the Birds of Ceylon. Capt. W. V. Legge. London, 1878-80.

Stray Feathers: a Journal of Ornithology for India. Ed. by A. O. Hume. 11 vols. Calcutta, 1873-88.

A Handbook to the Birds of British Burma. By E. W. Oats. 3 vols.

The Ibis.

Scientific results of the Second Yarkand Mission, Aves. By R. B. Sharpe. 1891.

A Manual of Palæarctic Birds. By H. E. Dresser. 2 vols.

Catalogue of the Birds in the British Museum.

REVIEWS, NOTICES Etc.

THE INDIAN WADERS.*

The useful series of books on Indian birds by Mr. Finn has received another addition in the form of a very nice little book on the Waders. It consists of upwards of two hundred pages of letterpress and is in two parts, the first dealing with the perching and the second with the non-perching Waders.

Few birds are more conspicuous in India than the Waders, few are more interesting and perhaps none are so little known to most people.

Mr. Finn deals exhaustively with all of the wading birds which are found in India, to the number of nearly one hundred and fifty species. We can heartily recommend this little book to all who are interested in Waders.

THE PROBLEM OF THE ORIGIN OF SPECIES.

By CHARLES OTIS WHITMAN (in "Congress of Arts and Science, Universal Exposition, St. Louis 1904," vol. v.)

This is a carefully thought out article tending to show that although "Natural selection, orthogenesis, and mutation appear to present fundamental contradictions" they nevertheless may be reconciled.

The author objects "to the implication that a definite variation-tendency must be considered to be teleological because it is not 'orderless.'" He discusses the difficulty of accounting by natural selection for the incipient stages of useful organisms and points out that no one of our sense-organs can be traced to a rudiment, except in the embryological sense; and he observes,—"Without the assistance of some factor having more continuous directive efficiency, selection would fail to bring out of the chaos of chance variation, or kaleidoscopic mutation, such progressive evolution as the organic world reveals."

After stating that the "study of the problem of the origin of species resolves itself" . . "into exhaustive studies of single favourable characters, in the more accessible portions of their

* *How to know the Indian Waders*, by FRANK FINN, B.A. (Oxon.), F.Z.S., M.B.O.U. Calcutta: Thacker, Spink & Co. Price Rs.3-8. London: R. H. Porter.

history," the author proceeds to discuss the development of chequers and bars on the plumage of various *Columbæ*, his studies leading him to the conclusion that the chequers are of very ancient origin, and (as I understand him) that the bars have been evolved from them: this is certainly not the conclusion to which a study of the nestling plumage of some at least of the African doves leads me, inasmuch as the conspicuous spots on the scapulars and inner secondaries appear in the adults with the disappearance of the juvenile bars. But the paper requires far more careful thought and consideration than can be given to it in a brief review. A. G. B.

THE SPRING MOULT OF THE AMERICAN LAUGHING GULL.*

Some important observations, throwing much light on the question as to whether the summer plumage of those birds in which seasonal changes take place, is effected by a direct moult or by colour change in the feathers themselves, have been carried out by Mr. C. W. Beebe.

The subject of his observations was a Laughing Gull, *Larus atricilla*, the American representative of our common Black-headed Gull. This bird was reared from the egg in the New York Zoological Park, and the change of plumage from the white-headed winter dress to the summer dress in which the entire head is a dark slate colour was very carefully observed, with the result that overwhelming proof was obtained that the change is effected by a complete moult, and not by any colour change in the feathers themselves whatever.

The new feathers, which are a dark slate-colour tipped with white, grow up between the old white feathers of winter which are gradually shed. As soon as the new feathers attain their full size the white tips break off, leaving the uniform dark hood.

THE SWANS.

Mr. C. W. Beebe, the Curator of Birds at the New York Zoological Park, sends us a copy of a paper from his pen, re-

* The Spring Moult of *Larus atricilla*, Linn. By C. William Beebe. From 'The Auk.' Vol. XXII., No. 4. October 1906.

printed from the tenth Annual Report of the New York Zoological Society, on the Swans, only seven species of which, at the present time, inhabit the earth. These he divides into three groups; first the Black Swan of Australia; second the Black-necked Swan of Southern South America; and third the remaining five species of purely white Swans inhabiting the arctic regions of both hemispheres, viz., The Whooper, Bewick's and the Mute Swans of the Old World, and the Trumpeter and Whistling Swans of the New World. Of these seven species six are grouped in the one genus *Cygnus*, and the remaining species, the Black Swan is accorded a genus of its own—*Chenopsis*.

The author of this paper gives full accounts of the habits of each species, so far as is known, and some capital illustrations.

At the time of writing all seven species were represented in the New York Zoological Park.

THE AMERICAN WOOD DUCK.

We have already called attention in this journal to the series of excellent publications on the more important American birds, issued by the United States Department of Agriculture.

The latest of these, which forms Bulletin No. 26 of the Biological Survey, deals with the distribution and migration of North American Ducks, Geese and Swans, and is written by Mr. Wells W. Cooke, assistant in the Biological Survey. It contains no less than 87 pages of letterpress and a good index.

With the increase of population, the reclaiming of marsh lands and the habit of shooting the birds after the pairing season has commenced, the wildfowl of almost all species have decreased in many cases to an alarming extent, and strict protection is advocated. No species has suffered more than the Wood Duck, so well known to us in this country as the Summer or Carolina Duck, *Aix sponsa*, one of the most beautiful ducks in existence. Of this species the author writes: "It is a sad commentary on our present system of game protection that the Wood Duck, one of the handsomest of our native birds, and one whose breeding range is almost entirely within our boundaries, is the species which has suffered most. So persistently has this duck been pursued that in some sections it has been practically

exterminated. Even in States in which it still breeds commonly, as in Delaware and Maryland on the Atlantic Coast, and in Illinois in the Mississippi Valley, public sentiment fails to recognise the importance of adequately protecting the bird, and laws still permit it to be destroyed late in the spring. As a result the Wood Duck is constantly diminishing in numbers, and soon is likely to be known only from books or by tradition."

One thing in connection with the Wood Duck is satisfactory, and that is that it has now become fairly well established as a domesticated species in Europe, and so is not likely to be allowed to become extinct.

STRAY NOTES.

The question as to whether the Kea Parrot of New Zealand is really guilty of the crime of sheep-killing which it has been accused of has at length been settled and, in spite of the opinion of the Wellington conference, the bird must be pronounced as guilty. A paper on the subject was read before the Philosophical Institute of Canterbury, N. Z. on August 8th last by Mr. George R. Marriner, F.R.M.S., Assistant in the Biological Laboratory of Canterbury College, in which the author went more thoroughly into the question than had previously been done. He gave numerous instances in which the birds had actually been seen to attack and kill the sheep.

The method of attack seems to be practically the same in every case. A Kea will settle on the ground amongst the sheep, and after hopping round one of the animals will jump on to its back and commence to tear away the wool. The sheep becomes frightened and dashes away, but the Kea holds on tightly, or releases its hold only to fly after the animal and settle again immediately the sheep thinks it has shaken off its enemy.

Having torn off the wool the Kea commences to dig its sharp bill into the flesh of the animal, which after rushing about frantically for some time generally lies down with neck stretched out in a helpless condition, when the Kea which, by this time, has probably been joined by several others, continues to tear away the flesh and greedily devour the fat. The attack is generally made in the early morning or late evening, or on foggy days, and only those flocks which are kept in the mountainous districts, where the Keas have their home, are in danger from these birds.

The collection of birds at the Zoological Gardens has been enriched by a pair of the very rare Mayer's Pigeon (*Nesœnas mayeri*) from the island of Mauritius. This species is said to be verging on extinction, and it is

doubtful whether any living example has previously been exhibited in Europe. This pair was presented to the Zoological Society by Colonel Manders, R.A.M.C.

Another very interesting addition to the Zoological Society's collection is a fine example of the Kagu from New Caledonia, acquired by purchase. This very interesting species has not been represented in the Society's collection since 1885. Some notes on it appeared in this journal for July 1905 (Vol. III. N. S., p. 280).

Mr. F. L. Berney contributes some very interesting field notes from the Richmond District of North Queensland, to the October number of the *Emu*, and some of the birds he refers to are very well-known to aviculturists in this country.

Of the Zebra or Chestnut-eared Finch Mr. Berney writes:

"During the eight or nine years previous to 1906 *I. castanotis* has been our most constant resident in the bird line, but this year, one of our best seasons on record, when grass and herbage, and therefore, of course, seed, are in abundance, it has entirely left our district, disappearing as soon as the first general rains fell in January, and so far (August) it has not shown up again. The contented manner in which it adapts itself to circumstances, together with its fecundity, will long ensure its being among the survivors in the struggle for existence. . : . A pair that built their nest among the rafters inside a boundary-rider's hut successfully led forth three broods in three and a half months."

Of the Budgerigars (*Melopsittacus undulatus*) the same author writes:

"Their numbers vary; generally a few are about, but the winter is the time of their visitation. From March to July last year we had a wonderful invasion. Their numbers were such that it would be hard to credit without actually seeing them; everywhere you went flocks rose out of the grass, and the air was full of the rush and whirring of their wings. Some of the immense flocks seen at a distance across the open downs were hard to tell from dust storms, even by men who knew the bush well. At one station I heard of forty or fifty being picked up one morning, killed or maimed, beneath a telephone wire that connected two buildings 150 yards apart."

In the same number of the *Emu* Mr. D. Le Souëf publishes the following notes from the Melbourne Zoological Gardens:

"A pair of Cape Barren Geese hatched out four young ones early in June. In July five eggs were laid again in the same nest, the former young being six weeks old. The bird which did not happen to be sitting looked after the young, but they clustered round the sitting bird at night, so were removed and given an unattached male to be looked after. The second brood were duly hatched in July, and are doing well.

These birds evidently lay two clutches a year. The Emus are sitting, the male bird doing most of the work of incubating. The Brush-Turkeys (*Telegallus*) have made a very large nesting-mound early this year, or rather the male bird has, as the hen only looks on. If she comes near he drives her away."

CORRESPONDENCE.

THE SLAUGHTER OF THE INNOCENTS.

SIR,—I think Mr. Attewell in the October number makes a mistake in supposing that birds feel as he feels. It is just what they don't do. Some birds feel the cold much more than he does, and some much less. What we want to arrive at is, How do the birds feel? And we can only arrive at this by experimenting. But it need not be done with cruelty. A little observation will show what the bird is feeling as to cold. About heat it is more difficult. One soon sees that Hang-nests can stand no cold at all. I lost one from the change produced by a hailstorm coming over during the afternoon when I was out, and had left my study window open. It was odd the bird had not enough sense to go into its flannel-lined basket as it did at night. But it takes some time, and I am afraid some cruelty, however unintentional, to discover that a King Parrot suffers from heat. Unfortunately, there is little to guide us. You cannot say allthe members of one family will feel alike. The Continental Amazons are hardy; the Island ones more sensitive. Nor can you say that the birds of one region will feel alike. The Macaw can enjoy a snow-storm; the Caique dislikes any cold. *Palæornis docilis* can stand cold; *Pœocephalus senegalensis* cannot—and while *Pal. docilis* is hardy, *longicauda* is by no means so. Most of the Parrots can stand a great deal of cold after they have been a year in England. But they never can stand draught.

One of our members, who is a very successful breeder of the Australian varieties, says that Parrakeets do not mind cold, if the sleeping house is warm. But I believe he excepts Turquoisines.

So you can only find out what each bird likes by watching it. When you find it "cheerful" in a frost then I think there is no doubt it is happier in a spacious aviary, if it has it to itself. But birds are happy in cages. I have known wild caught ones return to their cages of their own accord. Birds' sufferings come from fear, and hunger, and thirst.

F. G. DUTTON.

SIR,—Without question no avicnlturist who has experimented with foreign birds in this country will agree with Mr. Attewell. Feathers are probably a greater protection against extremes of temperature than fur; and, if we are to accept the testimony of Hagenbeck, the polar bear delights to bask and roll in the sun in hot weather; so one cannot conclude,

because an animal comes from a hot or a cold climate, that it will be miserable under different conditions. The Gouldian Finch, being a native of Northern Australia, might be expected to do well in a warm indoor aviary; but, as a matter of fact, it does infinitely better, is more healthy, much more lively, and probably lives longer in an outdoor aviary; even though subjected to the frosts of this climate. On bright days, even when the previous night has been frosty, I have seen my birds bathing in the ice-cold water of their pan and evidently thoroughly enjoying it. To speak of this as cruelty is absurd.

The Indian Waxbills are quite happy in frosty weather, as are most of the more close feathered finches; but the African species, at anyrate when recently imported, are very susceptible to cold; yet it is possible that, if turned out at the commencement of the hot weather and kept outside, they may with the approach of cold weather develop warmer clothing than they need during the greater part of the year in their own country; although some of them must during certain months be subjected to intense cold at night in their native haunts.

We are also now aware, through the reports of travellers, that some of the more gorgeous of the birds long regarded as inhabitants of hot climates, that is some of the Hummingbirds and Tanagers, occur at considerable altitudes and are quite familiar with the appearance of snow; so that if we were to confine them in a highly heated aviary we should be subjecting them to wholly unnatural conditions.

In all these things experience is the only satisfactory guide.

A. G. Butler.

THE INCUBATION OF QUAILS' EGGS.

Sir,—In your most interesting article on Quails in the current number of the Magazine you give approximately the period of incubation as 16 to 18 days.

This summer I placed some Rain Quails' eggs in an incubator at about 10 a.m. on the 27th of May and they hatched at 3 p.m. on the 12th of June, which gives an incubation period of 16 days 5 hours. The incubator was kept at a temperature of 100 degrees Fahr. It is almost impossible to judge the exact incubation period from the birds, especially if they are at all shy, as they often take to the nest on the afternoon before laying the last egg and do not leave the nest, as a rule, till from six to eight hours after the last bird is hatched, so that an error of anything from 18 to 24 hours may creep in. On the other hand with incubator-hatched eggs a possible error is likely to occur owing to the temperature being slightly different from that of the natural mother. J. Lewis Bonhote.

PARRAKEET NOTES.

Sir,—Will you kindly describe the Adelaide Parrakeet to me. According to Dr. Greene's "Parrots in Captivity" they are like Rosellas

but larger, and that agrees with one I bought of the late Mr. Abrahams: he called it the Giant Rosella. But I have had a bird sent me recently as an Adelaide, which appears to be nothing but a very poor coloured Pennant, being a rusty red instead of dark scarlet. The father of thirteen hybrids I have bred this year with a hen Rosella is exactly like it, and it has been in my possession about three years.

I have another that came in the same lot from Marseilles that is more like a Yellow-rumped Parrakeet than anything else, in fact it is like the picture in Dr. Greene's book but more brilliant, a little redder on the rump and abdomen and the tertiaries are not so yellow. I should much like to know what it really is. It has one great fault: as soon as its tail is perfect after moult it bites all the feathers off short, just as though someone had cut them off with a pair of scissors, but it has never touched any other feathers. C. P. ARTHUR.

[The Adelaide Parrakeet is not like a large Rosella but may be compared to a washed-out Pennant, in which the colour, instead of being deep crimson, is rusty red. Probably the "Giant Rosella" was a Red-mantled Parrakeet, which is a hybrid between the true Pennant and the Rosella. The hybrids which Mr. Arthur has reared are evidently bred between the Adelaide Parrakeet and the Rosella. The other Parrakeet above described is probably a Yellow-rumped Parrakeet (*P. flaveolus*), some specimens of which are quite a brilliant yellow.

The illustration referred to is not particularly good. ED.].

SWALLOWS AT THE ZOO.

SIR,—When visiting the Zoological Gardens last summer I noticed a Swallow flying about in one of the Aviaries, which I think was occupied by Ducks. I asked a gentleman who accompanied me if he knew how long it had been confined there, and he told me he thought, as far as he could remember, it had been there all last winter. Can you, or any of your readers connected with the Zoological Gardens give me any information about it, whether it really lived through the winter there, and whether it is still there? It would be really interesting to know if a Swallow lived in the open air through our winter. WILLIAM B. GIBBINS.

[The Swallow which Mr. Gibbins saw was probably the one which lived in the Waders' aviary during the summer of 1905 and spent the winter in the Western Aviary, which is warmed. In the spring of this year it was again transferred to the Waders' aviary. A number of others have since been obtained and we cannot say if the original one is still alive.

These birds seem to do well in the aviaries at the Gardens, where they soon learn to take food from the ground.—ED.].

PARTIAL MELANISM IN BICHENO'S AND RINGED FINCHES.

SIR,—I wonder whether you have seen the Bicheno, or rather Ringed Finches which have been imported recently? They have some in

the Parrot house in the Zoo, or had last time I was there. Some of them are a little larger than the ordinary ones, but the main difference is in the colour between the first and second rings. Instead of being white, or nearly white, the feathers are brown, not a dead brown, but rather as if a child had dipped a brush into very wet paint and had painted the white feathers, giving a patchy effect. I had thought the birds were merely freaks as it were, but last week I ordered some Bichenos from a dealer. He had only two left (I had ordered two pairs) and they came yesterday. One is quite an ordinary Ringed Finch (dealers do not seem to know the difference between Rings and Bichenos) the other is like those at the Zoo. It is rather larger, has a broader, bolder looking head, is warmer in colour and is a patchy brown between the first and second rings. The dealer is expecting some more next week and my second pair is to be sent then. I am wondering what they will be like. Can they come from a different part of the country? I should very much like to know if you have seen them, and what your theory is regarding them. L. WILLIAMS.

The following reply was sent to Mrs. Howard Williams:

I think the dark colour on the breasts of some Bichenos and Ringed Finches is entirely due to partial melanism, the result of captivity. I have noticed it on several occasions. Those at the Zoo. were quite normally coloured when they arrived, and I believe all that are sold with the dark breasts are birds that have been caged some time. I do not think size has much to do with the change. Gouldians are also liable to partial melanism in captivity. D. SETH-SMITH.

ORNAMENTATION OF THE MOUTHS OF YOUNG GRASSFINCHES.

SIR,—Some time ago I drew the attention of members to the decoration of the mouth of the Cutthroat, perhaps it may be of interest to note that in the young of the Diamond Sparrow the mouth is marked with metallic looking blue spots and at the gape of the bill there is a bright blue wart plainly visible when the beak is closed. I have sent a baby young one to Dr. Butler, and he thought the fact might be worth recording, hence this letter. F. H. RUDKIN.

THE BREEDING OF FORSTEN'S LORIKEET.

SIR,—The Forsten's Lorikeets with which I won last year the Society's medal have bred again this year.

In May the hen laid two eggs and they hatched, but when the young birds were a fortnight old they were killed by some Blue Mountain Lories. I removed these birds and the Forsten's Lorikeet laid two more eggs which were hatched on July 22nd. One of these young birds died soon after, but the other one is a fine healthy bird now, out in the aviary. It has its wing feathers, and its head and neck feathers, but the body is still mostly down.

It came out of the old tree on the 15th of October. The eggs are white and round. The parents still feed the little bird, and I think there is every prospect of its living. It does not seem to feel the cold, and is very well and lively.—*October* 27, 1906. MARY MICHELL.

ERRATA.

On page 48, line 31 (November number) for Thrushes read *Thistles.*

THE SOCIETY'S MEDAL.

In our October number appeared an account by Mr. Teschemaker of the successful breeding of the Red-headed Finch (*Amadina erythrocephalus*) in his aviary. We can find no record of previous success though on many occasions eggs have been laid.

In the November issue Mrs. Johnstone records the rearing of young of the rare Lorikeet *Trichoglossus johnstoniæ.* There can be no doubt that this is the first instance of this species breeding in captivity.

In the present issue Mr. St. Quintin tells of his success in breeding the Pine Grosbeak (*Pyrrhula enucleator*), Mr. J. H. Gurney the Jackal Buzzard (*Buteo jackal*), and Mr. E. J. Brook the White-eared Conure (*Pyrrhura leucotis*). It is hoped that any member or reader who may know of a previous case of any of these species successfully breeding in the United Kingdom will immediately communicate with the Editor; otherwise it is proposed to award a medal to each of the members mentioned above.

[In our October issue Sir William Ingram records the successful rearing in his aviary of a young Red Mountain Dove (*Geotrygon montana*), but this species, we find, bred at the Zoological Gardens on several occasions from 1863 to 1870].

POST MORTEM EXAMINATIONS.

RULES.

Each bird must be forwarded, as soon after death as possible, carefully packed and post-age paid, direct to Mr. ARTHUR GILL, Lanherne, Bexley Heath, Kent, and must be accompanied by a letter containing the fullest particulars of the case, *and a fee of* 1/- *for each bird.* If a reply by post is required a fee of 2/6 must be enclosed. Domestic poultry, pigeons, and Canaries can only be reported on by post.

ZEBRA-FINCH (H.) Your bird died of apoplexy.

LOVEBIRD (Miss E. Douglas). The bird sent was a cock. Was much emaciated, and died of heart failure through weakness. It is just possible the hen has kept this one from obtaining sufficient food and it has got gradually weaker and weaker. There was no disease.

Mrs. Drewitt answered by post. ARTHUR GILL.

NOTICES TO MEMBERS—*(Continued from page ii. of cover).*

NEW MEMBERS.

Mr. COLIN MCLEAN; The Heath, East Dereham, Norfolk.

Mr. EWART SOUTHCOMBE; Manager of the Zoo., Stoke-under-Ham.

Mr. LAWRENCE HARDY, M.P.; Sandling Park, Hythe, Kent.

Miss CONSTANCE E. POWER; Watership, near Newbury.

Mr. RICHARD A. LIEBERT; Hylands, Chelmsford.

Lady HEATHCOTE AMORY; Knightsheyer Court, Tiverton, North Devon.

Mr. KENNETH COOKSON; Oakwood, Wylam-on-Tyne.

Mrs. H. H. WILLS; Barley Wood, Wrington, Somerset.

Mr. HOWARD VYSE; Stoke Place, Slough.

Mr. CECIL LEIGH; Lyburn Park, near Lyndhurst, Hants.

The Lady MAGDALEN WILLIAMS BULKELEY; 24A, Portland Place, W.

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Dr. NORMAN TICEHURST, M.A., M.B., F.R.C.S., F.Z.S.; 35, Pevensey Rd., St. Leonards-on-Sea. *Proposed by* Mr. J. L. BONHOTE.

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Mr. FREDERIC BLANDY; Funchal, Madeira.
Proposed by Mrs. REID.

THE ILLUSTRATION FUND.

The Committee acknowledge with thanks the following donations:

Mrs Reid	£1 10 0
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(Continued on opposite page).

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CONTENTS.

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All MSS. for publication in the Magazine, Books for Review, and Private Advertisements should be addressed to the Editor, Mr. D. SETH-SMITH, Glengarry, Canning Road, Addiscombe, Surrey.

All Queries respecting Birds (except *post mortem* cases) should be addressed to the Honorary Correspondence Secretary, Dr. A. G. BUTLER, 124, Beckenham Road, Beckenham, Kent.

All other correspondence, and Subscriptions, should be sent to the Honorary Business Secretary, Mr. T. H. NEWMAN, Newlands, Harrowdene Road, Wembley, Middlesex. Any change of address should be at once notified to him.

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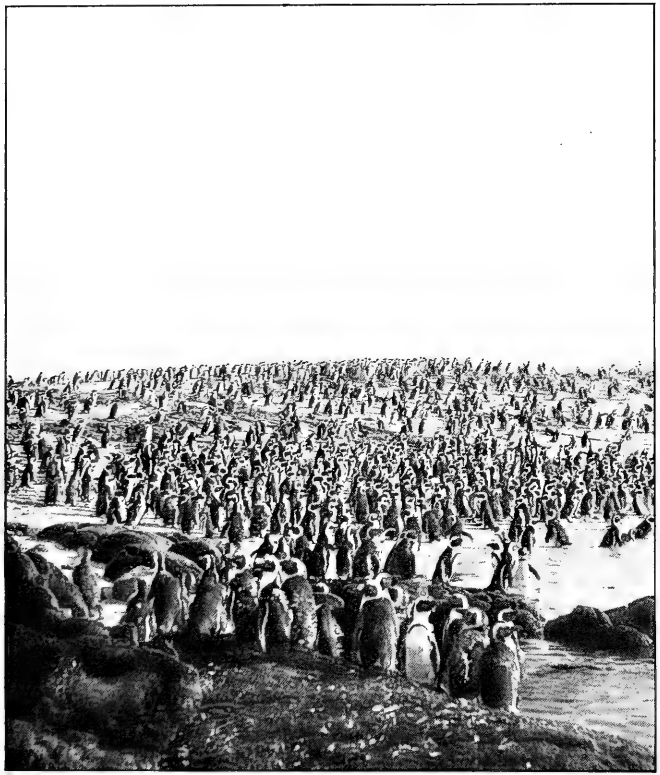
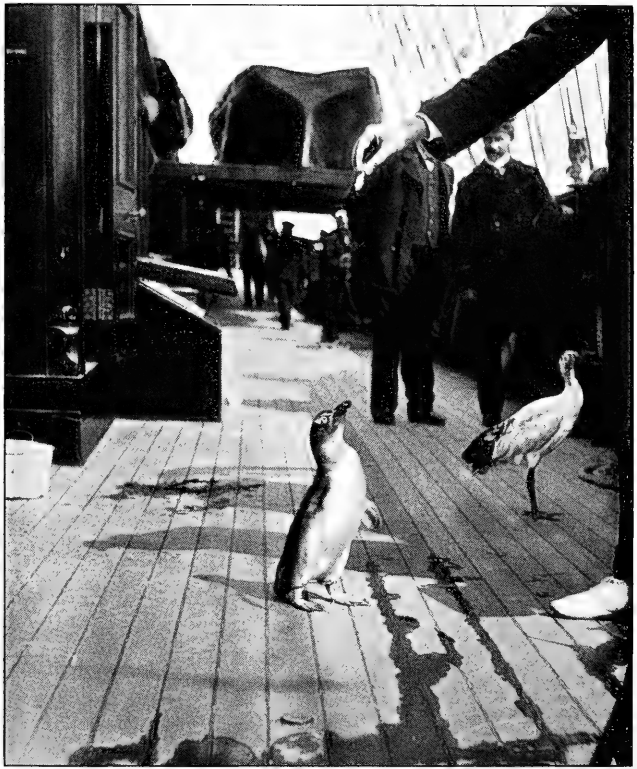
(*Continued on page iii. of cover*).



MOB OF JACKASS PENGUINS
(Spheniscus demersus) on Dassen Island.



YOUNG JACKASS PENGUIN and YOUNG SACRED IBIS
(Ibis æthiopica) on deck of "Valhalla."

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THE

Avicultural Magazine,

BEING THE JOURNAL OF THE

AVICULTURAL SOCIETY.

New Series—VOL. V.—No. 3.—*All rights reserved.* JANUARY, 1907.

SOME REMARKS ON BIRDS SEEN DURING THE CRUISE OF THE "VALHALLA," R.Y.S., 1905-1906.

By E. G. B. Meade-Waldo, F.Z.S., M.B.O.U.

Before leaving Brazil, I ought to mention the Parrots that we came across. Of these by far the commonest was the Golden-crowned Conure, *Conurus aureus*. This bird was very common, and flocks were repeatedly passing at different elevations: it was very noisy. When settled in trees and bushes it was very tame and could be readily approached. There are two fine specimens of this Conure in the Parrot House at the Zoological Gardens at the present time. The common Blue-fronted Amazon, *Chrysotis æstiva*, was also common enough, and rather more shy than most of the birds. The pairs when flying over would occasionally indulge in a very curious "hovering" kind of flight. We also saw, but did not procure, a small Parrakeet, and we did not see it in the market in Bahia.

On leaving Brazil we steamed South-East to the Island of South Trinidad. This tropical island is uninhabited and but rarely visited. We were fortunate in having calm weather for landing, and spent two most delightful days there. Although extremely interesting to the ornithologist, this island might not be so much so to the aviculturist, as its present avifauna is purely marine, consisting of two Frigate Birds, *Fregata aquila* and *F. ariel*; two Petrels, *Œstrelata trinitatis* and *Œ. arminjoniana*; two Terns, the common Noddy, *Anous stolidus*, and the Sooty Tern, *Sterna fuliginosa*; a Gannet, *Sula piscator*; and a beautiful little white Tern, *Gygis crawfordi*. This latter proved to be undescribed and is named after Lord Crawford. This exquisite

little bird swarmed in myriads all over the island, and was quite without fear of man, as indeed were all the other birds. It laid its one egg without any nest whatever, either on a boulder, a ledge of rock, the branch of a tree, and very often on the upturned roots and branches of the dead trees with which the island is covered. The diameter of the egg was frequently greater than that of the branch or root on which it was deposited, and I frequently saw some eggs balanced between two thin branchlets. If there ever was a land-bird on this island it has disappeared with the perishing of the indigenous timber, for although there are a few trees, and some scrub on the summit of the island, the tree-fern forest covers the greater part of the valley on the leeward side.

From South Trinidad we sailed and steamed *via* Tristan d'Acunha, where we were unable to land owing to bad weather, to Cape Town. Here some time was spent. Birds did not appear to abound in Cape Town, but with the exception of our Chimney-Swallow, *Hirundo rustica*, who was wintering there, but in no great numbers, we saw no European birds.

The most striking birds of the town and gardens are, first, the House-Sparrow, which is not *Passer domesticus* but *P. arcuatus*, and did not appear to be remarkably abundant. A "White-eye," *Zosterops capensis*, a Pied Wagtail, *Motacilla capensis*, the Cape Robin Chat, *Saxicola familiaris*, Cape Turtle-Dove, *Turtur capicola*, a Sunbird, *Nectarinia famosa*, a *Promerops*, and others; but in the bay and especially right in the inner harbour, the Jackass Penguins, *Spheniscus demersus*, and Cape Cormorants are most interesting from their numbers and extreme familiarity.

One of the most delightful expeditions was one to Dassen Island, that was most kindly arranged by Mr. W. L. Sclater. Dassen Island, about 40 miles N.-W. of Cape Town, is a great breeding-place of Penguins and Cormorants. The birds are preserved by the Colonial Government for guano, and the Penguins also for eggs. The Island is some two miles long by one mile wide, and is entirely given up to the birds, there being a family living on the island as keepers. There is also a light-house, in which we were most hospitably entertained for the night. We were told that it was the "off" season when we were

there, but even if it was so it did not matter as many thousands of Jackass Penguins were on every side, the island being practically covered. They were breeding everywhere: many had eggs, some in slight hollows in the ground, others in burrows, and fountains of sand might be seen flying up in all directions where burrowing was going on. There were many young of all sizes; and quantities of dead young were lying about. The Penguins were quite indifferent to us, and beyond biting your fingers if you put your hand under a sitting bird, took no notice. Many groups of moulting birds were about: these never go to sea during the moult. The pairs are very affectionate, and it is very comical to see the male guiding the female the way he wants her to go with a flipper. Large numbers of the eggs are eaten in Cape Town, principally by the Malays. They are the size of Turkey's, very strong in the shell, and greenish in colour. The male collects a certain amount of nesting material, but no nest is built. This is the Penguin that may be seen living, thriving and breeding in the Sea-Lions' enclosure at the Zoological Gardens, where two particularly fine young have been reared during the past summer; and some more may be seen sitting at present. They are charmingly tame pets. We brought one away from the island, a tiny young one, and reared it on the yacht. It gave me much pleasure and although it felt the extreme damp heat of the Indian Ocean, throve well, and is now to be seen in the Gardens, where it is just about to moult into adult plumage, being about ten months old. This young Penquin, when on the yacht, used to run about the deck with two Sacred Ibises, which it was really quite fond of, but on occasions when in a playful mood, it used to turn on them suddenly, seize one with its beak, hold on, and give it a good beating with one of its flippers, a comical proceeding which used to take place nearly every evening. The Penguin cunningly stalked the Ibises, who always knew quite well they were being stalked.

These Ibises, the "Sacred Ibis," *Ibis æthiopica*, we took from the nest, the latter being one of a colony which was attached to a large colony of Cape Cormorants, *Phalacrocorax capensis*. The Ibises were the shyest birds on the island, as they are treated as vermin, having the reputation of robbing the old

Cormorants of the food they are bringing for their young, and also of eating the entrails of the young themselves. Young Ibises when handled certainly disgorged a mass of entrails! The strict preservation of the Cormorant, which is the best guano producer, indirectly preserves the Ibis. As until the main body of the young Cormorants have flown, no one enters a Cormorant colony, for if the Cormorants leave their nests, these are immediately pounced upon by the Black-backed Gulls, *Larus dominicanus*, which are always waiting for the opportunity. These young Sacred Ibises throve and were almost omnivorous; they certainly preferred meat to fish, but they were fond of bread, raisins and banana, and were always robbing other birds in cages of their dainties. They had no trouble in getting any thing they wanted with their long curved beaks. They were great consumers of gravel, which was ejected as a casting in a few hours covered with mucous. I saw a wild Abbott's Ibis (of this more anon) go through this performance, and observed that some of the casting was composed of unripe berries. These young Ibises may now be seen in the Zoological Gardens, remarkably fine healthy birds, in full plumage with the exception of the neck, which is still covered with small black and white feathers. They have already changed their ornamental "decomposed" secondaries three times, those they are now wearing being apparently mature.

This island was extremely interesting, and we had too short a time on it. We were told that about nine million Penguins resorted there: it seemed quite possible. The colonies of Cape Cormorants dotted about amongst the Penguins must have numbered many thousand birds. The Black-backed Gull was too numerous. We saw also the Bank-duiker, *Phalacrocorax neglectus*; the Black Oyster-Catcher, *Hæmatopus moquini*, a pair of which may be seen now in the Eastern Aviary at the Zoo. And, floating in a bay close to where we re-embarked, were several Giant Petrels, *Ossifraga gigantea*, evidently gorged with good things so easily picked up on and around this island.

I may incidentally remark that the guano from this island is sold to the Cape farmers at about £6 10s. per ton. The Penguins' eggs are sold up to 10s. per 100; 21,000 eggs were taken

from one quite small patch of ground last season, and 500,000 were sent from the island to Cape Town. On our way back to Cape Town we saw some Cape Sea-Lions, *Otaria pusilla*, one of which in progressing took leaps right out of the water.

THE SUCCESSFUL NESTING OF FRASER'S TOURACOU.

By Mrs. Johnstone.

In the November (1904) number of the Magazine (N. S. Vol. III. No. 1) an account was written of the successful nesting but the unsuccessful rearing of the young of Fraser's Touracou, and in the following issue a hope was expressed that the missing link in the life of the young bird might at some future time be added.

Through the patient perseverance of these birds aided by clumsy attempts on my part to supply as far as possible, substitutes for their natural food and nesting accommodation (a poor exchange for their own tropical forests and never-ending supplies of animal diet), I am now able to add that link.

Last year the nesting took place in a small outdoor aviary quite exposed to the weather, and when the young one flew, as now I have no doubt that it *did*, and was not pushed out by its parents as I imagined—it fluttered into some wet long grass, with the result that it promptly died of exposure and cold. This happened on two occasions.

In the early winter of last year my new aviaries were completed and the birds placed therein, and the divisions, although not large, are quite large enough to give these energetic birds room for exercise. Half a hurdle, closely covered with ropes of hay, so closely that it formed an even platform, was placed high in a corner on a level with the top of the door and as far from the window as possible. On this platform a rough nest of sticks was built close to the wall and to the edge of the hurdle nearest the door—a clever place, and the only place in the aviary which it was not easy to see from the wire door.

On April 5th one egg was laid and, after three weeks' patient sitting on the part of both parents, proved unfertile.

On May 19th another was laid with the same result, and between June 30th and July 2nd a clutch of two eggs was laid by the persevering hen, and on Wednesday, July 24th, one of these eggs hatched. The probability is that the second egg laid after June 30th was the one hatched, as previously the hen incubated the eggs almost exactly three weeks.

The first sign of the advent of the baby was that the cock, who was sitting at the time, raised himself upright and fed some small dark object from his crop, placing his beak right into the beak of the young one and feeding it much as a pigeon feeds its young. I was able to see the process clearly many times, by the aid of a hole in the match-boarding dividing the divisions, and standing in the next division I could examine the nest without being seen by the old birds.

I need hardly describe the appearance of the baby, as a minute description was published in a previous number of the Magazine (December 1904). But after a few days he could scramble about on the hay platform quite energetically, the parents brooding him very closely, and not until he was three weeks old and beginning to grow his wing- and tail-feathers was he left much to himself.

Long before the body-feathers replaced the brown down the wing- and tail-feathers were quite developed, and this absence of body-covering probably caused the death of the previous young ones.

In the West African tropics this would be no inconvenience, but in our variable climate proved fatal as regards the former young ones.

On the 18th of August the young bird flew, that is, he was discovered perching on a bough on the ground, and looking ridiculously small and unfledged to be out of his nest at all.

That this state of things was quite normal, I have no doubt: he moved easily about the floor, covering the ground with quick long hops, and generally returned to his bough, where he sat humped up and waited for the constant meals with which his parents provided him.

As seen in the brighter and clearer light he was a dark rusty blue, almost black, very vulturine in appearance, with his

large beak, almost bare head, and perfectly developed wing- and tail-feathers.

Up to now I had fed the old birds on cut-up banana, soaked biscuit squeezed dry, sweet water-grapes and mealworms, any caterpillars I could get, and some silkworms which were much appreciated.

I now added bread and milk (not sloppy) to the diet, and was interested and pleased to find they took readily to it; it helped much in the rearing of the youngster, and I have not discontinued it since, as they seem so fond of it.

The baby grew very slowly; and at one time I thought I should never rear him. My coachman—a great admirer of the Touracou family—here came to the rescue, and fed the baby once or twice in the day with bread and milk, banana, or grapes. He soon began to improve and grow, and the parents, seeing that he was developing into quite a nice child, took to him again and fed him so industriously, that all outside help was discontinued. Whether this neglect was caused by the birds thinking of another nest, I cannot say, but on August 30th, when the young bird was about nine weeks old, the hen laid two more eggs, which however proved unfertile.

And now the youngster began to grow rapidly and to improve in every way; he started a funny little crest at the top of his head, just a few hairs with a slight curl. The green plumage could now be seen shimmering on his neck and back, and the flight-feathers certainly became bluer, although not until October 24th did his first red feather appear in the wing.

He always roosted next his mother when she was sitting on the eggs, and indeed spent much of the daytime there too. When about ten weeks old he began to feed himself, picking up fallen scraps from the floor, and used to regularly bathe in the wide shallow pan, sometimes with his parents sometimes without, and it was a pretty sight to see all three birds splashing and washing together vigorously.

Now, as I write, he has almost assumed the full plumage; the white eyebrow mark is clearly defined, and he is only distinguished from the old birds, by being rather smaller in size and duller in plumage. May I add a hope that as some Touracous

were imported by Mr. Cross this summer, and I expect found homes amongst our members, we may have some accounts of other nestings in the Magazine in time to come.

THE VICISSITUDES OF BIRD-KEEPING. (AVIARY EXPERIENCES.)

By A. G. Butler, Ph.D., etc.

To the average aviculturist I believe good and evil fortune come in about equal proportions: if he is particularly fortunate one year, the chances are that, in the following year, he will have no luck whatever; but I am sure of this, that the more outdoor aviaries a man has, the better chance has he of continuous success.

During the past year, although I have not bred many birds, I consider that I have little cause for grumbling: it is true that not a few nice birds have died in my aviaries; but, on the other hand, I have been unusually favoured with presents from friends both outside and inside the Society.

In February, with the hope that I might breed some of the Australian Grassfinches, I purchased three pairs of *Munia flaviprymna*, one pair of *Poephila acuticauda*, one pair *P. mirabilis* (which died between the 2nd and 4th May); one pair *Stictoptera annulosa* and a male *Bathilda ruficauda*: not one of these has bred, but the hen *S. annulosa* disappeared about the 20th Sept., and reappeared shortly afterwards.

On March 6th my Green-winged Doves (Australian) built a nest in a box in the outdoor aviary and the male began chasing about the cock Bronzewing pigeon; I therefore removed the Bronzewings to an indoor aviary, but to no purpose, inasmuch as the Ouzels prevented the Green-wings from breeding.

On March 9th I noticed that one of last year's young Gouldian Finches was unwell; it however recovered, but was taken ill again on September 23rd: it is the hen bird. Why should female finches always be more liable to illness than males?

On the 12th my female Wells' Ground-dove died, having been continuously laying and sitting upon clear eggs since the beginning of the previous year.

On the 20th I received a cage of interesting finches from an unknown friend, apparently a sea-captain, to whom I have no clue excepting that his Christian name is Robert. The consignment comprised two pairs of *Munia flaviprymna*, one pair and a blind female of *M. pectoralis*, one female *Poephila gouldiæ*, one male *Pytelia emini* (interesting on account of the broader and darker grey-brown bars of the under tail-coverts, which distinguish it to the eye from *P. phœnicoptera* without looking beneath its wings). Captain Shelley does not consider *P. emini* to be a distinct species, but it is certainly a pleasing local form.

I thus commenced the season with five pairs of *Munia flaviprymna*, of which I put one pair outside, one pair in a large flight, two pairs in an indoor aviary; one female broke its wing and subsequently drowned itself and the odd male I kept in a store-cage: none of these birds went to nest.

On March 20th the hen Chinese Quail began to lay and continued right up to the middle of September first in one place then in another; not sitting steadily excepting once, when the eggs had already been laid too long to hatch: altogether at least forty eggs were deposited.

On May 19th I had another piece of good fortune:—our Member Miss Gladstone very kindly ordered a pair of Violet-eared Waxbills from Mr. Hamlyn as a present for me. I turned them into my smaller outdoor aviary where they flew about happily enough; but in the evening they persisted in roosting under the open wire-work at the end of the aviary where all the neighbours' cats delight in congregating: I therefore laid a large piece of stained glass over the wire-work and this induced them to settle elsewhere.

On the 21st the female Violet-ear dropped dead in the act of flight from no apparent cause; the male however looked healthy until the afternoon of the 26th when I noticed it asleep on a branch; I therefore caught it and discovered that it must have been fighting, as its head was rather badly pecked: I brought it indoors, but it died on the 27th.

My Bronzewinged Pigeons went to nest in May, and continued to lay and sit up to September, invariably breaking their eggs as usual: the male is rather heavy-footed, doubtless an old

bird: on two occasions there were partly developed young in the shells.

On May 25th I bought two healthy-looking pairs of *Estrilda phœnicotis* and kept them in a flight-cage together until June 3rd, when I turned one pair outside and a hen into one of my indoor aviaries, where I had and still have a well-seasoned cock bird: the following morning I found both hens dead, with nothing whatever to show why they died. Later in the year the male outside died and I gave the odd male away.

On June 17th my Yellowish finches began to worry a hen Ribbon-finch, so I removed them to a smaller aviary where they soon began to carry hay into a box, one chasing the other and singing excitedly: however nothing came of it and both I and Mr. Seth-Smith feel sure that the two are cock birds.

On July 1st a hen *Staganopleura guttata*, bought last year, died egg-bound; which, in my experience, is the usual fate of hens of this species in captivity.

July 13th Miss Gladstone very kindly sent me a pair of *Erythrura prasina*, but on the 15th I noticed the cock eating incessantly and was not surprised to find it dead on the 16th. The same kind friend ordered a second pair for me; the cock arrived on the 21st with a broken leg, the supposed hen (a young cock out of colour) seemed healthy; both were dead by the 29th. Miss Gladstone then ordered two cock birds for me which arrived on August 2nd, but were in female plumage excepting that the head looked bluish; these and the original hen are still living and healthy: both cocks are now in full colour.

My English Goldfinches went to nest in one of my indoor aviaries in July; one young one was half feathered when my *Poephila acuticauda* attacked it on the 28th, pecking a great hole in its back and dragging it out on to the floor.

On August 13th Mr. Teschemaker very kindly sent me his pair of young Black Tanagers: they were delayed so long on the railway that they arrived quite dazed with hunger and thirst; the hen was in the worse case and has been more or less out-of-sorts ever since.

September 4th. As noted in a previous paper my *Stictoptera bichenovii* died from heat-apoplexy. On the 8th I caught up

and brought indoors all the birds in my larger garden aviary, which badly required painting: my young Ouzels greatly resented their restricted liberty, but their father (*Merula boulboul*) and the pair of Green-winged doves took it as a matter of course.

On the 12th a young Gouldian-finch left the nest and on the 14th a second flew: on the 15th I saw both young birds feeding themselves!

September 13th Mr. Teschemaker sent me a young Red-headed finch and a young Green Avadavat; the latter however was dead on the floor of the aviary on the 16th, having probably been scared by my going out to see that all was safely locked up on the evening of the previous day. On the 13th also Mr. Allen Silver brought me a pair of young Tree Sparrows, a species which I had not previously kept.

September 17th Capt. Horsbrugh sent me a cock Grenadier Weaver (*Pyromelana oryx*) and a very interesting variety of the Red-billed Weaver (*Quelea quelea.*)

On the 23rd of the same month, as already stated, last year's young hen Gouldian-finch looked ill and panted a good deal, and later on the young cock bird became puffed and sleepy; but eventually both recovered without treatment. Undoubtedly the fact of these birds having been bred out-of-doors and kept out quite late in the year, rendered them vigorous enough to resist what was probably a mild attack of septicæmia due to mice getting into the aviary.

October 12th. My old hen Madagascar Love-bird, which had murdered both her companions during the past two years, died suddenly. On the day following the hen young Black Tanager died and the cock was taken ill; he also died on the 15th. There is no doubt that neither ever recovered from the delay, caused by railway officials, in their transit from Devonshire, and the consequent want of food and drink to which they had been subjected for many hours: for the two months during which they were in my possession they were very peevish and always quarrelling, so that their skins were not worth preserving.

On the 23rd Mr. Teschemaker sent me a pair of mongrel Striated × Bengalee finches, which astonished me by their re-

semblance to the hybrids which I bred some years previously between the Sharp-tailed finch and Bengalee.

On the 26th I discovered a young Tambourine Dove, probably about fourteen days of age, below the old nest, dead; so that my doves must have nested a second time in September.

Oct. 30. My last Diamond-finch died, a cock bird in most interesting plumage, some of the central breast-feathers tipped with crimson; this clearly proves, as I stated in my article on Hybrid *Ploceidæ*, that the ancestral form of the species must have had red on the breast, and also indicates relationship to *Emblema picta*.

My young hybrid Ouzels were now in adult colour, apparently two cocks and one hen, although one of the cocks has not yet acquired the orange-yellow bill excepting along the margins of the tomium. The hen is much paler than last year's bird and nearly resembles the ordinary female of *Merula boulboul* with a large reddish-brown patch on the wing partly bordered by ashy-whitish streaks: the male birds are smoky-black with a red-brown wing-patch answering to the whitish-bordered grey patch of *M. boulboul;* their feet are dark like those of *M. merula*. It therefore seems probable that the grey patch in *M. boulboul* was evolved through the red-brown patch still retained by its female.

On Nov. 27th Lieut. Horsbrugh sent me two cock Red-headed finches and two hen Serins, apparently the St. Helena and Sulphur Seed-eaters.

My Crested Mynah, which was an old bird when I bought it in 1896, after suffering for about two months from a violent cough, which neither prevented it from bathing daily, nor affected its spirits, died suddenly on the 28th.

On Dec. 1st Miss Gladstone sent me her Hangnest, a beautiful sulphur yellow variety of what appears to be *Icterus vulgaris:* there is a somewhat similar specimen among the skins in the Natural History Museum.

As I complete these notes my Tambourine Doves and young, Gouldian finches with this year's young, a pair of Ringed finches, a pair of Yellow-rumped finches and a pair of Chinese Quails are still in their outdoor aviary, and all in splendid health,

in spite of several night frosts and fogs. To see the supposed delicate Ringed finches and Gouldian finches splashing about in water which must have been frozen over shortly before and evidently thoroughly enjoying it, is certainly a strong argument in favour of the open-air treatment for many foreign birds.

THE REARING OF A HYBRID BETWEEN *PASSER MONTANUS & P. LUTEUS.*

By R. Suggitt.

Although my acquaintance with the Yellow Sparrow has not extended over a long period, I have found it a most desirable aviary bird. It is lively and interesting, and, given a fair amount of room, may safely be associated with the smallest finches. It always gives one the impression that it has some serious business on hand which leaves it no time to interest itself in the concerns of others.

The male is a really handsome bird, his only fault (not a very serious one) being a monotonous and constantly repeated chirp.

I bought a reputed pair of young birds in their nest feathers early in August, 1905, from a dealer, and after keeping them in a cage for a few days, put them into my outdoor aviary and waited patiently for the brighter colored bird to assume adult plumage. Meanwhile it repaired an old nest in one of the hedges, laid two eggs and abandoned them. This decided the question of sex for the other was undoubtedly a hen.

Throughout the winter they were very shy and only to be seen occasionally, but they gradually became bolder, and one of them, early in May, attempted to build a nest in a small hawthorn tree. After struggling unsuccessfully for three or four days to lay a foundation of coarse twigs, she abandoned the site and commenced to carry sticks and hay into a Hartz cage under the shelter.

On May the 5th I purchased for a few coppers a very fine male specimen of the Tree Sparrow (*Passer montanus*) and put him into the aviary, hoping he would pair with one of the hens of

P. luteus. On May the 10th I saw him making love to the one which was building, and the next day I removed an egg from the Hartz cage. On the 12th she had so far finished the nest as to be lining it with feathers. It contained another egg and I replaced the one I had taken out. Four eggs were laid and then the pair appeared to take no further interest in the nest, for I never saw them go near it until May 25th, when I was surprised to see the hen dart into the cage with a fly in her beak, and, on examining the nest I found it contained at least one young bird.

I now had to face the difficulty of supplying this pair with sufficient insect food to feed their brood, not an easy task where upwards of a hundred other birds occupy the same enclosure. However, at the risk of the hen deserting, I fixed a small dish about fifteen inches from the nest and some six inches lower. To keep this supplied with mealworms, spiders, greenfly and caterpillars called for considerable exertion; these birds absolutely refuse to touch wood-lice, gentles, or earwigs. Two days later the young hybrids' voices could be distinctly heard.

All went well for some days: the main duty of the Tree-Sparrow appeared to be the defence of the food dish against all comers, which caused friction between his family and a pair of Swainson's Sparrows, who had built a nest some six feet away, and who no doubt thought they had a right to a share of the tit-bits. The crisis came a few days later, but luckily I was on hand and saw a pitched battle between the hen Yellow Sparrow and one of the Swainsons, while the other Swainson threw the three youngsters out of the nest. All this occurred before I recovered from my astonishment. I rescued the young ones, one of which had been carried some distance and deposited behind a bush. Apparently they were little the worse for their adventure when I put them back into the nest. The hen had lost a lot of feathers and appeared to be damaged generally, but the Tree Sparrow was absent during this disturbance—he had probably been severely handled on some previous occasion.

After a great deal of trouble (for I never saw a more cunning bird) I recaptured the Swainson's. One of the hybrids was nicely feathered, the other two being much more backward.

On June 3rd two heads could be seen at the entrance to

the nest, and on the 5th one youngster was standing in full view. Half an hour later it was on the ground, but was unable to fly, and its head and neck seemed to be twisted and paralysed. I put it back into the nest and found it there dead the next morning: the back of its head was soft as if the skull had been broken by a blow, which may have been caused by its fall of nine feet. There was one other in the nest fully feathered also dead, the third one I could not find.

In the meantime the other hen had built in a cocoanut husk, and although she, like the first hen, did not appear to be sitting, I watched her closely about the time I thought the eggs would hatch, and on the morning of June 19th I saw her with insects in her beak.

This nest contained one young one and three infertile eggs. This hybrid progressed very rapidly, and on July 2nd was out of the nest but unable to fly more than a yard or two: when I visited the aviary the next morning it was perched on the hedge.

The Tree-Sparrow now took entire charge of the young bird, both hens having gone to nest again. For a few days he fed it almost entirely on spiders, house-flies, etc. On the 6th July I noticed both birds at one of the seed hoppers, the old bird husking the seed and the young hybrid taking it from the tip of his beak. On the 12th it could husk its own seed. It was fed by the cock until the 17th, after which it appeared to be entirely independent, and is now (October) one of the liveliest birds in the aviary.

About the middle of August I introduced into the aviary a male Yellow Sparrow. He at once built a huge untidy nest and tried his hardest to induce one of the hens to join him but, so far as I could see, without success. One of the hens hatched four more birds, which left the nest late in September, and the very pale colour of three of them leads me to suspect that both their parents are Yellow Sparrows. The fourth is much darker and I am inclined to think of mixed parentage.

Seeing that both sexes of the young of the Tree-Sparrow in their nest plumage greatly resemble their parents it would not be unreasonable to expect that the young hybrids would in some

degree resemble their male parent. This, however, was not the case for all three of them were almost like young House-Sparrows, except that they were much smaller.

The survivor has now completed its nest-feather moult; its wings are marked with two distinct bars, and it has a vinous-buff eyebrow streak, otherwise little or no change has taken place in the colour of its plumage.

THE INTELLIGENCE OF CRANES.

By W. H. St. Quintin, F.Z.S.

Those who have kept Cranes under close observation must often have noticed evidence of exceptional intelligence in these birds.

Amongst birds there are no more devoted parents, and they exhibit great constancy and affection towards their mates; and even attachment to their owners. This applies particularly to solitary individuals.

I was very much interested a few evenings ago to see how cleverly some of my Cranes took advantage of their artificial surroundings to secure an active prey, which they evidently considered a delicacy.

I first noticed a male White-naped Crane (*Leucauchen*) stride quietly up to a high wire fence, and capture something at the foot of the netting. Then I saw that this bird's mate was standing attentively watching another part of the same fence a little way off, while two Siberian Cranes (*Leucogeranus*) were doing the same thing in another part of the paddock, each keeping apart from the other, but close to the wire netting. The male White Crane is very tame, and I was able to move gently up, and to stand within three paces of him for some ten minutes without disturbing him. I saw, as I suspected, that the dor-beetle was the quarry; and while I stood by the Crane he secured seven of these insects, which struck the fence in their clumsy, circling flight, and fell to the ground. From time to time the other birds were making similar captures, so that evening a good "bag" must have been made of the beetles. The insects were not crushed at all, but were immediately

swallowed. At the distance of a few feet I could trace the progress of the unfortunate struggling beetle down the gullet of the Crane; and once when the insect had only travelled half-way down the long neck, the Crane put down his head and scratched his chin with his foot, afterwards finishing the swallowing process with the most complete unconcern!

QUESTIONS TOUCHING THE BENGALEE.

Munia domestica, Flower.

By Dr. Arthur G. Butler.

In the December number of our Magazine Captain Stanley S. Flower questions the decision of myself and others touching the descent of the Bengalee from the Striated Finch; and, after calling attention to the fact that I formerly adopted Mr. Abrahams' opinion and believed this bird to be a result of hybridism between the Striated Finch and Indian Silverbill, that Russ thought it a descendant from the Sharp-tailed Finch, and Wiener either of the Sharp-tailed or the Striated Finch, he proceeds to ask whether anyone has actually succeeded in producing it from typical *Uroloncha striata* or by crossing *U. striata* with any other species, and to what extent the three varieties of the Bengalee breed true.

There has never been any question in the minds of aviculturists as to the Bengalee having been produced by the Japanese: the German name "Japanesische Mövchen" and the fact that it is so far as I am aware, only imported from Tokio, indicate this; while Mr. Wiener's remarks seem to show that the character even of the cages in which the Japs breed this domesticated race is known:—"Through being bred by the Japanese in miniature cages."

Touching the various origins attributed to this bird, it may first be noted that the hybrid origin suggested by the late Mr. Abrahams and adopted by myself was mainly based upon the fact that the varieties of the Bengalee, but more especially those which least resemble the Striated Finch, are decidedly smaller than the latter and show lateral crescentic markings; I also regarded it as not improbable that the bird was of hybrid

origin in that, although a domesticated bird, it is by no means very prolific: I subsequently came to the conclusion that a hybrid, if fertile, would be likely to throw back to one or other of the parent stocks in its descendants, as Dr. Russ says is the case when the offspring of *Amadina erythrocephala* and *A. fasciata* are bred with: there is nothing to prevent the descendants of a species which have their liberty curtailed from being smaller than their ancestors, and the dark brown and white variety of the Bengalee so nearly approaches the Striated Finch in general appearance and in song, that the introduction of the Indian Silverbill into its pedigree seems unnecessary.

With regard to the question of *Uroloncha acuticauda* as the parent stock, I believe the small dealers were responsible; inasmuch as they regularly sold the true *U. acuticauda* as *U. striata* and vice versâ, whereas the larger dealers, who took the trouble to name their birds at public Museums, sold both species under their correct denominations. It is quite conceivable that Dr. Russ, purchasing his Sharp-tailed Finch from one man and his Striated Finch from another, should have been puzzled how to distinguish them, and therefore should have published only one description for the two. If this view be accepted it simplifies matters; the Striated Finch then being universally intended, and therefore accepted, as ancestor of the Bengalee. It is true that Mr. Wiener observes "Whether it was originally the Striated or the Sharp-tailed Finch from which the Japanese bred the White Bengalee has not been ascertained, and perhaps never will be determined"; but then the fact that Russ gave one vague description for the two and the Black-rumped relative of *U. striata* doubtless influenced him.

Assuming however that the Bengalee is descended from the Striated Finch, it is strange that when paired up with the Sharp-tailed Finch, it produces young hardly distinguishable from the latter, and that when paired up with the wild Striated Finch the young still far more closely resemble Sharp-tailed Finches than anything else: both have a few extra white feathers in wing or tail, but otherwise they might pass for *U. acuticauda*. I bred the former some years ago in one of my flight-cages (as noted in "Foreign Bird-Keeping") and Mr. Teschemaker sent me

a pair of the latter, recently bred by himself, on October 23rd last. Is this tendency to reproduce *U. acuticauda* an indication that the latter (and not *U. striata*) is the real ancestor of the Bengalee? If so, why is it that some of the dark brown and white examples of the Bengalee so much more closely resemble typical *U. striata*, even to the colouring of the beak, than *U. acuticauda*. Has the latter ever been crossed with the first steps in the production of the Bengalee with a view to the origination of the paler coloured varieties? If so, is the reproduction of young resembling *U. acuticauda* due to the use of a buffish and white mother, inheriting characteristics of the Sharp-tailed Finch. *

If, as Mr. Wiener says, the Japanese have kept and bred birds for about three thousand years, there seems nothing at all improbable in their having imported species from India, Ceylon or Malaysia to experiment with: I see no more reason why they should limit their studies to the birds of their own islands or of the nearest mainland than why we should.

I do not believe the Bengalee has been reproduced in Europe either from a wild stock or by crossing two wild stocks; but then it must be remembered that where a bird already exists, there is not the inducement to reproduce it that there would be if one were creating something new; it would also probably require the lives of several successive generations of breeders to bring the form with its three varieties to perfection, and our children rarely take an interest in the same pursuits as their parents.

In breeding with a pair of the same variety of the Bengalee I have found the young fairly true to colour; the dark brown and white (most like *U. striata*) varies much as regards the amount of white in the plumage and the white variety sometimes throws a spot or two of buffish, but I have never bred the dark brown type from either of the others: I should not be surprised to find white young in a nest of buff and white birds, especially if they had been closely inbred.

It is doubtless because the Bengalee is quite unknown as a wild bird, and is generally recognised as a domesticated or

* I know that I used such a bird, but whether Mr. Teschemaker did so or not, I cannot tell.

fanciers' bird, that the Museum Catalogue ignores its existence: in like manner the existence of the white variety of *Munia* (*Padda*) *oryzivora*, bred by the Chinese, is ignored; as also the familiar sports of the domesticated Canary and Rock-Pigeon.

With regard to the use of the specific name *Urœginthus bengalus* for the Crimson-eared Waxbill or Cordon-bleu, I think it a pity; because one can never be certain that it was intended for Benguela and not a blunder on the part of the describer. (In the old days nearly every Natural History specimen, the locality of which was unknown, was labelled as "Habitat in India" or "in Indiis," there being apparently little appreciation of the difference even between East and West Indies), but whether the describer of the Cordon-bleu meant *bengala* to indicate that it came from Bengal or Benguela, it is not likely that it will ever again be called the Bengali; therefore to continue to call our little domesticated bird in its Guinea-pig colours a "Bengalee" will certainly be far less confusing than the entirely different application of the trivial names Mannikin and Manakin, the former for the *Munia* group of *Ploceidæ*, the latter for the Tit-like *Pipridæ;* or the manifold application of the term Sparrow to birds of all types from an Accentor to a Grass-finch.

Is it advisable to give names to the more or less stable domesticated sports of fanciers' birds? If we accept scientific names for the three varieties of the Bengalee, why should we not equally propose names for all the known sports of the domestic Canary, of the Rock-pigeon, and of the inhabitants of our poultry-yards? And that will not be the end, for all the domestic races of Mammalia and the Chinese fish-abortions will have to come in! It is too terrible to contemplate with serenity.

CORRESPONDENCE.

COLOUR-CHANGE IN FEATHERS.

SIR,—In your current issue you have a short notice on Mr. Beebe's article on the American Laughing Gull in the last number of the 'Auk.' Judging from this individual bird, and brushing aside rather contemptuously the idea that in 1906 there could still be found any ornithologists who believe in 'colour-change,' Mr. Beebe, as if to put the finishing touch on an already moribund belief, states that colour-change is impossible.

I fear, Sir, that your reviewer was rather led away by Mr. Beebe's positive bluster, for the fact that a single individual has moulted can by no stretch of imagination be called overwhelming proof. Because I have not published anything on this subject since my paper in the 'Ibis' for 1900, I am by no means the less certain that colour-change does take place, nor have I ceased to accumulate careful notes of every occurrence that has come under my observation. I have not had the opportunity of observing the change on the American Laughing Gull, but have repeatedly done so on our native and nearly-allied species, *L. ridibundus*. If a number of these birds be taken in February and March, especially in the earlier half of the latter month, the colour of the feathers of the head will, in an overwhelming percentage of individuals, be found to be much darker than in an equal number of birds taken during the earlier months of the winter. The earlier birds will all be found very uniform, showing a pure white head with darker patches near each eye and ear-covert; the February and March birds, on the other hand, will show a large amount of individual variation, some being very nearly as in winter, others showing two dark crescentic bars from eye to eye and ear to ear, while in others again the whole of the back of the head will be of a dark sooty brown. If these birds be shot and the skins examined, both inside and out, *no trace* of new growing feathers will be found, and if this alteration is not caused by colour-change I should like to hear Mr. Beebe's explanation of it.

So much for wild shot birds: now let us turn to birds in confinement, where this species does extremely well, and what do we find? In February and March the birds can be observed getting darker day by day. I have repeatedly observed this in many individuals; gradually the black colour spreads across the head from the eye- and ear-patches till we get two black crescentic bars; the space between these bars then gets darker, and finally the dark colour creeps forward towards the culmen, the whole change taking place in about ten days or a fortnight, and during that time, however closely the bird may be examined, *no new feathers appear*.

The change is, however, not as a rule complete, although it is exceptionally so, as in an instance I had this year, but, as a rule, the colour-change stops short of completeness, a few white feathers are left and the dark colour is not so intense as in a full-plumaged bird. In this condition it will remain for two or three weeks, and then supervenes the moult of which the Americans are never tired of telling us. I have restricted myself to the Black-headed Gull, but precisely similar changes are found in some Waders and doubtless in many other species.

Although it is the twentieth century (to paraphrase Mr. Beebe) I am not alone in my belief of colour-change as an interesting note on the Herring-Gull from the pen of Dr. Gadow in the 'Field' for Nov. 24th will show. That a feather, although fully grown is not dead, was clearly shown at the last meeting of the Zoological Society, where I exhibited a Knot's

feather belonging to the summer plumage which, instead of falling out at the autumn moult, had merely continued to grow, the basal half being of the autumn plumage.

Finally, may I try to impress on Mr. Beebe and other Americans that *proof* of a moult is no *disproof* of colour-change, and ask them to attack this fact, which they deny, from another and more scientific standpoint.

J. Lewis Bonhote.

[In the notice, above referred to, we merely stated the result of Mr. Beebe's observations, very carefully carried out, of a single example of *Larus atricilla*, in which there certainly appeared to be no doubt whatever that no actual colour-change took place; nevertheless we would not for one moment state that colour-change in feathers *never* occurs, in fact Mr. Bonhote, Dr. Gadow, Dr. Butler, and others have published evidence tending to show that it does. It is a very interesting and important subject, necessitating the most minute observation, and we hope that it will be thoroughly thrashed out in our Magazine. Ed.].

FOREIGN BIRDS AND OUR CLIMATE.

Sir,—If you think my remarks worth publication perhaps they will add to the testimony of others, and show Mr. Attewell that there need be no cruelty in keeping foreign birds in outdoor avairies that are properly constructed.

I have now watched my birds both in heat and cold for some considerable time, and I find that several of them that will remain indoors most of the day will do all they can to roost outside at night. A pair of Crimson Wings are almost impossible to drive in at night, even at this time of year, if there is no wind.

A pair of Varied Lorikeets, though they remain indoors a good deal, always fly outside and remain out a considerable time on the coldest mornings. Then take the Violet Neck Lories, which I suppose come from nearly the hottest part of the world; during the late summer they hardly ever showed outside on a hot day, but as the weather became cooler they came out more and more, and even now they are out of doors a good deal, sometimes in very cold rain.

The fact is that, in very hot climates the mornings, before sunrise, are often very chilly and cold, and the birds are well provided by nature against these sudden chills.

How often one sees birds that have been kept in cages in warm rooms improve greatly in spirits and plumage when carefully introduced to a cool aviary. By all means give birds a chance of a warm inner room if they wish to use it, but let them have a chance of a fly in the outer aviary, and it will astonish many, who do not know the fact, how often birds from

the hottest parts of the world will be found enjoying our climate out of doors at all times of the year, and very often when we are growling at it ourselves. E. J. Brook.

A PISCATORIAL THRUSH.

Sir,—At Oxford last August I had the opportunity of making an observation which very much surprised me. I was standing on the small stone bridge which crosses the stream partly skirting Magdalen College, when I saw on the edge a Song-Thrush looking for food. A shoal of small fish (minnows, apparently) were swimming close in shore, and the thought struck me—could that bird catch one?

The same idea had evidently occurred to the Thrush, for at that instant, with a sudden dart forward, it seized an unwary fishling, and after a nip and a rap on two or the gravel, swallowed it with gusto. The capture was so quickly made that I had no chance to see how far the bird went in, but it afterwards went further along looking for more food, and I saw it did not mind getting its feet wet.

The incident struck me as interesting, both because one seldom sees the Song-Thrush do anything original, and also because it gave one some idea as to how the Dipper may have begun his business as an aquatic Thrush in ages past. F. Finn.

CACTUS CONURE AND COCKATIEL.

Sir,—I see in the report of the Council it is wished all interesting observations should be recorded. I do not know if the doings of my hen Cactus Conure would come under that head.

The cock died two years ago, and for a time the hen was quite miserable, moping and calling. Then she became devoted to me, flying to me whenever I came into the aviary in a kind of ecstasy, and I had the greatest difficulty to get away. This year she made friends with an odd young Cockatiel cock and gradually dropped me, becoming quite shy. The Cockatiel never seemed much gratified, in fact rather bored, with her attentions. About July I missed her, and after looking everywhere found her in a log nest with six white eggs about the size of a Cockatiel's. She sat most steadily, the Cockatiel taking no part in the task of incubation, but he was most attentive as a guard, driving away his parents in the most noisy way whenever they came anywhere near the nest. I allowed her to sit for a time, but none of the eggs were fertile. Do you suppose there is any hope of a hybrid between these two species?

I see in our Editor's delightful book on Parrakeets that there is no record of Cactus Conures being bred in this country. I have tried in vain to procure a cock. Meanwhile I suppose I had better leave them together, though at the breeding season I must move them from the old Cockatiels, whose breeding this year was entirely ruined by their son's anxieties over the Conure nest. M. Drummond.

PRIVET BERRIES AS FOOD FOR BIRDS.

SIR,—I have lately been to Southport, and made a special effort to visit the Aviary of birds at Hesketh Park. I found them all in a very satisfactory condition and looking well. The man in charge told me they lost very few of the more delicate kind of birds last winter. They seem to feed the birds a good deal on privet berries. Is this good food for them? They also give the birds the fat of meat. WILLIAM B. GIBBINS.

AN OMNIVOROUS BUSTARD.

SIR,—I have just had the misfortune to lose by death a young pet Bustard, and think perhaps the following particulars may be of interest.

I picked him up on September 9th, while on Safari, he was then about three days old. For the following five days I was on the move, sometimes on train, sometimes riding camel or mule, during which time he lived in my coat pocket and was fed on egg and grasshoppers (forcibly given as he would not pick up for himself). Once, while riding a camel, he fell out of my pocket but seemed none the worse for it. The day I got back, he started feeding himself, and from that time gave no trouble at all. He had perfect liberty except at night, and became delightfully tame and followed me about, calling plaintively all the while for "locusts." He would always come to my whistle and usually ran out some distance to meet me when I came in from my morning and afternoon rounds. Recently he has had a companion, a baby Egyptian Goose. It was very funny to see the latter toddling after the Bustard and snuggling up to him when he sat down and at night creeping in under the Bustard's wing.

Ordinary food did not satisfy the Bustard, he was always trying to swallow my bootlaces, and one day I saw him swallow a gramophone needle. That made me nervous about him, I may now say with good cause. Three days ago he seemed unhappy and was a bit lame. I picked him up and in doing so felt something sharp prick my hand, and on examination found a pin (entomological) sticking out just behind his leg; this I pulled out with forceps, and a few hours later I found and extracted another pin behind the other leg; this time he bled profusely and lost all strength. He hung on for two days and then died. A *P. M.* of stomach revealed one bootlace 19¼ ins. long, one piece 13 ins.; a fish hook ½ in. long, two gramophone needles and a feather some 3 ins., and a ¼ in. piece of wire All this in addition to the two pins that had worked out through the sides of the stomach.

It is most disheartening. My last bird, a Roller, was killed by a snake, before that some young geese were taken by a fox.

Albara, Sudan, Nov. 5th, 1906. W. G. PERCIVAL.

NESTING NOTES FOR 1906.

SIR,—I have not much to record in breeding for 1906. Eight Diamond Doves reared. The Mealy Rosellas nested but the hen became egg-bound when laying her fourth egg. Pennants hatched and partly reared two young; Java Sparrows reared three young; Diamond Finches, one young. A large quantity of young Budgerigars, green and yellow, and Cockatiels reared six. F. H. RUDKIN.

TREATMENT OF WADERS IN CAPTIVITY

SIR,—I should be much obliged by information as to how to get the feathers of Waders to resist water. I sometimes have sent me by dealers Waders whose feathers will not resist water in the least and have lost several birds through this cause.

I usually put such birds into a place by themselves on arrival, and allow them to bathe for a few minutes only each day, hoping that the feathers will in time get back the oil.

At the present time, I have a Greenshank which was sent me a week ago. It was, and is, apparently in good health except after getting wet, when it is a shivering, trembling mass, hardly to be recognised. It feeds on earth worms, mealworms and Victoria poultry meal, and I have placed a temporary shelter from rain for the present. Unless, however, I can get the feathers to turn water I am confident that sooner or later a lot of cold rain will kill it. I have lost several birds lately through this cause—birds that I have had for months and that have grown and got fat during such time and yet the feathers never got to turn water.

On the other hand I sometimes get birds from dealers that have been kept away from water for months, and yet they never give any trouble.

As I am much interested in wading birds I should be very glad of any suggestion throwing light upon the question.

I have a little swamp aviary in which I keep a Black-tailed Godwit, Ruff and other small Waders, and should like to have a Water-Rail if it would be likely to succeed. I have a lot of water-snails, etc., also a good deal of cover in the way of rushes, flag grass and low bushes.

I suppose the bird would have to be fed on raw meat or liver? Would it be likely to attack Dunlins, etc.? I understand that Land-Rails are very savage, but do not know if Water-Rails are. C. BARNBY SMITH.

The following reply was sent to Mr. Barnby Smith :—

Waders once on their food will generally do fairly well until the moult sets in when their plumage holds the water as you describe. Birds fresh caught from dealers always or almost always have this trouble with the exception of Ruffs or Knots which seem very hardy. As birds in this condition have generally not finished their moult I find invariably that

they never get right until the moult is completed which is sometimes not until the next spring. Your feeding—earthworms, mealworms and poultry meal is fairly right, but these birds really require a far more mixed diet. Mine have as staple food Spratt's Game Meal and in addition to this a little hard boiled egg, bread crumb and scraped beef, and twice a week a little bread and milk instead of the egg.

A little fish cut up very small once a day is undoubtedly beneficial especially for the larger kinds such as Curlews and Oyster-catchers.

Above all things, however, the great essential for Waders in captivity is shelter from damp, especially wind-driven rain, and in my opinion shelter during the Winter months is a *sine quâ non*. At the same time if they 'hang' in their moult, they should be forced through it by extra food and perhaps by taking them into an artificially heated house in July.

Now as regards these freshly caught birds; they should be kept in a covered-in place, if possible indoors, and in any case carefully sheltered from wind; bread and milk is the best staple food for them with hard boiled egg and scraped beef. Give them the bread and milk in the morning and hard-boiled egg in the afternoon as the milk does not then turn sour, earthworms or mealworms as many as you like and a little fish, if convenient, will be greatly appreciated.

As regards water you must be guided by their condition, they are best with very little water; about a quarter-of-an-inch at the bottom of a broad pan is better than a small cup full so that when you increase the water they do not rush at it with the same avidity. At the end of a week if they are going on well you might fill up the pan one morning and let them bathe, but if they do not dry up by the afternoon they should be gently dried with a towel and the water, in any case, removed. If after the bath they dry up satisfactorily the water may after a day or two be left all the time, but continue to keep them well fed up. After a fortnight if they are doing well the bread and milk may be gradually dropped, *i.e.* given once every other day and then once in three days, and game meal take its place; but it must not be reduced in quantity and given with the game meal at first, or they will disregard the meal and go back from insufficient bread and milk. If they are now going on nicely they will not need much further attention, but if their wings are cut, as is often the case when sent by dealers, the cut quills should be removed as soon as you are sure they are strong enough but certainly not for a month or six weeks after their arrival. It is essential if Waders are to be kept in health that they should have the use of their wings. If the quills are pulled too soon before the bird has strength to grow new ones the wound will very likely close up and the new feather, when it does grow, being unable to force its way out, the wing will become permanently diseased.

I am afraid you may think all this a tremendous amount of unnecessary trouble and not be able to undertake it all, but that is the only method by which one can be moderately certain of success.

I hardly know what to suggest if this involves too much time and trouble; shelter is absolutely indispensible, poultry meal and *earthworms* are probably as good as game meal and, until they get really strong, egg and scraped meat is essential. They might do without the bread and milk but it is a very valuable adjunct, and fish is *not essential* but certainly useful during the moult, and I might mention that some Greenshanks I shot this autumn were apparently feeding on nothing but small fish. As regards the water and the removing the cut primaries you will, of course, use your discretion, but if you are not certain when to remove the quills err on the side of leaving them for some time longer and in any case do not remove them unless the bird is in good condition. If a bird that has been well gets seedy it is probably due to suppressed moult and shelter, warmth and good feeding is the remedy, but the greatest of these is shelter. Waders do best in a covered-in aviary facing south, the bottom being partly sand and partly turf, and in winter part of the sand should be covered for an inch or two in moss litter or moderately short straw.

They are delightful birds, if a little trouble be taken with them, but they require attention. If I can give you any more information please write and ask.

As regards Rails, they should be treated in much the same way as Waders, but they are hardier, although not being found in this country during the winter (the Water Rail excepted), they must, of course, be sheltered from rain and wind, but artificial heat is not required.

I kept them for some years in my small aviary where they did well on the ordinary soft food, which includes eggs, breadcrumb and meat, as well as mixed seeds of which they also partook. As a rule they are quite harmless and peaceful to the other birds, and I have only known them to become dangerous when given insufficient animal food.

J. Lewis Bonhote.

THE LATE DR. W. T. GREENE.

Parrots in Captivity is a work which may be found in the bookshelves of Bird-Lovers throughout the length and breadth of the land ; and not a few of our readers will be sorry to hear that its genial author passed away on December 10, at his residence in Dunstable, on coming in from a walk on that cold day, suddenly and unexpectedly, but painlessly and peacefully as one feels is fitting in the case of one who has spent not only a long and busy but also a good life, and is at peace with his Maker. In days long since gone by, at least so it seems so fast does time flit past, many were the books on foreign and British

birds which fell from his facile and graceful pen. Moreover, for many years he was the main supporter in this department of *The Feathered World;* and his connection in the same branch with *The Bazaar* was, if I mistake not, maintained until the day of his death. Thus it came about that his name was, and, indeed, still is, a household word, far and wide, in the mouths of thousands upon thousands of aviculturists—mostly embryonic it may be for these advanced days, tyros who may be looked down upon with scorn by the modern "scientist," but who, nevertheless, form the body of the multitude who keep birds. Some of us, in our wisdom, thought him out of date, quite forgetting that in his time foreign bird keeping was practically in its infancy. He it was who laid the foundation; and we, upstarts of but yesterday, rear our superstructure on the foundation which was laid by him years before we were even heard of. The Bird World is greatly in his debt;—and, in my opinion at any rate, it is no exaggeration to say that no one has done more to popularize the keeping of foreign birds in this country, and to make so familiar to us a great number of foreign species, as Dr. W. T. Greene, who has now at last laid down his well-worn pen. REGINALD PHILLIPPS.

THE SOCIETY'S MEDAL.

Medals have been granted to the following members for successfully rearing young (it is believed for the first time in the United Kingdom) of the species named:—

Mr. W. E. TESCHEMAKER, the Red-headed Finch (*Amadina erythrocephalus*).
Mrs. JOHNSTONE, Johnstone's Lorikeet (*Trichoglossus johnstoniæ*).
Mr. W. H. ST. QUINTIN, the Pine Grosbeak (*Pyrrhula enucleator*).
Mr. J. H. GURNEY, the Jackal Buzzard (*Buteo jackal*).
Mr. E. J. BROOK, the White-eared Conure (*Pyrrhura leucotis*).

POST MORTEM EXAMINATIONS.

BROWN-THROATED CONURE (Mr. Williams). The bird died of pneumonia. It was a hen. The reason that it could not fly was that, at some time, it had fractured the large bone of the right wing and the muscles were much wasted.

——— (Mr. E. J. Brook). The bird died of concussion of the brain, caused by direct injury.

Answered by post:

Lady Ingram, Mr. C. Castle-Sloane, Mr. W. H. St. Quintin, The Rt. Hon. Mary, Countess of Lovelace, Mrs. Noble.

NOTICES TO MEMBERS—*(Continued from page ii. of cover).*

NEW MEMBERS.

Dr. NORMAN TICEHURST, M.A., M.B., F.R.C.S., F.Z.S.; 35, Pevensey Rd., St. Leonards-on-Sea.

Mrs. G. B. CASTELL; Fleetwood Cottage, Rye.

Miss B. MCDONALD; Meadon Bank, Hollington Park, St. Leonards-on-Sea,

Mr. GEORGE BURNETT STUART; Ministry of Finance, Cairo, Egypt.

H. H. The Rajah Sir BHURI SINGH, K.C.S.T.; Chamba, via Dalhousie, Punjab.

Mr. FREDERIC BLANDY; Funchal, Madeira.

CANDIDATES FOR ELECTION.

Mr. E. M. SKEA; Box 373, Pretoria, South Africa.
Proposed by Mr. C. B. HORSBRUGH.

The Hon. Mrs. MACLAREN MORRISON; 3, Radcliffe Square, London, W.
Proposed by Dr. A. G. BUTLER.

Mrs. C. CHARRINGTON; Frensham Hill, Farnham, Surrey.
Proposed by Mrs. E. D. LEE.

Mr. JEFFREY WALSH; 6, Regent Street, Blackburn.
Proposed by Mr. DAVID BENTLEY.

Mr. WALTER BUCHANAN NICHOLS. M.B.O.U.; Stone Lodge, Bradfield, Manningtree, Essex. *Proposed by the* Hon. Business Secretary.

Mr. F. F. ANDREWS; Zoological Gardens, Regent's Park, N. W.
Proposed by Mr. R. I. POCOCK.

CHANGE OF ADDRESS.

Mr. A. SIMPSON *to* Blackgate House, Tingley, near Wakefield.

MEMBERS' SALE AND EXCHANGE COLUMN.

The charge for private advertisements is SIXPENCE FOR EIGHTEEN WORDS OR LESS, *and one penny for every additional three words or less. Advertisements must reach the* EDITOR *on or before the* **26th** *of the month. The Council reserve the right of refusing any advertisement they may consider undesirable.*

Through the very serious illness of Mr. Osbaldeston, of Preston, the whole of his very valuable collection of books and magazines on foreign and British birds are to be sold at once. For list and particulars apply to Mr. J. CRONKSHAW, 100, Arden Terrace, Accrington.

Pair rare Brush Bronzewing Doves 35/-, perfect pair Red-vented Blue-bonnets £5, rare Delegorgues, Pectoral and Rain Quails cheap, Diamond Doves 10/- pair, cock Australian Greenwing Doves 7/6 each. Most of the above aviary-bred. SETH-SMITH, 14, Canning Road, Croydon.

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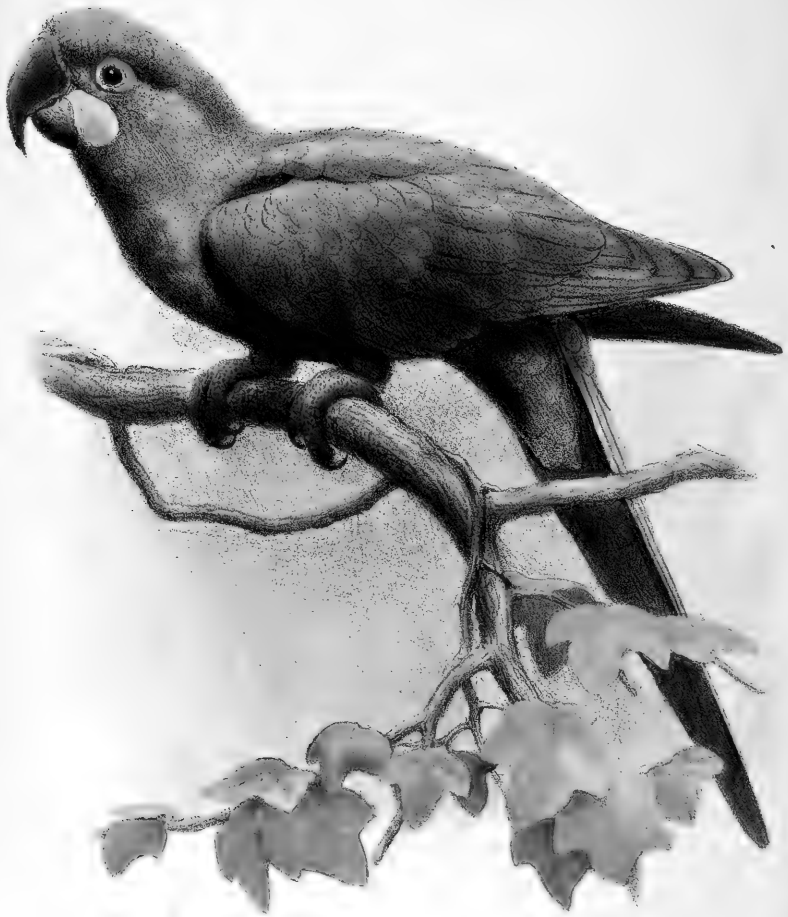

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LEAR'S MACAW.

Anodorhynchus leari.

Drawn from life.

THE

Avicultural Magazine,

BEING THE JOURNAL OF THE

AVICULTURAL SOCIETY.

New Series—VOL. V.—No. 4.—*All rights reserved.* FEBRUARY, 1907.

LEAR'S MACAW.

By the Rev. Hubert D. Astley, F.Z.S., M.B.O.U.

Until I possessed a Lear's Macaw I must confess to not having appreciated the members of this family overmuch.

I have known individual Blue and Yellow Macaws and Red and Yellow ones too which were most untrustworthy and spiteful, I might say malicious to everyone but their owners, or almost everyone. And this spitefulness they show outwardly, with their flattened heads and wicked-looking eyes. They are splendid for colour, but personally I do not appreciate them as pets.

The Lear's Macaw on the other hand (and I believe the Hyacinthine is much the same) is naturally a bird with a kindly disposition. One is led to think so, if only from his outward appearance; his deep brown Cockatoo-like eyes and his large rounded soft looking head give one confidence to at any rate *offer* to stratch his poll, if he is a stranger to one. Comparisons are not fair I know, but I cannot appreciate the naked skin of the Red and Yellow Macaw's faces and also of the Blue and Yellow, after being more used to the Lear's Macaws with their faces well and respectably covered, and only enough bare skin of a splendid orange-yellow to enhance the peacock blue-green of the surrounding feathers. I think it is some colour very near that. Peacock blue-green upon the whole head and under-parts, the rest of the plumage being of a fine blue: of quite a different shade to that in the Blue and Yellow Macaw or the Hyacinthine either.

It is an extremely good blue, bright without being glaring. Then I like the black bill, with the tongue within so curiously

coloured: black with a yellow stripe down each side of it, to carry on the yellow of the bare patches of skin at the corners of the mouth. These patches are of a lighter yellow than the skin around the eyes, which is more orange in tint. The feet and legs also are black (or what one *calls* black) and the toes are long and well shaped. Indeed, as my Italian servant said to me about the Lear's Macaw I have in Italy, "è proprio un papagallo signorile," —a real gentleman amongst parrots, an aristocrat.

The Lear's Macaws can make themselves heard, no doubt about that, but it is a voice of a much less strident ear-piercing tone than that of the vari-coloured large Macaws: it has more of the Carrion-Crow 'timbre' in it.

As to intelligence, I consider them most highly intelligent birds. One of mine, the one I know best, for I have not seen much of the other two, shows joy at seeing me and having a game of play, more keenly than any bird I have ever met with. He simply entreats me to take him off his perch, stretching out first one foot and then the other, and trying to feed me. He loves a game with a handkerchief. It is thrown right on to his head, covering it completely up, upon which he proceeds to dance up and down in great glee, and at last either dances it off, or else pulls it off with one claw, holding it, and then laughing loudly and in a most human way; waiting for the fun to be commenced all over again.

If he is put on a table, and I sit on a chair close by, he backs over the edge of the table with a foot waving round to find a foothold on my knees, and will return again and again however often he is displaced. He spreads his wings out from the shoulders with the ends of the wings kept in place, and whispers and "purrs," stretching out his neck and cocking his head on one side.

He can articulate too. "Cockatoo" he can say very plainly in a tiny voice, and "Ara," etc., and he can imitate cluckings and various sounds that go towards making up the vocabulary of one's bird talk.

As to his food; I need say nothing much about that, except that he likes sun-flower seed chiefly, with apple, banana or pear in the morning, and at five o'clock tea he always has some

"Albert" or "Marie" biscuit, soaked in hot milk, and given not *too* moist.

It is a curious fact that none of the authorities in Europe seem to know from what part of South America the Lear's Macaw is brought. It is probably somewhere in Brazil, for they are brought from the ports of Bahia, Santos and Rio de Janeiro.

I have asked Herr Carl Hagenbeck, who wrote to me:—"I made enquiries about the Lear's Macaws, and I also cannot find "the exact place from where the birds come. When we get these "birds, they come from Bahia, Santos and Rio: to which places "they are brought from the interior. This is all the information "I can give about them."

So they probably inhabit some of the great forests in the heart of Brazil, and a few young birds are reared from the nest, and carried to the ports on the coast.

If there is a Macaw like this who can be possessed, and yet whose habitat is unknown, how very possible that there may be a Macaw who has never been possessed and whose habitat is still more in the background! Let us hope so.

THE NESTING OF THE YELLOW-RUMPED FINCH, *Munia flaviprymna*, AND THE CHESTNUT-BREASTED FINCH, *Munia castaneithorax*.

By W. E. Teschemaker.

I propose to combine my notes on the breeding of these two nearly allied species in the hope that they may thus prove more interesting. There is another and equally good reason, namely that recently the question has frequently been asked whether these two species are really specifically distinct. When I first saw a specimen of *M. flaviprymna* in the Zoological Gardens in March, 1905, I was strongly inclined to regard it as only a variant form of *M. castaneithorax;* but, on making this suggestion to a well known ornithological authority, I was told

that *M. flaviprymna* was "undoutedly a distinct species." Gould, in describing the original specimen, obtained by Dr. Bynoe during the voyage of the "Beagle" in 1839, said: "It is very nearly allied to the *Donacola castaneithorax* but is specifically distinct from that as well as from every known species of this now numerous tribe of birds."

Quite recently, however, a very curious fact has been noted in connection with this species, which would appear to throw some doubt on the above statement, namely that some of the Yellow-rumped Finches imported at the commencement of this year have begun to change colour, developing black or brown throats with more or less distinct traces of a chestnut band across the chest, while others (*e.g.* one in the Parrot House in the Zoological Gardens) show the latter variation without the dark throat. Now, if this happened in only one or two isolated instances, it might well have been regarded (or disregarded) as a "sport;" but, on making further enquiries, I was surprised to find that the number of instances in which this strange permutation of colour had occurred amounted to perhaps two per cent. of the total number of living specimens now in the country.

It is evident therefore that a mystery surrounds the identity of the Yellow-rumped Finch and one which, before going further, it will be interesting to discuss.

Most of our members will remember the enormous importation of over 5,000 Australian Finches brought over by Messrs. Payne and Wallace in the early part of 1906. I was in London at the time and had the pleasure not only of seeing this wonderful collection, but also of having a talk with Mr. Payne. In this way I obtained from him some particulars of the wild life of *M. flaviprymna*, and I recently applied to him again to see if he could throw any light on this question. Mr. Payne has very kindly consented to set down his views on paper for the benefit of our members and I think they are worthy of the closest consideration, not only because Mr. Payne has an experience of many years' duration as an actual trapper, but also because no one can talk with him for five minutes without coming to the conclusion that his opinion, on any matters connected with Australian birds, is an exceedingly valuable one.

His letter is written from "Lyncombe Hill, Bath," under date October 8th, and runs as follows :—

"In reply to your favour we have much pleasure in "supplying you with a few facts regarding the Yellow-rumped "Finch. This bird has been known only a few years. During "our twenty-five years of collecting in the whole of Australia "it was not until five years ago that we found this finch. We "firmly believe that this bird is a distinct species from the "Chestnut Finch—because the Yellow-rump is purely a desert "bird and only comes to the parts where the Chestnut Finches "congregate when it is an exceptionally dry season. It lives "chiefly in the Northern Territories—about 300 miles from our "headquarters (Wyndham). Until last year we were never "successful in catching more than ten pairs, but last year they "were very plentiful. We brought to England 500 pairs and, if "we liked, could have brought 5,000. But in the trapping they "kept to themselves and we very seldom found many other birds "in the same nets. If any, it was generally *Pectoralis*. We have "quite a dozen of these dark-throated birds and firmly believe it "is only a freak that this mark should appear. We are of "opinion that the dark patch increases in size after each moult-"ing. Some of our birds not only have the dark patch but also "the bar across the chest.

"Now the Chestnut Finch is a bird that is scattered all "over Australia, but is always rare where the Yellow-rumped "Finch is found. This is why we think them distinct species. "The first five pairs we brought to England were sold to ———; "we also sold one pair at Genoa together with a pair of *Emblema* "*picta* and a pair of Yellow-headed Gouldians. Truly this was a "rare trio! The Yellow-rump is as little known in Australia as "it is in England. Up till three years ago there was only one "Museum in Australia that possessed a skin, and that was the "Perth Museum. We find that this is the hardiest of all "Australian birds.

"As we said before, there is so little known of this bird "that time will have to elapse before the 'mystery' will be "cleared. There are birds in Australia that take two and "three years to get their true colours. We sold a pair of

"Yellow-rumps to a gentleman in Sydney (N.S.W.) three years "ago and the last time I was there (about a year ago) they were "still Yellow-rumps. Climatic changes and the change of diet "also have a lot to do with the change of feather. We have a "few Bichenos that have moulted off with the bands nearly "obliterated by black feathering, when there should be pure "white. "Payne and Wallace."

One fact stands out very clearly, I think, in this interesting letter; and that is that the Yellow-rumped Finch does not inhabit the same districts as the Chestnut Finch. It is clear that the former is a bird of the desert and we at once see a reason for its buff colouring, which would be very inconspicuous in a bare sandy country. Mr. Payne also gives us a good reason for this species being compelled to leave its home in the great wilderness of the far interior namely—drought. If we recall the fact that from 1899 to 1904 a great and—even for that thirsty land—unprecedented drought was experienced over an enormous area of Western and North-Western Australia, and that the last year of this drought coincided with the appearance of the Yellow-rumped Finch in the districts near the coast, we can better understand how it came about that a species, of which, in the sixty-five years following its discovery, only a single specimen reached this country (viz., that obtained by Mr. J. R. Elsie in 1856), became, in the short space of a year, a drug in the market.

We can now perhaps clear the air a little by summarizing what we have definitely ascertained about *M. flaviprymna*.

(i). We have learned that *M. flaviprymna* is a desert species;

(ii). That it does not normally associate with *M. castaneithorax;*

(iii). That a certain small proportion (estimated by me at two per cent.) of the former species, assume certain of the characteristic markings of the latter, in a greater or less degree;

(iv). But that by far the larger proportion have not undergone any change during the time they have been under observation in captivity. Dr. Butler writes me that

he has ten individuals, none of which have changed colour. I have had seven. One of my birds has been in my possession for eighteen months, during which time it has undergone three moults but has not changed. Mr. Payne refers to a pair which have been two years in captivity in their own country, but "are still Yellow-rumps."

(v). As I shall subsequently show, a young Chestnut-breasted Finch, bred in my aviary this summer, was, at six weeks old, absolutely distinct from young Yellow-rumps of the same age, showing already the chestnut breast.

I expect that we can now most of us make a shrewd guess as to the solution of this little problem. I think we shall not be far from the truth if we assume that these are distinct species, compelled to associate by a chance circumstance; and that the dark-throated birds are wild hybrids, showing their mixed parentage after the first moult.

Of course the keystone of this argument is missing, viz., a hybrid bred in captivity. Surely some of our 428 members will supply this desideratum next season.

I will now give some notes on the nesting of *M. flaviprymna* with me this summer. I unfortunately lost the hen that so nearly succeeded in winning a medal in 1905, so I started this season with the same male bird and the old hen which last year built but did not lay. I also obtained two pairs imported by one of our members early this year. The latter were turned out in the larger aviary, the former in the small "Waxbills' aviary."

This season has been quite an "Australian year" with me. One can well understand that the long sunny days of this wonderful Halcyon summer have suited the Australian species well but what there can have been attractive to them in the unusually cold inclement spring I cannot understand. Nevertheless I had young Ruficaudas, Grassfinches, Diamond Doves, and one young Yellow-rump flying by the middle of May and all bred in the open.

The Yellow-rumps (one of the newly-imported pairs) sat in a small nest box hanging on the wire netting, from which, on May 14th, two young flew. The first sight of a young *Flaviprymna* is calculated to make one rub one's eyes and wonder if one

has seen aright. Naturally one expects to see a yellowish object, but what one really sees is a little bird whose head, throat, back, and tail are dark brown, chest dull grey, with a short stumpy beak, dark horn colour, with small white warts in the angles.

These particular young *Flaviprymnas* were tiny little mites (those I saw in the nest in 1905 were large strong birds) and had evidently been launched too soon upon a shivering world. For May the 14th was a wet and rather cold day, and as it drew towards evening and the old birds made no attempt to get the young back to their nest box, I began to speculate what their fate would be. The youngsters were sitting, huddled up and quite incapable of flying more than a very short distance, in a low bush not more than two feet from the ground, whereas the nest box was quite six feet from the ground. To me it appeared a sheer impossibility for them to reach the nest again but, just as twilight began to fall, I saw a most interesting sight. Both the old birds flew up to the nest and began to call loudly. Instantly the young commenced to scramble up to the top of the shrub. The strongest one then jumped off on to the wire netting and began to crawl up like a little mouse, using its feet chiefly. But, alas! long before it reached the nest its strength gave out and it fell to the ground. Again the parents called it, and again it fell. Then they tried different tactics, and after prolonged efforts got both the young up to the top of a tall Cupressus which, though further from the nest, was on the same level with it. Then the hen flew into the nest box and, putting her head out of the entrance hole, called her very loudest. Her child made a most gallant effort and launched himself bravely into the air, but he just failed and again fell to earth.

But the old birds never despaired. They began to push the young, which would now hardly make any effort, from branch to branch. Sometimes they pushed them right off so that they fell to the ground again, but they never left them alone for a single instant. The way they toiled and toiled and scolded and exhorted those young birds was absolutely human.

At last they got one to the very topmost twig of an elder sapling several feet from the nest but well above it. Then one flew to the nest and called, and the other gave the youngster a

mighty push from behind. The latter made one final effort, just barely reached the alighting perch and sprang with one bound into the nest. The delight of these two old birds was good to see. If some of those who teach the doctrine of the "unconscious intelligence" of birds could have seen this little episode I think it would have given them cause to reflect!

On May 15th I left home with a friend, a camera, and a small motor-launch to make the acquaintance of the Great Crested Grebe and the Bearded Tit in their homes in Broad-land. On my return (May 28th) there was only one young *Flaviprymna* but he was to be seen flying about and very fit until the end of September, when I missed him.

The same pair of birds laid again but did not hatch, and the other newly-imported pair hatched but did not rear the young.

We will now turn to the original pair in the Waxbills' aviary. This species seems to moult (in this country) twice a year—the spring moult taking place at some time between the middle of April and the end of May, and the autumn moult between the middle of October and the end of November. It follows then that, unless *M. flaviprymna* goes to nest quite early in the season, no nesting is likely to occur until quite late in the summer. It was not until the last week in July that this pair built (again in a nest box). I think these were quite old birds. The late Dr. Russ is said to have succeeded best with young birds but, as far as my experience goes, older birds seem often to do very well. They lose something in point of vigour no doubt but they have a great pull in the matter of experience. No doubt a combination of the two would be best.

"Si jeunesse savait;
Si vieillese pouvait."

This old hen only laid two eggs (usual clutch four) but two smart little birds left the nest on August 19th. As this aviary is so small I was able to get accurate notes of the change of colour; and I will now give some of these notes as nearly as possible *verbatim*.

Aug. 19. The young *Flavis* are studies in brown; they are so dark on the crown and round the beak as to look blackish, but no doubt there are some sheath feathers here.

Aug. 20. The young *Flavis* can fly a little. They are fed like young Zebra Finches, standing beside the parent and twisting their heads round; not fluttering their wings.

Aug. 24. They are changing colour rapidly: the brown on head and back is much lighter, nearly mouse-colour, but every feather has a darker stripe along the shaft as though the colour faded from the outer web first. Tails square ended and brown. Breast getting somewhat buff. At a little distance they now look somewhat buff.

Aug. 25. The young *Flavis* flying well. They are now almost buff: the brown has faded away completely, except a little on primaries: heads rather streaky; in other respects they look rather like fawn Bengalese.

Aug. 26. They are now all buff except a patch (light brown) on back of neck and some primaries. Head and cheeks streaky.

Sept. 4. Feeding themselves and calling "pink."

Sept. 13—Oct. 4. No notes (away from home).

Oct. 5. Breasts a much lighter buff; beaks now the same colour as adults; one singing.

Oct. 11. Some black feathers have begun to show in the under tail coverts; and some whitish and streaky feathers on their heads and cheeks.

Oct. 18. The young *Flavis* are now moulting and casting a lot of feathers.

Oct. 25. One youngster through the moult. The chief change is in the colour of the wings: the scapulars, primaries, and some secondaries are now a rich brown umber. They now show the yellow rump, but the colour does not extend so far up the back as in adults. Some black feathers in lower part of thighs.

Dec. 10. They are now exactly like the adults except the under tail-coverts which are black in patches only, and a few secondaries still light brown. They pass most of their time in gnawing and devouring the shrubs.

So much for the young Yellow-rumps. The parents began to sit again on two eggs on Sept. 5. I should not have allowed them to do so if I had not been most anxious to ascertain the

period of incubation. The nest was examined daily (during my absence) and the hen was found dead on the 14th, eggs unhatched but incubation well advanced.

I have examined eleven eggs of this species and about the same number of *M. castaneithorax* and find them identical in size and shape, but the former appear to be more glossy. The shape is quite peculiar, being much elongated, the smaller end tapering gradually to a fine point, resembling in this respect the egg of the Guillemot.

After the death of the hen, the male bird made up to a widowed Chestnut Finch, which fact leads me to think that it would not be difficult to produce hybrids. At the same time it should be noted that, although I had this season four of the former species and two of the latter in one aviary, and in the other, two of the former and four of the latter, there was no attempt at interbreeding as long as each could find a partner of its own species. I think this supports my argument as to the stability of *M. flaviprymna* as a species.

I feel sure that this species in a state of liberty rears its young on insect food, for which, as soon as the young are hatched, the parents are seen searching all day long and even hawking flies. I have seen as many as six gentles carried to the nest at one time.

Nesting Notes on *Munia castaneithorax.*

By request of our Editor I will now give some notes on this species, the nesting of which does not seem to have been described, though there is evidence that it has nested successfully. In this connection our Editor has very kindly drawn my attention to the following passage in Gedney's "Foreign Cage Birds, Vol. II., p. 61:—"They have, however, bred once with me, and other instances have come to my knowledge, but the progeny seldom do well."

It is singular that, although this species has been imported in thousands and has been in every aviary in the land, I have not yet been able to find a quite definite statement as to the young having been fully reared. As it would be interesting to know how often it has been done, perhaps our members would kindly

consult their note books or memories. Dr. Russ had one brood (as quoted by Dr. Butler in "Foreign Finches") but "they did not survive the change of colour."

As a general rule this species seems quite disinclined to nest at all. A friend of mine, however, who has spent seven years in Australia, tells me that it is a mistake to assume that the birds in many districts of that great continent breed regularly every year. He maintains that nesting depends chiefly on the question of rainfall, and that you may spend several seasons in one district, in a time of drought, and see very few birds and still fewer nests. Suddenly the rain comes. What was before an arid desert quickly becomes a green oasis; birds are seen in numbers and nests everywhere. If this is correct, it perhaps explains why Australian birds in captivity are so uncertain both as to the time of year they may select for nesting and as to whether they condescend to nest at all.

This has certainly been one of their nesting years in my aviary. From three pairs of *castaneithorax* I have had five nests and one pair are sitting now (December 10th). Number of eggs in each clutch usually five. The result of all this nesting is one fine youngster. So unsatisfactory a result cannot be called breeding a species, it is mere bungling. My mistake has been in not treating this as a purely insectivorous species—during its breeding season. The first nest produced a strong brood of three; the second was wrecked by other birds; the third ditto; the fourth, three young; in the fifth the eggs are still unhatched. Of the six adults I have lost three—entirely from an overtaxed digestive system.

To ascertain the period of incubation I took two eggs from one nest, which had only been sat on a few hours, and placed them under a steady hen Canary with three equally fresh eggs of her own. One of the two was infertile; the other hatched in fifteen days and a few hours. Adding to this the above-mentioned hours and allowing for the fact that incubation was carried on in a warm room, I think we may estimate the normal period of incubation at sixteen days—which, I need hardly say, is quite exceptionally long for a Mannikin.

The newly hatched chick was a remarkable little object.

I had it under observation for the best part of one day. Whenever the hen Canary came off the nest it raised its head and neck and, opening its minute beak, rolled a short bulbous tongue to and fro with a slow, rythmic, pendulum-like motion the rate of which never varied. This action must either serve as an incentive to the parent to feed it, or more probably as a guide to aid the parent in feeding it in the semi-obscurity of a domed nest with a tunnel entrance. Needless to say its foster mother could not feed it (and how its own parents could introduce any food into that tiny gape is hard to understand!), so I put it in spirits and found a place for it in my cabinet.

At eighteen days a young Chestnut-breasted Finch is a little brown bird exactly resembling a young *flaviprymna* and totally unlike its parents. It has not a black, or a white, or a chestnut-coloured feather on it. After that age, however, there is not the smallest resemblance between the young of these two species.

The young *castaneithorax* which I now have was hatched about August 24th, and left the nest on September 10th. From September 13th to October 3rd I have no notes (owing to absence from home). By October 4th it had developed a pale chestnut breast and the lower chest and abdomen had become nearly white. On Oct. 14th it showed one black feather on the throat. On the 22nd another appeared, and the first feather of the series forming the black bar across the chest. On the 26th its beak began to change colour, the bluish shade appearing at the base first. (This appears to be normal as I have observed the same thing in the young of the Long-tailed Grassfinch). The change of colour of the beak was completed by Nov. 8, thus occupying thirteen days. On the 13th two more black feathers appeared on the side of the chest, forming a continuation of the black bar; on the 14th another ditto. On Dec. 9 I examined this bird carefully. Its back and tail were then mouse-colour; breast, pale chestnut; abdomen, pure white; two dark feathers on back of head, two black ditto on throat, and many around the base of the beak. The black bar was most clearly defined and the feathers composing it were almost all new sheath feathers, many of them having only just come down; yet the bird showed no sign of a

moult elsewhere. I extracted some and found them identical with corresponding breast feathers of an adult hen. There is no change of colour here.

Evidently the assumption of the adult plumage is a very slow process as compared with *M. flaviprymna*, and, in fine, I think we may say that, as with the adults, so in the case of the young, these two species show equally remarkable similarities and dissimilarities.

DESCRIPTION OF NESTLING GOULDIAN FINCHES.

By Dr. A. G. Butler.

Owing to the fact that I left my Gouldian and several other Australian finches out-of-doors until December 21st, I lost one of my Ringed-finches and a young Gouldian-finch: the cold they did not mind in the least, but the frequent rains and morning fogs were too much for them.*

As no accurate description has hitherto been published, to my knowledge, of the first plumage of *Poephila mirabilis* and I have the dead body before me now, I think it well to note its colouring.

The blue metallic warts at the base of the bill are retained for a month or two after the young bird leaves the nest, but have disappeared from the specimen before me which flew either on the 12th or 14th September; in this specimen also the upper tail-coverts are just beginning to assume their adult peacock-green colouring, of which there is no trace when the bird leaves the nest: otherwise the infant-plumage is retained. Upper surface ash-grey washed with olive-green, the forehead darker grey, inner webs of flights and inner portion of outer webs of primaries dark smoke-grey; central tail feathers blackish towards the tips, outer feathers grey, the remainder with grey inner webs: sides of face whitey-brown with a faint olivaceous tinge, cheeks slightly browner, chin whitish with barely perceptible tinge of olive at the sides; breast pale dove-brown; abdomen white, slightly washed with golden buff at the sides;

* The Ringed-finch, however, was probably killed by a Yellow-rump as all one side of its face was bare of feathers.

under tail-coverts white; under wing-coverts white faintly tinged with yellow at the base; flights below leaden-greyish; beak darker than in adult bird; feet flesh-coloured, the digits dusky below; eyes too much sunken for description.

At an earlier age the green wash on the upper parts and wings is less strongly defined; the adult colouring is undoubtedly acquired partly, if not entirely, by a gradual moult, the new feathers being developed over the old which then become loose and gradually fall out (I watched this process in caged young birds in 1896).

Although my recent experience with this species would seem to indicate that our climate is unsuited in the winter to the requirements of Gouldian (as well as possibly Ringed) finches, it must be remembered that the cock and two hen adult birds and the other young one are none the worse for the ordeal; and though I shall not again leave them outside so late in the year because of the suburban position of my garden, I should have no hesitation in doing so in any part of the country less liable to be visited by London fogs or cold penetrating mists: clear dry frosts only seem to enliven these birds.

There is not the least doubt that I could have left my Tambourine Doves and Chinese Quails outside without risk all the winter, but it is more pleasant to look after them indoors in inclement weather.

On examining the various nesting receptacles I found about two dozen eggs of *Poephila gouldiæ*, some long since dried up, others evidently laid quite recently: indoors the mothers would certainly have died from egg-binding; I succeeded in blowing eight eggs for the cabinet.

Before leaving the Gouldian-finch, perhaps it would be well to say something about its various notes:—The ordinary call is a double note, or sort of *tsee-wee;* its note of defiance is a sort of *ting* or *tiang*, also I think a note of alarm; then the bird has an aggravating trick when alighting on its nest of uttering a rapid *chich-ich-ich-ich-ich* followed by its ordinary call-note which is very misleading to the breeder, who imagines that he has young in the nest when there are only eggs: it was this last trick which tempted me to keep my birds out so late in the year 1906,

as I feared lest I might just lose a second nest of young if I hurried them indoors at the end of September. It is certain that many birds which call as they approach a nest of youngsters, do so also when only eggs are present (I have noted this in the case of the House-Martin); but probably very few utter sounds resembling the cries of a family of young birds.

BROWN-THROATED CONURES.

I received from Miss Alderson four Conures which she had privately imported from Jamaica. I turned them into an unheated garden aviary in May, two in one division and two—which Miss Alderson thought to be a true pair—into another with a large flight. For the first month they were terribly noisy and "crawked" constantly, so much so that I even meditated getting rid of them. They have gradually quieted down and now have ceased to be a nuisance, though the two in the smaller division "crawk" at me unmercifully when I am standing inside.

The "pair" justified Miss Alderson's faith in them, and on 21st June I noticed one of them had disappeared into the nesting box. They must have played about for some time, for it was not till August 10th I discovered four white eggs in the nest. On August 18th I heard the sweet music of a chick's lusty voice; but alas! it was silenced next day, and I found it quite dead, evidently never having been fed. Two more were hatched. No. 2 was lusty and strong on the third day, but on that same day the hen was very sick and bad and quite forsook her nest. After consultation with my father, who takes the greatest interest in my birds, we decided that it was one chance against nothing to remove the two baby Conures and put them into a Green Budgerigar's husk where some infant Budgerigars were daily hatching. I found the two slate-coloured chicks ice cold. However, I warmed them in my hands and then transferred them to the husk. Mrs. Budgery popped back and then we watched for half-an-hour. We could see no sign of her resisting the intrusion. Next day No. 2 Conure was still flourishing, but No. 3 was dead, and the next day I found it

turned out of the husk. The Budgerigars continued steadily caring for their own chick and their nursling, though I think it was subject to some discussion in Budgerigar circles; as many as five would congregate on the husk and quite evidently examine the stranger through the hole and then chatter over the matter. I gave stale white bread soaked in cold water, squeezed dry and crumbled, also canary and a very little millet and green stuff. On the 22nd Aug. the fifth and last Budgerigar baby left the nest, a very fine and healthy quintette. Next morning the young Conure was dead. It was a remarkably cold night, quite bitter. The young bird was well fledged and a fine youngster, though of course not as forwardas its foster-brothers.

The hen Conure quite recovered, and I hope for better success next year. Possibly had I a party of young Cockatiels just hatching they would have been the better birds to try, but Budgerigars are so bold and confiding that they are not easily disturbed, and Mrs. Cockatiel sits so close, resenting intrusion somewhat vigorously, that it would be more difficult to introduce strangers to her nest. Transferring the eggs as hatched would probably be best. M. Williams.

AVIARY NOTES FOR 1906.

By Mrs. Henry Bromet.

I am sending you an account of my aviary and the young birds reared in it this year (1906).

The aviary is built against a brick wall and faces west. I know the aspect has been condemned, but my birds do not seem to find it *too* hot. It is shaded by trees and I have Venetian blinds. The inner portion is 18 feet long, 8 feet wide, and 7 feet high at the eaves. It is a wooden structure with a span roof and entire glass front (wired outside), folding doors at the south end, half glass, half wood, so that I can open half or fold back both against the wall, and from May to November these doors are open.

The aviary has a concrete floor and fountain with basin 3 inches deep, the overflow from this runs down a small gutter

and makes a stream through the flight, which is 27 feet long, 8 feet wide, and 7 feet high, and is covered with wire netting, half-inch mesh. This is planted with small spruce and box trees, ferns, reeds, primroses, &c., and the brick wall is covered with ivy.

The inner portion of the aviary is heated with hot water pipes, on the greenhouse system, and is painted white inside and well fitted up with nest boxes of every description. This year I have had seven Silverbills from one pair; two nests, in the same cocoanut husk in the flight; three hybrids, from a Fawn and White Bengali hen and a cock Spice Bird; the young birds are beautifully laced; the parents were assisted in the incubation and feeding by a cock Bronze Mannikin.

From my three pairs of Zebra Finches I have only three young birds, out of one nest. Two pairs of Gouldians (black-faced cocks and red-faced hens) both started to nest the last week in August, both pairs choosing rush nests, hanging from the roof of the aviary on the same level, and the openings exactly facing each other, they sat splendidly, the cocks taking their turns, and they were all friendly, no doubt because they had lived together through the winter; they would allow me to peep in the nests and never attempt to fly off. I was very excited one morning, when I was sitting in the aviary, after watching the two hens feed and return to the nests, I heard faint husky chirps, which daily got louder and louder until I heard them outside the aviary. The climax was when three strong young birds flew out of one nest and four out of the other: I have lost one of them, it was the weakling; but I am sorry to say I have lost both the hens in the second nests: I did not wish them to nest again, but dare not risk separating them from the cock birds, lest they should not feed the young ones. I should do so another time, as my two cock birds brought these young ones up alone, and they seem very healthy lively birds and are quite unrelated, for I got all four parent birds from different places. I am now thinking of the pleasure I shall have in watching the young birds getting their adult plumage.

My Bicheno Finches built a nest of white paper shavings (out of a chocolate box)—such a little compact ball—in some

branches in the flight: they brought up two young ones who were just ready for flight, when we had a week of very heavy rain, and although I fixed a large board outside on the wire, completely covering the nest, the cold and damp must have killed them. I hope I shall be more fortunate in 1907. The old birds seem in first rate condition. I noticed the cock Bicheno spent all his time, on the path in the flight, catching gnats and small flies, and I think the young ones were fed principally on these.

My Cordon Bleus have five eggs: the hen sat about four days, and now a hen Bengali has taken her place: I doubt if they will hatch.

I have four young ones from one pair of Bengalese. In another aviary (but only a small one, 10 feet long, 5 feet wide, and 8 feet high, and unheated) I have four pairs of Budgerigars and two pairs of Chinese Painted Quails—in the other half of it I have a hen Crimson-wing Parrakeet.

I have a lovely green Malabar Fruitsucker in a cage, he is very tame and sings beautifully; also a black Himalayan Robin, but he is free with his wing cut. I have had these two nearly three years.

THE DOMESTICATION OF THE RHEA.

A paper, of much interest to those concerned with the acclimatization of foreign birds for purposes of utility, appears in the *Bulletin de la Société National d'Acclimatation de France* for December 1906, on the rearing of the American Rhea in France. It appears that members of the Acclimatization Society have conducted experiments in the breeding of these birds since 1855, and at the present time the Rhea appears to be quite established as a domesticated species in France, where it breeds regularly. It is perfectly hardy, passing the winters in the open.

At three years of age these birds are adult. As is well known, the male performs the duty of incubation, which occupies a period of from 34 to 40 days.

The species is stated to be polygamous, a statement which

we believe to be incorrect. The Rhea is almost certainly polyandrous, a female pairing successively where opportunity occurs as in a wild state, with two or more males. Polygamy cannot succeed with a species in which the *male* incubates, for he could not cover the number of eggs that would be laid by several females, and where the breeders, from the belief that these birds are polygamous, keep several females with one male the waste of eggs which cannot possibly be incubated is enormous. Rheas do extremely well in captivity and may be kept in a comparatively small space, but naturally do best if they can have the run of a large field or a park where they are very decorative. In France they are fed on potatoes, cut up beetroot, bran and green food. They cost very little to keep and may produce considerable profit to their owners. The flesh of birds of about a year old is said to be excellent and in taste to resemble something between turkey and mutton. The eggs are very good to eat, their contents being equal to that of from twelve to fifteen fowl's eggs, while their feathers sell readily at a good price.

Rheas require very little water as they rarely drink and never bathe, but a dust bath is a necessity. They live harmoniously with fowls, ducks and geese, but are liable to devour young chickens.

The male Rhea takes great care of the young, which are reared without difficulty. The female should never be left with the young, as she will eat their food, and possibly kill them.

Artificial incubation has been tried with very little success in France.

NESTING OF THE AUSTRALIAN PLUMED DOVES.

Mr. Seth-Smith in the December number of the Magazine gives us an interesting account of these charming birds, and of their unsuccessful nesting in his aviary. Members may be interested to hear that a pair I obtained in the spring of 1905 nested successfully in my aviary in the summer of 1906. They were in an aviary with Parrakeets at first and laid two eggs behind a log, which were rolled out and broken by the Parrakeets,

so I removed them to a large aviary with grass and shrubs where they were very active, and laid two clutches of eggs in corners of the shelter on a few twigs and straws drawn together, hardly worth calling a nest; the hen made no attempt to incubate though she hovered round the eggs a good deal. I am sorry I did not take exact notes of dates, but it must have been at the end of May that a small coop with a turf nest in it was put in this aviary, and the dove took to it at once. Two eggs were laid on the turf nest and the hen began to sit at once. Both birds sat alternately and together never leaving the eggs uncovered, and we believe they hatched out on June the 14th, just fourteen days from the commencement of sitting. The old birds were most secretive, and allowed us no glimpse of the young birds for more than a week. I then discovered there were two. The little ones came out in about three weeks, tiny downy things, rather like young ducks, and hardly visible on the ground. They grew fast and were soon exactly like the old birds, who went on feeding them for a long time. There was a scare in the aviary one night, a cat on the top, and the smaller of the young doves—as I conclude the hen—was found dead on the ground with no apparent injury. The remaining one is alive now, and the three are always together and roost close together in a slight depression on the ground. The young one seems to feel the cold more than the old ones, and is asthmatic after a cold night but recovers when the sun comes out. It was very touching to see the old cock feeding the young one carefully when he was rather puffed up, the young one being the bigger bird. They are absolutely tame and most fascinating pets, running to meet us directly we appear, and in the summer always bowing and cooing to us.

It appears that with good luck they might have several pairs of young in the season, and I hope for more this year.

M. W. Connell.

REVIEWS.

AQUATIC BIRDS. *

This handsome volume of nearly 600 pages deals with a most interesting class of birds comprising those which, from their shy nature, are perhaps the least familiar to the majority of British ornithologists. It is the outcome of more than twenty years observation, chiefly carried out on the Irish coast; but besides recording his own observations the author has been careful to refer to the works of all the most trustworthy authorities on the groups dealt with, so that the book is a valuable record of practically all that is known of the aquatic birds of the United Kingdom. The title is somewhat misleading as a few of the species treated of, *e.g.* the Bustards or Land Rail, can hardly be called aquatic, while the Dipper is not mentioned; but then the Bustards belong to an Order in which the majority of the species are more or less aquatic so the author has thought it best to include them, and this applies also to the Land Rail, while the great majority of the Passeres being land-birds, the few that are aquatic are omitted.

The author very rightly condemns the wanton destruction of birds and the craze for collecting their eggs, but he considers that the systematic ornithologist who would study the plumages and structural characters of birds must collect a certain number of specimens, and with this we entirely agree; but perhaps some of the best work can be done with a powerful binocular if the observer knows how to properly conceal himself, and Professor Patten gives some good hints as to how this may be done.

The very careful descriptions of plumage in its various seasonal phases form a valuable feature of this book.

The illustrations, one of which we reproduce here by the courtesy of the Publisher, are numerous and good, and a reliable systematic, as well as a general index adds to the usefulness of the book.

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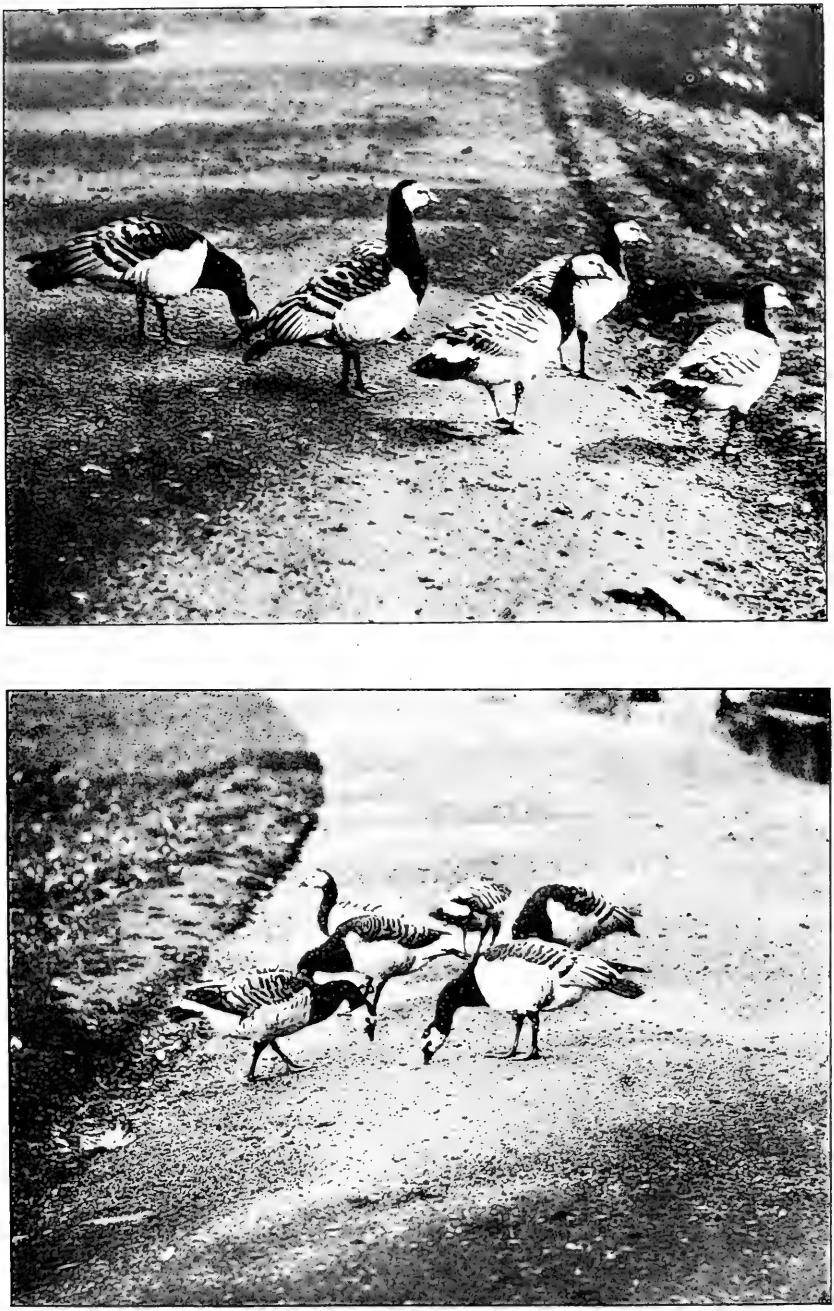
* *The Aquatic Birds of Great Britain and Ireland*, by CHARLES J. PATTEN, M.A., M.D., Sc.D. &c. London: R. H. Porter, 7, Princes Street, Cavendish Square, W. Price 25/- net.



F. H. Walker, Photo.

BERNACLE GEESE.
Zoological Gardens, Dublin.

From Patten's "Aquatic Birds.'

Eale, Sons and Danielsson, Ltd.

KEY TO THE BIRDS OF AUSTRALIA. *

This useful key has been compiled principally from the British Museum Catalogue of birds. Some of the descriptions are exactly reproduced, others are added to, while a portion is described from the author's private collection. A map of Australia showing the various sub-regions as defined by Professor Spencer, forms a frontispiece. A list of Australian species and sub-species recently described as new, and of species recently added to the Australian list, is printed at the end of this second edition, while indices to Genera and Vernacular names are supplied.

The volume forms a complete list of all the Australian birds with brief descriptions and their habitat. Those who study Australian birds cannot afford to be without this useful book.

THE SOCIETY'S MEDAL.

In the January number an article appeared by Mrs. Johnstone, on the successful rearing of a young Fraser's Touracou (*Teuracus macrorhynchus*), and the Council regard this as a very important avicultural event and propose to award the medal struck in *silver*, providing that no record of a previous occurrence is forthcoming.

In the present issue Mr. Teschemaker records the successful breeding of both the Yellow-rumped Finch (*Munia flaviprymna*) and the Chestnut-breasted Finch (*M. castaneithorax*). According to Gedney the latter species was bred by him, and in the *Report of the United Kingdom Foreign Cage Bird Society* for December 1891 it is recorded that Mr. Osbaldeston reared three young of *M. castaneithorax*. The Yellow-rumped Finch however does not appear to have been previously bred successfully in the United Kingdom, and it is proposed to award a medal. Any member or reader knowing of a previous instance is requested to communicate immediately with the Hon. Business Secretary.

* *A Key to the Birds of Australia*, with their Geographical Distribution by ROBERT HALL, F.L.S., C.M.Z.S. Second Edition. Price 6/6 net. Melbourne: Walker May & Co. London: R. H. Porter.

CORRESPONDENCE, NOTES, ETC.

THE LIGHT MULE PROBLEM.

SIR,—There is one aspect of this puzzle which I do not think has received adequate attention—that is, that in crosses with the Canary the colour of the latter bird is recessive, as students of the Mendelian theory of heredity say, of course we do get clear and pied mules, but, they are alas! exceptions. Normally, Canary mules, even when dark, follow the colour of their wild parent. Pair a Canary with a Linnet, you get a brown mule; with a Greenfinch or a Siskin, a green one; with a Goldfinch, the prevailing colour of the result is again brown, not green.

Lest it should be imagined that this is due to the fact of the Canary being a domesticated bird, I would quote some other instances. If you pair a Pigeon and a Barbary Dove—*both* domesticated—the colour will be a Pigeon's. If you pair a Guinea-fowl and a common fowl, both domesticated again, the result will be a fowl's plumage, not the Guinea-fowl's, in spite of the distinct character of the latter.

Even by crossing a wild bird with a tame one you may constantly get the latter's colour prevailing; thus, the hybrids between Fowl and Pheasant, as anyone may see in those exhibited in the Natural History Museum, resemble in colour the domesticated parent much more than the wild one, and vary similarly.

In trying to breed lighter mules, therefore, we are facing a difficulty inherent in the very nature of the Canary—it is a bird with little power of stamping its colouration in a cross.

It may be said that this does not help us much, but it is something to clearly see where the difficulty lies. What we want is a prepotent Canary, one which is exceptional in having the power of stamping its colour; and a Canary that produced even dark mules, if those mules were *green*, would be worth looking after, just like one which produced light mules.

But failing a prepotent Canary, there may be such a thing as a recessive Goldfinch—an individual which has small power of colour-transmission. The virtues of such a bird could of course, only be realized by breeding light or green mules from him, but if obtained, he should be preserved, and an attempt made to breed more from him, as Goldfinches have repeatedly bred, not only in aviaries, but in Canary breeding cages.

F. FINN.

THE TREATMENT OF THE SHAMAH.

SIR,—Will some of our readers kindly say the different ways of feeding Shamahs. I feed mine on Century Food grade 3, mixed with a hard boiled egg, a potato, and the best ants' cocoons soaked and squeezed dry, and added; he gets a pot full of this and most of the ants' eggs, and then

the rest goes to the birds in the aviary. Though I clean his cage every day it sometimes smells sour. I tried Abrahams' food and ants' eggs and dried yolk of egg : that suited him too. He is in perfect plumage and sings well. Are these foods too heating? He always picks out the ants' eggs first. I give him two or three mealworms a day. Can I give him more? He lives in a box cage in a living room, the cage is about 22in. long and 14in. wide. He will not go into his bath, only splashes on the edge. He throws up pellets sometimes. I should also like to know how to get rid of mice in an aviary. They will not go into traps and I will not use poison.

M. C. HAWKE.

The following reply has been sent to the Hon. Mary C. Hawke :

My bird was sent as a present from Mr. Heselton in 1903 and is a fine singer and never out of health. I keep it in a box-cage, 2ft. 6in. frontage, 18in. from front to back, 20in. in height, with zinc draw-tray and large water-pan in which it can bathe at will; this it does frequently. I keep the cage at the end of my conservatory (31ft. by 15ft.) facing S.W.

I feed my bird upon two parts crumb of stale household bread, one part powdered sweet biscuit, one part yolk of egg or hard-boiled egg (both yolk and white) and one part Grade 1 Century Food. I rarely give mealworms, but often cockroaches and, in the summer, caterpillars, moths or spiders.

During the three years in which it has been in my possession this Shamah has never had a single day's illness. A. G. BUTLER.

COLOUR-CHANGE IN FEATHERS.

SIR,—My own convictions with regard to the fact that feathers do retain vitality after they have ceased growing were published in our Magazine, 1st series, vol. VIII., pp. 132-5, in a short article entitled "Feathers changing colour."

Since the publication of the paper above referred to I have seen no reason to change my opinion. I listened with great interest to Prof. Dwight's lecture at the Ornithological Congress; but it revealed no new doctrine, but only proved what we knew before, that changes in the colouring of plumage are often effected by the loss of the fringes of the feathers; or at times by parts of the web, thus rendering a coloured shaft more conspicuous. I could add to this, that I have known a Brambling, in the shelter of an indoor aviary, to retain its winter fringes almost up to the time of the autumn moult; there being neither rough brushwood nor stormy weather to assist them to break away.

During the summer of 1906 I purchased half a dozen Weavers out of colour, supposed by the dealer who sold them to be Orange and Napoleon Weavers; three of these died the next day, unhappily one which I had selected as (a probable male of) *P. flammiceps* among them; the other two

were palpably *P. franciscana* and the three that lived *P. afra*, two cocks and one hen: one of the cock birds I placed in the bird room which is always fairly warm and the other in a small aviary at the back with a glass roof, the former came into full colour, but the latter after developing half way to the breeding plumage just as gradually returned to the winter plumage (during the whole process forward and backward no feathers were visible on the floor of the little aviary); this is the second time that I have had the same experience of the action of cold upon the colouring of feathers; but it must be borne in mind that this action only affects feathers upon living birds.

But the case of the Touracous in which the pigment washed out of a feather upon the living bird is replaced after a comparatively short time, so that the feather becomes as brilliant as it was before the bath, will require a lot of explaining away by those who assert that a perfected feather is lifeless; so also will the teachers of the doctrine of perfection in death find it difficult to explain why the plumage of a dead bird, though not exposed to the light, should change in tint to such an extent that the pansy blue or ultramarine on the breast of the living bird is described in a scientific catalogue as lilac, (and correctly too, as one sees when one examines the skins from which the description was taken).

I believe, when we get more powerful microscopes with which to study the internal structures of feathers, it will be found that nutrition is somehow conveyed even to the most delicate filaments. Seeing is believing, and at present evidence is not forthcoming, and what can be seen seems opposed to this belief; but no organism or part of an organism is too delicate to be supplied with blood-vessels, or numerous insects which barely surpass in size the motes in a sunbeam could not exist.

A. G. BUTLER.

THE RED-EYED VIREO.

The following note has been sent to Madame Gorter in reply to a query:

The Red-eyed Vireo, Greenling or Flycatcher (*Vireo olivasceus*) is a bird very seldom imported and not included in the List of Animals which have lived in the Zoological Gardens. It should be fed like a Song-Thrush, but with plenty of insect food.

The *Vireonidæ* have been regarded as relations of the Shrikes or Butcher-birds, but they construct suspended nests after the fashion of the true Orioles.

A. G. BUTLER.

THE GIZA ZOOLOGICAL GARDENS.

Captain Stanley Flower sends us a Report on some valuable additions which he himself has just brought back to these Gardens from the Sudan. These consist mostly of mammals, chief amongst which are three African

Elephants which, with three received in 1905, form perhaps the finest collection of these magnificent animals that have ever been seen in any Zoological Gardens. The birds in the collection consist of two Red-backed Sparrows (*Passer rufidorsalis*); one Cretzschmar's Bunting (*Emberiza cæsia*); one Grey Heron (*Ardea cinerea*); and one Rosy-grey Dove (*Turtur roseogriseus*).

THE RUFOUS-BACKED MANNIKIN.

A small consignment of this rare and pretty Mannikin (*Spermestes nigriceps*) has recently been on view in the shop of Mr. Luer, the bird dealer in Leman Street, E., and they appeared to be in excellent condition. They remind one much of the Bronze Mannikin, but the back is a rich chestnut. The species inhabits "East Africa, from the Zanzibar region down to Natal" (B. M. Catalogue).

THE DOVE ACCLIMATIZATION EXPERIMENT.

Members of this Soceity who are interested in the proposed experiment of liberating a number of Crested and other Doves in Regent's Park, will be glad to hear that over thirty birds are now housed in one of the central compartments of the Western Aviary at the Zoological Gardens. These consist of seventeen Australian Crested Doves, ten Bronze-wings, four Necklaced Doves, three Half-collared Doves and two Senegal Doves.

A small Committee has been formed to manage this experiment, consisting of Mr. Castle-Sloane, Mr. Newman, Dr. Drewitt and myself, and we should be very glad of donations of Doves, or money to buy them. The best species for the purpose is the Australian Crested Dove, and we should be especially grateful for any of these birds, but other hardy species would be very acceptable, even the common Barbary or Ringed Turtle Dove which doubtless many members possess. It is proposed to mark the birds with aluminium rings, and I should be glad of suggestions as to the most suitable kind for the purpose. D. SETH-SMITH.

PROPAGATING MEALWORMS.

Will members who have been successful in propagating mealworms be kind enough to explain their method for the benefit of other members? The text-books tell us how to do it, but if we follow their advice we generally succeed in propagating myriads of mites and clothes moths, but no mealworms. On the Continent however mealworms are bred extensively for sale. They are very expensive to buy, and it would be a great saving to those aviculturists who keep many insectivorous birds, if they understood how to propagate their own. D. S.-S.

THE ILLUSTRATION FUND.

The Council acknowledge with grateful thanks a donation of £20 towards this fund from Mr. E. J. Brook.

It is hoped that other members who appreciate the efforts of the Executive Officers to produce, month by month, a thoroughly good magazine, with good illustrations, will remember this fund. Donations, large or small, will be very gratefully received.

POST MORTEM EXAMINATIONS.

RULES.

Each bird must be forwarded, as soon after death as possible, carefully packed and postage paid, direct to Mr. ARTHUR GILL, Lanherne, Bexley Heath, Kent, and must be accompanied by a letter containing the fullest particulars of the case, *and a fee of* 1/- *for each bird.* If a reply by post is required a fee of 2/6 must be enclosed. Domestic poultry, pigeons, and Canaries can only be reported on by post.

LORIKEET (Sir Wm. Ingram). Bird died of acute inflammation of the bowels.

GOLDFINCH (Miss G. Wolfe). Your bird died of heart failure. This organ was much hypertrophied, being at least a third larger than normal.

PARROT-FINCH (Mr. Donald Swift). The bird died of bronchitis. The change in colour was most interesting: I will let Dr. Butler and others see it and will write you again.

YELLOW-RUMPED FINCH (Miss Joan Gladstone). The bird died of acute double pneumonia.

SHAMAH (Rev. H. D. Astley). Bird was completely crushed in post: unable to examine.

Lady Southesk answered by post.

NOTICES TO MEMBERS—*(Continued from page ii. of cover).*

NEW MEMBERS.

Mr. E. M. SKEA; Box 373, Pretoria, South Africa.

The Hon. Mrs. MACLAREN MORRISON; 3, Radcliffe Square, London, W.

Mrs. C. CHARRINGTON; Frensham Hill, Farnham, Surrey.

Mr. JEFFREY WALSH; 6, Regent Street, Blackburn.

Mr. WALTER BUCHANAN NICHOLS, M.B.O.U.; Stour Lodge, Bradfield, Manningtree, Essex.

Mr. F. F. ANDREWS; Zoological Gardens, Regent's Park, N. W.

CANDIDATES FOR ELECTION.

Mr. F. BLATHWAYT; Pelham House, West Folkestone.
Proposed by Mr. W. G. PERCIVAL.

Mrs. LONG; Sherrington Manor, Berwick, Sussex.
Proposed by Dr. BUTLER.

Mr. EWEN KENNEDY; The Leuchold, Dalmeny Park, Edinburgh.
Proposed by the Editor.

MEMBERS' SALE AND EXCHANGE COLUMN.

The charge for private advertisements is SIXPENCE FOR EIGHTEEN WORDS OR LESS, *and one penny for every additional three words or less. Advertisements must reach the* EDITOR *on or before the* **26th** *of the month. The Council reserve the right of refusing any advertisement they may consider undesirable.*

Exchange Wild duck for drake.
B. C. THOMASSET, Hawkenbury, nr. Staplehurst.

Two pairs fine healthy aviary-bred Redrumps, wanting to nest; one guinea a pair, for aviaries only. Aviary Melangell, Brighton Road, Rhyl.

Toucan (Lettered Aracari) good healthy bird, 60/-, or exchange Australian Grass Parrakeets to same value.
T. MILLER, 27, Belgrave Road, S.W.

Two pairs Golden Pheasants, 1905 birds, 30/- pair; hand-reared French Partridge, very tame, perches, 10/-; 5 pairs acclimatized imported Hungarian Partridges, 14/- pair.
H. WORMALD, The Heath, Dereham, Norfolk.

(Continued on opposite page).

NEW SERIES. MONTHLY. MARCH, 1907.
Vol. V. No. 5. Price 1s. 6d.
Members' Annual Subscription, 10-; payable in advance.

AVICULTURAL MAGAZINE

THE JOURNAL OF THE AVICULTURAL SOCIETY.

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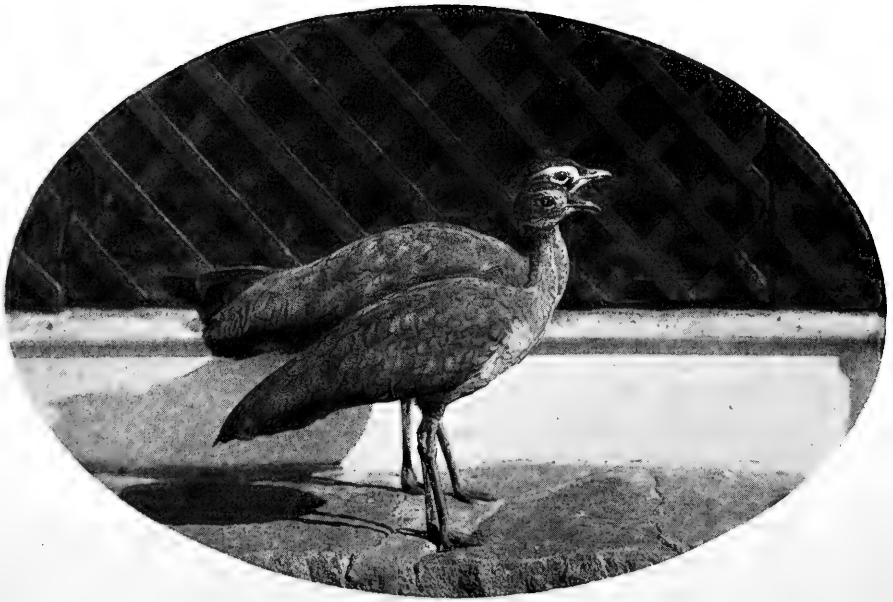

Photo. by The Fane Studio, Bloemfontein.

PAIR OF BLUE KNORHAAN.
Otis cærulescens.

Bale, Sons and Danielsson, Ltd

THE

Avicultural Magazine,

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THE BLUE KNORHAAN.

Otis cæruleus.

By Capt. Boyd R. Horsbrugh, A.S.C., F.Z.S., etc.

In April, 1905, I was lucky enough to obtain in the market at Bloemfontein, a pair of the Blue Knorhaan. Neither before nor since have I seen these birds for sale alive, nor have I seen any in captivity, so I conclude that it was an exceptionally lucky chance that brought this latter pair into my keeping. They were then perhaps six weeks old, in very rough plumage, and about the size of Red-legged Partridges, only of course longer in the leg.

From the moment that I took them out of the little crate in which they had been brought to market, they proved themselves to be most extraordinarily tame, following my wife and me around the garden from the very first, with a loud querulous cry like that of a young kitten.

From the first they fed better from the hand than in any other way. Their appetite was delicate and I am convinced that if they had not constantly been coaxed into accepting their food, they would not have lived many months.

The blue colour on both of these birds was very pale at this time, and their legs were of a greyish colour; the female was slightly smaller than the male, and her face and eyebrows were distinctly browner than those of her mate. It was quite evident that they had been reared by a woman on a farm, and they had rather a fascinating trick of sitting down on the edge of a skirt whenever they got the chance. The hen was particularly fond of doing this, and always crooned a little song to herself

when she was comfortably settled. They loved sharpening their beaks on one's boots; and visitors always had to be warned not to tread on them as they were everlastingly under one's feet investigating boot laces.

We built a large run for them, with a nice hen-house in the middle of it. This latter they inhabited at night and it was no easy matter for the Kaffir to drive them in every evening. They defied him and mocked him in every way—spreading their wings and skipping about on their agile little legs until the distracted Kaffir—who was not allowed to touch them—had very often to call for assistance.

When they were let out of their run into the garden,—which only occurred when there was some one by to be on the look out for strange dogs,—a favourite trick of theirs was to make a dash for the nearest flat stone bordering the flower beds and to wait beside it, stamping impatiently until it was turned over, when there was a rush for any grubs, beetles or stone cock-roaches that lay beneath it; then off to the next stone,—over with that,—and down with a delectable little scorpion!

When the garden was still in the process of making, these two were a serious impediment to the gardener. They thought he was employed to turn over stones for their special benefit, and the unfortunate man could scarcely get his pick under a stone before their eager little beaks were under it too.

Mr. Sclater states in his book that this is rather a scarce bird, but although I have never seen many at a time I fancy it is pretty widely distributed over the Orange River Colony. On the majority of mornings when out on shooting trips the first sound to reach my ears was the clear ringing cry of "*Knock-me-down, Knock-me-down,—me down—me-down!*" that the cock birds give vent to at dawn.

I have seen dead birds for sale at the game market in Bloemfontein in some numbers. They had generally been killed with a bullet, and this hardly bears out Mr. Millais' experience that the bird is tame and unsuspicious. Not that I would doubt Mr. Millais' experience of them, but at the present date I have found them—in the Orange River Colony at any rate—extremely wild and very well able to take care of themselves.

You may see them and try to stalk them, but at 200 yards the slim graceful blue neck stiffens, the banded chestnut and white wings open and with a mocking shout of *Knock-me-down !* he is off—for ten miles or more.

In May the cock of my pair started his call note, to which he always treats us when he is first let out of his house in the early morning. He is an excellent indicator of early or late rising on the part of the Kaffirs whose first duty it is to let the Knorhaan out into their run.

In December 1905 both my birds had got their plumage in the most beautiful order and were masters of the companions we had added to their run, *i.e.* some Stanley Cranes and Spur-winged and Egyptian Geese, while a Buff-backed Heron that was flying at hack around the garden was always a great source of distraction to them, their object being to keep him on the wing. Like most bullies they were cowards at heart, and a hen with chicks sent them shouting off in very quick time.

It was always an amusement to us to drive them across the garden to the pigeon-house and then to drive the pigeons out of it and straight at them. This invariably caused consternation mingled with horror. The little pair would stand rooted to the ground with wide open beaks and out-spread wings—the hen would utter a loud squawk, the cock would hoarsely shout his "Knock-me-down,"—and then they would turn tail and run, with that mincing, pattering, and amazingly swift gait of theirs.

In January 1906, when the birds were just under a year old, I observed that their legs were changing to a yellowish colour, and I have no doubt that these birds take at least two years to become fully adult.

In February I regret to say that the hen bird—the nearest in the picture—was murdered in my garden by a neighbour's dog. We rescued her just alive, poor thing, and sewed up the dreadful wound in her breast, but a few hours later she crept on to the edge of my wife's dress and contentedly sat down and died.

The cock I still have. When I went home last summer on four months leave I left him in the Pretoria Zoo, where he had for company a Barron's Knorhaan (*Otis barronii*)—but he is back

again with me now and as vociferous as ever in the early morning.

I fed my birds on lean, cooked and chopped meat, lettuce, bread and milk, Quaker oats soaked in water, on locusts when they were about, on chopped lizards (the tails were found most acceptable); and once, when I was drowning some mice in the Knorhaan run, the cock bird swallowed three little ones in quick succession and seemed to appreciate them very much.

In a wild state I am certain that these birds, in common with others of the same family, eat practically no grain at all, but live on locusts, grasshoppers, etc., and on any odd insects they come across.

I am told the Blue Knorhaan are good eating, but having the tame birds I could never bring myself to the idea of sampling the wild ones.

FURTHER NOTES ON THE REGENT BIRD.

Sericulus melinus.

By Reginald Phillipps.

In January, 1906, I gave an account of the hatching, in my aviary, of two young of this species. The elder of the two was hatched on August 6, 1905; and it is about this bird that I now propose to say a few words.

During 1906, his health was perfect: and in the autumn he went through a rapid and complete moult. Much of the past winter he spent in the company of the odd female—referred to in my former paper—whom he courted after the most approved fashion of the Regent; for our winter, as I explained before, is the natural breeding season of the species. A few days before his death, his demonstrations of affection were very pronounced, almost violent, and led up to and ended in a fit. When I entered the birdroom on February 15, I found him in one of the houses in a hopeless state, anxiously waited upon by his devoted mother, who hovered near him during the whole day, not once going into the garden; he died during the ensuing night.

Last autumn, after the moult, the plumage became somewhat darker than it had hitherto been, the general colour being

much the same as that of the adult female; but it retained the two distinctive points, (1) a "horn" projecting forward from the front corners of the crown patch over each eye, although not so markedly as before the moult, and (2) the upper part of the body being more speckled, and the light-buff marks on the tips of some four of the inner secondaries of each wing being very plainly to be seen. I think these latter were more conspicuous than they were before the moult.

On examination after death, some of the "specks" on the mantle were found to have yellow centres; though possibly there may not have been more yellow, or "yellowish," on the upper parts than is usual at certain seasons on the adult female. But the under side of the wings, especially towards the axillaries, was suffused with yellow in a manner I have never noticed in a female. There were no black marks on the flights, so I cannot positively say that the bird was an immature male; but its behaviour, and altogether, make me reasonably satisfied that it was one.

On p. 127 of vol. IV, there may be seen a sketch of the upper parts of the head of the younger of the two nestlings, presumably a female. The horns of the elder bird, at that time, were not straight but curved like a Turkish crescent, as stated on p. 126. It would seem, therefore, as if the curved horns, as distinguished from the straight ones, may be taken as the distinctive mark of the nestling male; but it must not be overlooked that these curved horns afterwards became straight (bottom of page 127). Later, the spots on the tips of the inner secondaries may possibly be an indication of sex (p. 131). Then there was (it had not been re-assumed) the black bar projecting down behind each eye, referred to on p. 129. All these points should be watched by those who may have opportunity.

This bird still retained the dark bill and eye; and that neither yellow patch nor black tip should have appeared on the flights would seem to demonstrate that the male Regent cannot come into full colour until he is at any rate some four years old.

N.B.—The bird proved, on dissection, to be a *male*. I ought to have stated that there was no appearance of yellow on head or nape, as on the females (IV. p. 59), a curious difference one would not have expected to find.

SOME REMARKS ON BIRDS SEEN DURING THE CRUISE OF THE "VALHALLA," R.Y.S.

By E. G. B. Meade-Waldo, F.Z.S., M.B.O.U.

After leaving Cape Town our first place of call was Durban, where only one day was spent, which I passed on the "Bluff" collecting insects. Among the many birds observed was the Tambourine Dove (*Tympanistria tympanistria*), the flight of which is most extraordinarily rapid. The weather in the Mozambique Channel was so bad that we had to run past two of the islands we had intended to visit—Isla da Europa and Brazza da India. While in a cyclone, which is by no means a pleasant experience, many birds took shelter to the leeward of the yacht's hull, by great effort preventing themselves from being blown away, hovering wherever they could find most shelter, but even then were occasionally whirled away by the storm and occasionally dashed into the water. I saw a Little Stint blown into the water and engulfed in a gigantic wave, yet it came up again, got on the wing, and worked its way up, sheltering in the trough of the sea, until it had again reached the yacht's shelter. The birds were mostly waders: Wimbrels, Reeves, Curlew Sandpipers, Ringed Plover, Little Stint, and a large Harrier. A Nightjar came on board and several common Chimney Swallows. These last were just finishing a complete spring moult into breeding plumage, indeed one was clean moulted except that the first primaries and long tail streamers were still in the blood.

Our first landing place was Mayotte Island, Comoros. We spent several delightful days collecting there, but got no live birds. The heat was great and the weather very wet for the most part, and so bad that on going to Anjuan, another island we had hoped to collect upon, we found it impossible to land owing to the sea and rain. I do not propose to enumerate the birds of Mayotte Island, but two beautiful Paradise Flycatchers were very common and one, *Terpsephone linsayi*, appears to be a new species. *Nesacanthis eminentissima* is a very beautiful Weaver-bird; and a Fruit Pigeon, *Alectrœnas sganzini*, a beautiful bird, and a delightful day was spent going to the patch of virgin forest which it frequents.

VIRGIN FOREST, MAYOTTE:
The home of Alectrœnas sganzini.

ABBOTT'S IBIS ON ALDABRA ISLAND.

From the Comoro Islands we steamed to Diego Suarez, a splendid natural harbour at the north end of Madagascar. While here we spent two days at the Camp d'Ambre, a small sanatorium camp on the edge of the forest that extends nearly the whole length of the island. The camp is about 36 miles from Diego Suarez, and some 3,000 feet above sea level. The weather was atrocious here,—ceaseless deluges of rain; nevertheless, we collected many of the birds and insects we heard and saw. The Greater and Lesser Vasa Parrots were seen. The Lesser has a most musical cry, and is a bird of great power of flight. One of each of these was brought back on the yacht. The Greater Vasa was almost silent, but the Lesser used frequently to utter the pure wild note. On our way down from the camp in a trolley, occasionally drawn by mules, we saw very many Quails, small and dark, many a fine Guinea Fowl, and had the great good fortune to see, standing on the tram lines, Madagascar's only large carnivorus animal, the rare and peculiar Fossa, *Cryptoprocta ferox*. It bounded into the forest as our trolly approached.

From Madagascar we visited the Island of Glorioso, on which lives one Frenchman looking after his coco-nut plantation. The greater part of the island is quite uncultivated. Here we found but four land birds: a Thrush-Bulbul, a *Zosterops*, a Sun-bird, and the Black and White Crow, *Corvus scapulatus*, that seems so widely distributed. Very many shore birds were round the island, especially numerous being the Crab Plovers, *Dromas ardeola*, while the Great Frigate-bird, *Fregata aquila*, was breeding in numbers in the tallest trees, which were full of their very small nests. The brilliant scarlet inflated pouches of the males, as they sit in the trees, give the trees the appearance of being covered with large scarlet flowers, the deep green of the birds matching the foliage well. Two forms of a Gannet, *Sula piscator*, were also breeding in numbers.

After visiting two smaller islands—Isle d'Lise and Isle Vert—we went to Assumption, a most fascinating island, quite uninhabited and shewing no signs of man, beyond the presence of some goats. It is an island of coral rock, more or less thickly covered with scrub-bushes and a few trees, some four miles long by two wide. On landing we were soon aware of the presence

of Rails, by their squeaking and grunting, a sound extremely like that of our Common Water Rail. They were quite tame and shewed no fear. We caught two, an adult and a full-grown young one, both of which are now alive and thriving in the Western Aviary in the Zoological Gardens. *Rallus abbotti* is peculiar to Assumption island, as indeed were all the land birds we found upon it, with the exception of the Black and White Crow. The other land birds are a Dove, a Sunbird and a delightful Lark-heeled Cuckoo, *Centropus assumptionis*. This last would nearly let you catch it, but not quite; we could easily have caught it had we had a little more time. We found its nest, domed, of grass, with two white eggs. Many sea birds nested on the island, amongst them the lovely salmon-pink Tropic-bird, *Phaethon rubricauda*.

From Assumption Island we went to Aldabra, and were astonished at the great size of it, with a large lagoon in its centre. The two crescent-shaped islands must be 100 miles round. It is not uninhabited, there being a small negro settlement of thirty-four persons at one end who see to the Turtle and Shell Turtle fishery, and also look after a small coco-nut plantation. The rest of the island, or rather islands, are covered with scrub and forest, and extremely difficult to get about upon. Practically every bird upon this island, with the exception of the sea birds, is peculiar, but by far the most remarkable is Abbott's Ibis (*Ibis abbotti*). This Ibis, of which the Colony is about thirty miles from the settlement, was the most confiding and delightfully familiar *wild* bird that I ever saw. It had no fear or suspicion of man, and allowed one to pick it up without shewing any resentment and, when put down, proceeded to investigate your boots. It was hard to photograph because it would examine the camera; but, in addition to this, we had mostly pouring rain to contend with. We saw some thirty individuals, but there are probably more, and I suspect there are other colonies on the island which are not known.

A peculiar Weaver-bird, *Nesacanthis aldabranus*, was very nice, and abundant in the little settlement. And this island is the original home of the gigantic Land Tortoise, *Testudo elephantina*. Many of the land birds are races of those which frequent

Assumption, and the Rail, *Rallus aldabranus*, has a very strong resemblance to the Assumption bird. These Rails appear not to fly, but they can do so, as those at the Zoological Gardens fly with ease to the higher perches. These Rails fed at once on anything that was offered them, preferring meat, bread, lettuce and currants. In the settlement I saw, perched on the arm of a boy, a perfectly tame Great Frigate-bird.

From Aldabra our intention had been to visit Cosmoledo and Astove Islands, but owing to an unexpected current we had the ill fortune to run the yacht aground on Assumption, and when we fortunately got off after 24 hours of considerable anxiety, it was necessary to go to Seychelles, where we stayed three weeks. Owing to extremely bad weather we were unable to visit nearly all the islands that we had hoped to, but we spent some time at Mahé, and a visit to Mr. Hans Thomasset's plantation at Cascade was very delightful. Here we found most of the existing peculiar birds to be abundant. The beautiful Rose-crowned Fruit Pigeon particularly so. This bird rises and falls on the wing like our own Wood Pigeon. Its favourite food is a small fig, but it eats various fruits, and its movements are regulated by the ripening of the fruits of certain trees. This Pigeon shows little fear of man, and it is easy to catch the adult alive with a noose. We brought three home with us, a fine adult pair and an immature bird. These were tame from the very first and showed not the slightest objection to being caged. They throve on cut banana, raisins, fig cut up, and sultanas. We had a small supply of their natural food to start with. Fruit Pigeons in confinement usually soon die of extreme fat; no doubt this is brought about by giving them free access to farinaceous and starchy foods.

A large Thrush-Bulbul, *Ixocincla crassirostris*, abounds in Mahé. We also saw great numbers in Prastin and some on Felicité Islands. It appears to be universal throughout the Archipelago to which it is pecuiliar. It is known by the name of Merle. I consider this bird to be the most quarrelsome, the most objectionably noisy, and generally the most objectionable bird I have ever had to do with. Its raucous squawking song is unceasing and it has no beauty to recommend it. Still its

insularity gives it an interest of its own! Three we brought home alive had to be kept in separate cages, and when in one of the large compartments in the Western Aviary they would still fight among themselves. One of these alone remains. She (?) is in perfect health, yells unceasingly, and has one eye. The Island of Praslin has a peculiar Vasa Parrot *Coracopsis barkleyi*. It is small, very rare, and has a beautiful wild whistle. On this island, and also on Felicité we saw a beautiful Paradise Fly-catcher (*Terpsiphone corvina*), blue black, with light blue bill and eyelids, and blue legs; the tail is of great length, and the bird, of which we only saw males, appears rare. I saw only three on Praslin and one on Felicité. It is not found on Mahé. This bird is known on the islands by the name of Veuve. The very small Kestrel, *Tinnunculus gracilis*, appears to be rare; we saw only some half-dozen examples. It too is tame. We did not see, but were fortunate enough to hear the extremely rare Scops Owl, *Gymnoscops insularis*. But this is not the place to enumerate the avifauna of an Archipelago.

On leaving the Seychelles we came home by the Suez Canal, and nothing avicultural occurred with the exception of procuring four living examples of Hemprich's Gull at Aden. This Gull, which has a restricted range, is extremely common there in the harbour and, strange to say, the birds we procured were the first to be exhibited alive in the Zoological Gardens. They would eat from the hand on the first day they were caught, and infinitely preferred meat to fish. Three of these may still be seen in the Gardens in fine condition. With these Gulls the voyage, as far as this paper is concerned, must end. Its delightful experiences being mostly but a memory.

FOREIGN BIRDS AT THE CRYSTAL PALACE.

The collection of foreigners at the recent show was perhaps about up to the average of recent years. There were not many birds of exceptional interest and the judging seems to have met with general disapproval.

The class for Parrakeets was better filled than usual, the first prize going to a fine pair of Bourke's sent by Mr. H. Peir of

Sydney, who also exhibited a specimen of the rarer Blue-banded Grass-Parrakeet (*Neophema venusta*), which the Judge did not deign to notice. Mr. H. Cooper received the second with a nice pair of Red-vented Blue-bonnets (*Psephotus hæmatorrhous*), a species which has recently been imported more freely than the better-known Yellow-vented form (*P. xanthorrhous*). A Varied Lorikeet, Barnards, Crimson-winged, Lineolated, and Kings Parrakeets were also present.

The most conspicuous exhibit in the class for Parrots was a fine pair of Banksian Cockatoos belonging to Sir C. Lawes Wittewronge, Bart. This exhibitor, however, was very unfortunate. The male was a magnificent bird, the first adult male specimen of this Cockatoo exhibited for many years, but the female was not in quite such good trim, and as the two had to be judged as one exhibit the Judge gave the first prize to a single female of the same species, a well-known prize-winner, in better condition than the female of the pair. Had the male of the above pair been exhibited alone he would doubtless have been awarded premier honours.

The class for Common Waxbills, Grassfinches etc. calls for no comment, but that devoted to the rarer species contained some interesting specimens. A fine male Violet-eared Waxbill, in perfect trim, belonging to Mr. L. W. Hawkins, was awarded first prize, while a Masked Firefinch (*Lagonosticta larvata*), sent by the same exhibitor, came second. The third prize went to a Black-headed Gouldian, certainly a very fine specimen but not to be compared in rarity to Mr. Townsend's pair of Rufous-backed Mannikins (see page 137), Mr. Hawkins' Tri-coloured Parrot-Finches, or Mrs. Warren Vernon's Red-collared Whydah, these three exhibits all being beaten also by a pair of Red-faced Finches (*Zonogastris melba*) belonging to Mr. Hawkins, which obtained fourth prize. The Rufous-backed Mannikin has not been shown at the Palace for many years if, indeed, at all before.

The most interesting exhibit in the class for "Grosbeaks, true Finches and Buntings" was a Rock Bunting (*Fringillaria tahapisi*) sent by Mr. Townsend which received the second prize, the first being awarded to a pair of Cuba Finches belonging to Mr. L. W. Hawkins, who also obtained the third prize for a pair

of Quail-finches. A pair of Black-headed Siskins was exhibited by Mr. E. Green under the name of "South American Canaries," and a single specimen of the same species was sent by Mrs. C. Cooper.

The class for Tanagers contained some grand birds, but the judging appeared to have been carried out by some extraordinary method of which the Judge himself only knew the secret. By far the best bird in the class was Mr. Townsend's Black-backed Tanager, but it had to give place (according to the Judge's method of awarding honours) to a Yellow-winged Sugar-bird belonging to the same owner. This Sugar-bird was a nice specimen, but in no better, if as good condition, as the Tanager, and for rarity it is "not in the same street." I am told that this Sugar-bird also won the Abrahams' Memorial Trophy, which is awarded for the best foreign bird in the show—another sample of peculiar judging. One of the best birds in this class was a magnificent Magpie Tanager shown by Mr. J. H. Harrison, an exhibitor who was by no means well treated by the Judge, though he had some extremely good birds.

Mr. Harrison obtained the first prize in the next class, which was a mixed one for everything not included elsewhere. His fine pair of Silver-eared Mesias being easy winners of the first place. The second prize went to a Touracou, a nice bird but not in first rate condition, which description also applies to the third prize winner, a Green-billed Toucan. Mr. Townsend's Metallic Starling (*Calornis metallica*) obtained fourth prize. There were other birds in this class which deserved more than they got, namely Mr. Harrison's White-throated Ground-Thrush (V.H.C.), Mr, Dewhurst's Coley (V.H.C.), Mr. Frostick's Japanese Tits (H.C.), and Mr. Cook's Golden-crowned Troupial.

In the class for foreign hybrids Mr. Hawkins obtained first prize with a so-called Red-mantled Parrakeet (see Vol. IV. p. 132), and a pair of hybrid American Sparrows, sent by Mr. Seth-Smith, bred between *Zonotrichia leucophrys* and *Z. pileata* (Vol. III., p. 331) were awarded second prize. Third, a Redrump and Mealy Rosella hybrid belonging to Mrs. Cooper. The last-named exhibitor also obtained the fourth prize with a hybrid

Alario and domestic Canary, a bird which should not have been admitted in a class intended for hybrids between two foreign birds, for the domestic Canary cannot be admitted under this category. A Bicheno Zebra-finch was sent by Mr. Hawkins (V.H.C.), and there was also a Long-tailed and Masked Grass-finch hybrid (H.C.). D. S-S.

STRAY NOTES.

A striking feature of the recent Bird Show at the Crystal Palace was the number of obviously foreign birds shown in the British classes and not disqualified by the judges. In the Bunting class there were no less than five Meadow Buntings (*Emberiza cia*), a species with a very frail claim to the British list. A single example is said to have been captured in Sussex in October 1902 which was identified by Dr. Bowdle rSharpe; but, considering that quite a number must have been imported (for no one can pretend that those at the Palace were all British-caught), it looks suspiciously as though the specimen above referred to may also have had an "assisted passage."

Most of the Bearded Tits that one sees at shows are undoubtedly foreigners, for almost every year a few are imported. The only specimen at the recent show to take a prize was however said to be hand-reared, and as it came from the Norfolk Broads district it was doubtless a British example. For our part we consider that anyone showing an acknowledged British-caught Bearded Tit, in defiance of the Wild Bird Protection Act, should be disqualified from receiving a prize.

In our humble opinion any bird which is on the British list should be allowed to compete in classes provided for British birds, whether the actual individuals shown were caught in Great Britain or not. Under present rules, if a bird is known to be a foreign specimen it is disqualified, but, as it is in most cases impossible to say whether a specimen is a true British-caught example or not, many of the rarest birds in the British classes which take premier honours, are actually caught on the Continent.

If the management of the Crystal Palace Bird Show will persist, in order to increase the gate-money, in holding the show over the week-end, they can hardly be surprised if foreign-bird exhibitors withhold their entries. Thursday to the following Tuesday is too lengthy a period for delicate birds to withstand the strain of the show bench, and there can be little doubt that the number of entries would be considerably increased if the show were held say from Tuesday to Friday, though possibly this would not compensate the management for missing the Saturday "gate."

The class provided for Albinos and "Rare-feathered specimens" is generally an interesting one, and this year there was a very extraordinary Albino Bullfinch. As is not uncommon with male Albinos of this species the breast was pink, but this colour was not confined to this region but extended *over the top of the head.*

The harm that has resulted from the introduction of predatory animals into countries where such were previously unknown has been strikingly illustrated in the well-known case of the Mongoose in the West Indies, but perhaps an even more lamentable state of affairs is taking place in certain parts of Australia. According to a writer in a recent number of the *Field* the common fox, which was introduced chiefly to kill the rabbits, is gradually exterminating the Lyre-bird, the "Native-companion" Crane and other ground-frequenting species.

Great progress has been made towards the completion of the buildings in the magnificent Zoological Park of New York, which covers some two hundred and fifty acres, and the work is expected to be finished by the end of 1908. During last year over two million visitors passed the turnstiles, an average of six thousand a day.

The current issue of *Bird Notes*, the journal of the Foreign Bird Club, contains a letter from Mrs. Miller, recording the laying of eggs in a cage by a Violet-eared Waxbill, and the Editor adds a note to the effect that he believes this to be the first instance of any aviculturist getting as far as the laying of eggs by this species. He has overlooked the fact that Mr. Phillipps recorded a similar event in the *Avicultural Magazine* for April, 1906 (page 204). In the same issue it is announced that Dr. Creswell will be succeeded in the Editorship of *Bird Notes* by Mr. W. T. Page.

CORRESPONDENCE.

COLOUR-CHANGE IN FEATHERS.

SIR,—I have read in your January number, Mr. Bonhote's criticism of my article on the moult of the Laughing Gull and heartily sympathize with your desire to have this matter thrashed out.

The experience and assertions of such men as Prof. Gadow and Dr. Butler are not lightly to be set aside, and it was with this in mind that I wrote as the first phrase of the paragraph of my article, "The subject of the alleged color change in full grown feathers *in certain specific cases*," (*The Auk*, Vol. XXIII., No. 4, p. 454). My object in beginning this work was to attack each specific case separately and by thorough, conscientious observation settle them one way or the other.

Personally speaking, I do not believe (my opinion being based on the microscopic examination of scores of feathers from different birds) that, when once the pulp has wholly disappeared from the base of the calamis of any feather, it ever again breaks through the dried septa or 'caps,' and infuses new life or colour into the interior of the rhachis or barbs. Nevertheless in my work I have tried to approach the subject in an impartial way, ready at any time to be convinced by the evidence of my senses. The high standing of the ornithologists defending each side of the question, left no other satisfactory way.

But I am thoroughly convinced that no good can come of reiterated assertions, which in the present state of our knowledge can lead only to useless and endless altercations.

What is needed in each case, is a continuous series of observations made on the living bird in the hand, correlated with accurate microscopic work. Attacked in this manner, the problem becomes a simple one, and no ornithologist who has access to a Zoological Garden or a private aviary need depend upon other than his own observations.

Mr. Bonhote acknowledges the spring moult of *Larus*, so that needs no further discussion. The only point now at issue (I am confining my remarks to this *certain specific case!*) is concerning any change in the appearance of the old winter feathers, before they are replaced by the new ones.

Now before Mr. Bonhote has any right to claim actual color change in these feathers, he must demonstrate two things: first, that there is actually a renewal of growth,—a re-opening of vital communication with the cells of *stratum Malpighii* (as we are dealing with a pigment not a structural color); and second, that the white tips of the winter feathers receive a new supply of pigment from the rhachis and do not merely become worn away and disappear, leaving exposed the dark proximal portion of each feather.

In the collection of the New York Zoological Park we have two healthy specimens of *Larus ridibundus*, brought last year from Europe, and I shall at once begin to watch their spring changes, as the date of this letter (Jan. 20th) is well ahead of the time which Mr. Bonhote sets ("February and March"). My mode of procedure will be as follows and I trust that Mr. Bonhote will perceive in it more of a desire for the truth and less of "bluster" than he seemed to discern in my article under discussion.

To prove the first proposition, one has simply to pull out and *at once* examine with the microscope a few of the winter feathers during the "ten days or fortnight" when the "whole change" is taking place. Even a tyro with the microscope can section the calamus or rhachis, and by an examination of the very base, can tell whether there is any change going on within the shaft.

In regard to the white tips,—if a number of feathers, say thirty or

forty, are marked with ink or otherwise, and carefully measured in millimeters, *in situ*,—both as to extent of white and ashy portions, and then re-examine them from time to time, the secret must be revealed.

I hold if the question is worth a moment's thought or work, it deserves study,—exhaustive and minute enough to settle it one way or the other, once and for all.

I should be indeed glad if Mr. Bonhote also would follow out the above methods of proof, or others as accurate, this spring and let his results be the "thrashing out" which the Editor so heartily and commendably invites.

The possibilties of wear in the winter feathers are well shown in one of my *Larus ridibundus*, in which, judging from a superficial examination just made, few or no feathers, even at this date, have a normal distal outline, the barbs showing a symmetrical wear, while, especially on the crown and upper nape, so many of the proximal barbs are worn away, that the feathers present the appearance of laterally compressed palm trees,—long naked shafts surmounted by a few ragged barbs. In each specimen about thirty early feathers of the dark spring moult are already in evidence, having pushed out the winter feathers, measuring from two to five millimeters. If the winter feathers should prove, (as do the new hood feathers, *vide* my article, p. 455) to be subject to an unusual loss of white tips at a certain time (in the case of the old winter feathers just before they are loosened and pushed out by the new feathers), the exposure of the distal sooty coloring, increasing in amount from the forehead feathers back to those of the nape would result in exactly the increase of area of darker color, as described by Mr. Bonhote.

But I offer this as tentative and all subordinate to the coming proof, which Mr. Bonhote or anyone with a captive Gull, a microscope and an open, unprejudiced mind can undertake.

The radical and (speaking from the standpoint of one moult to the next) almost immediate change in color of the whole plumage of birds subjected to new conditions of humidity and abnormal environment which I am obtaining and shall soon publish, have made me sceptical of evidence based on one or more feathers in the skins of dead birds. This and other related problems require continuous and minute examination of the living bird.

I think that most ornithologists will agree with me, that no more skilful and thorough study of colour in plumage has been made than that of Dr. R. M. Strong, of Chicago University, in his "Development of Color in the Definitive Feather," (*Bulletin of the Museum of Comparative Zoology of Harvard.* Vol. XL., No. 3).

The following is taken from page 176:

"The arguments against change of color without moult through repigmentation or regeneration of pigment may be summed up as follows:

1. Most feather pigments are too resistant to chemical reagents to warrant belief in their solution and redistribution.

2. Pigmentation of the feather has been observed to take place only in the younger stages of the feather germ.

3. At the end of cornification melanin granules have a definite arrangement, which is permanent.

4. When cornification has ensued, the various elements of the feather are hard, more or less solid, structures and their pigment contents are effectually isolated from one another.

5. There is no satisfactory evidence of the occurrence of repigmentation, and all the histological conditions render such an event highly improbable."

And again in Summary, page 178:

"16. Changes in color of plumage may take place either (1) by a moult, during which the new feathers may have the same pigmentation as their predecessors or a different one; (2) by a loss of certain portions of the feather; or (3) by a physicial disintegration in the cortex of the feathers as the result of exposure."

The time is past for generalizations and assertions based on superficial observation of the feathers in either skin or living birds.

My apology is due for the unintended length of this communication.

C. William Beebe,

Curator of Ornithology,

New York Zoological Park.

ORNAMENTAL WATERFOWL.

Sir,—It is now eighteen years since the publication of my little manual on the swimming birds entitled "Ornamental Waterfowl," in the preparation of which I received such kind assistance from Dr. P. S. Sclater, Dr. Bowdler Sharpe, Mr. Henry Seebohm, and other Ornithologists.

I have been advised to bring out a new edition of the book, and I would take this opportunity of inviting corrections and criticisms from those into whose hands the work may have fallen.

My collection of ornamental waterfowl has been broken up for many years and I have not therefore the opportunity of studying the living specimens, but during this interval many fresh importations must have been brought to this country and been studied in captivity by your readers. To these I would appeal for particulars of the rarer species and those imported since 1888. I would particularize the newly discovered species of *Bernicla hutchinsii* (which I believe found their way to the Tring Park collection); the Black Brent Goose, (*Bernicla nigricans*); Blue-winged Goose, (*Bernicla cyanoptera*); Red-necked or Red-breasted Goose, (*Bernicla ruficollis*); Middendorf's Goose, (*Anser middendorfi*); Caffin's Snow Goose, (*Anser albatus*); the Emperor Goose, (*Anser canagitus*); the Lesser White-fronted

Goose, (*Anser erythropus*); as also the less well known Whistling Ducks and Shieldrakes.

I am especially anxious to ascertain whether the Great Australian Shieldrake, (*Tadorna tadornoides*); the Radjah, (*Tadorna radjah*), and the White-fronted Shieldrake, (*Tadorna cana*), have come into the hands of any amateurs. I must not occupy your space with a list of all those respecting which I am anxious for information, but would appeal to your readers for assistance in bringing my handbook up to date by kindly forwarding any particulars on the subject which they may be inclined to afford me.

Will your readers who have had under observation the Blue-winged Teal (*Querquedula cyanoptera*) tell me in what points it differs most markedly from the Raffle's Teal. In 1888 the Raffle's Teal was as yet unknown in our collection, but a Continental correspondent wrote me that he and a friend had specimens of the birds and that it had bred in captivity. The same observation applies to the White-faced Teal also known as the Blue-winged (*Querquedula discors*); while I find also that a pair of Raffle's Teal was imported in January, 1897, by Mr. W. Cross, and this year the well known importer, Mr. W. Jamrach, writes me that he had between thirty and forty pairs through his hands in 1900—1904 of the White faced Teal (*Q. discors*).

It will greatly assist my publisher, (Mr. W. H. Robinson, Walsall,) if intending purchasers would signify their names and addresses to him, as we have not yet decided upon the size of edition likely to be required.

Seven Gables, Winslow.
January, 1907.

ROSE F. HUBBARD.
(HENWIFE).

PROPAGATING MEALWORMS.

In reply to the note on this subject published in last month's *Avicultural Magazine*, Miss Husband has kindly sent us a printed leaflet on "How to breed Mealworms," by Mr. Stanley Gordon, of Southsea. Miss Husband has followed the directions there given with success.

The following is an extract:

"Procure five or six dozen mealworms or mealworm beetles and a corn bin which will hold about four bushels (the larger the bin the better). Cover the bottom of this bin with a layer of turf, grass side downwards, the earth being nearly dry; then place a layer of virgin cork on this turf, mix together a quantity of pieces of rag, with pieces of cork, bran flour or meal of any kind of grain, about sufficient to half fill the bin; leave this for about twenty-four hours to settle down, then place a piece of rough cloth or old sack over it and on this sufficient meal to cover it entirely over, then place a similar piece of cloth or sack over the last, covering this and about two or three similar pieces with meal as they are placed into the bin, then place another piece of cloth or sack over all, and on this put the mealworms or beetles: they will quickly disappear under the sacking. This having been

done the whole should be allowed to remain for a few months, when on gently lifting the top layers of cloth, mealworms will be found feeding between them.

"The rags, cork etc., and turf under these layers should never be disturbed, as it is amongst these that the beetles lay their eggs. Keep the bin covered, renew the flour or meal on and between these top layers of sacking occasionally to feed the worms, and they will soon be found in sufficient quantities to supply any private person's aviary.

"The bin should be kept in a moderately warm and damp place. A piece of crumb of bread soaked in beer is a great treat to mealworms, and if placed on the top layer in the bin will quickly be covered with worms and beetles and be shortly eaten up by them.

"Mealworms (like silkworms) pass through several stages, first eggs, then worms, which throw off several skins whilst growing, then chrysalis, finally developing into beetles, which like silkworm moths, lay their eggs and die, their eggs being hatched the following season. It is necessary (to ensure success) to procure beetles from some person who understands the matter, as the insects are males and females, and some of each should be obtained."

SIR,—In answer to Mr. Seth-Smith's query as to the propagation of mealworms, I used to breed them in their thousands years ago, in my early days of aviculture, but I got out of the way of it somehow, as time went on. I bought a hundred I think originally, and turned them down into a large biscuit tin, with some tiny pierced holes in the lid, which should be a very very close fitting one. I placed layers of barley meal and bran between layers of crumpled-up blotting paper and rags, and scattered the mealworms in between. The tin should not be more than three-parts full to start with, because fresh meal *must* be added from time to time, but should remain otherwise undisturbed for the best part of a year. It used to be kept on a shelf in a cupboard by the side of the kitchen range, as warmth is an essential all the year round. There may be a better way than this now for this was years and years ago, but, anyway, I found it very successful at the time.

N.B.—I kept the box carefully tied up in brown paper, I remember, because "them grubs crawling about the kitchen cupboard" were not calculated to make one popular in certain quarters.—E. A. H. HARTLEY.

SIR,—I have been asked to record my experience in breeding mealworms. I have been fairly successful, and think that with care and forethought ample mealworms could be bred by the aviculturist, and so a not unimportant item in the expenses saved.

My mealworms live in a large round wooden drum, half-filled with pieces of old soft sacking, brown paper and a good supply of oatmeal.

Every fortnight two or three extra handfuls of oatmeal are added, a small piece of raw meat and one or two fancy lunch biscuits or half a dog biscuit.

I believe they do equally well in a tin. Some years ago I bought a tin, with a few mealworms in it and in which they had bred, from an old naturalist at Dover. What the particular charm about this tin was I do not know, but the mealworms bred in thousands, and the pieces of sacking were to be seen covered with tiny mealworms of all sizes.

A great secret is to avoid all *damp*. Mealworm tins or wooden boxes left on a *stone* floor, even in a heated aviary seem to evolve damp and mould inside, the mealworms die, and moth and rust and small grubs are the only result.

I keep my tub near the hot pipes in winter, (failing hot pipes, I should suggest the kitchen), and on a *wooden* floor in summer, and I breed nearly enough for my small needs. Occasionally, when many are needed, for instance in rearing the young of Starlings, I have had to buy, but this year I hope even this will not be necessary.

It is annoying that the mealworms nearly all become chrysalides and eventually beetles about the end of July, when they are most needed.

If large quantities were used a succession of tubs could be arranged, nearly clearing out one tub before another was commenced, and leaving perhaps four or five dozen mealworms, not touching this tub, except to feed, for perhaps six months.

I must add that plenty of ventilation is necessary.

M. A. JOHNSTONE.

NESTING OF THE CHESTNUT-BREASTED FINCH.

SIR,—In view of the Editorial statement in the February number of the Magazine that the Chestnut-breasted Finch had been bred by Mr. W. Osbaldeston, would the latter kindly tell us if the young were fully reared?

I wrote to Mr. Osbaldeston on this matter but did not succeed in getting a quite definite reply. So far as I understood Mr. Osbalderston's answer, it was to the effect that he had not succeeded.

I have no doubt however that this species has been bred elsewhere.

W. E. TESCHEMAKER.

RUTHLESS IMPORTATION OF FOREIGN BIRDS.

SIR,—In buying one hundred *Leiothrix* (Japanese Robins) last month, I feel I have positively encouraged cruelty. An English bird-dealer advertised 6000!! at £5 per 100 for turning out, and in a weak moment I was tempted to send for a hundred. When they arrived only one was dead, but the following morning there were fifteen corpses, in spite of my having attended to the poor birds constantly and carefully from the moment of arrival; finally thirty died within a week, the rest are now much stronger.

I had cages (new ones) ready for them; the best insectivorous food,

given fresh every hour, and the moment drinking water became dirty I changed it. Moreover, they were left with an electric lamp, giving both heat and light throughout the night, close to the cages.

Surely if the trappers continue to catch the Leiothrix at this rate, and the dealers receive them, these birds *must* gradually be terribly diminished in their numbers.

Personally I would rather never see a Japanese Robin again than think that I am encouraging this thinning of their ranks, and the numerous deaths amongst the imprisoned birds, as well as the misery caused to them in the crowded, filthy cages, fighting and struggling literally for their lives. They have dirty water—soiled food, and more often than not in the Dealer's shop, a most horrible and fœtid atmosphere to breathe. Rank poison! I do not say that this was so in the place from which my birds came, but it certainly is so in some cases.

One cries out a great deal about the slaughter of birds for women's hats, and with reason, for it is a *most* abominable thing, and gladly would I snatch off any woman's hat which flourishes Birds-of-Paradise plumes, heads of Crowned Pigeons and Egret's feathers, etc., under one's nose, and leave the wearer to go home bare-headed!! *But* I do believe that we who encourage *ruthless* importation of birds, are to be equally blamed. They are caught in their thousands, and die at any rate in hundreds. Bought at probably about 1d a piece, and sold for 1/-.

The catalogue of bird-plumes for the women is sad enough, but when the Japanese Robins have to slowly die in their "Black holes of Calcutta," the sadness is added to, and we are living in glass-houses who encourage the importations. The dealer from whom I purchased mine assures me that the mortality has been very small indeed, and considers that if I give my birds boiled water to drink, I shall have a similar experience.

The Grey Parrots too. That is another instance. How many thousands have been imported, and how many have died whilst still almost babies? I am glad I do not know.

America has set a good example in forbidding for a time the exportation of certain birds, notably Blue Robins and Virginian Nightingales (Cardinal Grosbeaks): and much as I love these birds, I am genuinely glad to think that many that would be travelling in their dirty prisons to more often than not equally dirty shops (in England!) are enjoying their liberty in their native land.

If we can acclimatize birds and give them all the care they should have, I do believe they are happy; but we bird-lovers ought not to shut up our eyes and our consciences to the fact that in creating a demand for foreign birds (and English ones too for that matter) we are encouraging a great deal of cruelty and numerous deaths of birds which do not have the luck to be purchased by us and survive.

Imagine 6000 English Robins exported in one lot! if there really *were*

as many of the Leiothrix? At that rate I do not think we should have many left of one of our greatest favourities in a few years' time!!

HUBERT D. ASTLEY.

SOUTH AMERICAN BIRDS.

SIR,—I expect to go to Rio de Janeiro and Buenos Ayres, and possibly to Chili, leaving this country on March 29th next. I shall be much obliged if you will inform me as to the more interesting birds in those localities which I am likely to see, and for which I should look out.

When I was in India I saw some fine parrots, of which I longed to bring home specimens, but it was impossible for me to do so, as I was returning by way of Japan.

At Darjeeling I was offered Peacock Pheasants at 10/- each. As they can be obtained in India so cheaply, I should have thought it would pay to import them into England for the price they would fetch here.

If there are any of your correspondents who can give me information as to interesting birds which I am likely to see in South America, and as to the best way of conveying living specimens to this country I shall be grateful.

WILLIAM B. GIBBINS.

The following reply has been sent to Mr. Gibbins:

Of course the insectivorous and fruit-eating birds are by far the most interesting, although not so easy to feed as seed-eaters. If you wish to import the former, the true Thrushes are not the most attractive either for plumage or song, but all the Mocking-birds are fine songsters.

For plumage the Tanagers are all worth importing, and some of them sing fairly well.

Among the Troupials and Hangnests, the Red-breasted Marsh-bird (*Leistes superciliaris*) is well worth importing on account of its rarity in the bird-market: in colouring, habits and song it is a copy of the common Military Starling of the Republic: it can be distinguished from the latter at a glance by its broad finch-like beak. The Red-headed Troupial is a handsome bird not very common in the market. The two Argentine Jays are also worth importing, as well as the Red Oven-bird, but the Tyrants, excepting from a purely scientific standpoint, are hardly worth the trouble.

Of the seed-eating birds the most satisfactory are naturally those which are least imported, for it is not worth while to bring home birds which can be bought in London for two or three shillings. The Yellow-billed Cardinal, Diuca Finch, Gay's Finch, Orchard Finch, Alaudine Finch, Red-crested Finch, Chingolo- and Grey-headed Song-Sparrows, Black-headed Siskin and Pelzeln's Saffron-finch are mostly rarely imported birds and on that account desirable.

Of the Parrots the most frequently imported are the Blue-fronted Amazon and the Quaker Parrakeet; the Conures would be better worthy of attention. The Black-winged Dove would repay the trouble of importation.

Any of the smaller Game-birds which can be readily obtained should be brought home.

The best cage in which to import birds is one open only in front (a box-cage in fact) with a muslin blind to draw over it, and tins to slide in in front for food and water; the perches should run from end to end, and at the bottom should be a narrow opening along the front into which a sheet of thick paper can be introduced to catch the droppings and thus keep the cage clean; this paper can be renewed without trouble as soon as it becomes foul. For feeding insectivorous birds it would be well to take out a good supply of "Century Food," though hard-boiled egg and potato chopped up together will answer for a time. A. G. BUTLER.

THE STRIATED COLY.

SIR,—I should be so very much obliged if you could tell me if there are any definite sexual differences in the case of *Colius striatus?*

I picked up two specimens lately which look much alike. By the way mine have black throats. Is this *Striatus* or some allied species?

Is anything known about the nesting habits of this species?

W. E. TESCHEMAKER.

The following reply has been sent to Mr. Teschemaker:

When I examined the series of Colies in the collection of the Natural History Museum for my articles on the sexing of Cage-birds published in "Canary and Cage-bird Life," I found that the female of the Striated Coly differed from the male in her longer and broader beak, with more curved upper mandible, the only difference in colouring which I could discover was that the crown of her head was paler; rather more ashy.

The throat of the Striated Coly is described as ashy brown with darker vermiculations (like the upper breast and sides). I forget exactly what the Black-necked Coly is like, but it might be worth while to look it up: the sexual difference would probably be similar.

The Colies build small open nests in bushes, using bark, twigs and weeds for the structure and fresh leaves or fronds for the lining; they are supposed to lay from five to seven eggs of a dirty white colour.

A. G. BUTLER.

TREATMENT OF SHAMAH.

SIR,—The Hon. Mary E. Hawke wishes to know how some of our members feed Shamahs. The following is my method and my bird is a perfect picture, and singing: two parts of fine game meal, one part each of dried flies, ants' eggs, fine crissel and the pupæ of silkworms, mixed together and damped with hot water till crumbly. Some days a little potato or scraped carrot added, and a few mealworms per day. He is in a large cage, about 8ft. high, 6ft. by 8ft. wide, and has plenty of room. They do not do well in a small cage. They require plenty of water. The best way to get

rid of mice is with the Liverpool Virus, to be had of any chemist. This has cleared mine and done no harm to anything else. W. H. FOSTER.

Miss B. McDonald writes :—

"In answer to the request of the Hon. Mary Hawke, perhaps she would like to know how I have kept my Shâma. I have had him now for eight years, and he is as well now and sings almost better (by day or gas-light) than when I first had him.

I feed him on the following mixture: equal parts of cooked meat (never salt meat), hard boiled egg, boiled carrot, breadcrumbs, all very finely chopped; and on alternate days I give him either Hyde's or Spratt's Lark Food, which he seems very fond of. Also he has four or five mealworms a day and a bath every day (luke-warm during the winter). I give some ants' eggs now and then *dry*, and in the summer he has some live ants' eggs, which are greatly appreciated, and all the insects I can get, especially blue-bottles and spiders. I feed all my insectivorous birds in this way, and I think it must suit them, as I have had one of my Thrushes for eleven years.

The Shâma is kept in a large wire flight cage, about 32 inches long and 18 inches broad, in a warm room, but I always put a flannel cover on one side of his cage to keep all draughts away. I consider these birds very hardy, the only thing likely to upset them being draughts and an insufficient supply of meat and insects.

He has escaped twice since I have had him; once into the garden, where he sang all day on top of a fir tree, but at night came back into his cage of his own accord, not having been able to find any food for himself. He will always answer me, if I call him by his name, 'Ranji.'"

THE SOCIETY'S MEDAL.

A *silver* medal has been awarded to Mrs. Johnstone for the successful breeding, in her aviary, of Fraser's Touracou (*Turacus macrorhynchus*), this being the first case on record of any Touracou rearing young in Great Britain.

A medal has been awarded to Mr. W. E. Teschemaker for successfully rearing young of the Yellow-rumped Finch (*Munia flaviprymna*), for the first time in the United Kingdom.

POST MORTEM EXAMINATIONS.

TRICOLOUR TANAGER. (Mr. Watson). Acute enteritis was cause of death.

SCARLET AND SUPERB TANAGERS. (Miss Wilde). Both birds died of concussion of brain, caused by direct injury to their skulls.

Mr. D. Seth-Smith and Mrs. Johnstone answered by post.

NOTICES TO MEMBERS—*(Continued from page ii. of cover).*

NEW MEMBERS.

Mr. F. BLATHWAYT; Pelham House, West Folkestone.

Mrs. LONG; Sherrington Manor, Berwick, Sussex.

Mr. EWEN KENNEDY; The Leuchold, Dalmeny Park, Edinburgh.

CANDIDATES FOR ELECTION.

Mr. P. F. M. GALLOWAY; Durban, St. Peter's Avenue, Caversham, Reading. *Proposed by* Dr. GÜNTHER.

Mrs. WENTWORTH; Wooley Park, Wakefield. *Proposed by* the Hon. Business Secretary.

Mrs. DENT; Curraghmore, Cavendish Road, Bournemouth. *Proposed by* Dr. BUTLER.

Mr. FREDERICK F. THOMPSON; 283, Madison Avenue, New York City. *Proposed by* Mr. W. H. BROWNING.

Mr. WILLIAM COOPER; Aislaby Hall, Pickering, Yorkshire. *Proposed by* Mr. W. H. ST. QUINTIN.

Sir ARTHUR HAZLERIGG; Noseley Hall, Kibworth. *Proposed by* Mr. F. H. RUDKIN.

Mr. WALTER HENRY PAYNE; Lyncombe Hill, Bath. *Proposed by* Mr. W. E. TESCHEMAKER.

CHANGES OF ADDRESS.

Mr. C. S. REID *to* 8, Duke Street, Kilmarnock.

Mr. A. AITCHISON *to* Drummore House, Bournemouth.

ILLUSTRATION FUND.

Mrs. JOHNSTONE has kindly given £5 to this fund.

MEMBERS' SALE AND EXCHANGE COLUMN.

The charge for private advertisements is SIXPENCE FOR EIGHTEEN WORDS OR LESS, *and one penny for every additional three words or less. Advertisements must reach the* EDITOR *on or before the* **26th** *of the month. The Council reserve the right of refusing any advertisement they may consider undesirable.*

Pair Hybrids, Egyptian Goose × Common Sheldrake, very handsome, price £5. H. HOWARD VYSE, Stoke Place, near Slough.

Avicultural Magazine, unbound parts, Vol. IV. (July and October missing), Vol. V. complete, Vol. VI. (December missing), Vol. VII. November to April. Also complete set bound in Society's covers. What cash offers? Hen Green Singing-finch, reared young in cage, 5/-; cock ditto, poor plumage, 5/-; acclimatized cock Java, 2/-.

SPEED, Victoria Park, Bangor.

(Continued on opposite page).

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THE JOURNAL OF THE AVICULTURAL SOCIETY.

CONTENTS.

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R. H. PORTER, 7, PRINCES ST., CAVENDISH SQUARE, W.
NOTE.—A new volume commences every November.

☛ All Subscriptions

should be sent to the Honorary Business Secretary.

THE AVICULTURAL SOCIETY.

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(Continued on page iii. of cover).

H. Goodchild, del. et lith.

Huth imp.

PAIR OF SHÂMAS.

Cittocincla tricolor.

THE

Avicultural Magazine,

BEING THE JOURNAL OF THE

AVICULTURAL SOCIETY.

New Series—VOL. V.—No. 6.—*All rights reserved.* APRIL, 1907.

THE SHÂMA.

By the Rev. HUBERT D. ASTLEY, M.A.

It is only as a cage bird that I have known the Shâma, for I have never kept it in an aviary, but I think that it is not far off thirty years ago since I had my first one, and only during short periods within that time have I been without one. After all, on first reading, one might say, "What a quantity of Shâmas that must mean," yet it might mean three, and *has* meant only four, for a Shâma will live for ten years at the *least* in good health and song. One lived in perfect condition for eleven years, and was at least a year old when purchased, and then died quite suddenly, singing beautifully almost to the last moment. The first one lived for ten years, and my present bird is in full strength and beauty.

Mr. Phillipps has already recorded in our magazine some few years back his success with a pair of these birds which nested and reared up their young, indeed I could have wished that he might have found leisure moments for writing once more about them. He has had more experience with the hen birds than I have, and has studied them in his aviaries. They are so seldom imported, those softly coloured hens! A thousand pities, for they are extremely good to look upon, and their presence would give some of us an opportunity of seeing a Shâma's nest and eggs and brood.

How hopeful one always is! A Hindoo gentleman has told me that the name "Shâma" signifies a dark thunder-cloud, a blue-black cloud which floats up menacingly before the storm

bursts. And so the deep blue-black of the bird's upper plumage has been likened to such a cloud, and has called forth its name. The bird like a thunder cloud. Only the male bird, however, for his mate's feathers resemble rather the softer sky of rain, from which refreshing showers are expected; a subdued grey, a mouse-grey, the thunder-cloud has gone, and the gentler one remains as the garb of the gentler sex.

Thirty years ago a Shâma was a luxury—a *rara avis*—and cost considerably more than thirty or forty shillings, for which they can be bought nowadays.

Naturally bold and tame and confiding, with the beauty of their form and song, they make most delightful cage birds; and they will sing nearly the whole year round. A Shâma requires a cage of wooden or cane bars, as do all insectivorous birds, and he is insectivorous, *i.e.*, he does not eat seed. His food, like our own, should be varied, indeed besides "treats" in the way of insects, such as spiders and flies (though I believe it is highly incorrect to call a spider an insect!) I give my Shâma and other insectivorous birds at least six ingredients in their daily food. A deal too much trouble? Well! not if you are really fond of your birds, and if you are not really so you should not keep any! A little heart chopped very fine, which is mixed up with silkworm cocoons, so that the particles of heart become separated the one from the other into fragments of a size that can be picked up and swallowed without the necessity of their being knocked about by the bird and perhaps messed in the sand. Then add a little maize meal, not too much, because it has a fattening tendency. In the winter a slice of apple chopped very finely can be mixed up with the aforesaid, as also some yolk of egg. Then I take some "Lucullus" (the excellent insectivorous mixture sold by Herr Friedrich Fries, at 8, Louisen Strasse, Bad-Homburg, v.d. Höhe, Germany) damp it with a little water, and add it to the rest, so that the whole is rendered moist without being wet.

In the summer, instead of the chopped apple, chicory leaves are good, cut finely, or failing that, dandelion or lettuce. A grape or two, peeled and the pips extracted can be also

chopped up. A sack of silkworm cocoons (*bachi da seta*) can be easily procured from Italy. I hear someone say, "Thank you! No insectivorous birds for *me*, if *that* is what it means!" Yet it is perfectly easy when once you become accustomed to it, and keep your food supply in an orderly manner, teaching a trustworthy servant how to mix it in the event of your leaving home. By-the-bye! Marie biscuit, or any biscuit of that kind, crumbled up, or a little sponge cake can be thrown in. Give your Shâma a daily bath, measuring the bath to the length of his tail. In the summer-time when it is warm, hang up his cage under some shade-giving tree, if you are in the country, where the sunshine will reach him through the leaves as it would were the bird in his wild state; and if warm rain comes, remove his sand drawer, and put the cage out for a few minutes, for the raindrops will improve his plumage and he himself will enjoy it. The cage can easily be sponged afterwards with a dry sponge, if it is much wetted.

The Shâma, being a native of Indian jungles, would be sure to like an aviary, probably all to himself and his wife, so that it need not be a very large one, in which bamboos and thick bushes were planted. Mr. Phillipps' birds built, I believe, on a beam under a roof, or on a shelf. With ordinary care, Shâmas are certainly not delicate birds, and can be kept in as good health and condition as a Blackbird. They are great mimics, and unfortunately because of that are apt to spoil large portions of their song, through imitating the chirping of Sparrows and other oft-repeated and monotonous sounds.

THE MOORHENS AND COOTS OF INDIA.

By Gordon Dalgliesh

(Member of the Bombay Natural History Society).

The Moorhens and Coots may roughly be defined as those members of the *Rallidæ* that have the frontal shield well developed. They are represented in India by seven species. These are :—

Family *Rallidæ*.

Genus *Amaurornis*. Reichenb.

1. *Amaurornis akool*. Sykes. The Brown Crake.
   Inhabiting N. India, Bengal, Central India, Central Provinces, Rajputana, the Deccan, Mysore, N. Khási Hills, and China.
2. *A. phœnicura*. Penn. The White-Breasted Water Hen.
   Inhabiting the greater part of the Oriental region, including India, Ceylon, and Burma, the Celebes and Formosa.

Genus *Gallinula*. Brisson.

3. *Gallinula chloropus*. L. The Moorhen.
   Inhabiting nearly all Europe, Africa, and Asia, including all India, Ceylon and Burma.

Genus *Gallicrex*. Blyth.

4. *Gallicrex cinerea*. Gm. The Water Cock.
   Inhabiting parts of India, Ceylon, and Burma, the Malay Countries, China, Japan, the Phillipines, and Java.

Genus *Porphyrio*. Briss.

5. *Porphyrio poliocephalus*. Lath. The Purple Moorhen.
   Inhabiting India, Burma and Ceylon, and S.W. Asia to the Caspian.

Genus *Fulica*.

6. *Fulica atra*. L. The Coot.
   Inhabiting Europe and Asia with Japan, the Phillipines, the Malay Archipelago, parts of India and Burma.

Genus *Heliopais*. Sharpe.

7. *Heliopais personata*. The Masked Finfoot.
   Inhabiting Assam, Cachar, Burma, Malacca and Sumatra.

1. *Amaurornis akool.** Sykes. The Brown Crake.

This and the next species are more terrestrial in their habits than the Moorhen or Coot and feeds largely on slugs and snails and insects. According to Barnes it breeds twice a year in June or July and August and September.

2. *Amaurornis phœnicurus.* Penn.
The White-Breasted Water Hen.

This is a very well known Indian bird and found by nearly every piece of water. It is exceedingly noisy, and its loud harsh cry which sounds like 'Ko rók rók rók' is often heard day and night. I once stayed at a house the garden of which was inhabited by a pair of these birds which kept me awake most of the night by their cries. They breed during July and August, making a nest of rushes, placed as a rule near water. They are most pugnacious birds and I have seen them fighting furiously with each other. A pair were so engaged on one occasion that I approached to within a short distance of them before they were aware of my presence.

3. *Gallinula chloropus.* L. The Moorhen.

I am of opinion that there are two races of the Moorhen found in India, namely, the typical *G. chloropus* and a smaller form the *G. parvifrons* or *burnesii* of some writers. Of this smaller form I once had a considerable number, but unfortunately as I have no longer the skins to refer to will have to trust to memory. As far as I can remember they were in colouration identical with *G. chloropus* but much smaller, and had a *very* small frontal shield. That they were adult birds was proved by their showing no white on throat and neck, which is a sign of immaturity in *G. chloropus*. In Le Messurier's book "The Game, Shore, and Water Birds in India," the author thus describes *G. burnesii* or *parvifrons:* "The small water hen. ♂ 11½" ♀ 11", legs olive green. Front plate small or wanting *Chin and throat white.*" The italics are mine. Having the chin and throat white points to immaturity, and these of Le Messurier's must have

* Two other Indian species are included by Blanford (*F. B. I.* Birds, Vol. IV., p. 170) under the genus *Amaurornis*, viz., *A. bicolor* and *A. fuscus*, but I follow Dr Sharpe in separating them, that gentleman having referred the former to the genus *Porzana* and the latter to *Limnobœnus*, and I think rightly too, as neither can be classed as "Moorhens."

been young birds. Blanford, writing in the fourth volume of birds in "The Fauna of British India Series" makes no mention of this small water hen, but says, (writing of *G. chloropus*) "Indian birds are smaller than European." I have however seen some European birds quite as small as the typical Indian form of *G. chloropus*, and again Indian specimens as large as European. Blanford gives the measurements of *G. chloropus* as 12·5′ in length. Birds I have measured from England average from 12 to 13 inches. Blanford ignores altogether one very important point, namely, the differentiation in sexes. Saunders states that the female bird is larger and more brightly coloured than the male, but surely this cannot be the case. I have taken special pains to investigate this matter and found that the larger and more brightly coloured bird with the very conspicuous orange garter was the male, the more sober coloured bird the female. Dresser says—"Sexes alike." Of course the bright colour may be a sign of age, but personally I do not think so, as I have never found a bright coloured female, and I have dissected a good many.

Jerdon thus describes *Gallinula burnesii*:—"Similar to *G. chloropus* or intermediate to it and *Porzana* (*Amaurornis*) *akool*; the head and neck are like those of the Common Water-hen, but the frontal plate is smaller or wanting; the outer web of the first primary is white, and the outermost feather of the winglet is also bordered with white; the wing coverts are dark slaty ash; and the under tail coverts are white. It is smaller than *G. chloropus*; Tarsus $2\frac{1}{8}$; mid-toe $2\frac{5}{8}$; claws also shorter; irides bright pale crimson; legs and feet as in *G. chloropus*, but the orange garter less developed. This species was first discriminated by Mr. Blyth from a drawing and some fragments of a specimen sent by Sir A. Burnes, from the Munchur lake in Sindh. It appears to me rather a doubtful species but I shall retain it in the hope of other specimens turning up." (*Birds of India* iii. p. 719).

Gallinula burnesii is I think a good sub-species. The key to the two will be as follows:—

Frontal shield in adults large. Length 12 *to* 13″. *G. chloropus.*
Frontal shield small or wanting. Length 11″. *G. c. burnesii.*

Moorhens are found in India almost anywhere where there is any water, though they show a decided preference for small reedy ponds thickly overgrown with weeds. When feeding on water the Moorhen is constantly dipping its head below the surface and plunges forward with a distinct and audible splash. Common as the birds are, their nests I have not found easy of discovery. They breed at such a time when the whole country is covered thickly with vegetation, and if you wish to find the nest for yourself it means wading almost knee-deep in water through paddy fields or else hunting around the edges of ponds among the undergrowth, and as this is somewhat warm work with the temperature considerably over a 100°, one's enthusiasm is apt to be damped, and nest hunting is left to natives who, also not caring for the trouble the search ensues, will return after a short time (which is in all probability spent in their own houses!) saying that there is no nest, which of course is not surprising. I did, however, on one occasion find myself in the possession of an undoubted nest, and on my handling one of the eggs was surprised to see the head of a chick appearing, the egg being on the point of hatching. One nest I knew of was built on a tree quite 15 feet up, and I wondered how the old bird would have conveyed her brood to the water when hatched. I have found Moorhens fair eating, but they must be skinned first as their skins are as a rule so saturated with oil as to quite destroy the flavour and render them very nasty indeed. But I imagine few sportsmen would waste a cartridge on them, especially in a country like India where so many and much more valuable fowl can be obtained so easily. The wily native however often passes them off on some unsuspicious *Sahib* as "teal." The Moorhen is not subject to much variation though pied specimens have been recorded from time to time, and the curious "hairy" form is not uncommon in England, though I am not aware of any Indian records of this variety.

4. *Gallicrex cinerea* Gm. The Water Cock.

The Water Cock is by no means common anywhere in India, except—as Blanford says—in damp warm and swampy plains. I saw some specimens once on a large *Jheel* near Darbhanga in Tirhoot, and my friend Mr. C. M. Inglis has procured

specimens from the same district. It is said to have a loud booming cry uttered in the breeding season. It is kept by many natives for fighting purposes. Its food appears to be chiefly vegetable. It breeds in July and August, making a large nest of rushes either moored to reeds or else floating, and the eggs are of the regular Moorhen type and measure, according to Blanford, about 1·7 by 1·27. The horn in the male appears only to be assumed in the breeding season.

5. *Porphyrio poliocephalus*, Lath. The Purple Moorhen. The Purple Coot (Jerdon). "Blue fowl" of Bengal sportsmen.

This fine bird is found throughout the Indian plains wherever there are large sheets of water, and among rice fields, and in certain localities abounds, only being outnumbered by Coots. Mr. C. M. Inglis says that at Baghownie in the Darbhanga district of Tirhoot, Bengal, they are so abundant as to cause considerable damage to the rice crops as they cut down the plant wholesale with their powerful bill and pile it up to form their nests. Large as the bird is it is not often seen, being exceedingly wary, but its deep cry of "woo—ong" is frequently heard, especially towards evening and in the breeding season. The best way to obtain "Blue fowl" is to drive them out of their reedy cover by means of two or three boats in line. They fly low over the water with a somewhat weak flight and can then be easily dropped. A wounded bird is seldom recovered as they are excellent divers. I have always found them good eating, and they make delicious soup. The breeding season is from July to September, and the eggs vary from six to eight and sometimes ten, and are a pale pink spotted with red and purplish grey.

6. *Fulica atra*. L. The Coot.

The well known Coot occurs in countless numbers on all Indian marshes, or *Jheels* as they are called, and lakes. In some places it is resident, but only a cold weather visitor to others. A favourite shooting ground of mine was a large *Jheel* situated close to the Tirhoot State Railway in Bengal. Standing on the road alongside the *Jheel*, at sunset, one heard the whistle and rush of many wings caused by huge flocks of waterfowl which came there to feed. The commonest bird was the Coot which simply swarmed in thousands. On a bitterly cold morning in December, about 4

a.m., four of us started for this *Jheel* to shoot, knowing that before the sun was well up was the best time to get anything. I must admit it was with some reluctance we left our warm beds, and after hastily dressing and swallowing a cup of tea, mounted our horses and rode off; our servants having gone on ahead with our guns and ammunition. The day was just dawning as we arrived at the *Jheel* side, and clouds of mist were rising off the water. Our boats were the ordinary country "dug outs" and leaked horridly. However making our boatmen fetch us a heap of straw we lined the bottom of the boats with this and made ourselves as comfortable as possible under the circumstances. A confused murmur of sounds reached our ears out of the fog, and as the now rising sun caused the banks of mist to lift and roll away we could see a goodly company of fowl including thousands of Coots. Stealthily creeping up in line, on passing a clump of rushes a few teal were flushed and a right and left dropped a couple. The noise of the guns broke the spell, which was answered by a roar of wings, as the ducks now alarmed rose in every direction. The Coots merely fluttered a short distance then settled again, and it was not until more shots had been fired that they left the water finally and circled round the boats with quickly beating wings. The fun now became fast and furious, alternate duck and coot were dropped, until at length tired of slaughter a truce was called. The majority of Coots were given to the boatmen, only a few being reserved by ourselves for soup. Let anyone beware how he handles a wounded Coot, for these birds will scratch like a cat, very often inflicting a nasty sore place, as I know to my cost.

Natives snare numbers of Coots by means of nets. The wretched birds have their legs then broken to prevent them escaping, and are sold alive in the Bazaars until death mercifully intervenes and puts an end to their sufferings. Coots are very pugnacious birds, especially in the breeding season, when rival males can be seen chasing each other away from their own special part and fighting furiously. A very handsome bird the Coot looks in fighting attitude, as with raised wing and all its feathers puffed out it dashes at its opponent in true pugilistic style. They are not adepts at diving and a wounded bird in clear

water is soon recovered. They dive without the preliminary jump so characteristic of many water fowl and disappear without a ripple, bobbing up again like a cork. Sometimes a large fishing Eagle will cause much consternation among a flock of Coots by hovering over them: they then all huddle together for mutual protection. The alarm note of the Coot sounds like *chink chink*, and may be fairly imitated by knocking two coins together.

7. *Heliopais personata.* Gray. The Masked Finfoot.

This rare and curious bird has been referred by Blanford to a distinct family (*Heliornithidæ*) but has been included by older writers with the *Rallidæ* to which family it bears resemblance in the form of the bill and foot, the latter being lobed like a Coot's. It differs, however, from the Rails in that it is said to have only two young which are hatched naked and helpless.

Mr. E. C. Stuart-Baker has shown that this bird has "a tiny fronted shield and a yellow horn or fronted wattle about $\frac{1}{3}$" long and which appeared to be erect during the bird's life." Blanford makes no allusion to this horn or shield, and as Mr. E. C. Stuart-Baker no doubt rightly presumes it is only seasonal. The eggs are at present unknown. Blanford says:—"This very curious bird has been found on the sea coast, in swamps, and on rivers and mountain streams. . . ." According to Davison "it swims deep in the water, with only head and neck above the surface; it runs quickly, holding its body in a peculiar way at an angle to the ground of about 45°. It is shy, and when disturbed takes refuge in cover or flies up, slowly at first but strongly when fairly on the wing."

THE BUFF LAUGHING KINGFISHER.

Dacelo cervina, Gould.

A very fine specimen of this rare bird, the "Laughing Jackass," of North-Western Australia, which differs from the common Laughing Jackass of New South Wales chiefly in its more buff-coloured plumage, has recently been deposited in the London Zoological Gardens by Mr. Walter Rothschild, no specimen having been exhibited there since 1870. This bird was

BUFF LAUGHING KINGFISHER.
Dacelo cervina.

Bale & Danielsson, Ltd.

reared from the nest and brought to this country by the enterprising firm of importers of Australian animals, Messrs. Payne and Wallace, of the Little Zoo., Bath, and they have very kindly supplied the following notes on the bird and the block from which the illustration is printed:

"The example of *Dacelo cervina*, which has recently been placed in the Zoo, was taken from its lofty nest by one of our natives. It was taken from a tree on the banks of the Ord river which separates North-West Australia from the Northern territory of South Australia. There were two taken from the nest, but unfortunately one of them got killed on our Kangaroo Farm at Wild Dog Creek (N.W.A.) where they used to run about in the Paddock where the kangaroos are kept. They were so tame that they did not attempt to fly away. The one that was killed met its end by being trodden upon by a kangaroo.

"Their nesting place is generally in a hollow limb of the gum tree and as high as they can possibly get. We always found them useful as time-pieces, if there were any in the district, for just before dawn and again at sunset they would seem to put their whole energy into their thrilling call, which can be heard for miles in the silent bush.

"It is rather curious that these Kingfishers should spend the greater part of their time in the dry forest country. During the wet season, which lasts practically from January to March, they inhabit the swampy country where they get their food supply in the way of frogs, newts, &c., but strange to say we very seldom saw them 'skimming the water.' The other nine months of the year is, as we said before, spent in the *dry* country where they live on small lizards and snakes. In fact any living thing which is small enough will be swallowed. When catching lizards and the like, they make good use of their bills. They wait on the branch of a tree, keeping an eye open for any thing in the vermin or reptile line that can be eaten. If a lizard makes its appearance down swoops the Kingfisher, with closed wings, like a stone, and spears the lizard with its pointed bill. Back he goes to the trees and starts banging the lizard on the branch, until the life is knocked out of it, and then it goes down the 'cavity' whole. They are very fond of mice and the one

which is now at the Zoo. would beat most cats at catching these.

"They are very beautiful in their adult plumage. We have, on several occasions, caught the adults but we could never save them. The bird which forms the subject of these notes is about two years old, and to the best of our belief it is the only living specimen in Europe. It happened that when we sent this bird to the Zoo. we sent at the same time a kangaroo which was also the only specimen of its kind in England, if not in Europe.

"The photograph of the bird was taken just before it commenced moulting and it was not in good feather, but now it is in splendid colour."

CHEQUERS AND BARS IN PIGEONS AND THE DIRECTION OF EVOLUTION.

By Prof. C. O. Whitman.

In a review* of my paper, "The Problem of the Origin of Species," Dr. A. G. Butler comments as follows on my conclusion that the bars in Pigeons have been evolved from chequers:—"This is certainly not the conclusion to which a study of the nestling plumage of some at least of the African Doves leads me, inasmuch as the conspicuous spots on the scapulars and inner secondaries appear in the adults with the disappearance of the juvenile bars."

I presume that the Maiden Dove (*Calopelia puella*), recently described † by Dr. Butler, was one of the "African Doves" he had in mind. This species is pictured as having only three "metallic spots on the inner greater wing-coverts and largest scapulars." An immature bird described by Captain Shelley in 1883 (*Ibis*, p. 322), is referred to as having "black bars on the scapulars, wing-coverts and secondaries."

These "black bars" of the young are not further described, and I am therefore in doubt as to whether they represent *rows of chequers*, or the higher stage of development seen in *apical*

* *Avicultural Magazine*, Dec. 1906, p. 74.

† *Avicultural Magazine*, June 1906, p. 251.

crescents, * a form characteristic of the Inca Dove and most of the Geopelias.

The mature color-pattern in Calopelia does not differ widely in essentials from those seen in some American species, e.g., the Mourning Dove (*Zenaidura carolinensis*) and the Zenaida Dove (*Z. amabilis*). In the young of these Doves, we find many typical chequers, more or less evenly distributed over the whole wing; in the adult we have only a few of these spots left, and left in the same region in which the three spots of the Maiden Dove are located. The obliteration of the spots in the American birds has, however, not yet been carried quite so far as in the African Dove. In the mature Mourning Dove, we find not only a larger number of *visible spots*, but also *many concealed vestigial spots*. Zenaida has carried the reduction of spots somewhat further, and stands only a little behind the Maiden Dove. Our White-winged Pigeon (*Melopelia leucoptera*) has practically completed the deletion of spots, only a very few vestigial traces being discoverable in a single specimen obtained from Jamaica. I do not find such vestiges in White-wings from Mexico and Arizona.

In a Cape Dove ♂ (*Œna capensis*) that has just come to hand, I find indications of a still closer correspondence to the Zenaida and Zenaidura types. In this dove there are two very short bars, one on the tertials (with *one* spot on the right wing, and *two* on the left), and another on the inner long coverts (with *three* spots on the right wing and *four* on the left). These black ("steel-blue") spots are sub-terminal squarish blocks on the outer webs. On the inner webs of the tertials bearing the bar-spots, I find elongate black spots, which are reduced to *narrow marginal streaks* in most cases. A tertial with such a streak on the inner web, extending nearly to its tip, and a bar-spot on its outer web, at a considerable distance from the tip, presents a picture quite characteristic of the Zenaidas and the Mourning Doves.

So close and peculiar a parallel in the mature patterns of these doves would lead us to expect fully as close a resemblance in the juvenal patterns; but Salvadori's description of the young

* Sub-apical in the young.

Cape Dove does not confirm this anticipation. "The wing-coverts," as he reports, "are greyish-brown with blackish bands and whitish buff apical spots."

According to Dr. Butler (*Avic. Mag.*, N. S., Vol. II., p. 101). the young Tambourine Dove (*Tympanistria tympanistria*) is similarly marked: "All the feathers of the wing and tail are of a bright coffee-brown color, with broad subterminal irregular transverse black bands." The figure given in a later volume of the same magazine (Vol. IV., p. 308), makes it clear that the young Tambourine rises to a stage of irregular cross-bars analogous to what is seen in the young Inca Doves (*Scardafella inca*) and Geopelias, in which we find the feathers edged apically with a pale straw-color (very narrow in Inca but conspicuous in Geopelias) followed within by a *blackish crescentic bar*, and then one or more quite irregular pale buff 'bars' (too irregular to be described as bars—mere suggestions of bars). In the mature state, the pale apical bar is lost and the blackish crescentic bar becomes terminal.

This form of barring (so far as the black crescent is concerned), as I intend to make clear at another time, is something later in evolution, than the lateral chequers of the Mourning Dove, Passenger Pigeon etc. In young Geopelias we have *transient lateral chequers* in the tertials and longer wing-coverts, and in such continuity with the black crescents that the latter must be regarded as derived from the former. Even in domestic pigeons we frequently see chequers reduced to black crescents.

In the young Inca Doves, these same transient chequers are recapitulated on the tertials and the long coverts. Although not so black as in the Geopelias, they are yet plain and unmistakable homologues. Only two or three of the inner long coverts have this vanishing chequer as a long lateral streak on *both the inner and the outer edge of the feather.* On the remaining feathers of the row the mark appears only on the outer web, and becomes weaker and narrower as we descend the row, until on the outer two feathers it is wholly lost. The recapitulation of these marks in the Inca and its South American allies, and again in all the Geopelias of Australia, even in the Diamond Dove, standing at the extreme upper limit of evolution thus far reached

in this interesting genus, gives us a very important link in the sequence of phyletic stages.

I venture to predict that the young Tambourine, the young Cape Dove, and some of their nearer allies, will be found to have more or less plain traces of the transient marginal streaks seen in the tertials and long coverts of the Inca Dove, and perhaps also dull spots on the outer webs anticipating the spots of the adult.

Without going into the evidence here, I may say that I have fully satisfied myself that lateral spots or chequers are derived from the Turtle-Dove spots, such as are still seen in *T. orientalis*, and, in a somewhat reduced form, in the European Turtle Dove (*T. turtur*). The mode of derivation was by splitting the original central spot in halves. The splitting began at the apex of the feather, a short-wedge-shaped area of lighter color (i. e. reduced in pigment) appearing at this point, and extending more and more inward along the shaft, until the divided halves became two separate spots or chequers, more or less pointed at the distal end. The feather thus became double-spotted. Typical 'wedge-shaped areas' are not rare in domestic pigeons with the chequered pattern, and they are very characteristic marks in the wing of the Guinea Pigeon (*C. guinea*), where they are described as "triangular white spots." They are seen again as a specific character in the Spotted Pigeon (*C. maculosa*) of South America. They occur also again in the scapulars of *Columba albipennis* of Peru and Bolivia.

This simple mode of converting the Turtle-Dove spot into a pair of lateral chequers is carried out most perfectly in the posterior scapulars and in the inner secondaries and large coverts of the wing of the domestic pigeon. As we pass downward towards the lower (outer) edge of the wing, the chequer on the inner web diminishes in size more or less rapidly, and usually vanishes before we reach the middle of the wing. The chequer on the outer web, which lies exposed, diminishes less rapidly, and may be continued to or near the outer edge of the wing.

Now chequers are the elements out of which wing-bars arise. *Rows of chequers*, as we see them in the young Mourning Dove, or in the young Passenger Pigeon, or in the chequered

Rock Pigeon (*C. affinis*) may of course be called 'bars'; but in that case we have to remember that they are yet a long way from the finished bars of such birds as *C. livia*, the Bleeding Heart (*Phlogœnas*), many *Peristeræ*, and nearly all pigeons with bars in the adult plumage. So long as the whole wing remains more or less uniformly marked with distinct lateral spots, confusion may be avoided by describing it as spotted or chequered. *C. affinis* has been so described, and *Ectopistes*, which has rows of spots both in young and adult stages, is never described as a barred pigeon. American and European ornithologists have generally, I believe, adhered to this mode of description. Salvadori, for example, in his Catalogue of Pigeons, speaks of *Ectopistes* as having "scapulars, tertials, and median wing-coverts with velvety-black spots," and of *Chamœpelia* as "marked with blotches of a steel-blue with violet reflections." In all typical Turtle-Doves we have *rows* of spots, but we never think of describing them as bars. The distinction between spots and bars has become so fixed in the breeders' terminology, that I did not realize the danger of any confusion or misunderstanding on this point before reading Dr. Butler's very courteous review. Had it been possible to illustrate my paper with plates, my meaning would probably have been clear in regard to the evolution of wing-bars from chequers, at least in so far as concerns the Rock-Pigeons and their descendants.

The typical wing-bar of the adult bird, as I conceived it, represents a specific regional mark, a continuous band of color on a uniform ground of contrasting color. In such a bar, the individualities of the elements are submerged in the individuality of the bar. When, therefore, as in *C. affinis*, we meet with rows of chequers, and find that the posterior two rows are the homologues of the two black bars of *C. livia;* and further, that this two-barred condition is reached in domestic birds through the obliteration of the anterior rows of chequers, and by cutting down the chequers in the remaining two rows to outlines that in each row flow together a single band, we are warranted in saying that bars are evolved from chequers.

If we speak of the original rows of chequers as bars, then it becomes necessary to distinguish between juvenal or

primary bars, or adult or secondary bars. The fact of derivation remains the same. If we find cases in which the deletion of spots has been carried still further, until only a few of the larger spots in the posterior row remain, as in *Zenaida* and *Zenaidura*, we may then say that 'bars' have preceded spots. But in this case, the 'bars' are only rows of chequers, and the permanent 'spots' are the true homologues of typical bar-elements in other species.

I believe that the few spots in the wing of the adult *Calopelia* are such homologues, and that they are preceded in the juvenal plumage by corresponding marks which have been overlooked. I am aware that in the young of this species, the scapulars, wing-coverts, and tertials are said to be "barred with black." These juvenal bars are probably of the same nature as those seen in the young Tambourine, the relation of which to chequers has already been indicated.

Although it may now be sufficiently clear that my view does not stand in contradiction with Dr. Butler's observations on African doves, it may not be amiss to pursue the subject a little further.

Specific characters often appear to come in suddenly and to be immutable. This seems often to be so in passing from the juvenal to the mature plumage, with one or several moults. The earlier color-pattern is often succeeded by one so different that we are puzzled to see any possible way of continuous differentiation from one to the other. Here, if anywhere, we should expect to see the mutationist triumphant. His biometric curves would surely declare gaps in abundance beyond the span of any conceivable bridges. Just as surely is he a too-willing believer in miracles. The supposed breaks in continuity between stages are, at least in many cases, only discontinuities in observation.

It is the history of specific characters that turns apparent discontinuities into continuities; the lack of it that multiplies mutations into premutations, and premutations into hypothetic pangens. Complete histories are indeed rarely attainable, but so much the more significant are they, if just so far as they can be established, they remove all necessity for resort to mutation hypotheses.

In illustration, I will take the case of the little Diamond

Dove (*Geopelia cuneata*), of Australia. In passing from the juvenal color-pattern to that of the adult, we seem to pass to a pattern that is wholly new, and without transitional phases. It looks like an unpremeditated jump, such as we should expect in biogenetic recapitulation, if mutation were the law of the origin of species. In the adult bird we have a grey ground with the coverts of the wing very regularly marked each with two white dots, one on each side of the feather, equidistant from the apex. In the young bird we have no white dots, but some irregular cross-lines ('bars') of a light color. How can we pass without a jump from one pattern to the other?

A very simple experiment will show how this may be done. All we have to do is to pull out a few of the juvenal feathers at suitable intervals of time. Their places will soon be filled by new feathers of *different ages*, and these will give intermediate stages in the transformation of the cross-lines of the young into the white dots of the adult. The adult pattern is thus revealed as an end-stage of a continuous process of differentiation. The same experiment may be made in other species with similar results.

The pigeons, wild and domestic, present a considerable number of specific characters, the histories of which can be traced with exceptional fullness, sometimes in great detail. In the wing-bars, for example, where we have, not one such character merely, but many, it is possible to read the several histories with much greater fullness and certainty than would be the case if they occurred only in single species.

In the genesis of these bars it is possible to see that natural selection has not been the primary factor, and that mutation, as defined by De Vries, has not been required either as primary or secondary factor. It is only on Darwin's hypothesis, that bars came first and chequers afterwards, that mutation would find a *locus standi*. But origin *de novo* is an entirely inadmissible hypothesis, when we can trace the history of the bars back to remote ancestral foundations.

The mutationist is compelled to take his stand on immutable unit-characters. A character may fluctuate to and fro, but it never loses its balance, except by a sudden transformation that

makes it a wholly new character, and its bearer a new species. To the mutationist the bars of *Columba livia*, both as a whole and in their component elements, would be viewed as essentially fixed units. As we look at the character in the mature state, it seems a perfect picture of immutability. To reach such a definitely localized and apparently rigid character, it might seem that evolution had come to a halt, that the character was caught in a mutation trap, from which there could be no escape. But even while we are looking at this picture, *the self-same process that produced it may be preparing another picture* to appear after a moult in more or less different guise. Can a single individual mutate from plumage to plumage, i.e., become a new species?

When we look around among allied species and see these same bars reduced to about half dimensions in the Rock Pigeons of Manchuria (*C. rupestris*), reduced to mere remnants of two to six spots in the Stock Dove (*C. œnas*), carried to complete obsoletion or to a few shadowy reminiscences in the secondaries in *C. rufina* of Brazil, gone past return in some of our domestic breeds and in many of the wild Columbæ—when we see all these stages multiplied and varied through some four to five hundred wild species and one to two hundred domestic breeds, and in general tending to the same goal, we begin to realize that they are not to be regarded as permanent halts, but rather as slowly passing phases in the progress of an orthogenetic process of evolution, which seems to have no fixed goal this side of an immaculate monochrome — possibly none short of complete albinism.

Even in cases where natural selection has probably played a conspicuous part in modifying and beautifying these marks, e. g., in the Crested Pigeon of Australia (*Ocyphaps lophotes*), we find that the reducing process has not been brought to standstill. Indeed, a careful comparison of the juvenal and adult plumages in both sexes, shows that differentiation has been gradual and continuous, and that *it is still in progress in the bar of the long coverts*, the homologue of the anterior bar in the Rock Pigeons. What we now see going on in this bar, has already been achieved in the White-bellied Plumed Dove* (*Lophophaps leucogaster*) of

* A good picture of this dove was given by Mr. D. Seth-Smith, in the December number of the *Avicultural Magazine*.

the same country, and is now progressing down the next and last bar.* A most striking demonstration of progressive orthogenetic differentiation, still advancing and even cutting through the brilliant colouring, which, in part, we attribute to natural selection.

THE ORIGIN OF BENGALESE.

I beg to add my mite of information regarding this question. At the end of October last I wrote a letter on this subject, and was typing it out when I noticed things in the aviary rather at variance with what I had written, so did not send it off. However I now send in the letter as it was then written, adding notes to it.

Having just received Mr. Finn's *Garden and Aviary Birds of India* and also the October number of the *Avicultural Magazine*, I feel constrained to give my experiences, which incline me to agree with Mr. Finn in thinking that the Bengalese had its origin in *Uroloncha acuticauda*.

In Bombay, in January 1901, I made my first acquaintance with the Sharp-tailed Finch (though I did not know it by that name then), and immediately thought of the original Bengalee and took the only two offered for sale. Fortunately they turned out a pair. I also took four Striated Finches, but there were no Bengalese procurable, worse luck. These birds I kept till I went to Chitral in September, 1902. *U. striata* made no attempt at nesting in a large aviary cage, and only got so far as eggs in the aviary. *U. acuticauda* made several good attempts in both places, only being prevented from fully rearing young by my having to move house. The two species did not chum up together. On my return in December 1903 they "were not."

In December 1904 I obtained four more examples of *U. striata* and six Bengalese, but no specimens of *U. acuticauda*. These birds were all turned out in an outdoor aviary that May. The Bengalese were two pairs and two hens and reared some normal young. There were at least two cocks among the Striated

* A detailed account of this case is now in preparation.

Finches, but they did not chum up with the Bengalese, nor did they make up to the odd hens. One pair of *U. striata* did attempt to nest, but got no further than eggs. A chocolate cock and a fawn hen Bengalee—(please take "and white" as understood after the words fawn or chocolate throughout when applied to Bengalese)—had three young ready to leave the nest in early February 1906. One was chocolate, one fawn, and the third looked exactly like *U. acuticauda*.

In April 1906 I got some more examples of *U. acuticauda* and some more *U. striata* in mistake for Bronze-winged Mannikins. By that time the "wild" Bengalee was quite indistinguishable from *U. acuticauda*. The Sharptails at once chummed up with the Bengalese, but the Striated Finches had nothing to do with either of them. I kept careful watch. The latter are now three less than in April, while the Sharptails apparently number nine more; the increase is accounted for as follows: three from pure *U. acuticauda*, two (more) from Bengalese, and four from Bengalese-Sharptail.

The wild type is on the increase, and I have no doubt that, left to themselves, the Bengalese proper would become extinct in my aviary. There are now in the aviary eggs or young in five nests, of which the part or whole proprietors are Sharptails, at any rate to look at. Of course this tendency to throw back to the wild type may be only temporary owing to the birds being rather exhausted with previous efforts. In each case the wild type has appeared in the third or fourth nest in rapid succession. I do not know that the theory that exhausted parents are liable to throw back is correct, but I have noticed a similar thing with White Java Sparrows, with three pairs last season (October to March). The first round produced very white young with only one or two badly pied. The second round produced only a few white, a good many badly pied and a few almost grey. The third round produced nearly all grey birds, which, when young, were like the wild type, but, after the moult, nearly all were lightly marked with white. As I am shortly going into camp for over a couple of months I regret I shall not be able to watch them this breeding season.

My reasons for believing *Uroloncha acuticauda* to be the ancestor of the Bengalee are as follows:—

U. acuticauda breeds fairly freely in confinement, while *U. striata* does not. The former is less timid as regards nesting and is hardier than the latter.

In my opinion the chirp, song, shape, and postures of *U. acuticauda*, more nearly than those of *U. striata*, resemble those of Bengalese.

Two pairs of pure (as far as I know) Bengalese have thrown back to *U. acuticauda*, and the tendency at present in my aviary is for *U. acuticauda* to become the sole type, though I must say that latterly a good many young have been produced of the fawn type, but with very little white on them.

These points against *U. striata* are mostly negative, but, having kept them longer, they had a better chance of showing affinity to the Bengalee. *U. acuticauda* both chummed and bred with the Bengalee, while the *U. striata* did not.

When starting to type the above I noticed two things which made me pause, and I continued pausing (for other reasons as well, quite unconnected with birds) till my return from camp in January this year. The first was my finding young in a nest of *U. striata*, nearly fledged; I knew they were nesting in a far corner, but they had been doing that off and on for a long time without success, so I did not bother about them much. The second was that my old chocolate cock seemed to be making advances to a Striated hen. The young *U. striata* left the nest before I left for camp; they differed greatly from young of *U. acuticauda*. The Bengalee-Striated flirtation remained a flirtation only, she was jilted before I left. My census on my return showed a slight increase of *U. acuticauda*, and a slight decrease for *U. striata*.

I think it probable that the Bengalee may have had Striated ancestors as well. I only give my experience for what it may be worth. Birds, even of the same species, differ a great deal. Some pioneer, I think Gedney, states that Bengalese are feeble on the wing; his birds were probably bred in small cages or their parents were, but now that aviaries are so much more

general, most people know that a Bengalee takes some catching if the net has to be used. My bought birds, probably imported from China, were certainly spry on the wing.

I see that Captain Flower has found a record of *Uroloncha acuticauda* being common in S.E. China, and that apparently there is no record of *U. striata* being found in China at all. Still, as he points out, information is scanty, and also there is no reason why Bengalese should not have been produced from some imported species. I take it for granted that the Bengalee was produced in China or Japan in spite of the name. I do not think the native of this country (India) is capable of doing a thing like this, or why does he not produce Lutinos of certain parrakeets, which he now obtains more or less by chance from the nests of wild birds. In my opinion the credit is due to Japan, as they are called Japani Munias by the dealers here. Certainly this name is also given to *striata* and *acuticauda*, but, when pressed, the dealer will confess that it is done for base trade purposes. The German name also credits Japan.

As to colour of parents and young, my results are as follows. I have never had any white ones, and I have not tried two chocolates together. Two fawn produce a predominance of fawn with a few chocolate. Two pairs after hard breeding work produced all fawn with very little white, two of the young had practically none. So, if the theory of throwing back when exhausted by breeding too often is correct, fawn ancestry might be looked for. Chocolate and fawn, as might be expected, produce both fawn and chocolate, the latter colour rather predominating. The nearest to white young that I have raised came from a chocolate and fawn pair. This same pair produced two of the wild type, and their white-chocolate son was father of the third also by a fawn hen. The nearly white young produced progeny less white than themselves.

I think *Domestica* an excellent name, but naming the varieties appears unnecessary as the Bengalee is as much manufactured as the Canary. And, if ever there should be a chocolate fawn and white one, how would it be named? By the way, how is it that this does not occur? I believe it is the same with mice.

I suppose that *Munia*, as being more embracing, is a better name than *Uroloncha*.

I have since received the January *Avicultural Magazine* with Dr. Butler's interesting article on this subject, so must write a little more, if only to vouch for the fact that *U. striata* had nothing to do with the production of the "wild" Bengalese in my aviary. My favourite old pair produced two in a two-thirds husk right against the wire, about four feet off the ground, within three feet of my chair where I work, read, and spend most of my spare time carpentering, with one eye on the birds. This pair have easily recognised marking. The third wild one came from an equally recognisable pair, and the nest was but little further off. The Striated Finches are much more timid and only came near my end to feed.

Bengalese are often given to chummeries, sometimes six to a nesting place, and occasionally bring up a few young, but I have found that a properly mated pair is as jealous of intruders in the nest as a Zebra Finch, except that the latter considers more of the adjoining territory as his "compound." All that the Bengalee requires is that no bird shall come on to his nest or nest-perch. For breeding results I prefer one pair to three chummeries.

I have taken such a long time to get this off that I am now very much tempted to wait for the February *Avicultural Magazine* to probably add some more, but I think this is long enough already, so will finish up with saying that I think Dr. Butler's description of his Bengalee-Striated hybrid (?) rather strengthens the case for *U. acuticauda*. I only wish to remark that I do not differ in a captious spirit from Dr. Butler, from whose writing I have experienced much pleasure.

G. A. Perreau (Capt.)
2/4 *Gurkha Rifles.*

Bakloh, Punjab, India,
12th February, 1907.

REVIEWS.

"THE EGGS OF EUROPEAN BIRDS."*

In Volume IV., N.S. (p. 270), we had the pleasure of reviewing the first part of this very important work, and now the second part has appeared, and fully equals the first in every way.

Very great care has been taken in the description both of nests and eggs, and references are supplied to the literature dealing with the subject and to the previous illustrations. The present part, like the first, contains fourteen coloured plates of eggs, some containing nearly thirty figures, and the work of both artist and lithographer is worthy of high commendation.

"THE EARLY LIFE OF LOON CHICKS."†

Mr. C. William Beebe, the Curator of Ornithology to the New York Zoological Society is well known for his very careful observations on birds in captivity, and such observations are of the utmost importance in the science of ornithology. In the present paper he gives some notes on the early life of two Loon Chicks, *Gavia imber*, which he reared by hand from the egg.

He arrived at the following conclusions:

"A. It is probable that the young Loons, are, from the first, fed on whole, not on macerated fish.

"B. The action of swimming and preening are instinctive.

"C. The method of swimming is usually by alternate strokes. These become simultaneous when a sudden spurt or great speed is desired.

"D. The arc of the swimming stroke, in the young chick, is much more lateral than in the adult bird. This is difficult to explain and hard to correlate with the idea that Loons and *Hesperornis* are descended from ambulatory species with more typically Avian convergent hind limbs.

"E. Loon chicks can progress more easily and rapidly over the ground than can the adults, in spite of the preceding con-

**The Eggs of European Birds*, by the Rev. Francis C. R. Jourdian, M.A., M.B.O.U. Part II. Price 10/6 per part, net. London, R. H. Porter, 7, Princes Street, Cavendish Square.

†*Notes on the Early Life of Loon Chicks*, by C. William Beebe. From *The Auk* Vol. XXIV., No. 1. January, 1907.

clusions. Progression, however, is never by walking, but by frog-like leaps.

" F. Diving, catching fish and swallowing them head-first are almost congenital instincts, much improved by practice within the first week.

" G. There is no instinctive fear in the young birds.

" H. It is probable that the young Loons instinctively recognise the usual rolling, laughter-like call of the parents."

"THE IMPORTANCE OF AVICULTURE."*

This is an admirable paper and one likely to direct the attention of the more exclusive among systematic ornithologists to the indisputable fact that they cannot ignore the labours of aviculturists without exposing themselves to a charge of culpable ignorance, and a liability to blunder in their estimation of the constancy of specific characters, in their judgment as to the affinities of genera, and many other points upon which only aviculturists or resident field-naturalists abroad can inform them.

It is a cheering reflection to know that many cabinet workers are beginning to appreciate the value of the observations recorded by bird-keepers: thus, whereas in the British Museum Catalogue *Hypochœra* (the genus containing the Combassou and its allies) was placed between a genus of Waxbills and a genus of Grass-finches, the notes on the habits of *Hypochœra* published by the late Dr. Russ and others, induced Messrs. Stark and Sclater, and later Captain Shelley, to transfer the genus to its natural place among the Whydah-birds.

Mr. Seth-Smith rightly says—"there are hundreds of species represented in our museums, the actual life-history of which practically nothing is known" ; he proceeds to show that the private life of many of these can only be studied in captivity ; that, although much good work can be and has been done in our Zoological Gardens, the private owners of suitable aviaries, whose birds are not constantly exposed to the prying observations of hundreds of visitors, have a distinct advantage in this

**The importance of Aviculture as an aid to the study of Ornithology*, by D. Seth-Smith, M.B.O.U. Proceedings of the IVth. International Ornithological Congress, 1905, Section V.

respect: he then gives a detailed illustrated account of many of the more important discoveries already made by members of this Society.

Technical workers in Natural History are too apt to hug themselves, under the impression that their's is the only scientific branch of the science: whereas, could they but appreciate the truth, they are the men who make the bricks and suggest the designs for the buildings, in which we study Nature; we do not pretend that we can do without them, but they certainly cannot afford to do without us.

In my old days of museum life I once grievously offended a colleague, by telling him that it required as much science to describe a lady's bonnet as a new species: that I, who had perhaps described some five or six thousand new species at that time, should make such an assertion, he considered rank blasphemy; I never could understand wherein I blasphemed, but then I always preferred a living dog to a dead lion, and eagerly sought for information respecting the living economy of the creatures whose dead bodies I arranged and named. Ornithology, or any other branch of Natural History, includes the living as well as the dead; and the study of the latter only, must necessarily be a superficial treatment of Nature. A. G. BUTLER.

"BIRDS OF THE COUNTRY SIDE."*

In this small, but compact volume Mr. Finn has provided his readers with an astonishing amount of reliable information on British birds, especially those "most conspicuous in life or literature."

The species are arranged "according to the circumstances under which they are likely to be first met with," thus: Part I. comprises birds "In Towns and Gardens," Part II. "By Wayside and Woodland," comprising, of course, the majority of the species dealt with. Part III. "By the Waterside," Part IV. "By Mountain, Moor, or Marsh," and Part V. "By Sea or Shore."

This is an excellent arrangement in a popular work of this kind, for the novice who wishes to identify the birds he meets

**Birds of the Country Side*, by Frank Finn, B.A. (Oxon.), F.Z.S. London, Hutchinson & Co., Paternoster Row. Price 5/- net.

with in a country ramble has only to turn up the part which deals with the birds in the sort of country in which he finds himself in order to find out what kinds he is likely to meet with. This arrangement of course prohibits any systematic classification being adopted in the body of the book, but as the author rightly considers classification an important item in any bird-book he has added a sixth part dealing exhaustively with this subject, and in such a manner as to make it easily understood by those with no pretension to a knowledge of natural history.

Finally we must not omit a word of praise for the illustrations which are liberally provided. There are twelve coloured plates, mostly good, some moderate, but all answering their purpose, namely, rendering the identification of the birds perfectly easy. Of the 118 photographic illustrations the majority are excellent, while the outline drawings of heads and feet in the chapter on classification are very useful.

Another good point about the book is its small size which enables it to be easily carried in the pocket—and the price is only five shillings.

CORRESPONDENCE.

DOVE ACCLIMATIZATION.

SIR,—It may interest some of your readers to know that in spite of the inclemency of the weather we have two nests of Spotted Pigeons (*Columba maculosa*) in the garden. Both are in Araucaria trees. One nest contains young birds and the other eggs. The pigeons were turned out about two years ago.

As you ask for suggestions as to suitable rings for marking birds I enclose one which was sent me recently and which seems to be a good pattern. It can be had in smaller sizes.

Woburn Abbey, Feb. 2nd, 1907. M. BEDFORD.

[We regret that the above interesting letter was crowded out of the March number.—ED.]

JACKAL BUZZARDS.

SIR,—You will be interested in hearing that the Jackal Buzzards have made another nest, and to-day have laid their first egg. I wish I could get our Gannets to follow their example, they seem inclined to nest but will not.

Norwich, Feb. 25th, 1907. J. H. GURNEY.

"NOTES ON THE INDIAN PODICIPIDÆ."

SIR,—Regarding my notes on Indian Grebes published in the December number, Mr. E. C. Stuart Baker has kindly written to me as follows:—"*Podicipes cristatus* is *quite* common in Assam and these birds *retain* their breeding plumage all through the winter when fully adult."

When I wrote my article I only then knew of one record from Assam which was recorded by Mr. Baker himself in the *Journal of the Bombay Natural History Society.*

GORDON DALGLIESH.

CHESTNUT-BREASTED FINCHES.

SIR,—These birds bred in my aviary some time during the summer of 1906, but I regret I can give no details. The parents were put into the aviary in 1905, and so far as I know made no attempt to nest. Neither do I know any more about the following year, save that I lost sight of them for days at a time (this I was not surprised at, there was so much growth in the aviary). Some time either late in June or early July I picked up the cock dead, and it now adorns my cabinet. In October I was astonished to find I had still two birds of this species, and that there was but little difference between the two. The only points that appear clear are: (1) It must at any rate have been hatched prior to the death of the male; in many species the hen will rear the young, though if the male dies previous to hatching, the records of my aviary show that she usually deserts the eggs. (2) The fact that a young bird was actually reared. Of this there can be no doubt. I keep most careful records as to incomings and outgoings. I cannot think but that these must have been bred before, as they have been inhabitants of aviaries for so long a period, though there have been long gaps during which none have come to hand.

WESLEY T. PAGE.

GOULDIAN FINCHES.

A well-got-up booklet, entitled "Amongst the Birds and Animals of Australia" has been issued by Messrs. Payne and Wallace of the Little Zoo., Bath. A member of this firm visits Australia every year to collect birds and mammals and bring them home for disposal direct to private purchasers. These trappers have naturally had a great deal of experience with the Australian birds in their wild state, and some of their observations are most interesting, for instance, in writing of the Gouldian Finches, they say: "On an average for every 100 Gouldians we take from the nets, 80 per cent. are black-heads, 15 per cent. red-head cocks, and only five per cent. red-head hens. It will be clearly seen that red-head hens are in the minority. Now the ten red-head cocks have to find mates somewhere, and as there are so few red-head hens, they have nothing else to do but to pair up with the black-heads, and this is what they do. In pairing up in this manner it seems of little, or no consequence, whether it be a red-head cock and black-head hen, or *vice-versâ.* We have seen many cases where they have been

mixed, perhaps there have been two red-heads and three black-heads. We have many times caught the adults of the two varieties, together with their brood, and in most cases the young were of both kinds."

A SAVAGE PHEASANT.

SIR,—I have lately introduced amongst my Cranes a handsome Swinhoe × Silver cock Pheasant. He is quite tame and has been accustomed to run loose in a garden. A few days ago this bird suddenly rushed at my Crowned Crane and after chasing him up and down the garden managed to get his spur into the Crane's hind toe and nearly severed it off. It bled very freely so I caught up the Crane and bathed and bandaged the foot. Which bandage I may say he never attempted to peck off but walked about quietly in it for three days when the wound having healed he pulled it off —and the toe is well—but the nail has come off. Since, the Pheasant has tried to attack two male Demoiselle Cranes, but they are so quick, they got out of his way. Afterwards, he tried to get at my Flamingo which fortunately was standing in deep water. The Pheasant flew on to some rocks in the pond and I quite expected to see him swimming in the water. At last I got him into a run, where I shall keep him shut up, until I have advice as to whether I shall have his spurs cut off, or partly off, as it seems a pity to keep him confined in a run when he might have so much liberty. I should be glad to know if it would hurt or injure the bird and in what way the spurs should be taken off. My Silver hen Pheasants are accustomed to run loose from early morning till they walk into their runs of their own accord, to roost at night. Through the summer months they live almost entirely upon acorns which they pick up from under four large oak trees. They are in perfect condition and walked about in the deep snow of January sometimes pecking it up and eating it as the Cranes did.

OCTAVIA GREGORY.

COLOUR-CHANGE IN FEATHERS.

SIR,—While I thoroughly approve of Mr. Beebe's suggestion as to marking certain feathers, *in certain specific cases*, with ink, as a test of colour-change; I do not consider that this is at all necessary *in all cases*. For instance, in the case of birds which assume strikingly dissimilar plumages for the breeding-season, it is only necessary to examine specimens which have died during the assumption of the breeding-plumage and have thereby fixed the changing colours in their strange transition character in order to convince the most sceptical.

A short time since I showed skins of *Pyromelana franciscana* and *Cyanospiza cyanea* to an ornithological friend; both birds had died during the assumption of their summer garb: in the Weaver the feathers of the throat are partly fringed with golden yellow, a few at the sides are all yellow, fringed with orange; on the breast is one feather tipped with bright

yellow, its inner web white, its outer web buff, another has the outer half of the inner web black, a few of the black-centred brown feathers on the back are washed with golden yellow and some of the secondaries have the brown borders washed with the same colour towards the tips; thus the winter feathers still retain their character, but are partly suffused with the summer colouring.

The case of the Bunting is even more convincing, the greater part of the head and back retains the rufous-brown of the winter plumage excepting that here and there a feather shows blue on part of the base, often more so on one web than the other, the flank feathers are more blue, some of them only still retaining brown tips, and this is also the case with all the wing-feathers and the upper tail-coverts, but the tail-feathers have completed their change; on the underparts the feathers at the sides of the throat, the whole of the breast and abdomen are blue at base, but otherwise still retain their winter colours.

Well, as my friend said,—"There you are; there is no getting away from evidence like that" whether we understand it or not, *in these specific cases* at any rate, we have the change of colour arrested, before our eyes, and it is no use to insist upon its impossibility. A. G. BUTLER.

HOOPOES IN CAPTIVITY.

The following letter was written in reply to a member's query:

SIR,—Hoopoes in confinement are always difficult subjects. They appear to require much warmth, although they can support for a short time considerable cold, but I think that the heat that seems necessary for them is to an extent dependent on their bodily health. They want plenty of room, a *dry* compartment, *no* farinaceous food, any number of meal-worms; you cannot overdo them. The only really good Hoopoes I ever saw that had been long in captivity had practically nothing else. Such grass-hoppers, leather jackets, etc., as can be provided, with yolk of egg, ants' eggs, etc. They require deep gritty soil to keep their beaks in order. They are very liable to split and curl, but with everything in their favour, even when kept in their native land, and fed practically on their natural food, they are not easy to keep long, although they are delightfully tame confiding pets. The natural food of Hoopoes appears to be almost entirely the larvæ of coleopterous insects, but I have seen them eating young locusts in the hopping stage, also small centipedes.

E. G. B. MEADE-WALDO.

RUTHLESS IMPORTATION OF FOREIGN BIRDS.

SIR,—I think that Mr. Astley's excellent letter should be carefully considered by every member of the Society.

I notice that the majority of aviculturists one meets rather avoid this subject and hasten to point out how happy and contented their birds are.

This is quite true, but it should be remembered that for every pair of birds seen in activity at least three or four pairs (probably many more) have been destroyed generally in a very cruel manner. The question should be asked Does aviculture justify this ?

The bird is highly placed in the order of creation and is consequently endowed with correspondingly sensitive feelings. Imagine, therefore the suffering of 500 poor Ring-necked Parrakeets which I saw shut up in a badly-ventilated cupboard (I can call it by no other name) lighted with a gas jet. Several had died and dirty seed and dirtier water were provided for the survivors. These birds were being retailed at about 2/- piece. I wish some influential London member of this Society would call the attention of an Inspector of the R.S.P.C.A. to some such case as this.

It may be argued perhaps that the above is a case which does not affect us, as possibly no member would buy these birds. Take another case. I read an advertisement offering Blue-bonnet Parrakeets at a very reasonable price. Shortly afterwards, happening to be in town, I visited the shop and saw one of the most miserable lots of birds it has ever been my ill fortune to see. Three were dead on the bottom of the cage and I am certain the remainder could not have been safely sent away to a purchaser.

I would urge every member to do his or her best to discourage this sort of traffic by absolutely refusing to buy from dealers who keep their stock in such a deplorable condition.

If the Society continues to flourish as it is doing at present would it not be possible for it to import its ow birds either through foreign members or agents and so do away with the dealer altogether ? I would recommend some such scheme to the consideration of members.

G. C. PORTER.

POST MORTEM EXAMINATIONS.

RULES.

Each bird must be forwarded, as soon after death as possible, carefully packed and postage paid, direct to Mr. ARTHUR GILL, Lanherne, Bexley Heath, Kent, and must be accompanied by a letter containing the fullest particulars of the case, *and a fee of 1/- for each bird.* If a reply by post is required a fee of 2/6 must be enclosed. Domestic poultry, pigeons, and Canaries can only be reported on by post.

CORDON BLEU. (Mr. Bowes). The bird died as a result of cerebra hæmorrhage from direct injury to the skull.

Answered by post :

Lady LOVELACE. Mrs. CONNELL. Mr. SUTCLIFFE.

ARTHUR GILL.

NOTICES TO MEMBERS—*(Continued from page ii. of cover).*

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Mrs. DENT; Curraghmore, Cavendish Road, Bournemouth.

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Mr. E. SONDHEIM; 13, Arkwright Road, Hampstead, N.W.
Proposed by The Editor.

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(Continued on opposite page)

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THE JOURNAL OF THE AVICULTURAL SOCIETY.

CONTENTS.

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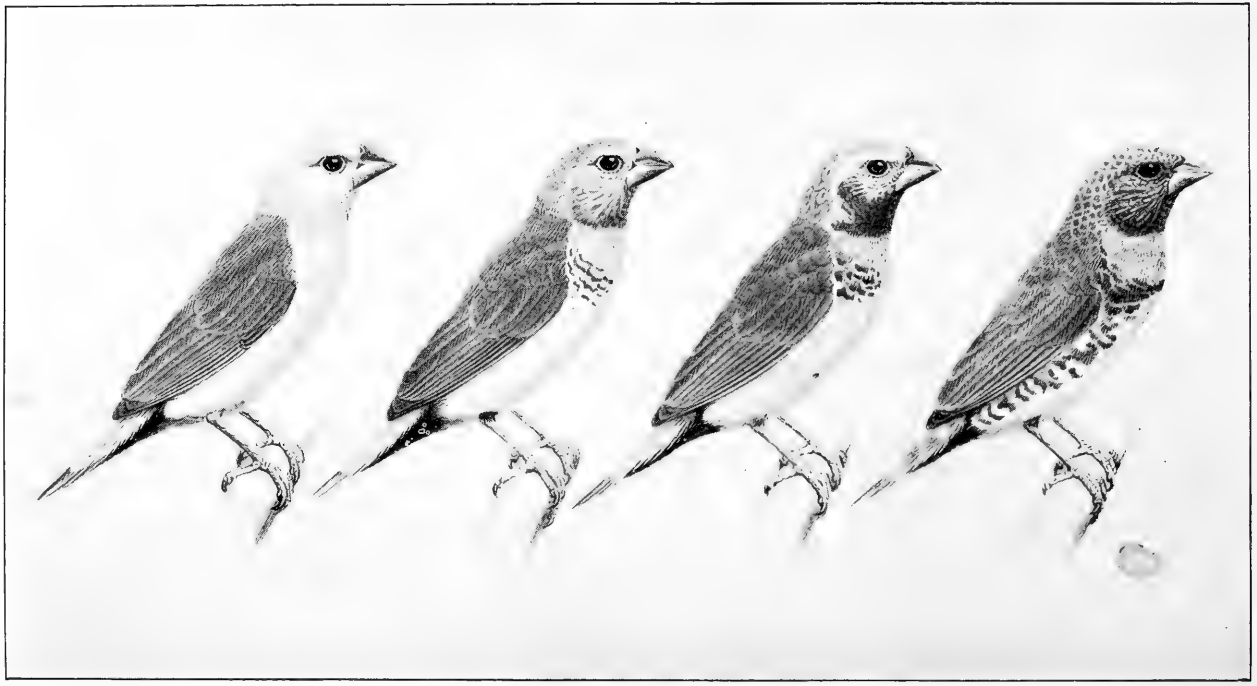
(*Continued on page iii. of cover*).



1 2 3 4

Illustrating typical examples of (1) Munia flaviprymna and (4) M. castaneithorax ; and (2 and 3) examples of M. flaviprymna which have partially assumed the plumage of M. castaneithorax.

H. Goodchild, del

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THE

Avicultural Magazine,

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AVICULTURAL SOCIETY.

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THE YELLOW-RUMPED FINCH,

(Munia flaviprymna)

AND ITS RELATIONSHIP TO THE CHESTNUT-BREASTED FINCH,

(M. castaneithorax).

By D. Seth-Smith, F.Z.S., M.B.O.U.

Within recent years at least few birds have caused quite such a sensation in the avicultural world as the Yellow-rumped Finch, the *Munia flaviprymna* of Gould. In the *Avicultural Magazine* for May 1905, I recorded the history of the species so far as it was then known, and I called attention to the fact that before the arrival, in 1904, of the first living specimen in Europe, the species was only known by some two or three museum specimens. Thanks however to that enterprising collector, Mr. Payne, of Messrs. Payne and Wallace, who is probably responsible for all the living Yellow-rumped Finches that have reached this country, the species may now be observed in the aviaries of numbers of aviculturists in this country.

Since my short paper, above referred to, Mr. W. E. Teschemaker has contributed an exhaustive and most interesting article to our pages (Feb. 1907) describing the successful rearing of young of this species and also its near ally *M. castaneithorax*.

The object of the present contribution is to describe a remarkable change of plumage which takes place in a small percentage of adult examples of *Munia flaviprymna*, a change for which no satisfactory solution appears to be at present forthcoming.

The two species that we are concerned with in this paper, and which are illustrated in the accompanying plate (figs. 1 and 4), are undoubtedly very closely related indeed; their song is identical, and the young cannot be distinguished until three weeks old (Teschemaker), although their actual markings when adult are very dissimilar. *M. flaviprymna** with its sandy-coloured plumage appears to be a desert form inhabiting the more interior parts of North-West Australia while *M. castaneithorax* is found nearer to the coast, as has been pointed out by Mr. Teschemaker, and, according to Mr. Payne in his large experience in trapping these finches, he has never noticed them to differ in the least from their normal plumage.

I have had altogether nine examples of *M. flaviprymna;* the first reached me in the summer of 1904, and was the first specimen to reach this country alive. Then in 1905, when the first large batch arrived, I secured four others (on March 21st), and did not get any more until the present year (1907).

In October 1906, I first noticed that one of my specimens, flying in a very large open aviary, had commenced to assume an abnormal phase of plumage, (see figure 2), the throat had darkened considerably and there were very distinct traces of a dark pectoral band. About the same time an example at the Zoological Gardens developed the same peculiarity, but not, I believe, to such an extent. On comparing my specimen with a skin of *Munia castaneithorax* it was evident that the change that was taking place was distinctly in the direction of that species. I may state that there was no example of *M. castaneithorax* in the aviary, so it could not have been a hybrid bred there, but must have been there since the early part of 1905, and was probably considerably over two years of age. I mention this because there is a theory that these abnormally marked birds are hybrids, a theory I find difficult to accept as I shall presently show.

Early in the present year (1907) I wrote to Messrs. Payne and Wallace asking if they had any Yellow-rumped finches which exhibited this peculiar phase of plumage, and they sent

*For a coloured illustration of *Munia flaviprymna* see *Avicultural Magazine*, Vol. III. *N.S.*, p. 215.

me three specimens, two of which resembled figure 2, but the third has gone a stage further in the direction of the assumption of the plumage of *M. castaneithorax*, and is illustrated in figure 3 of the accompanying plate. As will be seen, the throat has darkened very considerably, the pectoral band has commenced to develop and there is a dark spot on the flank.

Now as to the cause of this abnormal state of colouring. Mr. Teschemaker believes that these birds are hybrids (page 117) and at first this would appear to be a very reasonable solution of the puzzle, but there is one great difficulty in accepting this theory. Most of the smaller Passerine birds assume their adult plumage at a fairly early age. In the case of *M. castaneithorax* Mr. Teschemaker tells us that a young bird, at six weeks old was "showing already the chestnut breast" though it was slow in assuming the complete adult plumage. At four months old it was not quite in the mature stage of dress though nearly so, but, although he does not tell us so, it would be pretty safe to assume that at six months of age it would be indistinguishable from its parents. A somewhat shorter period seems to elapse between the time of hatching and the assumption of the adult plumage in *M. flaviprymna*.

It would seem to be reasonable therefore to suppose that hybrids between these two species would assume their adult plumage, in which traces of the parentage on both sides would be shown, at six months of age or less. With the specimens now under consideration however no trace of the characteristic markings of *M. castaneithorax* made an appearance until the birds were from two to three years of age, before which they were absolutely typical examples of *M. flaviprymna*. I am greatly hoping that Mr. Teschemaker, who is so very successful in breeding Australian finches, will, during the present season produce some hybrids between these two species which would throw considerable light on this subject. If he does so I prophesy that they will closely resemble figs. 2 and 3 in the accompanying plate, but they will assume this plumage when from four to six months of age.

My own theory is that *M. flaviprymna* is merely a desert form of *M. castaneithorax* which, to fit it for its desert life has

gradually lost the conspicuous markings of the latter. The changed conditions of a life in captivity and a more humid atmosphere however cause it, to a certain extent, to reassume the markings which it has lost on account of its desert life. Of course only a very few examples, perhaps not more than one per cent, ever do change colour.

Whatever the true explanation of the change may be, it seems to me that the two forms are *not* distinct species, but only local races, and in classification are only entitled to be ranked as sub-species.

THE NESTING OF *SERINUS ANGOLENSIS*.

By W. E. Teschemaker.

Last summer one of our members brought home with him from the Transvaal seven Yellow-rumped Serins, and four of these came into my possession on the 23rd of August. As their former owner informed me that two of those he imported sang very well on the voyage home, whereas mine did not sing, I concluded that the two males were not amongst those sent to me so I ended by acquiring all seven.

The Yellow-rumped Serin is easily described; it only differs from the Grey-singing Finch in having a yellow rump.

As autumn nesting always seems to end in failure—and often in disaster—I kept the Serins indoors in a large flight cage until the 7th January (last), when I turned out one pair in a very small heated house and the remainder in an outdoor aviary.

Although we had our full share in Devonshire of the memorable cold snap at the end of January, the first mentioned pair of Serins soon went to nest and commenced to sit on the 6th of February on three eggs. I examined these eggs at a distance of only a few inches but, for all that, I will not venture to describe them, as my experience is that one is likely to make the most ridiculous mistakes in the matter of the colour of eggs unless one has them actually in one's hand and in a good light. I have since seen two more clutches of eggs of this species. The three eggs in one clutch were of a light blue ground colour and *absolutely unspotted*. The other clutch had a warmer ground

colour, one egg being freely spotted with small brown spots, the second having one or two brown spots and the third no spots at all. (I have offered our Editor a photograph of this clutch of eggs in the nest).

Of course there is no reason why Serins' eggs should be spotted but, at the same time, I never heard of any eggs of this family not having spots, and generally the spots are black.

During incubation the male used to sing most charmingly. The song is more varied and more sustained than that of his near relative, the Grey Singing Finch, and not quite so shrill. I understand that this little bird (called by the colonists the Black-throated Singing Finch) has a high reputation in South Africa as a songster and, personally, I place it first of all the African Serins I have myself heard, the Grey Singing Finch second and the Grey-necked Serin—the so-called "Cape Canary"—third.

I was prevented from ascertaining the exact period of incubation owing to a temporary absence from home, but the nest contained two young on the 21st. The young look very like young Canaries in the nest, having the characteristic type of down on the head, but they have a very dark skin.

Although the young had the advantage of a warm aviary and fairly even temperature, and were carefully fed by the parents, they lived only a few days.

In the meantime another pair, in the outdoor aviary, had constructed a nest in a nest-box hanging on a wall, and commenced to sit at the same time. This pair certainly laboured under many disadvantages. They had to endure all the rigours of an exceptionally severe winter, ten degrees of frost being several times registered at night, and the hen was not only very badly feathered but had to endure the most bitter persecution from the two hens who were not nesting.

However, it is always the unexpected that happens in aviary matters, and this pair succeeded where the others failed. The explanation is, I think, a simple one, namely that they could obtain insect food, whereas the pair in the covered aviary could not. For this reason, I always wonder how any results at all are obtained in indoor aviaries, and needless to say such results, when obtained, are exceedingly creditable.

Insect food being so scanty in February the parents had to fall back on midges, which they spent hours in catching.

Of the two young hatched one was killed, when about a week old, by another hen: the other is alive and well as I write (April 10th) and quite independent. The young in nest plumage have the yellow rump quite as distinctly marked as the adults. The pencillings on the breast are darker and more numerous than in the case of the adults, but on a lighter ground. The call-note of the young is *chë-chë*.

I have not been able to ascertain as yet whether the Yellow-rumped Serin has been bred in this country or not. Although such a hardy species and common enough in its own country, not very many seem to have been yet imported.

Our Zoological Gardens had quite a small colony of these Serins, in an outdoor enclosure near the Ostrich sheds, last summer, which I watched with much interest. Several nests were built about the same time, and the young did well up to a certain age but, some very wet weather coming on, they all perished. Later in the year I was sorry to hear that the adults had nearly all been killed by rats.

A VISIT TO MESSRS. PAYNE & WALLACE AT BATH.

By Rev. Hubert D. Astley, M.A.

It was with great pleasure and satisfaction that I spent two hours at the Little Zoo on Lyncombe Hill, and I chose a propitious day, for Mr. Wallace had only just returned from Australia with the yearly importation of birds that he and Mr. Payne know so well how to pack and care for. If only all bird-dealers were to keep their birds as clean and to take an equal pride in them, one would not have to write upon the "Ruthless importations." Mr. Payne apologized to me for the lack of order and cleanliness, for, as he remarked, Mr. Wallace had only arrived a couple of days before, and they had little time for putting such a number of birds into proper order. Nevertheless I have never seen so many birds in such splendid condition, or so evidently cared for.

In quite a small room there were two or three thousand Grassfinches, as well as a great many Parrakeets and Kangaroos, and yet the atmosphere was perfectly clean and sweet. Scarcely a bird that did not look healthy, not a seed or waterpan which was not clean also. And in addition to this, one met with that which those who are accustomed to it cannot well do without, extreme courtesy with painstaken kindness and a spirit of hospitality. Would that all English dealers possessed the same virtues! It just made all the difference to my visit. And Mr. Payne is the same in correspondence. Politely-worded and plainly-written letters by return of post, instead of terse and even rude post-cards, which more than one so-called "Naturalist" in England has despatched to me. There are some of these dealers who before they begin to study the trade of bird-dealing, had better be sent back to school to learn proper manners, and humanity with regard to the birds and animals which have the awful misfortune of being imprisoned in the filthy places they have ready for them. I am not in the least astonished at Mr. Porter's account in the April Magazine of the Ring-necked Parrakeets. At any rate Messrs. Payne and Wallace treat their customers courteously *and* honestly, and their creatures kindly and humanely.

It was a delight to see amongst other birds, such rarities as a pair of Red-capped (Pileated) Parrakeets, two pairs of Rock Parrakeets (*Neophema petrophila*) and a large importation of the beautiful Earl of Derby or Stanley Parrakeet (*Platycercus icterotis*) as well as a quantity of "Twenty-Eight" Parrakeets, and a pair of the rare Painted Finches (*Emblema picta*), the little male bird resplendent with fiery-red patches on face, breast and tail-coverts. There were also two pairs of the rarely imported Grey Crow-Shrike: fine grey birds with yellow eyes. They were in a small box-cage, yet their feet were as clean as if they had been just caught, and they looked full of vigour and good health.

The numerous Bicheno's Finches—Gouldian, Long-tailed, Yellow-rumped, etc. might have just been caged from the best of outdoor aviaries, so spry and sprack did they look.

Mr. Payne showed me the skin of the rare White-quilled Rock Dove from Australia, a skin which had once held a living

bird in his possession. The Spotted Emeus were magnificent; one could hardly believe they had only just been landed after a long sea-voyage, not to mention the land journey in Australia. The Kangaroos of various kinds were delightful. So tame and well kept. And Doves too—Brush Bronze-wings, Bronze-necked Doves (like very well grown Peaceful Doves) and a big covey of the little Plumed Doves, sitting closely packed together on the ground in a very large aviary-cage, and uttering soft cooings. Mr. Payne tells me these charming little birds are so tame in their natural state, that they will hardly trouble to move out of the way of the horses' hoofs as one rides along some track or primitive road in the Australian bush; and that their soft coo is heard on all sides.

On leaving Lyncombe Hill that April morning, I wished that all the birds and animals could be spared the grief and pain of finding themselves in places where they would not be cared for as they are there. I agree that in *some* shops an inspector of the R.S.P.C.A. would not be amiss.

NOTES FROM SOUTH AFRICA.

In a private letter to the Editor, dated March 12th, 1907, which he feels sure the writer will not mind his quoting from, Captain HORSBRUGH writes from Potchefstroom, Transvaal, as follows:—"Since I last wrote you I have got hold of seven or eight pairs of Harlequin Quail (*C. delegorguei*) and it may interest you to hear that at this time of the year they are extremely common here and are breeding. The Cape Quail I have not found here, and all I have shot or handled of other people's shooting are *delegorguei*, while in Bloemfontein it is always *capensis* one gets and I never saw *delegorguei* there. I have got two pairs of *Turnix*, but I cannot make out from Stark and Sclater's book whether my species is *lepurana* or *hottentotta*.

I have got, I believe, an adult male of the rare *Vidua albonotata* (the White-winged Whydah) which my brother picked up in Pretoria, and also *Lagonosticta rubricata*, which is extremely like *L. brunneiceps*, except that it is a very little brighter and larger by perhaps half an inch.

This place is most interesting from a Natural History point of view. A few days ago, while fishing in the Mooi River, I saw the following Herons: Great White Egret, Lesser and Buff-backed Egrets in hundreds and hundreds, Common Heron, Purple Heron, and Squacco Heron, the latter is known to the Dutch farmers as "the little round-backed one," and if you saw them sitting you would see how accurately the name fits them. My brother, Mr. Thomas Ayres, and myself have found that the *Vidua principalis* is parasitic on the common St. Helena Waxbill which swarms here. Have you ever heard this before?

I am hoping to get some young Goliath Herons next breeding season—they nest quite close here.

P.S.—I am pretty sure now that my species of *Turnix* is *lepurana*, as *hottentotta* does not occur N. of the Orange River. I have not got my last Vol. of the *Avicultural Magazine* here, but I think you have already bred this species. Is this not so?"

[No; so far as we are aware *Turnix lepurana* has not been bred in Great Britain, but it has been bred in Germany, as recorded in Vol. III. page 217 of our New Series.—Ed.]

BREEDING NOTES OF 1906.

By W. H. St. Quintin, F.Z.S.

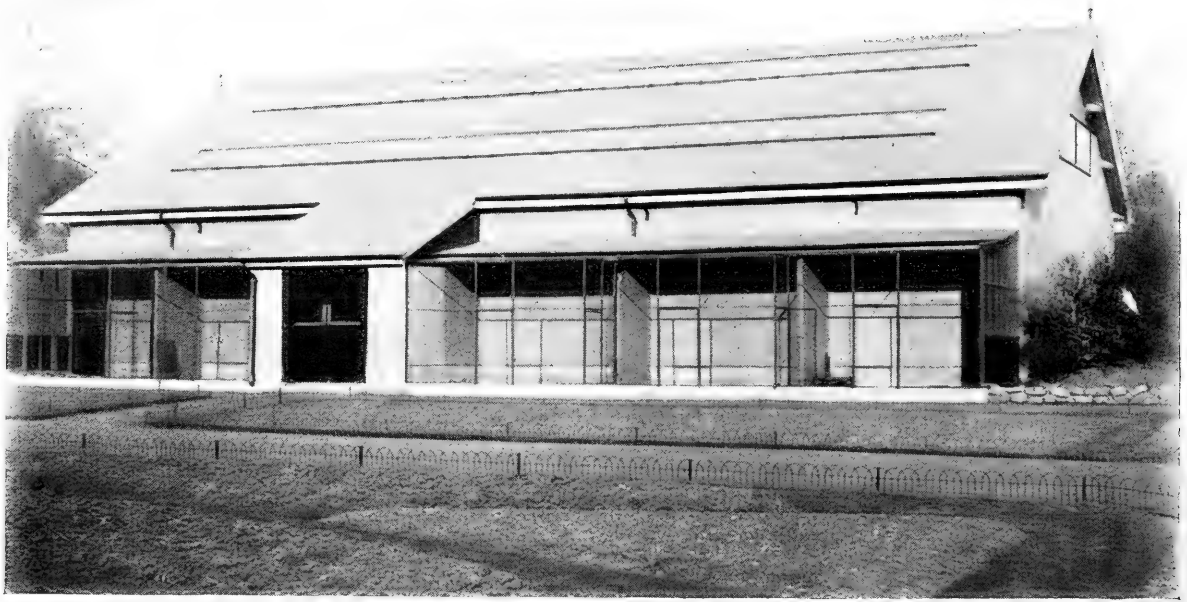
Though rather late, I should be glad to be allowed to record a few notes upon nesting operations of birds in my possession last summer. I have already described how my Pine Grosbeaks successfully reared two young. Another species, as I believe, not previously bred in England, the American Widgeon, reared four young with me—two ducks and one drake. This species has I think been seldom imported into Europe, and I only know of those at Woburn Abbey besides mine which are living in this country at the present time. The young were reared easily, their lighter colour when in down enables them to be easily distinguished from ducklings of the common species (*A. penelope*). The young drake has the white shoulder stained with reddish-grey as in *A. penelope* of the first year.

Young of the Raven, Demoiselle Crane, Capercailzie, Impeyan Pheasant, Temmindis Tragopan, Desert Partridge (*A.*

cholmleyi), Painted Quail, beside those species referred to already were reared; and the following species laid eggs, but for various reasons failed to rear young (in the case of the Great Bustard and Tinamou there were no male birds)—Snowy Owl, Great Bustard, Rufous Tinamou, Grey Hen, Red Grouse, Blue Thrush; and of Sandgrouse *P. alchatus*, *P. senegallus*, *P. exustus*. A hybrid Wagtail was also reared between the Grey Wagtail (*Melenope*) and the Blue-headed Wagtail, the latter being the female bird. The nest was placed amongst some loose bricks upon the ground and only one egg was fertile though several were laid.

My old pair of Blue Thrushes have so often nested and had clear eggs that not much notice was taken of their first clutch: but young were hatched, and either immediately were deserted, or they were starved for want of sufficient insect food. When the hen laid the second time, we made careful preparation as regards a supply of mealworms, etc. But for some unaccountable reason (for she was never disturbed) the bird threw out her eggs after they were chipped. Some life was noticed in one, as it lay on the ground, and half-hatched as it was, it was placed in a Spotted Flycatcher's nest, and the latter's own eggs removed. The foster-mother reared the young bird for a week when the nest was pulled down, probably by a cat.

Two partly-incubated common goose eggs were placed under the Great Bustard, instead of her own unfertile ones. One proved clear or addled, but the other one was on the point of hatching, and I was looking forward to at last seeing a Bustard in captivity rearing something (in 1902 another female Great Bustard now dead did hatch a young bird, as I have already recorded). But she appeared quite upset by the "cheeping" of the gosling, and leaving the egg she strode about her enclosure in a state of great excitement for an hour or more. However I watched her back to the "scrape" in which lay the egg, and at dusk she seemed to settle down upon it. But the next morning, to my great disappointment, the poor young gosling was dead, having seemingly been roughly pulled out of the shell and afterwards maltreated by the excited foster-mother.



From block kindly lent by the Society.

THE NEW BIRD HOUSE, ZOOLOGICAL SOCIETY'S GARDENS.

Bale & Danielsson, Ltd.

THE NEW BIRD HOUSE AT THE ZOOLOGICAL GARDENS.

After considerable delay, caused by difficulties arising under the London Building Acts, this house has at length been completed, the greater part of the cost being defrayed by the generosity of Mr. C. Czarnikow, F.Z.S. The building is constructed of fire-proof material known as "Uralite," and is heated and ventilated by the new "Langfield" system. On the two longer sides there are large flight cages, while tiers of smaller cages are erected against the end walls and in the centre of the building, and there are some outside flight cages on the south side. Already the house is fairly well stocked: Troupials, Bulbuls, Mynahs, Thrushes, Grosbeaks, Buntings, Grassfinches, Waxbills, &c. being represented from many parts of the world. Many aviculturists on entering this house will remark that there are too many cages and too few aviaries, but one thing must be said for the system of cages, and that is that there can be no means of mistaking one bird for another as each cage is labelled with the name of its occupant. At present the outside cages are occupied by some of the Crows.

By the courtesy of the Zoological Society we are able to reproduce a photograph of the house by Mr. B. L. Medland, which appeared in the recently issued Annual Report of that Society.

PICTURES OF BIRD LIFE.

Many of our readers will doubtless have heard of the exhibition of paintings, modestly described in the official invitation and catalogue of them as "Studies of Bird-Life in Water-colour by George E. Lodge," at the Rembrandt Gallery, at No. 5 Vigo Street, London, W. Some of us have already seen them, but others who are fond of studies of bird life should not miss the opportunity of paying this little Gallery (with its present collection of fifty-four subjects) an early visit, as they will not have the opportunity after the 15th May.

Mr. Lodge has probably followed his own bent in the

matter of choice of subjects, and one may see him at his best, and also (if I may say so) at his worst. The subjects are chiefly Birds of Prey and Game Birds with a few studies of Wild Fowl. In all of them the subject is treated in the opposite way to what a landscape painter would treat it, *i.e.* the bird is by far the chief and, in many cases, the whole consideration; the landscape element being often almost entirely eliminated, while the bird itself is studied with scrupulous care.

Birds of Prey, we believe, are Mr. Lodge's great favourites, and whether they are or not, one can see how he regards them, both by the number of studies of them and by the pains lavished on their portraits. No. 1 in the catalogue is of a Peregrine's eyrie, with three young birds, nearly fledged, but still with down on their heads and bodies, and their wing and tail feathers short. They have wandered a little from the nest, if such it can be called, and are apparently awaiting the return of one or other parent with a freshly killed Plover, Grouse or Teal. At a little distance one of the birds seems to disappear, and the others might almost be growing out of the rock, so well does the immature plumage harmonise with the surroundings of their bleak mountain home. No. 2 is a covey of Partridges flying over an expanse of snow, and in this subject Mr. Lodge is much more faithful to nature than to the traditions or conventionalities of art—there is much more snow than Partridge. In No. 3 we see a group of Grouse at rest, and in one of the birds, a male, we especially notice a departure from the orthodox way of depicting birds, that is in a complete state of one phase of plumage (a thing rarely met with in the Red Grouse, which usually shows feathers of two phases of plumage, when once it has begun to change from the nestling state). The piece of moorland also is more the actual than the conventional, and the gnarled stalks of dead heather in the foreground are nearer reality than the eternally blooming heather with which we are supplied by other painters. Neither the birds nor the surroundings are conventional in the least degree and we should like to see subjects by other painters treated with the same regard for truth. No. 4 is a pair of Reed Buntings, depicted as the present writer (and doubtless Mr. Lodge) saw them in the reeds fringing Wicken Fen—the only

piece of primæval fen left to us. As this is purposely a painting of a definite place we are given a more elaborate background to these little birds than to most of the other subjects. Only Reed Buntings are shown, and both birds perched in their favourite and characteristic attitudes on growing reeds, with a soft background to show them up in their modest but pleasing plumage. No. 5, the largest study of the lot, is of two male Pheasants, and the nearer one is studied with care and elaboration in which we may say Mr. Lodge surpasses himself, though it might be said that the primaries and tail of the nearer bird are overdrawn, as they are rather hard. In No. 6 the painter is entirely at home with his subject, for it shows one of his favourite birds, the Peregrine, contemplating a descent on one or other of a pack of Grouse which, had they known their enemy was near, would probably have kept to the protection of the ground, instead of giving this noble bird a chance of striking them, as it always does, in the air.

The rather bird's-eye view of a field with Pheasants in (No. 7) is faithful to nature and unconventional in composition, and is Mr. Lodge at the other extreme to what we see in some of the large Falcon studies, there being much background and little bird. In his rendering of the minute markings of feathers we again see Mr. Lodge at his best in No. 8, which is of Partridges; we hardly think anyone else would bestow such pains in the elaboration of feathers. The sense of air given in No. 9 of a Suffolk Marsh is agreeable, and a naturalist is glad to be able to contemplate such a scene and still keep his feet dry. A Heron, Peewits, Mallards and numerous Dunlin are shown in a rather chilly looking landscape.

Many of the other studies show the same characteristics as those described above; the scrupulous care in feather painting, the open landscape, or perhaps no landscape at all but a sky instead, and as space forbids me describing all the other works, I will simply mention those which stand out most in my recollection. No. 12, of Barn Owls, is soft in treatment and warm in colour. No. 13, a large and very careful study of a Peregrine taking flight. No. 14, a Kestrel hovering, showing exceptionally truthful treatment of "values" and good cloud effect. No. 15.

of a flight of Golden Plover, a little formal. No 17, an old male Grouse looking as if he sighted beaters and was relieving his feelings by grumbling at the intrusion. No. 18, "Marsh Harrier—Hickling Broad." Would that we might see Marsh Harriers on Hickling or any other Broad for that matter, or anywhere else in Britain, but that treat is for very few of us. This again is a painting of a particular place, and the landscape part is more pleasing, to me at any rate, than any other study in the series. The Harrier is shown beating over the reed-grown surface with its watchful eyes looking for any luckless Snipe that might be feeding or vainly trying to conceal itself. No. 19, another large Falcon subject, surpassing the Peregrine in excellence. The Peewits, No. 20, should be looked at carefully, if only at the largest bird, to see how carefully the feathers are painted. Few people would, I think, care for the cock Partridge calling, (No. 21) but we doubt not that Mr. Lodge has seen the bird like that. No. 24, of Ptarmigan crouching from a Falcon, shows the remarkable gift of concealment these birds have. The Kites, No. 25, the principal bird is fine, but the others look over-coloured for the distance. The Raven (No. 26) might have had a little more blue on his sable plumage. No. 27 is, we believe, a study of Iceland Falcons that has been reproduced in a popular magazine. The two Pheasant subjects (Nos. 28 and 34) are each rather stiff in pose and lack the grace a Pheasant often has. No. 29 is a very original view of a Greenland Falcon flying. No. 30 is of a Buzzard just alighting and is an unconventional study. The next is a painting of Red Deer, the only Mammalian subject in the room, and is about the sunniest subject there. Of three studies of Golden Eagles, two are soaring and are as good as the Falcons, but the one perching—an immature bird—is rather hard and a little dull in colouring. A second study of an adult Peregrine (No. 37) like the first (No. 23) is rather heavy in its spotting and colouring. The Blackcock subject, like some of the Grouse shown flying look rather stiff, as if "set," perhaps through detail being shown which can really only be seen in a bird that is still.

The last fifteen subjects are of less importance than the first ones and rather suffer by comparison. The Teal and Snipe

subjects and some others might have been more brightly coloured, and the Bewick's Swans (No. 42) less heavy in shadow, though this may be truthful enough. I should like to have seen a far larger space allotted to the Osprey (No. 52) considering what some of the others have got, and a few of the subjects, such as the Ptarmigan (No. 46) and the Mallards (No. 53) I would willingly sacrifice in an exhibition which shows us so many good things.

HERBERT GOODCHILD.

THE BREEDING OF LORIKEETS IN CAPTIVITY.

By D. SETH-SMITH, F.Z.S., M.B.O.U.

The published records of the successful rearing of young by Lorikeets in captivity in the United Kingdom are few and far between, though doubtless instances have occurred that have not been brought to light. So far Swainson's Lorikeet (*Trichoglossus novae-hollandiæ*) seems to have been bred successfully several times, some twenty-five or thirty years ago, from the letters of correspondents of the *Bazaar*, published in the first series of *Notes on Cage Birds* (1882). One writer appears himself to have reared two nests in a season and writes (p. 87): "I have before me the names of four amateurs who have successfully bred this parrot." Another writer remarks (p. 88): "I am acquainted with two gentlemen who have frequently bred the Pennant, the Pale-headed Parrakeet, Rosellas, *and the Blue Mountain Lory*."

In the Second Series of *Notes on Cage Birds* another writer records the successful breeding of a pair of these birds in the Blackpool Aquarium, and Mr. Osbaldeston gave a more detailed account of this interesting event in the *Avicultural Magazine* (Vol. VIII., p. 167) where he tells us that this pair bred "year after year for some four years previous to 1890." One year, we are told, "a very curious, handsome, 'sportively' plumaged bird was reared."

It is with great pleasure that I am able to record yet another instance of *Trichoglossus novae-hollandiæ* breeding successfully in captivity in this country. A pair of these birds, belonging to Miss Rosa Little, at Twickenham, are kept in a

large box-shaped cage in a conservatory. The cage is 3 feet 6 inches wide and 1 foot 10 inches in depth, and the height is equal to the width. In January 1906 two eggs were laid in a corner on the floor of the cage but with no result. On January 13th, 1907, an egg was laid in the same place, and a second followed about *ten* days later. The eggs were placed in a shallow wooden tray, about one inch deep, filled with sawdust, and the birds appear to have generally sat together on the eggs. Incubation commenced about a week after the first egg was laid, and one young bird was hatched on the 12th of February, the second egg being also fertile. At first it was covered with white down. The bill was black.

Being unaware that there was anything very remarkable in the breeding of this species in captivity Miss Little did not keep any notes on the subject, so I am unable to give any details regarding the assumption of the plumage. But when I saw the young bird on April 25th it was ten weeks old and its plumage was similar and in every respect to that of its parents except that it was not nearly so brilliant. The bill was just changing from black to yellow. It could fly and feed itself, though the parents also fed it.

The cage in which these birds live is kept at the side of a passage in the conservatory, and is constantly being passed at all times of the day. Nesting boxes and logs were supplied, but the birds would have none of them, but preferred the floor of their cage, surely a remarkable preference for birds of such arboreal habit as the *Trichoglossi*! The birds are fed on bread and milk, fruit and seed, and no extra food has been supplied during the rearing of this young bird.

This case is, I think, a very interesting one, and only shows how ready some birds are to adapt themselves to circumstances. I am indebted to my friend Mr. Edward Bidwell for bringing this case to my notice, and to Miss Little for her kindness in allowing me to see her birds and for explaining everything to me.

The other species that have bred in this country may be here enumerated. Apparently they are but three in number:—

Forsten's Lorikeet (*Trichoglossus forsteni*) bred by Mrs.

Michell in 1905 and 1906. (*Avicultural Magazine*, N.S., Vol. IV., p. 24; Vol. V., p. 81).

Mrs. Johnstone's Lorikeet (*T. johnstoniæ*), bred by Mrs. Johnstone in 1906. (*Avic. Mag.*, N.S., Vol. V., p. 44).

The Scaly-breasted Lorikeet (*Psittenteles chlorolepidotus*). An instance of the successful breeding of this species is recorded in *Notes on Cage Birds* (Second Series, p. 170), above the initials "H. J." The young were reared in mid-winter in an outdoor aviary. The hen commenced to sit on December 21st and the young birds (two) left the nest, a large cocoa-nut husk, on February 26th and March 4th respectively. The year is not given. These are the only records that I can find of Lorikeets breeding in this country, but very possibly there are others, and if any member or reader knows of such I would express the hope that they may be published in this journal.

CATCHING SULPHUR-CRESTED COCKATOOS.

[The following article appeared in *The Field* of March 16th last and is here reproduced by the courtesy of the Editor of that journal.]

In Australia the Sulphur-crested Cockatoo (*Cacatua galerita*) is the commonest of domesticated wild birds, not even excepting the Rosella Parrot. Fortunately this lovely and distinctive bird is holding its own well, and shows little or no signs of decreasing in numbers. Not long ago I saw a trailing flock of Cockatoos, about half a mile long and containing some thousands of birds, pass over my house in the western district of Victoria. All over Victoria it is the same; in fact they are so numerous in some of the wheat-growing districts as to be a serious pest.

This kind of Cockatoo is gregarious for the greater part of the year and usually goes about in great flocks; but towards the end of July these flocks break up, and in August one may see the birds in pairs flitting from tree to tree in search of a nesting-place. They nest in the hollow stems and branches of the huge eucalyptus trees that are so common over most of the state of Victoria. These great gaunt trees tower up to a height of 100ft.

or more, and their boles are bulky, smooth, and usually branchless for the first thirty or forty feet. The living trees are often hollow or have a hollow broken limb, while the dead trees are usually hollow nearly all over. The Cockatoo is not particular whether the hollow is in a live or a dead tree, so long as the tree is big and unclimbable in the ordinary way and is not too near a house. The more inaccessible the hollow is the better the bird likes it, as I have found to my cost when in search of a nest. This is a very simple affair, and is usually placed some four or five feet from the outlet—just too far away for one to reach it with the hand. There the Cockatoo lays usually two, sometimes one, but occasionally three large white eggs.

It is at this time that the Cockatoo hunter looks for the nests. The birds, however, are very shy and cunning. They will never go into the nest while anyone is about, and, if one is approaching a clump of trees containing nests, an old cock-bird standing sentinel on the top of the tallest tree will give the alarm call, and instantly every hen-bird will slip out of the nesting holes, without a sound, before one is close enough to locate them. Where there are solitary nests a plan to find them, which is often practised, is to ride around with a stock whip, and crack it beneath a likely tree. The report of the whip—which, in the hands of a practised man, is like the noise of a pistol—sends the hen-bird off her nest at once. A method I often followed was to go just at sundown and sit where I would not be noticed, keeping a careful eye on all the likely holes. Even then, unless I watched very sharply, the first thing seen would be the hen-bird flying silently and swiftly away, some yards from any tree.

When the young are hatched a nest may often be found, if it is in a dead tree, by tapping the bole and then placing one's ear against it. If the youngsters are alone they will at once begin a clamour for food, which can be distinctly heard. The parents feed the young early in the morning and just before dark, and I have often found nests by watching the old ones at work. But one must be concealed to do this, for once the Cockatoo sees you the alarm is given, and no further feeding is done in that neighbourhood until you disappear.

When you have found your nests, the next question is

how to get at them. A ladder is of no use, for it would be impracticable to take one that was long enough without a great deal of trouble. I have got at many nests by using a long rope. The rope was cast over the first limb and a loop made in one end, in which I stood, while a mate hauled me up. Once on the first limb, with the help of a hatchet I could often reach the next. Sometimes I had a second rope and threw it over a higher limb, pulling myself up with it. Soon, however, I discovered a better method. This was to provide myself with a number of steel spikes and a tomahawk. I drove the spikes into the bole of the tree a good distance apart and used the spikes as a ladder, driving them in one above the other, as I mounted. By this means the tallest of trees could be ascended in a very short time. Of course, care had to be taken to drive the spikes in sufficiently to support my weight, and yet not to drive them in too far, since they had to come out again. There is, of course, an element of danger in climbing after the nests by either method, and I always had a mate, in case of an accident happening.

Upon reaching the nest, the tomahawk was brought into further use, in the way of chopping a hole into the nest. As I have mentioned, the latter is usually too far down for the birds to be reached with the hand. Some nest hunters use a wire with which to pull the young birds up, but this is likely to injure them. Sometimes, when the bole has been too thick to be conveniently cut through, I have put a small stick down and have waited until the young one grabbed it with his curved beak. Then I have pulled him up far enough to catch him with my hand. But the usual method is patiently to cut away at the limb or bole until one can get at the young birds direct.

The Sulphur-crested Cockatoo is a bird of very slow development, which probably accounts for its longevity. I have known eggs to be in the nest early in August, and then have seen the young birds still in the nest in December. My plan was always to let the parent birds do most of the rearing, and to take the young ones just as they were ready to leave the nest. They are then fully feathered, and can only be told from the old birds by their smaller size and their softer and paler bill. A second reason for a young Cockatoo remaining longer in its nest than

most birds is that, if it once fell out of the nest it would have no chance of getting back. A young Magpie and Crow, for example, can try little flights from the nest amongst the slender branches in which it is always built. But the young Cockatoo finds nothing between the edge of his nest and the cold ground. So he waits until his wings are well grown, and even then he sits on the edge of the nest a long while; and it takes a lot of coaxing from his parents to make him fly. At last, when he does fly, he goes straight off to a neighbouring tree. I usually put the young birds inside my shirt front and brought them down with me; but sometimes I have thrown them gently into the air and let them flutter to the ground. One has to be very careful, however, to see they are not too well feathered. Once I tossed a young one into the air, and it flew straight off. It had got such a fright that it never thought of alighting on a neighbouring tree, but continued flying as long as my astonished eyes could follow it. In descending the tree one has to be pretty careful. As I come down I have to knock out the spikes and let them fall to the ground; and occasionally, in bearing too heavily on a spike while knocking out another, I have felt it beginning to give way. But, with care, there need be no accident. In leaving the birds in the nests as long as possible, there is always a danger of losing some. I have been exasperated sometimes when halfway up a tree, to see the young birds first appear on the edge of the hole—alarmed by the hammer—and then, as I got closer, finally spring into the air in a first trial of their wings and fly off. About the end of November the young ones are nearly all flying, and all over the Cockatoo country you can see little groups of three and four birds, parents and young, perched in the leafy top of a tall eucalyptus, or feeding on the seeds of dry wild grass, or rooting up the wild geranium. By January the last laggards have left their nests, and towards the end of the month the birds begin to muster into flocks again. Then you will see huge flocks of snow-white Cockatoos circling overhead, and you will hear them also, for their screams are deafening. One of the prettiest sights is a flight of Cockatoos alighting on a newly-ploughed field. They make such elegant and continuous evolutions before they come down that even the farmer whose seed oats they are after cannot help admiring them.

THE AUSTRALIAN CRESTED PIGEON.
Ocyphaps lophotes.

THE BRONZE-WINGED PIGEON.
Phaps chalcoptera.

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There is often a great difference between the talking ability of Cockatoos, even out of the same nest, but the bulk of them can talk fairly well. Occasionally, however, one finds a bird with an almost human articulation, and with an accent that almost convinces that he understands the language. There are, of course, many phrases that a good Cockatoo knows the meaning of, just like a spaniel, phrases relating to food, scratching the poll, and so on. I heard a Cockatoo the other day say "One, two, three, four, five, six, eight, d—— it, I've forgotten the seven again," with inimitable expression, and followed by a rollicking laugh that was really human. Very clever birds like this have, to their owners, a value above money, and cannot be bought. For besides its talking qualities, the Cockatoo, when well treated, becomes very affectionate, and it is wonderful what ill-usage it will stand without becoming vicious. F. R.

ACCLIMATIZATION OF FOREIGN DOVES.

Most of the members of the Avicultural Society are well aware, from notices that have already appeared in this Journal, that it is proposed to liberate a number of foreign Doves in the London Zoological Gardens. Several members have been good enough to contribute to a fund for purchasing the birds, while others have given birds, and in all some forty specimens consisting of Crested (*Ocyphaps lophotes*), Bronzewing (*Phaps chalcoptera*), Half-collared (*Turtur semitorquatus*), Senegal (*T. senegalensis*) and Necklaced (*T. tigrinus*) have been obtained. About the time that this is in the hands of the members the door of the aviary in which the birds are now housed will be opened, and the first batch allowed their liberty, the remainder being let out at intervals of about a week. Very great care will be taken that they are in no way scared. Their morning feed will be thrown on the ground in the door way, and the door thrown open. Every bird has a ring on one leg with the initials D. A. E. (Dove Acclimatization Experiment) stamped upon it.

The Australian Crested Dove (see illustration) is the species of which we have the greatest hope, and there seems every reason

for supposing that it will do well and become established in Regent's Park. It is a beautiful species, grey in colour, with an upstanding crest and a long tail which it is in the habit of throwing up over its back on alighting on a branch. The primary and secondary wing-coverts are conspicuously ornamented with iridescent colours such as blue, green, and bronze. It is a hardy bird, of rapid flight and well able to take care of itself. Twenty-one specimens of this species have been obtained.

The Australian Bronzewing Pigeon (see illustration) is a larger bird than the Crested Dove and an extremely handsome species, the wing-coverts glistening in the sun like so many emeralds and rubies. Ten specimens of this fine bird are amongst the birds obtained for this experiment. The remaining birds comprise three species of Turtle Doves, which call for no special remark.

The birds have been housed and fed by and at the expense of the Zoological Society of London, to whom those who have organized this experiment are much indebted. D.S-S.

STRAY NOTES.

Writing from Hyères on March 26th last, Mr. St. Quintin sends some interesting notes on the early migrants. He writes:—"As regards migrants, I heard the Wryneck on March 13th at Mentone, and many times afterwards, and saw and identified the House Martin on March 18th, and Chimney Swallows, also at Mentone, on the 24th and 25th. This place, Hyères, is a great landing place for birds, but they are harrassed terribly by the pot-hunters for restaurants. Spotted Crakes are killed in large numbers. The likely places in the saltmarshes near here are jealously preserved, and the authorized person seems to work the area at his disposal several times a day, with pointers generally, but with nondescript curs also. I saw a man one day fire both barrels at a White Stork which sailed in over his head, evidently fatigued. It seemed quite close to him, but I was glad to see it settle in the marsh about 300 yards behind him and arrange its feathers. So it was evidently not really hurt. As far as I can make out all shooting comes to an end the last week in April."

We recently had an enjoyable motor-cycle ride to Bath, to see the newly-arrived collection of Australian birds at "The Little Zoo.;" but as Mr. Astley has written an account of this interesting place we will say no more

than that we thoroughly endorse what he says about the excellent condition of the birds and Marsupials and the care that is taken with them. On our way home we passed through Melksham, and as the name of that town is to the majority of aviculturists inseparably associated with that of Mr. C. P. Arthur, we felt that we could not pass on before calling upon him and if possible seeing his birds.

Mr. Arthur has a most interesting collection, which he very kindly took a lot of trouble in showing and explaining. He has a good range of aviaries well adapted for breeding Parrakeets, and in these he has probably bred more Budgerigars than anyone else in this country. At the present time there are only a few of these little Parrakeets, and what there are are mostly Yellows, but we noticed quite a number of the larger species such as Pennants, Adelaides, Yellow-rump, Rosellas, and Redrumps. A well built and well arranged bird-house contained a most interesting collection. Scarlet Tanagers in some numbers, and not one looking in the least bit out of sorts. A variety of other Tanagers such as Superb, Tricolour, and Archbishop; a fine Blue Magpie (*Urocissa*), a Hunting Cissa, Aracaris, several Parrots and others formed a collection that any aviculturist might well be proud of.

Mr. Arthur told us an interesting story of a pair of pure lutino Budgerigars which some of our members will doubtless remember on the show-bench years ago. They were pure yellow without any stripes, pink eyes and pure white cheek spots; altogether different birds to the Yellow Budgerigars which are becoming so common now-a-days. And this was their history. On examining a nest-box Mr. Arthur noticed three very dirty eggs, and decided to wash them. He therefore took them out and asked Mrs. Arthur to bring some warm water. The water was brought, but instead of being only warm it was nearly boiling. Being under the impression however that the water was only warm, two of the eggs were put into it, but immediately realising his mistake the eggs were hastily snatched out with a spoon. The third egg was then washed in warm water and the three eggs were put back in the nest, two being considered by Mr. Arthur to be most probably quite spoiled by the mistake he had made. However, as time went on three eggs hatched, and when the birds grew up and left the nest only one was an ordinary green bird while the other two were the unique yellow specimens above mentioned. We advised Mr. Arthur to try this experiment again, but he said he had often done so, but the result was boiled eggs.

Mr. J. H. Gurney contributes his annual "Ornithological Report for Norfolk" for the past year, to the current number of *The Zoologist*, and as usual it is very interesting reading. The spring migration brought an unusual number of Black Terns, but only one Spoonbill. A small number

of Pallas's Sand Grouse appear to have visited the east coast in June, eighteen years since the last great migration. A very exceptional number of Red-crested Pochards arrived at the beginning of September, possibly due to the great heat which obtained at that time. Several Ferruginous Ducks made their appearance, a Crane, a Pelican, a Great Reed Warbler, Red-breasted Flycatchers, and other rarieties visted the Norfolk coast during the year.

REVIEWS.

BRITISH WARBLERS.*

Books on British birds are common enough, but books such as that of which Mr. Howard has just produced the first part are rare and exceedingly valuable to those who would study the life history of the birds of which it treats.

The Warblers are an insignificant group of birds of skulking habits and very difficult to observe, but as a result of years of patient and careful study and minute observation, Mr. Howard has been able to tell us more of their habits and economy than anyone else has ever attempted to do.

From the prospectus we learn that the work is to be completed in eight parts, in which twenty-three species will be dealt with. Some forty coloured plates, reproduced by Messrs. Greve of Berlin who were responsible for the beautiful illustrations in Lord Lilford's "Coloured Figures of Birds of the British Islands," are promised, as well as about sixty photogravures, maps, &c.

The price is 21/- per part, but it appears that subscribers can have the complete work of eight parts for seven guineas if paid in advance, and at this price "British Warblers" cannot be called an expensive book considering its high quality.

Part I. is now published and deals in an exhaustive manner with the Sedge Warbler and Grasshopper Warbler.

As a frontispiece there is a beautifully executed coloured plate of eggs illustrating those of the Aquatic, Sedge, Reed, Marsh and Great Reed Warbler (34 figures in all); three

**The British Warblers, a history with problems of their lives.* By H. Eliot Howard, F.Z.S., M.B.O.U. Illustrated by Henrik Grönvold. Part 1. Price 21/- net. London: R. H. Porter, 7, Princes Street, Cavendish Square, W.

chromo-lithographic plates of the Sedge and Grasshopper Warbler, and no less than nine photogravures illustrating the various attitudes assumed in courtship and so forth, and we can only say that it is difficult to imagine more beautiful illustrations, and would most heartily congratulate the artist, Mr. Grönvold, and the author who, we understand, made the original sketches from life. Two maps showing the summer and winter distribution of the Grasshopper and Savi's Warbler complete the illustrations.

In the text the author describes minutely the plumage of adults and young, their geographical distribution and life-history, and those chapters especially which deal with the latter subject are stories of the utmost interest and fascination to the nature lover. The nesting habits, courtship and display of the males are minutely dealt with and the attitudes assumed by the males are strikingly illustrated in the plates.

If the subsequent parts are equal to the first, and there is no reason to doubt that they will be, "British Warblers" will be one of the most charming works that has been produced on any group of birds.

We hope to notice the subsequent parts in due course.

THE HYBRIDISING OF DUCKS.*

In this paper the author describes the first fruits of a series of experiments he has been carrying on during the last few years in crossing various species of Ducks, the five species concerned being the Mallard, Spotbill, New Zealand Duck, Meller's Duck and Pintail. In these experiments the author has purposely avoided the question of the Mandelian Laws of heredity, nor has he made any attempt to prophesy as to the result of any particular cross, the object of the experiments being chiefly to try and effect many crosses and, by carefully watching the results, to attempt to "throw some light on some of the great and fundamental problems that underlie and permeate every branch of the science of Zoology, such as variation, heredity, reversion, and so forth."

* *Some Notes on the Hybridising of Ducks*, by J. Lewis Bonhote, M.A., F.L.S., F.Z.S. From the Proceedings of the IVth International Ornithological Congres , 190 .

The result of the experiments proves that hybrids between any of the five species experimented with are perfectly fertile, though one, the Pintail, belongs to a different genus to the others. In fact so successful has Mr. Bonhote been that he has produced a bird which contained the blood of the five species in the one individual.

In dealing with crosses of more than two species it became necessary to invent new terms to denote these, and so the terms di-, tri-, tetra-, penta-, etc. with the suffix -gen were adopted and will doubtless be followed by those who follow Mr. Bonhote in experimenting in the hybridization of species.

The actual crosses obtained are accurately described and several are illustrated in colours, and it is interesting to note that some of the results resemble species quite distinct from either of the parents.

The experiments have been carried out in a very thorough and scientific manner and tend to prove that there is much useful work to be done in this direction. It is a curious and at present unexplained fact that in some groups of animals hybrids between the various species are perfectly fertile while in others they are entirely sterile. Crosses between the various species of *Bovidæ* have long ago been shown to be fertile while in the *Equidæ* they are sterile. Mr. Bonhote has now shown us that the *Anatidæ* produce fertile hybrids, while we know that such apparently closely related genera as *Carduelis* and *Serinus* produce hybrids that are sterile. Why this should be remains a mystery.

THE ZOO GUIDE.

The new edition of the *Official Guide to the Zoological Society's Gardens* (written by the Secretary and published by the Society at 3, Hanover Square, W.) is a most interesting little book, well illustrated with numerous photographs by Messrs. Dando, Irving and Medland. Short accounts of most of the mammals and birds are given and are very instructive and reliable. All who are fond of wild creatures should get this guide. The price is only 6d., or post free 7½d.; or bound in cloth 1s.; post free, 1s. 2d.

CORRESPONDENCE.

"RUTHLESS IMPORTATION OF FOREIGN BIRDS."

SIR,—I am as much impressed by it as ever Mr. Astley can be, but what can we aviarists do? Personally I would never buy a bird again if the wholesale destruction of the Japanese Robin and other foreign birds would thereby be prevented. If he, or any other member could suggest a means, all of us would only be too glad to combine to fight in the cause of those innocent and beautiful creatures we love so well. The few, the very few, out of that one consignment of 6,000 Japs which fell into the hands of the true bird lover, may lead happy enough lives, but what becomes of the rest is a mystery to me: even at a shilling or ninepence each, who buys them? If they do not perish from the crowding, dirt, and fœtid atmosphere of the dealers' shops, they must quickly succumb to the regimen and treatment accorded to the ordinary Canary by the tyro in bird-keeping.

I am glad the so-called Virginian Nightingale is 32/6, on account of its protection, instead of the 15/- it used to be; and so doubtless are other members, though it will debar me from replacing the old friend I have lost after seventeen years. And the dear Blue Robins, too; one can almost be glad one never sees them advertised now, so excellent is the cause!

As for "the slaughter of birds for women's hats,"—that case is quite hopeless, and all one can do is to bear it as best one can, for since fashion so decrees, feathers women will have, though they had to see the birds butchered before their eyes. No matter the example and wishes of our Queen; no matter the pleading of the merciful; the pitiful stories of the poor Egrets and their offspring in the breeding season, have them they will. If babies' scalps were to be *le dernier cri*, after the fashion the North American Indian, we used to read about, wore those of his enemies in battle, it would be all the same, safe to say. I wish Mr. Astley would "snatch off any woman's hat which flourishes Bird-of-Paradise plumes etc., and leave the wearer to go home bare-headed," though I am afraid he would come off second-best when the hour of reckoning came, before the Justice of the Peace, especially if the lady happened to be young and pretty. Now, unfortunately these huge plumes are worn other than in hats,—in the hair itself, as I learned to my cost when I found myself sitting behind one the other night in the stalls of a theatre; little else could be seen than these waving dazzling filaments of the Paradise plume, but what matter bird or audience if only it is "worn"; The "biggest bag" I ever saw on one hat was *fifteen* heads of the Blossom-headed Parrakeet in a shop-window in Regent Street. *Fifteen!* this sounds like exaggeration but it is not, I counted them many times, I tortured myself by counting them. Eight poor heads in a ghastly cluster at the top, seven ditto ditto underneath the brim! The next most tragic spectacle of the kind to come before my

notice was a *wreath* of Bullfinches round a huge crown, the fashion of a couple of years ago; but one could go on *ad infinitum*, and to what avail?

But the "ruthless importation of foreign birds," that is the point in question. Can anyone suggest a means of checking it in any way? for if they can let us hope they will. E. A. H. HARTLEY.

"THE ORIGIN OF BENGALESE."

SIR,—I was much interested in Capt. Perreau's notes on this question in the last number of our Magazine: with respect to his experiments, I should like to make one or two observations; because I feel that it is only by thoroughly thrashing out the subject, that we are likely to arrive at the truth; and it is the truth, and not our own notions, which we wish to prove.

It would appear that, from two of the varieties of Bengalee paired together, one of the young seemed to be typical of *Uroloncha acuticauda;* but it is unfortunate that in the same aviary there were four examples of *U. striata;* because, although Capt. Perreau did not observe any chumming up between the two forms, it is more than likely that the young bird was the result of a cross between the two. As I have pointed out, Mr. Teschemaker's cross between these two birds produced what looked like *U. acuticauda.* I have never heard of such a bird being produced in the numerous instances in which Bengalees were kept by themselves in an aviary.

Whenever I have kept Bengalees either with *Uroloncha acuticauda* or *U. striata*, I have repeatedly noticed that they have struggled and fought, as evening approached, to go to roost in each others' nests, and in more than one instance I have seen the rightful owner dispossessed for the night.

If *U. striata* should succeed in temporarily taking possession of a Bengalee's nest, evicting the male bird, it is quite possible that he would take a hand in the production of the coming family; and, unless one took one's meals in full view of the nest, and kept it in sight from dawn to dark during the whole time in which eggs were being produced, it would not be possible to be certain that out of four Striated-finches in the aviary, not one had influenced the result of the laying: that Capt. Perreau did later on notice a flirtation between a Bengalee- and Striated-finch, even though it came to nought, should have convinced him that his young birds might, after all, not have been produced by Bengalees only.

It is worthy of note that Capt. Perreau and myself are agreed in thinking it possible that both Striated- and Sharp-tailed-finches may have been concerned in the production of the Bengalee: it will be remembered that I suggested *U. striata* as having originated the very similar dark brown and white form; after which the introduction of *U. acuticauda* produced the fawn and white varieties; possibly Capt. Perreau may think it was the other way about. Who shall say? At any rate, we seem to be agreed that

the Bengalee exhibits certain features of both species, and I am quite ready to admit that the tendency to revert to *U. acuticauda* when either species is crossed with the Bengalee favours the view that the smaller and generally weaker fawn (and its white variety) was first produced; yet if a cross between a Striated-finch and Bengalee at the present time results in a Sharp-tailed-finch, how was the dark-brown and white variety ever produced at all? A. G. BUTLER.

INSPECTION OF BIRD SHOPS.

SIR,—Why not appoint a small Committee to visit the different bird shops, and those which the Committee think fit let the names and addresses of the firms be published in the Magazine as suitable places for purchasing birds? I am quite sure the Society could do a lot of good in this respect. Even if my suggestion could not be adopted, surely the Society could adopt a "foreign member or agent" as Mr. Porter suggests. I would help in giving a trifle to a fund if one was required. C. CASTLE-SLOANE.

HOOPOES IN CAPTIVITY.

SIR,—As Mr. E. G. B. Meade-Waldo mentions in the Magazine Hoopoes certainly are difficult to keep. I bought several of these some time ago hoping to keep them in my outdoor aviary, but alas, just as they would fly to the door for mealworms, and were getting so tame that one almost walked on them, they dropped off one by one. They always had a fresh tray full of mould which they loved to probe over, and on coming across a worm would run to a secluded spot and with numerous taps manage to break it up, or, if one was not quick enough to get away, a tug of war would be the result. Although I tried these birds on ants' eggs, raw meat, etc. and some soft food which one of them was supposed to eat, they would have none of it, and subsisted on mealworms only for about six months, so they certainly did get through a quantity as they were not stinted in this their one and only food. C. CASTLE-SLOANE.

"MOORHENS AND COOTS OF INDIA."

SIR,—In my paper on the Moorhens and Coots of India in the April number referring to the Coot, p. 172, lines 1-2, read: "They dive without the preliminary jump. I have since discovered that this is not correct. They *do* jump. This is not discernable *en masse* when seen from a distance, but is quite noticeable, when a single bird is close at hand or viewed through field glasses. Had I had my field glasses with me when I made the notes this error would not have occurred which I feel is now incumbent on me to rectify. GORDON DALGLIESH.

CHEQUERS AND BARS IN PIGEONS.

Sir,—I think the Society may rejoice that I misunderstood Prof. C. O. Whitman's statement as to chequers preceding bars in Pigeons, since it induced him to send us so valuable and interesting an essay on this subject.

The reason for my mistake will be evident when I tell our members that, in the days in which I did much description, I always tried to distinguish between bars, bands and belts, in indicating the markings on a species :—A short narrow stripe I called a bar, a long narrow or moderately wide stripe (whether or not it crossed a wing) I called a band, but a broad stripe of colour which crossed a wing, I called a belt.

In like manner, speaking of individual feathers, where a transverse stripe crosses from one side to the other I call it a band; where it does not quite reach the margins of the feather, a bar* possibly I may sometimes have deviated from this rule, but if so it has been unintentionally.

Now, as Captain Shelley described the young of the Maiden Dove as having "black bars on the scapulars, wing-coverts and secondaries;" as moreover adult birds which are similarly marked are frequently described in the same way,† I naturally concluded that scientific workers in ornithology followed the same unwritten laws which appealed to me; and it never occurred to me that a bar occupying the position of the chequer in another species, would be described as a chequer, and that the band or belt formed by the modification of the juvenal bars would be spoken of as a bar. Looking, therefore, upon chequers as spots of colour and bars as short transverse stripes, I naturally concluded that in the African Bronzewing Doves bars preceded chequers, and I am greatly indebted to Prof. Whitman for his courteous explanation of his meaning. A. G. Butler.

IDENTIFICATION OF WEAVER.

Reply to query from Mr. Kenneth Cookson.

The Weaver, which at first I took to be the male of *Hyphantornis nigriceps* in winter plumage, proves (on comparison with the skins in the Natural History Museum) to be *H. cucullatus*. Males of *Hyphantornis* when out of colour are not easily recognizable excepting by actual comparison.

A. G. Butler.

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* Rows of feathers crossed by transverse bands might constitute a barred wing.

† Pallas' Sand-Grouse—"The plumage may be described as sandy, barred with black or brown," *Tegetmeier*, may be quoted as an example.

III.

NEW MEMBERS.

Mrs. LORT PHILLIPS; 79, Cadogan Square, S.W.

Lt.-Col. J. M. ROGERS (late Royal Dragoons), F.Z.S., M.B.O.U.; Riverhill, Sevenoaks.

Professor C. O. WHITMAN; 5238, Woodlawn Avenue, Chicago, U.S.A.

Mr. E. SONDHEIM; 13, Arkwright Road, Hampstead, N.W.

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Mr. A. B. CROFT; The Clock House, Ashford, Middlesex.
Proposed by Mr. DONALD SWIFT.

The Rev. JAMES SMITH, M.A.; 23, Bristol Road, Sheffield.
Proposed by Dr. J. G. MYLAN.

Mr. P. H. BAHR; Perrysfield House, Oxted, Surrey: *and*

Miss C. ROSA LITTLE; Baronshalt, The Barons, East Twickenham, Surrey.
Proposed by The Editor.

CHANGES OF ADDRESS.

Mr. CHARLES ISAAC, *to* Somerton, Bath Road, Slough.

Mr. STANLEY EDWARDS, B.A., F.Z.S., *to* c/o E. B. Trotter, Esq., 64, Victoria Street, Westminster.

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KENNETH COOKSON, Wylam, Northumberland.

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THE JOURNAL OF THE AVICULTURAL SOCIETY.

CONTENTS.

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Persons wishing to join the AVICULTURAL SOCIETY are requested to communicate with either of the Hon. Secretaries or the Editor.

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All MSS. for publication in the Magazine, Books for Review, and Private Advertisements should be addressed to the Editor, Mr. D. SETH-SMITH, Glengarry, Canning Road, Addiscombe, Surrey.

All Queries respecting Birds (except *post mortem* cases) should be addressed to the Honorary Correspondence Secretary, Dr. A. G. BUTLER, 124, Beckenham Road, Beckenham, Kent.

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Advice is given, *by post*, by members of the Council to members of the Society, upon all subjects connected with Foreign and British birds. All queries are to be addressed to the Hon. Correspondence Secretary and should contain a penny stamp. Those marked "Private" will not be published.

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(*Continued on page iii. of cover*).

H. Grönvold del. et lith. Bale & Danielsson, Ltd. imp.

COMMON HANGNEST, (SUBSP.?)

Icterus vulgaris (limoneus).

THE

Avicultural Magazine,

BEING THE JOURNAL OF THE

AVICULTURAL SOCIETY.

New Series—VOL. V.—No. 8.—*All rights reserved.* JUNE, 1907.

THE COMMON HANGNEST.

Icterus vulgaris (lemoneus).

By Arthur G. Butler, Ph.D. etc.

In October 1902 I wrote an article in the Magazine upon the Brazilian Hangnest (*Icterus jamacaii*) in which I described two birds, the first received in 1897 was in bad condition, and did not live quite a fortnight; the second, which I then supposed to be the same species, in 1899; the latter, however, is a fine specimen of the Common Hangnest, and differs in the yellowish-white colouring of the median coverts, those of *I. jamacaii* being black.

It is evident that these two species are sold, without discrimination, under the name of "Brazilian Hangnest." Both, in their fully adult plumage are more or less deep golden orange (in what I take to be old birds, inclining to orange-vermillion in certain parts of their plumage), the head, throat, breast-plumes, interscapulum, greater part of wings and tail black; both have a more or less white belt across the wing, but in *I. jamacaii*, owing to the blackish median coverts, it is narrow, whereas in *I. vulgaris* it is broad. Both have black bills, with a large patch of whitish ash at the base of the lower mandible; both have a pearl-grey orbital naked patch which extends for some distance behind the eye and pearl-grey feet, yellowish at the proximal end of the tarso-metatarsus; iris transparent bone-yellow; in the females the bills are considerably, nearly half an inch, shorter than in the males, and they are slightly smaller birds.

The Common Hangnest is said to come from the Coast-region of Colombia and Venezuela and Trinidad, whereas the

Brazilian Hangnest comes from S. Eastern Brazil, so that it is odd that they should be confounded by importers.

Dr. Russ quotes some notes on the habits of this species made by Dr. Gundlach at Porto Rico; but they are not only meagre, but probably apply to *I. portoricensis*.

Dr. Hartert writing of this species in an article "On the Birds of the Islands of Aruba, Curaçao, and Bonaïre" (*Ibis* 1893, pp. 297-8) observes that "Peters says that this bird occurs on Curaçao, and is said to be paler than the continental form" this he does not agree with, his specimens having very bright colours. Further he observes: "I did not find any nests; but, as everybody on Curaçao knows, they are totally different from those of *Icterus xanthornus* in not having the long tube.*

"This is much appreciated as a cage-bird on account of its pure flute-like notes, and is often sent for sale from Venezuela.

"This species is not rare in certain places, such as the rocky hills covered with brushwood and cactus, both on Aruba and Curaçao, but it is absent from Bonaïre, thus indicating its immigration from the continent. I saw it in the bush on St. Thomas, where it has already been stated to occur by Ridgway It may have been introduced into that island; but, on account of other affinities between the *Ornis* of St. Thomas and that of Curaçao, this is very questionable." I have been unable to obtain any further particulars as to the wild life of this species.

In December 1906 Miss Joan Gladstone sent me her Hangnest, as it rendered itself objectionable to other birds in the aviary with it. When this bird first arrived and I compared it with that which I purchased in 1899, I felt certain that it was a distinct species, on account of its possession of the following distinctive characters:—

Bird purchased in 1899.

Stoutish in figure, bright orange and black, tail with all the feathers entirely black; median wing-coverts yellowish-white; naked orbital patch completely encircling the eye. Song monotonous, consisting of one slurred dissyllabic note repeated loudly at first, afterwards more softly.

* *I. xanthornus* is a species with black median coverts as in *I. jamacaii*.

Bird presented in 1906.

More slender in figure, bright lemon-yellow and black, tail with white edging to the outer webs of the outer feathers, median wing-coverts pure white; naked orbital patch reduced to a triangle at back of eye. Song far more frequent, represented by at least eight phrases with variations, and not preceded by the "*hookaree, hookaree*" which occasionally precedes that of the deeper-coloured form.*

It seems probable to me that Mr. Peters' birds, seen at Curaçao, may have belonged to this form; and, if it could be proved that the lemon-yellow form were confined to any particular locality, and its superior song or songs constant, its claim to subspecific distinction under the name of *I. limoneus* would be justified; but there are yet several points to be borne in mind:

On examining the skins in the British Museum collection, I found one similarly lemon-coloured male specimen, palpably a badly maltreated cage-bird, with the tips of its flight-feathers worn off, and all the outer tail-feathers knocked out: this bird when perfect probably agreed in all respects with mine. All the other examples were bright orange birds, varying slightly in intensity, the deepest coloured being perhaps old birds: the males and females in about equal numbers (the short bills indicating the latter sex at a glance).

Among the deep-coloured birds I found some with the naked orbital patch as in both types; also the white edging to the tail-feathers was sometimes present and even terminal white spots, proving that these rectrices are variable in *Icterus vulgaris;* so that apart from the lemon-yellow of the body and the purer white of the median wing-coverts, the differences which I have indicated above cannot be traced in the skin.

Of course these American Starlings are equally good mimics with the Old World birds, from which the longer upper covert of the tenth primary and their different mode of nesting distinguish them, but to which all their actions prove close affinity. It is therefore conceivable that an individual might learn the song of some wild bird, living in the vicinity of the

* This initial utterance is characteristic of the *Icteridæ*, occurring in a modified form in different genera: thus *Agilæus phœniceus* is said to commence its song with the prelude—*H'wa-ker-ëë*.

nest in which it was reared; but it seems hardly probable that it would learn more than half a dozen songs, or that it would begin them with an utterly unusual prelude.*

I have reduced the songs of my two birds to words, in order that the differences may be appreciated:

Orange or Saffron form.

Hoókaree, hookaree (2 to 5 or 6 times)—*heo, heo, heo, heo, heo, heo, heo, heo*, or *hooey, hooey, hooey, hooey*, sometimes continued more softly. Beyond the presence or absence of the initial calls there is no variation from the dissyllabic whistle.

Lemon form.

1. *Or-yer, hurri-er, haw, hee; chutcha-caw, chutcha-caw, chutcha-caw, chutcha-caw, chutcha-caw; hee.*

This is the most frequent song, but the following are also frequently uttered:

2. *Or-heer, or-heer, or-choo-choo; chao-hee, chao-hee, chao-hee, chao-hee, chao-hee, chao-hee.*

In each of these songs the initial notes are brought out deliberately, but the repetitions rapidly.

3. *Wheeo, hoo, hear; wheeo, hoo; wheeo, hoo, hear.*
4. *Icher-choo-choo, chehear; icher-choo-choo, chehear; icher-choo-choo, chehear.*
5. *Tirry-et; tee-dao, tee-dao, tee-dao, tee-dao, tee-dao; tee.*
6. *Teddo, teddo, teddo; tittee, titterlee, t'lee.*
7. *Tor: tor: tor: tor: tor-dear, delee; tor-dlee, delee.*
8. *Heer: hippoopoo peer, toodle-year.*

These are all that I have noted; but it is quite likely that the songs of this Hangnest are even more variable: its call-note appears to be *Or-heer, or-heer;* more prolonged than the commencement of its first song, but the same as in the second.

Although certain collectors and visitors to Colombia, Venezuela and the adjacent islands may not have met with the lemon-yellow form in its wild state, it is certain that it has been met with, or it could not have been sent home: it has certainly not assumed its colouring in captivity, inasmuch as dealers do not long keep these birds, there being a ready sale for them;

* My old bird sometimes utters perfectly one of the metallic calls of my Blue-bearded Jay (*Cyanocorax cyanopogon*).

consequently the purchaser may be tolerably sure that the Hangnest he secures has been recently imported. Russ says of *I. vulgaris* "With us it is rare in the trade, and even the largest dealers only import it occasionally." In the second place, the tendency of the orange-coloured birds is, to deepen with age, whether in captivity or freedom: moreover in the genus *Icterus* we have species which are constantly of a lemon-yellow colour; so that it appears to me probable that the bird so skilfully figured upon my plate will prove to be a local race of its species, possibly seen by Peters during some seasonal migration to which it may be subject: as a mere variety, the utter difference of song is a great stumbling-block.

If the *Ornis* of all the West Indian islands to the north of Colombia and Venezuela had been thoroughly studied, it seems unlikely that a species of dove commonly imported in the bird trade from the Island of Tobago, should have been reported as a native of the Island of Grenada, and regarded as a rarity; yet this is what happened in the case of *Leptoptila wellsi*. It is even not impossible that the head-quarters of this yellow Hangnest may be on the same island, and that the two species, —the dove and the starling, may sometimes be sent home in one consignment.*

In any case it seems to me that the form illustrated on my plate has quite as high, if not a higher, claim to be regarded as subspecifically distinct from *I. vulgaris* as *I. curasoensis* has from *I. xanthornus;* in the latter case the paler colouring being the only character indicated; for *length of bill* is merely sexual, unless it can be shown that undoubted males of the two forms have been compared.

Mr. Underwood tells me that one of the larger saffron-coloured species of *Icterus* is a common cage-bird in Costa Rica; and that, in that country, it becomes paler in captivity: this is certainly not the case with either *I. jamacaii* or *I. vulgaris* when kept here; indeed, as already stated, the colouring seems to deepen with age.

* Mr. Grönvold tells me that he has seen three Hangnests at the Zoological Gardens under the name of *I. jamacaii* which he believes to belong to the same race of *I. vulgaris* as my specimen: perhaps they may have come from the same consignment. I have seen one myself, but it is of the ordinary type.

Insufficiently nutritious food may perhaps account for deterioration of colour in the Costa Rican captives: but Hang-nests brought to this country, from Southern Brazil or the West Indies, are not cheap enough for their owners to grudge them good food.

Even could it be shown that the pale type of *I. vulgaris* could be produced by feeding the normal type upon a purely farinaceous diet, it would not account for the total dissimilarity in the song of the two forms, or for the far more graceful outline of the lemon-yellow form.

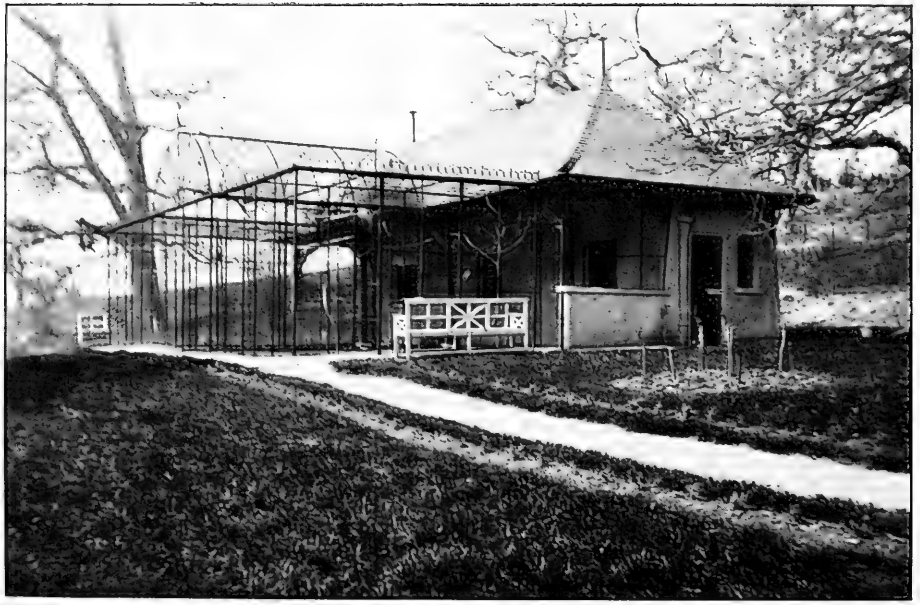
That I have not exaggerated the vast superiority of the lemon-coloured type in the matter of song, is evident the longer I keep the bird; since I constantly hear fresh combinations of word-like notes: the following, which I heard weeks after I had recorded the eight preceding songs, struck me as being strikingly different: "*Tyarl, tittle it-lee, tyarl*; *Tyarl, tittle it-lee, tyarl*; *Tyarl, tittle it-lee, tyarl*."

Undoubtedly the most frequent song is that noted as No. 1, then No. 8 and next perhaps No. 2; the others are only heard occasionally, and it may be that fresh songs are improvised: but in the case of the saffron-yellow type, as already stated, there is never any variation excepting in the presence or absence of the opening *hookaree* and the occasional continuance of the monotonous flute-like whistle in a lower and softer key. Such an absolute dissimilarity in vocal attainments in a wild animal is to my mind more important than colour-differences.

FOREIGN BIRDS AT BENHAM PARK.

Through the kindness of Lady Sutton and her husband Mr. Hubert D. Astley, I recently had the pleasure of seeing the latter's fine collection of birds at Benham Park, and with his permission I propose to tell our members something about it.

On entering the hall I was greeted with the song of a Nightingale, a wonderful songster and beautifully tame bird, brought home with another equally good specimen from Italy. The other was not quite in song but equally tame.



OUTDOOR AVIARY AT BENHAM PARK

Bale, Sons and Danielsson, Ltd.

In a most conveniently fitted up bird-room was a pair of Meyer's Parrots, delightfully tame birds, the male of which allowed almost any liberty to be taken with him though his mate was not so trustworthy. A pair of the very rare Rock Grass-parrakeets, *Neophema petrophila*, occupied a cage here, from which they were to be transferred to an outdoor aviary when the weather was more suitable than during the first few days of May when my visit was made. Four specimens only, I believe, of this charming little parrot were brought home by Mr. Wallace in April, and so far as I am aware no others have ever reached this country alive. It belongs to the "Elegant" group of Grass-parrakeets and Mr. Astley pointed out to me its long and sharp claws, apparently for the purpose of clinging to rocks, and its long tarsi. It breeds in the crevices of the rocks. A third specimen was in the outdoor aviary, the fourth, a weakly bird, having died shortly after its arrival. There are six Stanley, or Earl of Derby's Parrakeets in the Benham Park collection, some in this bird-room and others in the garden aviary. A pair of Yellow-winged Sugar-birds occupied a cage here and were in beautiful condition; but perhaps the rarest bird in the whole of Mr. Astley's fine collection was a small Parrot from South America, which he calls the Violet-bellied Parrot *Triclaria cyanogaster*. It is a bright green bird with a large patch of violet-blue on the abdomen and bright reddish-brown eyes. I have never before seen or heard of an example of this species in captivity. Mr. Astley's specimen is a male, as the female lacks the violet patch. The species is said to be confined to South-eastern Brazil.

In the conservatory was a beautiful pair of Lear's Macaws, tame and gentle as they are rare, but Mr. Astley has already given us an account of these. A fine Blue Whistling Thrush (*Myiophoneus temmincki*) occupied a large cage by himself, while others were tenanted by Port Lincolns (four) Crimson-wings (four) and a female Pileated Parrakeet (*Porphyrocephalus spurius*). One pair of these beautiful parrakeets arrived from Western Australia in April and were secured by Mr. Astley, the male was in perfect condition while the hen was somewhat rough in feather. Both were doing well when by some means they contrived to

escape from their cage in the Bird-room. The window unfortunately was open and the male, who was as wild as a hawk, made good his escape; every endeavour to entrap him was fruitless though he stayed about for some time. Eventually he flew right away, and was shot by a keeper on a neighbouring estate. All who know anything about Parrakeets know how extremely rare this species is, and will sincerely sympathise with Mr. Astley in his cruel misfortune.

A beautiful male specimen of the rare Australian Painted Finch (*Emblema picta*) a species which I imagine few aviculturists have seen alive, occupied a cage with some Ringed Finches (*Stictoptera annulosa*) and Gouldians. A Hangnest (*Icterus xanthorrhous*) and two Grey Parrots complete the list of birds in the house, so far as my memory serves me, but I may have forgotten some. I ought to have mentioned that a spacious balcony outside the bird-room, overlooking the Park with its lake, is used for the birds of the bird-room in the summer. A dove-cot is hung on the wall above this balcony, and last year a Wagtail built her nest in this, and shortly afterwards a Cuckoo's egg was found in the nest, and the young bird was duly hatched and reared by the Wagtails. About the time of the laying of this Cuckoo's egg a female Cuckoo was discovered to have flown into a bedroom the window of which is close to the balcony. Evidently the Cuckoo had watched the Wagtail, and in endeavouring to discover her nest had flown into a window close to the dove-cot where however she eventually discovered the nest. This case seems to me of interest as showing that the Cuckoo watches the birds it intends to be the foster-parents of its young, in order to discover their nest.

But to return to the foreign birds at Benham Park. The outdoor aviary, of which a photograph is here reproduced, stands on high ground behind the house, and is a most ornamental and useful structure. It is divided into three compartments, each with a large open flight. The most important birds here may be enumerated as follows:—a pair of Queen Alexandra's Parrakeets (*Spathopterus alexandræ*) the male, probably the only one in Europe, with very well-developed spatules to the second primaries; five Bourke's Parrakeets (*Neophema bourkei*) which

have lived out in this unheated aviary all the winter, and looked in very good trim; one Blue-banded Parrakeet (*N. venusta*) also in fine condition; a pair of Yellow-mantled Rosellas (*Platycercus splendidus*). A fine pair of Red-capped Parrots (*Pionopsittacus pileatus*) seemed inclined to nest and were driving the other birds somewhat.

A pair of small Guans were delightfully tame and sometimes follow their owner about the garden. The Mountain Californian Quail (*Oreortyx pictus*) is a most handsome species and rarely imported; a few have, however, reached this country and Mr. Astley has a nice pair. These are all the birds I made special note of, but there were numbers of others of less importance.

A number of Pekin Robins were liberated close to this aviary some weeks ago, and several return daily for food. I was specially interested in being shown a nest containing two eggs of this species built in a laurel bush some fifty yards or so from the aviary,—a perfectly natural nest composed of dead leaves, grass and roots, and lined with horse-hair and a small piece of sheep's wool.

Three kinds of Peafowl roam about the Park, the common (*Pavo cristatus*), and its black-winged form (*P. nigripennis*), and a pair of the very handsome Specifer or Burmese Peafowl (*P. muticus*).

In an enclosure of several acres of fen-like ground, carpeted, when I was there, with marsh-marigolds and cuckoo-flowers, where in warm evenings the trill of the Grasshopper-Warbler is heard and the Sedge-Warbler's harsh notes appear to come from every patch of reeds; in this delightful spot Mr. Astley keeps his Cranes, a most handsome collection consisting of six Demoiselles, two white Asiatic, five Australian "Native Companion," three Balearic and two European, and with them a pair of Black Storks. The position would seem to be ideal for a breeding place for Cranes, but I imagine they would need to be separated in pairs for breeding. They are a most ornamental group of birds and Mr. Astley's collection looked most picturesque.

One part of the lake, a goodly expanse of water, is set apart for Waterfowl, which have an island all to themselves, and here

are many rare and beautiful species. Of Swans I noticed the Black-necked, Black and Coscoroba, the last a peculiarly goose-like bird but a true Swan nevertheless, with bright red legs and bill. All the commoner ornamental ducks were represented, such as Chiloe Widgeon, Carolina, Mandarin, Chilian Pintail, and so on; and some remarkable hybrids between Rosy-billed and Tufted Ducks.

The Ibis aviary has been built so as to take in part of a stream as well as growing trees, an excellent arrangement. Shelter is provided by a thatched shed. Here I noticed Straw-necked, White and Glossy Ibises.

In a meadow some distance away we came upon the Rheas, two of which were pure white. One white male had just commenced to sit and we did not disturb him.

The newest additions to this fine collection are two Spotted Emus which have the run of an orchard. They are quite young birds and even now appear to me to be almost as large as ordinary Emus. It seems at present doubtful as to what species these birds, which Messrs. Payne and Wallace imported, belong, but they are said to grow to a much larger size than the common Emu ever attains to.

In a letter just received Mr. Astley writes—"My Emus are too funny. They have wild games of play with me, suddenly tumbling down on their sides as if they had been shot, and then as suddenly leaping up again. These birds and the Cranes strongly evince their joy of life, and there are vibrations of laughter in the air when they dance and play."

D. Seth-Smith.

THE KAKAPO OR OWL PARROT.

This very rare and remarkable New Zealand Parrot, one of the most extraordinary and aberrant types of the whole family, is said, doubtless with truth, to be on the verge of extinction. The arrival therefore, on May 28th, of a living specimen, at the Zoological Gardens, the first specimen to be exhibited there since 1875, is a matter of no small importance and satisfaction.

Feeding on fruit, roots, leaves, seeds, grass and so-forth

the Kakapoo, Owl-Parrot or Night-Parrot is entirely nocturnal in its habits, passing the day in some hole or under thick ferns or brushwood, issuing forth only after dusk to seek its food. It appears to be mostly terrestrial, though it may climb small trees to feed on the fruit or leaves. It is incapable of flight, and its plumage is mottled green and brown, closely resembling its mossy surroundings.

Stringops habroptilus.

From Mivart's *Elements of Ornithology.*

Unfortunately most of the interesting native birds of New Zealand are rapidly becoming extinct before the steady advance of colonization with its inevitable accompaniment of predaceous animals such as cats and other vermin, and it cannot be long before these wonderful survivors of a primative race of Parrots are entirely wiped off the face of the Earth. Such a state of things is extremely regrettable, but inevitable. It is greatly to be hoped that the specimen now at the Gardens, where it has been deposited by the Hon. Walter Rothschild, may at least survive for some time. If others could be obtained there would seem to be no reason why the species should not breed in captivity.

D. S-S.

HOOPOES AND CUCKOOS.

Without having experienced it, it is impossible for any person to realize the charm of the Hoopoe in captivity, as it flits about one in the aviary like some large butterfly, or trots after one in the birdroom with tiny pattering feet; and we may be sure that from time to time it will continue to be included amongst our occasional pets; and it is therefore in the hopes of saving the lives of a few of these birds, not for the purpose of picking holes in my neighbours' jackets, that I venture to rush into print on the present occasion.

I have had altogether twelve Hoopoes, a few living for long periods; and I eventually came to the conclusion that *the* difficulty with the Hoopoe—at any rate here in London, *with the reverse of suitable accommodation*—is to keep it warm enough all through the year. It is nothing to have a Hoopoe for a few months in summer; but just to keep it for this present enjoyment without a thought for its subsequent welfare is an unworthy spirit for all true lovers of birds. Let not those venture to keep the Hoopoe who are not prepared to attend to its needs.

When quite young, and suddenly and without preparation loosed into a garden aviary, the comparative cold will quickly kill it; and even in what we in this country are pleased to call 'warm weather,' the mere damp or coolness of the ground—and the young Hoopoe, with occasional flits, is ever on the ground—seems to strike upwards into the abdomen and produce a severe form of constipation. This I found, though otherwise fatal, if dealt with promptly, could be remedied by putting fluid magnesia into the bread-and-milk*, a convenient medium for administering it, and one the Hoopoe takes to very readily—but prevention is better than cure.

A seasoned Hoopoe cannot well have too much liberty during warm weather; but, as the cold season advances, it must be shut into some protected place during the night; and during

* A Hoopoe will not eat bread-and-milk, nor any food, neatly from a dish, but picks out a piece and carries it off, rolling it in dust, sand, just as it may chance to be. I found it best to place the food dishes, *small* ones, on a large piece of floor-cloth, kept scrupulously clean. This helped to minimize the evil.—R. P.

winter and spring it must not only be shut up but kept warm. It is a delicate species and must be treated accordingly.

Another difficulty, mentioned by Mr. Meade-Waldo (p. 193), is to keep the bill of the Hoopoe in good order. I have never had a case of the bill *splitting*, and consider that such a calamity need not, nay, should not, occur. I think it is the result, perhaps, of too much warmth without due provision being made for the moistening of the bill, aggravated it may be by the heated condition of the system from too good living. Any way, it is preventible, and that without special difficulty or trouble. A depth of *damp* sand is sometimes recommended, and this is right as far as it goes, and may be helpful, or even necessary in some places. During the winter, when the bird cannot probe in the garden, plenty of sand or something soft must be supplied; but I never myself started a *damp* prodding-ground in my birdroom. Presumably the bread-and-milk and other moist and cooling foods were sufficient, for I never had any bill-*splitting*. But a few of my older Hoopoes, only two or three as far as I can remember, did suffer from their bills getting out of order in another way. In a dry summer, the ground in the garden becomes hard; and the two mandibles of the Hoopoe—it is always at work prodding away—became separated at the tips, the one from the other, the closed mandibles did not touch one another throughout their whole length. The affected birds did not seem much or any the worse, and the defect, although unsightly, did not seem to cause difficulty in picking up food. This state of the bill was certainly caused by hard ground; exactly the same thing happened to the mandibles of one of two Woodcocks I had many years ago, and I think also to those of a Snipe. An endeavour should be made, therefore, at all times and in all seasons, to provide suitable prodding-ground for the Hoopoe. I once knew of a captive Woodcock whose worms were placed in a thick bed of damp moss. It is possible that moss, or even moss litter, might prove of use; I have never tried either myself.

I gather that Mr. Meade-Waldo has not himself kept this species, or he would hardly recommend just the food that he does (p. 193).

First, a word as to ants' eggs, mentioned by him and by

Mr. Astley (O. S. VI. 47). If these gentlemen mean the fresh cocoons of the larger species of ant, I can understand the possibility of a Hoopoe being clever enough to get one down; but if by 'ants' eggs' we are to understand the ordinary dried cocoons sold to us in this country, I must confess to being a little puzzled. Has either gentleman actually seen a Hoopoe pick up and swallow an ant's egg? If either has, of course that settles the matter; but if neither has seen the operation, I must express a doubt as to the ability of a Hoopoe to 'mandibulate' one. The Hoopoe is not the only difficult subject for which ants' eggs are recommended that simply could not possibly feed upon them.

Birds that have been fed up to Show-pitch on mealworms do not usually last well. Mr. Castle-Sloane (p. 223) tells us what is the end of the Hoopoe that has developed the mealworm habit—'they dropped off one by one.' Mr. Astley (O. S. VI. 47) enters more into details. His seven birds in their enviable quarters must for a time have picked up a quantity of natural food; but, as the supply fell off, the reserve stimulants (mealworms and raw meat) began to tell. He writes:—"Why they died is a mystery to me, for they all collapsed before September was out, and had in the meanwhile had every privilege: magnificent weather, full exercise, natural food as well as ants' eggs, mealworms and raw meat when they needed it; and yet as each one moulted their skin seemed to be attacked by a sort of scurvy, and the new feathers dropped out when about half grown and when still to a great extent in the quill stage. One or two of them had fits into the bargain, and all seven died." He had written previously:—"After a week or so I ventured to open the door and let them fly loose in the garden, and it was the prettiest and most uncommon sight to see seven Hoopoes flitting along the terrace towards me when they spied the tin of mealworms in my hands." The temptation to use that 'tin of mealworms,' to encourage one's dearest pets to fly about us, is almost irresistible, at least I have sometimes found it so; how *can* one disappoint a tiny mite that settles so trustingly on one's hand and tries to force open the closed fist, and to insert its bill between the fingers, and then looks up so pleadingly into one's face? I have succumbed only too often—and so have the birds, for it is fatal!

When I was a boy in the country, I often kept the Cuckoo. Some twenty odd years ago, I found a Cuckoo in a London bird-shop. It was a typical specimen of what the Cuckoo in captivity usually is, but which it need not and should not be; however, old associations were too strong, and I bought the poor creature. This bird had the raw meat habit, and would not look at anything else; and I did not then know how I ought to act. In the course of time, it fell into much the same state as Mr. Astley's Hoopoes. Unquestionably, it seems to me, they died from too high living, no attempt being made to supply a corrective.

In May, 1898 (O.S. IV. 121), when writing about the European Roller, I pointed out that it did not drink, that in captivity it ate fruit, etc., and mentioned my Hoopoes, only two of which out of the twelve drinking water. After referring to raw meat, mealworms, etc., I went on,—"My experience with the Hoopoe . . . . has taught me that the first thing to be done with a Roller is to get it on to sop—milk-biscuit sop is what I actually provide. This supplies moisture; the bird takes to it readily, and seldom tires of it." Again, on p. 123, I wrote,—"The Hoopoe, if I mistake not, is supposed to be wholly insectivorous; my birds were not so. In addition to milk sop, I have it recorded that they partook of rice pudding, stewed pear, and boiled cabbage; that they were very fond of tomatoes and stewed onion; that they had been seen eating young shoots of Virginia creeper; and that they were very fond of cherries (uncooked) and red currants. They also tried grapes, but had difficulty in 'manipulating' them. I still have a lively remembrance of their eagerness and excitement when cherries were tossed down, each bird seizing and rushing off with its prize; using the bill as a gouge, they scooped the flesh off the sides as cleverly and neatly as if they had been at it all their lives." In theory, Mr. Astley's and Mr. Castle-Sloane's system of feeding was wise, and mine foolish, ridiculous. But their birds died, and mine lived—so far as food was concerned. Mine never had fits, nor anything wrong with skin or feathers,—chill, consumption (generally the second or third year), and accidents disposed of my twelve. The additions to the 'natural' diet which I have mentioned must have tended to cool their blood; and the general treatment stopped all

tendency to bill-splitting. The consumption was not caused by want of nourishment, but by my slowness to realize that they needed so much protection from cold, especially in the spring of the year, and by my letting them out too much in the cold weather.

I must be pardoned for pursuing the subject of green food for supposed purely insectivorous species, *when in captivity*, a little further.

How many of you are aware that our Common Cuckoo, at any rate the real thing, without a feather broken, flying loose in aviary and birdroom, is *very keen after green food?* In olden days, during the winter, I used to grow green food in gardeners' 'striking' pans; and I certainly was surprised to find that the most eager bird to visit these pans was the Cuckoo. Its great delight was the head of the sprouting pea when an inch or two above ground,—these were immediately singled out and devoured by the Cuckoos. In the spring, I planted peas in the garden especially for them; and on a warm day when they were let out there were two special attractions, a ray of sun and the sprouting peas. Now these Cuckoos were for the most part loose, and free to feed upon what they liked. But here a caution:—although, as has frequently been remarked, the bird loose in the aviary can often eat even frosted green food with impunity, green food given to the same bird while in a cage may cause its death from peritonitis.

The adult wild Cuckoo, as a rule, is a difficult bird to watch, so one must not be too positive; but I have no recollection of ever having seen anything that would lead one to suppose that it eats green food, and I fancy that no one has yet suggested that it does. Assuming, therefore, that the wild bird does not touch green food, how are we to account for the aviary bird taking to it of its own free will? I suppose that if the bird has been fairly well kept, and no mealworm or other 'drug' habit set up, some wonderful instinct impels it to devour alien foods that will correct the evil results of unnatural diet or treatment, just as the captive dog, cat, and lion takes an occasional dose of grass.

I remember reading somewhere—and surely there is

something in it—that we all live on green food, I think it was upon grass, directly or indirectly. We humans devour great quantities of grass—too much the Vegetarians tell us: then our regimen is more correct than theirs—through the medium of the ox and the wether; that is, these beasts eat the grass and we eat the beasts, taking the grass at second hand. And so with the wild lion, etc., who will not touch the carrion-eating hyæna and jackal, but goes for the grass-eating antelopes and the like, living, therefore, upon grass, taken through the medium of the antelope. And so of the Cuckoo. Although it does not go in very much for grass, yet it consumes great quantities of green food through the medium of the caterpillar. I will leave it to my readers to apply the argument to the Hoopoe. Any way — keep your Hoopoe warm, provide suitable prodding-ground, and beware of the mealworm.

I think I must narrate the story of my last pair of Hoopoes. They were very good birds, I understood their wants and ways, and was hopeful of breeding the species. The female had an extraordinary craze for boot-laces. The instant I appeared, she would vigorously attack my boots, and without ceasing would continue the attacks as I walked or rather endeavoured to walk about. And when one day the bird-girl trod upon her, and crushed out her poor little life, sorely grieved though I was I did not utter a word of reproach. But my leniency was misplaced, for it only made her careless. The birdroom window opens on to the garden aviary; and, when the lower sash is thrown up, the birds fly backwards and forwards. When it is closed, a movable wire-netting screen prevents the birds from flying against the glass, a separate screen protecting the upper sash. Now it is the very strictest rule that not under any circumstances is the lower sash, when down, to be left unprotected. The surviving Hoopoe's favourite seat was on a thick bough fixed up high across the room; and it was his constant habit to take a dive, or 'header,' off this perch down through the window into the aviary. One day, this same bird-girl came to me:—"Please, Sir, Oo-poop (her name for the Hoopoes) 's a lying on 'is back on the floor, a kicking on 'is legs in the air." I rushed to the birdroom; the window was shut, the glass was unprotected, and on the floor

lay the Hoopoe on his back, dead. He had taken his customary header, had struck the glass and broken his neck. It was a case of deliberate disobedience on the part of the girl, shutting the window and leaving it thus without the screen. Oh! the intensity of the anger that burned in my heart. I could have scragged the wretched creature with the greatest delight. Suffice it to say that from that day to this I have never kept a Hoopoe—nor a bird-girl!!! REGINALD PHILLIPPS.

ARRIVAL OF RARE FOREIGN BIRDS.

The last twelve months or so have been spent by Mr. Walter Goodfellow in a collecting trip in New Guinea and the surrounding islands, and on the 28th of May he reached home with quite the most remarkable collection of living birds that has ever arrived in this country. These birds, which are now in Mrs. Johnstone's fine aviaries at Burrswood, Groombridge, consist of no less than three species of Birds of Paradise, a Great Black Cockatoo, a Racket-tailed Parrot, rare Lories and Lorikeets.

The Twelve-wired Bird of Paradise (*Selucides alba*) is an extremely beautiful species, of which an example, probably the only one to reach this country alive before the present importation, was at the London Zoo. in 1881.

The Red Bird of Paradise (*Paradisea rubra*), of which there are two examples, is much like the Great Bird (*P. apoda*), but if anything more beautiful, and the plumes are red instead of yellow as in the latter species. Mr. Goodfellow has secured several *pairs* of the King Bird of Paradise (*Cicinnurus regius*) the female of which has never before been brought alive to England. In fact these are the first hens of any Paradise Birds to reach this country. Mr. Goodfellow has been most successful with these birds. He managed to get them on to hard-boiled egg very soon after they were caught, and he tells me this was a most useful diet for keeping them in condition. This was afterwards mixed with insectivorous bird-food and the birds gradually became accustomed to this and have done well on it, all being in wonderfully good plumage and condition.

The Great Black Cockatoo (*Microglossa aterrimus*) of which Mr. Goodfellow has brought home one specimen, is a most extraordinary bird with an enormous bill, well adapted for breaking hard nuts, upon which it largely subsists in a wild state. The lower part of the face is bare of feathers and the skin bright red. The bird is wonderfully tame and gentle and delights in being petted.

Of the Lories and Lorikeets the space at my disposal will only permit of the briefest notice being given.

The Black Lory (*Chalcopsittacus ater*), three specimens, all in good condition and extraordinarily tame and gentle. Only one specimen has been previously imported (*cf.* Vol. III. N.S. p. 147.)

One specimen of *Eos fuscata* from New Guinea, extremely rare, and imported now for the first time.

One specimen of *Eos cyanogenys*, equally rare, also from New Guinea.

One pair of *Eos semilarvata* from Obi, a small island off the north west of New Guinea. There is no specimen of this in the British Museum and its habitat was hitherto unknown.

Two pairs of Black-throated Lorikeets (*Trichoglossus nigrigularis*) from the Aru Islands (*cf.* Vol. IV. N.S. p. 21).

Three specimens of the Green-naped Lorikeet (*T. cyanogrammus*) from Western New Guinea.

A fine specimen of the Racket-tailed Parrot (*Prionoturus platurus*) of which species a coloured plate appeared in our Magazine (Vol. I. N.S. p. 345).

There is one other pair of Lorikeets at present unidentified, which will probably prove to be rare, and one or two species of Bulbuls and Starlings of which space will not allow me to speak. I am much indebted to Mrs. Johnstone for allowing me an opportunity of seeing this unique collection.

D. Seth-Smith.

HUMMING BIRDS AT THE ZOOLOGICAL GARDENS.

The Zoological Society is indebted to Captain Albert Pam for many very valuable and rare South American birds, but the most wonderful collection of all arrived at the Gardens on May 27th, and consisted of no less than twenty living Humming

HUMMING BIRD.

From Mivart's *Elements of Ornithology*.

Birds, which were at once placed in two special cases in the Insect House. These comprised no less than four species, all from Venezuela; the Emerald Humming-Bird (*Eucephala cœrulea*), the Venezuelan Amazilia Humming-Bird (*Amazilia feliciæ*); the Oenone Humming-Bird (*Chrysuronia œnone*), and Prevost's Humming-Bird (*Tampornis prevosti*).

Our members should not lose any time before inspecting this extraordinary collection, for these curious, and in many ways very insect-like creatures, are short-lived however carefully they are tended. Sunlight seems to be indispensible to their exist-

ence, and on dull days they mope and look unhappy, however high the temperature of their abode may be kept. If the temperature drops below a certain degree they become torpid and apparently lifeless, but revive when warmed again. Of course in their new home the temperature will never be allowed to fall below about 70° Fahrenheit, but on the journey from Southampton to London it was impossible to keep them warm enough, and on arrival some were found to be in a torpid state. One appeared to be dead, but on being placed close to the hot-water pipes it quickly revived and was soon buzzing about the house like a big moth.

Besides the Humming-Birds a few other rarities arrived, mostly Tanagers which, so far, are unidentified; one especially interesting bird is a Cardinal, which appears to be *Paroaria nigrigenis*, an adult and an immature specimen. This appears to be quite new to aviculture. D. S-S.

THE DOVE ACCLIMATIZATION EXPERIMENT.

On the first of May the first batch of Doves, which had been housed for some time in the Southern Pheasantry of the Zoological Society's Gardens, were liberated. The morning feed was withheld until eleven o'clock, the time appointed for the liberation. The food was thrown down just outside the door, and the birds quickly commenced to descend from the perches and leisurely walked out. There were in all between thirty and forty birds, nearly all of which walked out and fed on the lawn; but immediately they were satisfied they commenced one and all to return to their aviary. One Half-collared Dove which happened to fly out of the door seemed too frightened at finding itself free to settle, and after circling round once or twice took a bee-line to the north-east and was soon lost to sight. We hardly expected to see this bird again, but the next day it was perched on the Western aviary.

After about a dozen birds had returned to the aviary we thought it advisable to quietly walk up and shut the door so that some at least should have their freedom. Those that were out commenced to walk and run over the grass and flower beds, and

several flew up into the trees and some made for the Park. The Crested Doves began to show us their true wild flight, which can never be seen in an aviary however large this may be. The flight of this species is extremely fast. The crest is laid back and the bird with its long tail presents the appearance of a Cuckoo except that it flies much faster. It is very fond of flying up to a height and then swooping and circling round on outstretched motionless pinions, and alighting on the perch it has just left; and on alighting the tail is thrown up over the back in the manner familiar to those who know the bird in captivity. Twenty-three birds, consisting of eleven Crested Doves, four Bronzewings, three Half-collared, four Necklaced and one Senegal Dove were given their freedom that day. Ten days later about ten more were let out.

These birds were purchased with money subscribed by a few members of the Avicultural Society and a few were presented by members. A balance sheet has been sent to the subscribers, some of whom have witnessed the liberation of the birds.

I am glad to say that there are still a number of Crested Doves, the species best adapted for this experiment, to be liberated, for since the others were let free I have received a donation from His Grace the Duke of Bedford, who has taken great interest in the experiment, which has provided for the purchase of ten pairs of Crested Doves, eight pairs of which have already been delivered and the others are expected in a few days. Three pairs of Senegal Doves have also been obtained. These are in somewhat rough feather, and will be kept in the aviary until their plumage has improved.

It is of course difficult at this early date to say whether the experiment is destined to succeed or fail, but there seems every prospect of the Crested Dove at least becoming established. One can almost always see five or six of these about in the Gardens at any time of day if one knows how and where to look for them, but the leaf is getting so thick that it becomes more difficult every day to see the birds. A feeding-table to which quite a number of the birds return morning and evening, has been erected on the lawn near the aviary from which the birds

MANDARIN DRAKE,
Showing plumage when in repose.

MANDARIN DRAKE.
Difference in plumage under emotion.

Photos by W. P. Dando. From "Ornithological Oddities," by F. Finn.

Bale & Danielsson, Ltd.

were liberated: this is with the object of keeping the food from the rats which are all too numerous in the Gardens.

I am told that some of the birds have taken up their abode in the Botanical Gardens, and there is little doubt that others have spread to various parts of Regent's Park. The Superintendent of the Park has taken an interest in the experiment and instructed the park-keepers to protect the birds.

D. SETH-SMITH.

REVIEWS.

BIRD-LIFE OF THE BORDERS.*

The first edition of this classical work was published eighteen years ago, and for several years past has been very scarce; now a much needed second edition has appeared. This is not by any means merely a reprint; it comprises more than a year's work on the part of the author, and much of the book has been practically re-written.

We need not remind those of our readers who are versed in ornithological literature that the author of *Bird-Life of the Borders* is one of the most experienced ornithologists and general field-naturalists of the day. One has only to read one or two of his delightfully written chapters to see this at once. Every chapter is fascinating, but perhaps those on migration have delighted us most. The difficult subject is treated in the most thorough manner and will well repay careful reading. The chapters dealing with "Springtime on the Moors," "Summer on the Moors," "Autumn on the Moors," "Midnight on the Oozes," on the Waders, Grebes and Divers, are no less interesting. In fact there is not a dull page in *Bird-Life of the Borders*, in which the numerous illustrations are excellent.

"ORNITHOLOGICAL ODDITIES." †

This is a most entertaining book, written in an attractive

* *Bird-Life of the Borders*, on Moorland and Sea, with faunal notes extending over forty years. By ABEL CHAPMAN, F.Z.S., with coloured Map and numerous illustrations. London: GURNEY & JACKSON, 10, Paternoster Row. Price 14/- net.

† *Ornithological and other Oddities*, by FRANK FINN, B.A., F.Z.S., late Deputy Superintendent of the Indian Museum, Calcutta. London: JOHN LANE, The Bodley Head, Vigo, Street, W. Price 10/6 net.

style by a very versatile author. It is a collection of articles, most of which have appeared before in such papers as *The County Gentleman, Country Life, The Field, The Spectator*, and others. Such articles are much too valuable to be scattered about in newspapers and it is very satisfactory to find that they have been collected together in a permanent form. Wherever one happens to open the book one comes across something of interest; and the chapters deal with very diverse subjects, such as "The Courting of Birds," "The Raven on the Pampas," "Birds that talk and mimic," "A Calcutta Bird Colony," "Japanese Aviculture," "The Birds of an Eastern Voyage," "Monkeys I have met," and so on. Mr. Finn believes that "the man in the street" has more interest in natural history than he is generally credited with, and so this volume is primarily intended for those who do not profess themselves to be experienced naturalists, but we venture to think that many of such might read this book with profit. It contains a number of good photographic illustrations, and we are able to reproduce, with the Author's and Publisher's permission, two very good ones of the Mandarin Drake, by Mr. W. P. Dando. Writing of this delightful bird, in a chapter headed "The Courting of Birds," Mr. Finn remarks:—"Another specially adorned bird is the Mandarin Drake (*Æx galericulata*), whose extravagant decorations and extraordinary contrasts of colour seem almost incredible in a natural species. He differs from all other ducks, even his near ally the Summer or Carolina duck (*Æx sponsa*), in the chestnut hackles on his neck and the similarly coloured fan-feather in the wings. Accordingly, when showing off, he curves his neck back like a fantail pigeon, and by slightly opening and inclining his wings brings his fan into an upright position, at the same time lifting his bushy crest as high as it will go." Mandarin Ducks make ideal aviary birds if unpinioned and given a *large* enclosure. They must have water, but quite a small pond will suffice; they perch readily, being naturally tree ducks, and perfer to nest at a considerable height from the ground.

IMMIGRATION OF SUMMER BIRDS.*

Under the heading of "Stray Notes," on page 198 of Vol. IV. N.S. 1906, we referred to the first Report issued by the Committee appointed by the British Ornithologists' Club to collect evidence regarding the immigration of summer migrants. This was very instructive and valuable, but it will be at once recognised that the results of one year's observations are entirely inadequate to elucidate the complex problems presented by this phenomenon. The combined results of several years observations are necessary before any definite results can be obtained, and hence it is intended to carry on these observations for several years.

The Second Report is now published, and deals with the immigration of the Spring of 1906. The number of observers has been largely increased, but more are still required as a few districts are still unrepresented. The Report is a valuable record and reflects great credit on the observers and especially the Migration Committee of the British Ornithologists' Club. Those who are interested in the subject of Bird Migration should not fail to possess themselves of it as well as the previous Report issued last year.

A NEW BRITISH BIRD MAGAZINE.

Under the title of *British Birds* a new monthly illustrated magazine is about to appear under the editorship of Mr. H. F. Witherby, and Mr. W. P. Pycraft, both well-known ornithologists and members of the British Ornithologists' Union. Original articles, notes, correspondence and reviews will appear with good photographic and other illustrations. Part I. will be ready when this is in the hands of our members, and will contain articles by Messrs. Howard Saunders, P. H. Bahr, W. P. Pycraft and F. C. Selous, while many other well-known ornithologists have promised contributions to future numbers. The magazine, which will be in no sense a commercial venture, will be published by Messrs. Witherby & Co., at 1/- net (annual subscription 10/6 post free) from 326, High Holborn.

* Report on the Immigration of Summer Residents in the Spring of 1906, forming Vol. XX. of the Bulletin of the British Ornithologists' Club. London: WITHERBY & Co., 326, High Holborn. Price 6/-.

CORRESPONDENCE, NOTES, ETC.

A NEW INSECTIVOROUS BIRD FOOD.

Messrs. Trower & Co., of 442, Caledonian Road, London, N., have sent us a sample of a new food for insectivorous birds, made, we understand, from the recipe of Mr. Allen Silver, a well-known authority on insectivorous cage-birds. The ingredients, the chief of which consist of ants' cocoons, dried flies, and preserved yolk of egg, appear to be of very fine quality indeed. The price of the food is very moderate, only one shilling per pound, at which it could not be produced were it not for the fact that the ingredients are procured in very large quantities.

It appears to us to be an excellent food which we can recommend our members to try. It keeps indefinitely, only requiring to be moistened with water for use, or it can be mixed with grated carrot or mashed potato.

TINAMOUS.

SIR,—I have just got a pair of Tinamous (said to be *Rhyncohris perdicarius*). They are small birds about the size of a Partridge. As I know nothing about this class of bird I should be glad of some hints as to management.

At present I have them in a small grass run with wooden shelter facing south, and I am feeding them on wheat and millet with a few mealworms. I have put down several heaps of fir branches in the run for the birds to live in, as they are at present very shy.

I shall be glad to know as soon as convenient if the feeding is correct, also if the birds will be hardy in winter and if they are easy to breed.

May I venture to suggest that an article in the *Avicultural Magazine* on the various sorts of Tinamous and their management would be much appreciated by members. C. BARNBY SMITH.

The following reply was sent to Mr. Barnby Smith:

I have kept one species of Tinamou only,—*Crypturus tataupa*, an account of which, with a coloured plate, appeared in Vol. II. of the New Series, pages 285-292 and 362-363. I am unacquainted with *Nothoprocta perdicaria*, but so far as I am aware the habits of most of the Tinamous are practically alike. The male is *smaller* than the female and performs the entire duty of incubation and the rearing of the young, and moreover these birds are polyandrous, the female laying successive clutches of eggs to two or more males. Thus in captivity, when the hen has laid a clutch which the male has commenced to incubate, she should be allowed to run in another enclosure with a second male to whom she will lay a second clutch.

The Tinamous are grain and insect eaters, and my Tataupas fed chiefly on the smaller seeds such as canary, millet and hemp. Green-food is most important, and the young are reared almost entirely upon insects for the first ten days of their lives, after which they will eat soft food of which yolk of egg forms a fair proportion; finely chopped green-food, such as chickweed, should be added to the soft-food. Small seeds are eaten after the first week or ten days. I reared my young Tataupas chiefly on small gentles which, when properly cleaned in sand, are extremly good and wholseome food.

An article such as you ask for would be very valuable, but so little is known of the habits of most of the Tinamous that I do not know who is to write it. I hope we may someday have one from you describing the nesting habits of *Nothoprocta perdicaria;* meanwhile you might look up the article I have mentioned and another note in the same volume (page 114) on *Calopezas elegans.*

N. perdicaria inhabits North and Central Chili, so would probably need artificial warmth during an English winter. D. Seth-Smith.

"THE ORIGIN OF BENGALESE."

Sir,—I am glad to see that Dr. Butler and Captain Perreau have reached a point of agreement as to the origin of Bengalese, for it is a regrettable though acknowledged fact that aviculturists feel generally compelled to come to opposite conclusions on the majority of debatable questions.

I expect that most of us will be ready to accept their conclusion, namely, that the Bengalee of commerce can and has been produced from either the Sharp-tailed Finch or the Striated Finch, or from both of these species.

Dr. Butler concludes by asking "If a cross between a Striated Finch and Bengalee at the present time results in a Sharp-tailed Finch, how was the dark-brown-and-white variety produced at all?"

Perhaps it may be of interest to mention that two of my Bengalee-Striateds, which have been referred to several times in this connection and which Dr. Butler rightly describes as closely resembling adult Sharp-tailed Finches, have this year paired and produced three young.

One of these exactly resembled the parents, but the other two were a typical dark-brown-and-white and a typical fawn Bengalese.

I think, therefore, it would be safe to assume that, after a few more generations of in-breeding, the Sharp-tailed Finch type would disappear.

I must not omit to mention that there were no Bengalese in this aviary, and therefore there can be no possible question as to the parentage of these young birds. W. E. Teschemaker.

SYNŒCUS AUSTRALIS IN NEW ZEALAND: THE NEW ZEALAND QUAIL.

Sir,—It was with pleasure that I read your article on the Quails of the genus *Coturnix* in the November number of our *Avicultural Magazine*, and in showing the article to some of my friends in the locality they assured me that the New Zealand Quail is not extinct, at any rate in these far northern parts of the North Island.

To make sure whether the Quail of this part is *C. novæ-zealandiæ* or not I take the liberty of sending to you a skin of one which I obtained in March of this year. Will you be good enough to pass your judgment upon it as to whether it is or is not *C. novæ-zealandiæ* as I am here isolated from works of reference.

The Quail of this species (represented by the skin) is not what one can call numerous here, but is to be seen occasionally in pairs or quite small parties. This summer (now just closed) seems to have been a favourite one for Quail and other ground birds owing to the rainfall being frequent and above the average with the consequent check upon the bush flies which do so much to decimate bird life.

Of course if this should turn out to be *C. novæ-zealandiæ* there is quite a possibility of your yet being able to keep and breed them in captivity.

Trusting you will have a successful avicultural year.

Robin Kemp.

Umawera, Hokianga, New Zealand,
April 7, 1907.

[The above letter is very interesting, but unfortunately the Quail sent is not *C. novæ-zealandiæ* but the Swamp Quail (*Synœcus australis*) of Australia. So far as we are aware however this species was not known to exist in New Zealand. Mr. Ogilvie-Grant, in his *Handbook to the Game Birds* gives its range as "South Eastern New Guinea, Australia and Tasmania," and Dr. Sharpe has not added to this range in his *Hand List of Birds* (1899), therefore Mr. Kemp's discovery is of extreme interest.—Ed.]

NESTING OF AVOCETS.

A pair of Avocets in the Waders' Aviary at the Zoological Gardens have made a nest near the north-west corner and the bird can be seen from the front sitting. We cannot recall another instance of Avocets nesting in captivity. It is sincerely to be hoped that a brood may be successfully reared.

LORIES WASTING.

Sir,—During the last year or so I have lost two Lories; and Mr. Gill's diagnosis has been, "Syncope owing to exhaustion from malassimilation of food."

Both these Lories were one of a pair, the other bird being plump and in good condition, and in each case still living. My feeding is plain biscuit finely powdered, upon which is poured boiled milk, grapes, banana, and canary-seed for those that will eat it.

Until the birds showed great exhaustion, they looked quite well and the feathers were close and bright, and they took plenty of exercise in their aviaries. I should add that the sop is only slightly sweetened, and that not every day, as I fancy the sugar is not very good for their livers.

Is there any means of guarding against this cause of death, or is it an occurrence that must be looked for now and then? E. J. Brook.

The following reply was forwarded to Mr. Brook:—

If your Lories were healthy when received, death should not have occurred from the cause you mention; there must have been something wrong.

As far as my experience goes—ancient history now—different species of Lories and Lorikeets occasionally need different treatment; I am under the impression that your birds are *Eos riciniata*, or some near relative.

On looking back over my books, I find that here *Eos riciniata* was very fond of stewed apples *with plenty of juice*, of banana (cut up), and of fig cut up into very small pieces. As regards the latter, I have a garden saucer in which I place canary, millet, and Indian millet seeds, mixed together, and with this seed I mix dry biscuit (H. and P.'s "Tea") crumbled small (of which *E. R.* was very fond); and on the top was placed the fig. To this day I follow the same course (for the pair of Varied Lorikeets I wrote about in July, 1903, which are still alive and well); only instead of the fig I give cut up sultanas, and grocer's currants (previously soaked), the best obtainable of each. I have a note that at one time *E. R.* voluntarily took to canary seed, which it duly shelled. Once my Varied Lorikeets had an extraordinary craze—which lasted some months—for spray millet (they fly loose, and help themselves to what they have a mind to), tearing to pieces every spray I put out:—but I cannot positively say that they ate any. *Eos riciniata* was fond also of red (garden) currants and raw apple. The juice served with stewed pears (as a treat) is much esteemed by some of these birds.

I have always supplied rather fluid biscuit-milk (boiled) sop, sweetened with a little castor sugar, which I have supposed, rightly or wrongly, to be less likely to affect the liver than brown sugar. Also water, in which most of them occasionally wash.

All the food, water, etc., should be placed on some high shelf in a quiet place, not only for the purpose of keeping it uncontaminated by mice, but also because *Eos riciniata*, like many others of this class of bird, is shy of going to the ground when in an aviary.

The fault I find with your feeding is that you do not give enough variety. Over and over again I have noticed how the taste (to use a

common expression) of these birds seems to change—their system cries out for a change of food. *E.R.* at one time took greedily to stewed rhubarb—an unusual taste for a bird.

More than once I have made the note against *Eos riciniata*, even in summer, that it feels the cold. This is a point to be borne in mind.

I wonder if by any chance the birds you lost could have both been females? The females are very much more nervous and timid than the males, and might even have been half-starved in the midst of plenty, just because their food may have been placed too low or in too exposed a place, or they may have been afraid of their mate or some other bird. Of course this is only a suggestion thrown out at random.

REGINALD PHILLIPPS.

NIDIFICATION OF THE JACKAL BUZZARD.

SIR,—This year the period of the Jackal Buzzard's incubation proves to be thirty-six days for the first laid egg, and thirty-seven-eight for the second one, which is slightly less than the time taken by them last year, *cf.* "Avic. Mag.," Vol. V., p. 57.

Keswick Hall, Norwich. J. H. GURNEY.
April 30th, 1907.

REARING YOUNG GROUSE AND CRESTED GREBES.

SIR,—I shall be obliged if you can give me any information about the rearing of young Grouse and also Great Crested Grebes. I am expecting eggs of both the above to hatch shortly.

What food would you suggest for them?

I presume the Great Crested Grebes would have to be hand-fed, and thought that crushed Whitebait would be suitable.

Could you tell me how long incubation takes in both cases.

EVELYN DENNIS (Mrs. HAROLD E. DENNIS).

Reply sent to Mrs. H. E. Dennis.

Young Grouse may be reared under a hen with care on mainly the some food as Pheasants, *viz.* good fresh dry custard, etc., abundance and variety of green food, seeding grasses, small seed, dry oatmeal (groats) as soon as they care to eat it; fine flint grit or quartz grit and crushed baked egg-shell should always be at hand, but never mixed with the food. Ample shade should be provided from boughs, etc., which should be frequently changed, and on no account let them have access to any heather, or they will neglect all other foods.

I should not think it possible to rear from the egg the young of the Great Crested Grebe. From the day of hatching their life is spent practically on the water or in the dorsal feathers of their parents' backs.

They are fed from the beginning on fish and possibly fresh water insects that are caught and immediately presented to the young by their

parents, practically alive. I do not think that the young which are always bred on fresh water, would be likely to thrive on marine fishes.

E. G. B. MEADE-WALDO.

TWO EGGS LAID BY THE SAME BIRD IN TWENTY-FOUR HOURS.

SIR,—I have occasionally heard doubts expressed as to whether birds ever lay two eggs within twenty-four hours so that I think it is not without interest to place on record two such instances that, curiously enough, have taken place in my aviaries during the same week, although during the past fourteen years I have previously known only of one doubtful case.

The first instance is that of a Rain Quail, *C. coromandelica*. The first egg was found on the morning of the 22nd April, and when the nest was next visited on the following Thursday afternoon it contained four eggs. I happened to be in the aviary on the afternoon of the next day (Friday) and was much surprised to find *six* eggs in the nest. As the bird in question was the only hen Quail in that aviary, there can be no question or doubt that she laid two eggs in the twenty-four hours.

The other case is that of a White Call Duck; this bird had been sitting on a clutch of ten eggs, which she suddenly deserted after some eighteen days incubation. I removed the eggs on the evening of Friday, the 26th, and noticed at the time that the bird appeared heavy as though she was again going to lay. I re-visited the nest on Sunday morning about eleven and found it to contain *three* fresh eggs. I am positive that I removed all the eggs from the nest on Friday and, as in the case of the Quail, it was the only duck in *that* aviary, so that the question of two birds laying in the same nest cannot arise.

The three eggs, therefore, must have been laid during the very short space of forty-one hours, and the case is still further remarkable from the fact that this bird started to lay again during incubation, for there is little doubt of that having been the cause of the desertion of the first nest.

It would be interesting to know if any of our members could furnish further instances.

J. LEWIS BONHOTE.

FOOD OF THE BLACK COCKATOO.

During the visit of the Australian Ornithologists' Union to Tasmania "the work of the Black Cockatoo (*Calyptorhynchus funereus*) in searching for its food in the dead eucalyptus, was very noticeable, these birds literally shredding the bark off the stringy-bark species and picking out with their hard strong bills the larvæ of injurious insects which destroy the forest trees, but it was noted that only the dead trees were worked upon." *The Emu.*

FRENCH MOULT IN PARRAKEETS.

The feather disease popularly known as "French Moult" is sometimes prevalent amongst Budgerigars and is probably attributable to overcrowding or improper treatment. Other Parrakeets are sometimes affected, and we have known of cases of Many-colours, Bourkes' and especially Redrumps being afflicted with the complaint. An interesting and remarkable case of the disease appearing amongst wild Redrumps is recorded in the current number of *The Emu*, as follows:

"In the neighbourhood of the Adelaide Hills the Red-rumped Grass-Parrakeet (*Psephotus hæmatonotus*) was up to the years 1887-8 one of the commonest representatives of the family *Psittacidæ*. One of the early settlers in Mt. Baker district, who settled there in 1839, says that they were most numerous in that neighbourhood until the years named. I can endorse this as regards the years 1885 and 1886, when I first visited the Colony. In the years 1887-8 a disease, if such it can be called, attacked the species. When the birds moulted they did not get their feathers again; a number of naked Parrakeets were running about the paddocks. I caught a number of them, and they appeared to be quite healthy, except being destitute of feathers. I conclude that the practical extermination of this species, as far as the Adelaide Hills were concerned, was due to their falling an easy prey to predaceous animals. So complete was the distruction that neither my friends nor myself observed this species in the Mt. Baker district for several years. Even now, twenty years afterwards, this species is still comparatively scarce, although there are a few scattered throughout the district, but no large mobs."

POST MORTEM EXAMINATIONS.

RULES.

Each bird must be forwarded, as soon after death as possible, carefully packed and postage paid, direct to Mr. ARTHUR GILL, Lauherne, Bexley Heath, Kent, and must be accompanied by a letter containing the fullest particulars of the case, *and a fee of 1/- for each bird.* If a reply by post is required a fee of 2/6 must be enclosed. Domestic poultry, pigeons, and Canaries can only be reported on by post.

COCKATIEL (The Hon. Lady Harvey). The bird died through the effects of an injury to the skull, no doubt caused when being caught.

Answered by post:

Mrs. Johnstone. Mr. C. Castle-Sloane. Mrs. Whitehead.
Capt. G. Rice. Mr. E. J. Brook. Miss J. Gladstone.

Photo by W. E. Teschemaker.

NEST OF *SERINUS ANGOLENSIS* IN BOX.

See page 198.

Gale, Sons and Danielsson, Ltd.

NOTICES TO MEMBERS—*(Continued from page ii. of cover).*

NEW MEMBERS.

Mr. H. WINDHORN; Alfeld, a/ Leine, Germany.
Mr. A. B. CROFT; The Clock House, Ashford, Middlesex.
The Rev. JAMES SMITH, M.A.; 23, Bristol Road, Sheffield.
Mr. P. H. BAHR; Perrysfield House, Oxted, Surrey.
Miss C. ROSA LITTLE; Baronshalt, The Barons, East Twickenham, Surrey.

CANDIDATE FOR ELECTION.

Mr. W. R. TEMPLE; Ormonde, Datchet.
Proposed by Mrs. JOHNSTONE.

CHANGES OF ADDRESS.

The Countess of SOUTHESK *to* Kinnaird Castle, Brechin, N.B.
The Hon. IAN M. CAMPBELL *to* Stackpole, Pembroke.
Mr. E. W. HARPER *to* 55, Waterloo Road, Bedford.
Dr. ALBERT J. SALTER *to* Nevill Street, Abergavenny.

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Hen Dufresne's Waxbill, acclimatized, last summer in outdoor aviary, 20/-.
M. ST. QUINTIN, Scampston, York.

Pair aviary-bred Redrumps, 25/-; two Egyptian Quails, 4/6; cock Cockatiel, 4/6; Scarlet Tanager, 17/6; Yellow Budgerigars, breeding, 10/6 pair; husk nests, 5d. each; beetles for breeding mealworms, 50 for 1/- free.
C. P. ARTHUR, Melksham.

Pair Mandarin Ducks, 35/-; pair cockatiels, 10/-; cock Alexandrine Parrakeet, splendid bird, used to be good talker when in cage, 20/-; hen aviary-bred Barnard Parrakeet, 30/-; cock Californian Quail, 7/6; 1 cock 3 hen Chinese Quails, 10/- each; Tataupa Tinamou, 15/-; cock Yellow Budgerigar, 7/-; all from outdoor aviaries where they have been two years, except Chinese Quails which are young; good singing cock Shâma, £2.
WILMOT, Poulton, Fairford.

(Continued on opposite page).

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THE JOURNAL OF THE AVICULTURAL SOCIETY.

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should be sent to the Honorary Business Secretary.

THE AVICULTURAL SOCIETY.

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NOTICES TO MEMBERS.

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(Continued on page iii. of cover).

Photo by W. S. Berridge, F.Z.S.

THE KAGU.

Gale, Sons and Danielsson, Ltd.

Photo by W. S. Berridge, F.Z.S.

KAGU, WITH CREST ERECT.

Bale, Sons and Danielsson, Ltd.

THE

Avicultural Magazine,

BEING THE JOURNAL OF THE

AVICULTURAL SOCIETY.

New Series—VOL. V.—No. 9.—*All rights reserved.* JULY, 1907.

THE KAGU.

(*Rhinochetus jubatus*).

The very excellent photographs by Mr. Berridge, which are here reproduced, represent one of the most interesting and remarkable of birds. It was discovered in 1852 when the French occupied New Caledonia to which island it is confined. Two living examples reached the London Zoological Gardens in 1862, having been presented by Dr. G. Bennett. In 1866 another was received by presentation from the Acclimatization Society of Sydney, while a fourth was purchased in the following year. In 1884 and 1885 two or three other examples were obtained. Since the latter date however the species was unrepresented until last year when a fine specimen was received by purchase, and is still in the collection in perfect health. It is from this specimen that the photographs here reproduced were obtained.

In the *Proceedings of the Zoological Society* for 1862 (pp. 218-219) the late Mr. A. D. Bartlett gave an interesting account of the first specimens received at the Gardens. The habits of the bird as there described may be studied almost any day from the specimen now in the Western Aviary.

"With its crest erect (writes Bartlett) and wings spread out, the Kagu runs or skips about, sometimes pursuing and driving before him all the birds that are confined with him in the same aviary, evidently enjoying the fun of seeing them frightened; at other times he will seize the end of his wing or tail and run round, holding it in his bill: from a piece of paper or dry leaf he derives amusement by tossing it about and running after it. During his frolic he will thrust his bill into the ground

and spread out his wings, kick his legs in the air, and then tumble about as if in a fit. At other times he appears intent upon catching worms: he steps slowly, his neck close to his body, his crest flat on his back, all his feathers smooth and close; he raises one foot, and with two or three gentle strokes he paws the ground, swiftly he darts his bill into the earth and draws forth a worm, a sudden shake and it is swallowed; again he runs; stopping suddenly, he makes another dart; and thus he continues to capture this kind of food. With respect to feeding, this bird differs much from the Heron family, seeking out, in every hole and corner, worms, snails, and other living things, whenever they are not in motion: as soon as a snail is found, he breaks its shell by repeated knocks upon the ground, and after shaking the fragments of the broken shell off, the animal is swallowed. In no instance, however, that I have observed, does this bird eat bread, seed, or any kind of vegetable, but strictly confines himself to insects and other animal substances."

Mr. Bartlett remarks upon the extent to which powder-down is developed on the plumage of the Kagu, and points out many features which resemble *Eurypyga*, the Sun Bittern, a bird to which it has since been shown, by anatomical investigation, to possess a somewhat strong affinity. (See also *Avicultural Magazine*, Vol. III., N.S. pp. 280-282.)

ON THE NESTING OF THE AVOCETS
(Recurvirostra avocetta)
IN THE ZOOLOGICAL GARDENS.

By R. I. Pocock, F.L.S., F.Z.S., M.B.O.U.,
Superintendent of the Gardens.

The Plovers' Aviary in the Zoological Gardens has proved up to the present time a conspicuous and all round success in every particular save one: the shore birds, for whom it was especially designed, have hitherto failed to breed. This reproach has now been removed by the hatching of some young Avocets; and the occurrence, interesting in itself for the reason just stated, is rendered doubly so by the fact that birds of this species have

never, so far as I am aware, been bred in captivity before. The following account, therefore, may perhaps prove acceptable to readers of the *Avicultural Magazine.*

Towards the middle of May the behaviour of two out of the five Avocets in the aviary suggested the likelihood of laying being under serious consideration, possibly indeed imminent; and on the 15th of the month expectations were realised by the appearance of the first egg, which was deposited on a rough nest of dead leaves and twigs gathered into a flat or slightly hollowed heap on the sand under the shelter of a hemlock and some clumps of iris. Additional protection, in the form of cut branches of box stuck into the sand, was hastily improvised; and the path along the side of the aviary was closed to the public to give the birds every chance of sitting undisturbed.

A second egg was laid on the 18th and a third on the 20th of May. The hen bird started to sit on the 19th; and thereafter the eggs were seldom if ever left for any length of time, the cock and the hen taking turns at the incubation and attending assiduously to their duties. The rest of the Avocets were generally to be seen near the sitting pair; but although to the sentimental onlooker their bearing suggested a desire to share in the pride of the performance successfully accomplished by their colleagues or to display a sympathetic interest in their family cares, veracity nevertheless compels us to admit that the underlying motive of their behaviour was probably nothing but the gregarious instinct deep-rooted by nature in the species.

On June the 12th the chicks were first seen. Thus the period of incubation was, as nearly as can be computed, about twenty-four days and not seventeen days as has been previously stated on the alleged authority of Naumann. Unhappily two of the chicks never left the nest alive. They were apparently killed, accidentally crushed, it is believed, by the superincumbent hen who was roughly interfered with by the importunate attentions of one inconsiderate cock. The third chick escaped the fate that befel its fellow-nestlings and when two days old was to be seen pecking about on the sand and in the shallow water of the pond under the watchful guardianship of its

parents, which with head lowered and bill advanced resolutely charged and put to flight every bird, from an Oyster Catcher to a Wagtail, that ventured too near. No further use was made of the nest, when once deserted. At night and off and on during the day one of the parent birds, no doubt the hen, broods over her chick in the way depicted in our illustration.

Fig. 1.
FEMALE AVOCET BROODING OVER HER CHICK.

Squatting upon her hocks, she utters a whistling call; and the little one, running up in response to it, takes his stand beneath her, sometimes upon one of her legs, and thrusts his head and body beneath the breast-feathers and wing of one side, leaving nothing exposed but his legs which look like a pair of dwarfed supernumerary limbs depending from the breast of the mother.

Although at first somewhat staggery and weak upon his legs, despite their thickness and suggested strength, the chick rapidly gained in vigour, and after a couple of days or so might be seen pattering about independently with all the confidence born of youth and inexperience, utterly oblivious of possibilities of danger and fully trusting, it would seem, to his parents to drive away every intruder. When feeding, the chick at first resorted to the pecking action characteristic of most birds and also of the old Avocets when eating definite particles of food

but although his bill presented at the time he was a week old scarcely a perceptible trace of tilt, he nevertheless was seen, Mr. Thomson tells me, though I have not observed it myself, to make use of the lateral sweeping action to skim floating particles off the surface of the water which is the function of the upturned bill of the old birds. This early appearance of a habit before the development of the structural feature upon which its proper performance depends is worth attention, for it suggests that the sweeping action of feeding preceded in the evolution of the Avocet the acquisition of the upbent bill so characteristic of the bird.

Apart from size, plumage, and colour, the most distinctive features of the chick as compared with the adult bird are the shortness and thickness of his legs and the shortness and straightness of his bill, which falls short of the head in length. The colouring is obviously protectively adapted to that of the littoral arenaceous surroundings natural to the species. The upper side is a pale yellowish or sandy grey, speckled and lined with black, and the underside is white. On the head there is a narrow median black stripe of variable extent according to the individual, and also

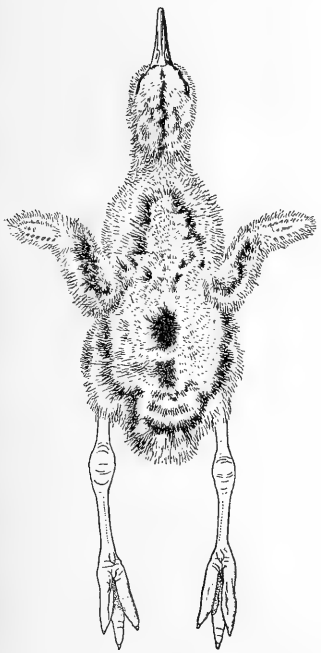

Fig. 2.
DORSAL VIEW OF NESTLING,
about half natural size.

Fig. 3.
SIDE VIEW OF HEAD OF NESTLING
slightly enlarged.

a variable number of subsymmetrically disposed black spots on the crown and occipital area. From the anterior angle of the eye a black stripe runs obliquely to the base of the beak above the corner of the mouth; and sometimes a corresponding black stripe passes backwards from the posterior angle of the eye. The anterior half of the nape of the neck is unmarked; but its posterior half bears two more or less irregular black stripes which converge anteriorly and meet or nearly meet in the middle line forming a complete or nearly complete Λ-shaped mark. On the area of the back between the wings these stripes are represented by spots, and running along the sacral region to the tail there is a median irregular band of black spots, varying in size. Thus the back might be described as ornamented with two black stripes, more or less broken up into spots which converge towards a point upon the neck and fuse to form a single median stripe upon the pelvic region. The hind quarters are also marked with a conspicuous stripe extending from the tail across the thigh to the femorotibial joint of the leg; there is also an obscure spot on the down of the outer side of the leg where the naked area commences, and the upper side of the wing is speckled with black. The beak is black with a greyish tinge on the base, and the legs are grey-blue with pinkish webbing. Measurements in Mm.: Total length from base of beak to tail about 100 (4 inches); length of head 20, of beak from corner of mouth to tip 17, of tarsus 28, of middle toe, without claw, 19.

The foregoing description and the annexed figures, representing a side view of the head and the upper surface of the body, have been taken from the two nestlings which were found dead on the nest. So far as can be seen the living bird resembles them in every important respect. I have described the coloration in some detail because, if we may trust to the analogy supplied by other animals, the pattern of the nestlings should prove a useful help in determining the affinities and descent of the species of Plovers and allied birds.

At the time of writing (June 23rd) the little bird has not altered appreciably either in appearance or behaviour. Naturally he has increased to a certain extent, but not much, in size, and his beak seems to be a little longer, but without catching and

measuring him it is impossible to be certain on this point. I am also unable to satisfy myself that there is yet any substantial upward curvature of the extremity of the bill. He readily takes to the water when approached and I have seen him swim strongly across an arm of the pond to the opposite side, his pose and progression on the water recalling those of a Coot or Moorhen. He feeds entirely on his own account and wanders where he pleases, showing no fear of the other birds in the aviary nor any instinct to keep close to his parents. One or the other of these, however, is always in attendance upon him, and the threatening attitude above described is assumed even towards a human being entering the aviary. I was particularly struck the other day by the behaviour of the cock bird towards myself. I went into the aviary to look for the chick which was not to be seen from the outside; and although the trio were securely hidden somewhere out of sight in the bushes at the back, the cock bird—or what I took for the cock—soon appeared upon the sand and attempted seemingly to lure me away by the device so many of us have seen practised by Partridges. He manœuvred near me as if to attract my attention, and as I advanced ran away with one wing drooped as if attempting to persuade me that injury to his wing might make pursuit of him on my part a profitable undertaking. Knowing from his behaviour, as well as if I had seen the chick with my own eyes, that the latter was in safety somewhere, I left the three undisturbed.

ECCENTRICITIES OF BIRD IMPORTATION.

By Dr. A. G. Butler.

It has often struck me as strange that our London dealers are, as a rule, so extremely conservative in their importation of foreign birds, that they are content to order and offer to the British public the same species year after year without making the least effort to introduce novelties: should something new to them accidentally turn up it is either sold at a ridiculously low price as an unknown bird; or, if named by some chance visitor

to the shop, is offered at a price so high as to be practically prohibitive to any man of moderate means.

In Germany many birds are received which never find their way into the London bird-market; the dealers hear of them from travellers as common cage-birds in their native land and they take some trouble to get consignments sent over: it is true that, in some cases, they do not receive many specimens of a species, because they cannot afford to send a man over to purchase and bring them back; but they not infrequently get a few pairs of species which are never seen in our bird-shops and have never even been exhibited at our London Zoological Gardens.

To be successful as an importer of cage-birds, it is of course best to adopt Mr. Hamlyn's plan; to visit foreign countries and personally superintend the catching or purchasing of the birds and their transmission to this country; and I am not sure that it would not pay any dealer who could get his business attended to during his absences, to adopt this plan: I am quite sure that it would commend itself to aviculturists, and to all who have benefited by a study of living birds.

Of the numerous pets among the natives of many lands, most of them as easily obtainable as our English Thrush and Blackbird, how many ever gladden our hearts? Take the true Thrushes as a sample:—Up to the present time probably about a dozen foreign species have been imported into Europe, mostly in single specimens perchance brought over by some traveller who wanted something to amuse him during his homeward journey; yet all these in their own country are abundant species, frequently hand-reared and caged by the natives: the same is true of other birds; five or six Blackbirds have been imported, mostly charming singers and with everything to recommend them to the bird-lover; but, excepting for the Grey-winged Ouzel, which Mr. Harper was enterprising enough to hand-rear and distribute among our members, we know very little about them. Just fancy what a pleasure it would be for any of us to put up a pair of the gigantic Chinese Blackbird (*Merula mandarina*) for breeding in one of our outdoor aviaries! It is a very common species, breeds near human habitations, is freely hand-reared and caged by the natives and would be as easy to import as our British species, yet

it never arrives in the London market. The Japanese White-eye or Spectacle-bird is another instance; it is extremely common in Central Japan, is a familiar friend in every bird-shop, and has reached the German bird-market in some numbers, but it does not seem to come to us.

The recent importations of Birds of Paradise prove that where collectors can be sent out to secure them, even those species which are not familiar household pets among the natives of a country can be obtained; yet those most beautiful birds, the little Fruit-doves of the genus *Ptilopus*, are among the rarest birds to find their way even to our Zoological Gardens, although they are commonly caged in some of the S. Pacific islands: possibly their owners may value them highly and charge a proportionately high price for them, but one would think that a few cheap and showy mirrors or musical-boxes would tempt most semi-civilized savages to give up that which they could easily replace.

Possibly Fruit-pigeons may be shunned by the importer under a false impression as to the difficulty of feeding them on board ship; but I believe these birds are very accommodating in the matter of food, and in the absence of small fruits will do well upon chopped potato and peameal, at any rate for a time: to say the least, it would be well worth while to put it to the test.

When there are so many common and altogether delightful birds which could easily be secured, the indifference of most of our dealers to this fact is somewhat exasperating: surely a little energy would pay them well. Doubtless many of these men are content to buy from sailors and others returning from a voyage, taking over and over again hundreds of the same species, which arrive as regularly and with as little variation as occurs in the well-known stereotyped soldier's collection of tropical insects, hundreds of which cases of rubbish must be made up by the natives of India and China and sold, at far more than their actual value, to privates in our army.

A little trouble in distributing rough coloured sketches of desirable birds, as guides to the native catchers, might do some good; but so long as dealers are willing to buy the common Avadavat, Black-headed Mannikin and Pekin Nightingale at so

much per hundred, and retail them at so much a dozen, there is no doubt the wily native will continue to net them in thousands rather than bother to seek for something less easy to capture.

A MIXED BROOD.

Holes and cavities being in great demand among certain species of our wild birds, there is often a dispute for possession of some particularly eligible nest site. As far as my observation goes, if eggs have already been deposited, and the intruder wins, the eggs are either ejected, or, if that is impossible, the victor buries them under the foundations of her own nest, and rears her brood on the top of the pile.

In a case that came under my notice last year, neither of these courses was followed. For several seasons a pair of Redstarts had occupied one of my nest-boxes fixed to the stem of an elm tree. Last summer, after the Redstart had laid two eggs, it was noticed that a Great Tit was in possession. Whether any misfortune happened to the Redstart or whether there was a fight, and the Great Tit proved the conqueror, I cannot say: anyhow, the Tit added three of her own to the two Redstarts' eggs already in the box, and reared the whole mixed brood. The five young birds were seen when full grown and on the point of leaving the nest. This seems to me worth recording. From the unusually small clutch laid by the Titmouse, it may be supposed that she had already lost her first nest.

This is not the only case that I have known of a small clutch of Great Tits eggs' laid under unusual circumstances. Four or five years ago I knew of a Great Tit which laid four eggs in an old Blackbirds' nest in a yew tree, after lining the open cup, as usual, with hair and feathers, and in that case, too, she reared the brood. W. H. St. Quintin.

POLYANDRY IN THE RHEA.

It seems to me that the Rhea of South America (erroneously called the South American Ostrich, for it is not a true Ostrich, but only allied to it) is polyandrous, that is that the female 'keeps company' with more than one male for reproducing her kind, in contradistinction to birds that are polygamous; birds, that is, where one male has several wives. Until this year I have only kept one pair of Rheas, so that it has been difficult, indeed impossible, to come to any conclusion on the subject, although even then during the past three or four years where a female has had only one male to company with, there have been signs of polyandry, for although the male was ever ready to incubate the eggs laid by his mate, she would nearly always lay some in different parts of the park as well as in the nest taken possession of by the male, as if she expected other males to appear on the scene and incubate her eggs.

This year however the evidence is stronger. Up till May I had two females and one male. Both females laid and both laid in the same nest, although one or two eggs were laid elsewhere, and the male (a white one) duly sat on eleven of them. So far one would say that it was a case not of polyandry but of polygamy!

One must notice, in passing, that directly the male has finally settled down on the complement of eggs, the females wander away and leave him entirely to himself. After this white male was incubating, I bought two other males. First of all a fine grey bird of the normal type from Herr Hagenbeck, and secondly another white male from Tring Park.

The Rheas wander everywhere, in the park and about the water-meadows, crossing the streams which intersect these meadows, and re-crossing.

The grey male when he arrived was placed in a large wired-in enclosure at the top of the park near the house; the two females which had already laid their eggs and had *ceased* laying, were to be found down in the water-meadows perhaps nearly half-a-mile distant from the new male. He immediately commenced booming and before many minutes had elapsed the

two females were walking up and down outside his enclosure, endeavouring to get in. The booming of the male Rhea is a weird sound. To begin with it is as loud when the bird is some hundreds of yards away, as when he is quite close by, and it gives one the idea of some large quadruped with a bad ache in his interior. In the early morning of a still summer's day, it sounds strangely, and one expects to see a large bear troubled with indigestion issuing from the wood near by.

Let me return however to my subject of polyandry. The new grey male was liberated in two day's time, and immediately commenced courting his two new mates. In a very few days both females were laying again, and (as I write) this male Rhea is now incubating six or seven eggs, and *he* was left to his duties by the two ladies. Then arrived on the scene the third male (the white one from Tring Park) who was put into a smaller enclosure with one of the females. In due time she again commenced laying for *his* edification, but he does'nt understand his duties as far as incubation goes, and the four or five eggs she laid for him have remained unincubated. The female which was left at large constantly did her best to enter the enclosure, whilst the white male (bird No. 3) courted her from inside, stooping his head and showering out his wing feathers. Her second husband was meanwhile on his nest close by, but she paid him no more attention.

Another fact is that the male bird looks after the young ones he hatches out, *entirely*, and would indeed drive off the female during the first two or three weeks of the young ones' lives, if she attempted to approach too near, as I have seen her do.

My Rheas have full freedom, they could run for miles if they chose to, therefore it cannot be said that captivity has altered their habits, or overfeeding either, for directly the severity of winter is passed they have no food given to them, but pick up their natural food in the meadows.

If a hen bird not only lays her eggs in a nest which her mate has taken possession of, laying too in that nest after he has commenced incubation, but also lays in other spots, and if that bird shows no inclination whatever to incubate her eggs and is

ready to take to herself a second male and then a third one as husbands, leaving them in their turn to incubate her eggs and rear the young, it certainly seems to me that such birds should be styled polyandrous. HUBERT D. ASTLEY.

JAPANESE ROBINS NESTING AT LARGE.

Mention has already been made, in an article upon my birds at Benham Park, of a pair of Japanese Robins having a nest with eggs in a laurel bush in the garden. Japanese Robins have, I believe, been turned out at other places, at Woburn for instance, but whether after that event any nests have been found, I cannot say.

I turned loose about sixty of these birds in March of this year, and for at least six weeks the majority of them kept close "to heel," resorting to the shrubs and bushes near the aviary, and coming at all times of the day to feed from a dish placed in a hawthorn tree. After that they commenced to disperse towards the end of April, and several were seen about a mile off in a garden.

One pair however built—that is—one pair only was discovered building in a laurel bush of a loose hedge dividing the garden proper from the woodland.

Three eggs were laid and after the hen bird had begun to incubate them, a spinster bird came and for want of something better to do—one may say for the want of a husband—deposited two eggs in the nest.

I happened to take a peep one day because when passing I saw the male bird in a tree above the nest, and on the edge of the nest, or at any rate very close to it were *two* females. On looking into the nest I saw five eggs, two of a very fresh colour which were added after the lawful owner had commenced to incubate her three.

These three eggs were duly hatched and I saw the three young birds until they were ready to fly, beautiful healthy birds of a uniform sage green colour above (I never saw their underparts) with the bills already half red, red as far as I can remember at the points, and duller at the bases.

The following day after I had seen them so fully ready to leave the nest, they had flown and I never saw them again, but by the way the parent birds were chattering round me, it was evident that the children were there—and after that I never saw nor did I hear even the parents. They all disappeared completely!

In the nest after the young had flown were the two eggs of the forlorn spinster looking perfectly fresh and intact. The nest itself was as clean as the day on which it was completed, or very nearly so. Once or twice I saw the mother-bird, when the young were still there, on the edge of the nest to feed them, but I never saw what she gave them because for fear of disturbing her I never lingered or looked too closely.

That other nests were built by other Japanese Robins, I do not doubt, but they have all dispersed; I see them no more, no not one! Whether they will put in an appearance with the sear and yellow leaf remains to be proved, but I doubt it. It is to be regretted, but the trial has not been without its reward. Not to everyone in England is it given to go bird's-nesting and find the nest of Japanese Robins, to look into that deep cup of leaves and hay lined with fine dry grass, fibrous roots and horsehair and see the pale blue eggs dotted over with chocolate-coloured spots, to find those eggs gone and in their place three callow young, to watch those young until they also were gone; not however gone where good Japanese Robins go, for had they been good and had they been sensible, they would not have gone at all; they would have remained where food in winter time would be always at hand for them. Oh, foolish unforeseeing Japs!

Hubert D. Astley.

NOTE ON THE BEAK OF A NESTLING *PSEPHOTUS MULTICOLOR*.

By W. P. Pycraft, A.L.S., &c.

Knowing my interest in all that pertains to nestling birds my friend Mr. D. Seth-Smith lately sent me a nestling of the Many-coloured Parrakeet (*Psephotus multicolor*) about a fortnight old, which had been hatched in his aviaries.

The size and shape of the beak of this specimen at once caught my attention, and further examination revealed other characters of interest, which, I think are of sufficient importance to be worth bringing to the notice of the readers of the *Avicultural Magazine.*

In so far as size and shape are concerned, I may remark that in this nestling the beak was relatively very much shorter than in the adult, and more strongly arched along the culmen. But these points are of no great importance. The facts to which I desire to draw attention here, concern certain peculiarities observable along the tomia of both upper and lower jaws.

In the first place, the cutting-edge of the lower jaw in this nestling is exposed along its whole length; and furthermore, rises upwards on either side of the upper jaw, so as to conceal the hinder portion of the cutting edges thereof. In other words, the lower jaw, in so far as its hinder half is concerned, at any rate, forms a kind of trough into which the upper jaw is received. In the adult, the cutting edges of the upper jaw embrace, the sides of the lower extending downwards so that the tomium of the mandible is completely concealed. This of course is the normal relation which obtains in the closed beak among birds.

These jaws are further peculiar in that their cutting-edges have not yet cornified, but remain soft and membranous on either side, up to within a short distance of the tip of the beak.

There remains yet one other point to mention, and this not the least remarkable. Just behind the curiously striated tip of the upper jaw, is a well-defined notch, formed apparently, to receive the cutting edge of the lower jaw, as they approach one another at the symphysis.

The "curiously striated tip" to which I have just referred demands further study, and later I hope to lay before the readers of this Magazine the results of my research.

The beaks of nestling birds always deserve careful study: for while in some they present undoubted ancestral characters, in others they show no less evidence of having undergone peculiar modifications to serve the ends of later requirements. Whether the features to which I have just drawn attention are to be regarded as belonging to this later "neogenetic" phase,

or whether they represent ancestral "paleogenetic" characters remains a point to be settled later.

Finally, I wish to express my gratitude to Mr. Seth-Smith for having so kindly sent me this specimen which is now incorporated in the collections of the British Museum, so that it will be available for the inspection of all who may desire to see it.

[Aviculturists who have the misfortune to lose nestlings of any rare birds would do well to send them to Mr. Pycraft at the Natural History Museum, S.W., immediately after death.—Ed.]

THE LATE PROFESSOR NEWTON, F.R.S.

The world of Zoology, and more especially of Ornithology, has just lost one of its greatest and best supporters, for on the 7th June last Professor Alfred Newton, F.R.S., one of the Honorary Members of our Society, passed away in his rooms at Magdalene College, Cambridge.

Professor Newton was born at Geneva on the 11th June, 1829, and was the fifth son of William Newton, of Elveden, Suffolk, formerly M.P. for Ipswich.

He was educated privately, and during his early life his love for birds, as well as his extreme capacity for careful and conscientious work was shown by his keeping—in conjunction with his brother, the late Sir Edward Newton—a daily register of the common birds observed in his father's grounds, whereby many valuable data as to the local movements of some of our commoner birds were obtained. He graduated at Magdalene College in 1853, and shortly afterwards became a travelling Fellow of his college, visiting Iceland, Spitzbergen, Lapland, North America and the West Indies. From observations made on these trips, he contributed papers on the avifauna of the countries visited. It was during one of these voyages that he met with the accident which curtailed his activity, but until within the last few years, he used regularly to spend some weeks yachting on the Hebrides, with his friend, the late Henry Evans, and on those trips never failed to study the birds met with. He was one of the most open-minded of men, and though he had

decided views on many vital questions, he was always willing to allow the rights of the other side. His excessive caution perhaps curtailed to some extent the good he might have done, and though almost invariably sympathetic with new ideas, he rarely strongly advocated them, preferring merely to encourage, without committing himself as a believer.

He was by no means a voluminous writer, but it may truly be said that he published nothing that was not good and sound, and his works will, we venture to predict, be still a living force when much of the literature which passes for science in the present day is lost and forgotten.

In 1858 he was one of those who founded the British Ornithologists' Union, and for a time, he edited their journal, the *Ibis*, which is now one of the foremost scientific bird publications of the world. He was also editor for some years of the *Aves* of the Zoological Record. Among his other works we may notice the *Dictionary of Birds*, consisting of a reprint of his masterly articles in the *Encyclopædia Brittannica*, and much additional matter; *A Manual of Zoology* first published in 1872; *The Extinct Birds of the Mascarene Islands*, published in the *Trans. Roy. Soc.; Zoology of Ancient Europe;* the first two volumes of the Fourth Edition of *Yarrell's British Birds*, and many other papers in scientific periodicals.

Though perhaps it will not rank as his best book, judged from a purely scientific standpoint, the work of his life was undoubtedly the *Ootheca Wolleyana*, a large book in two volumes, published as a memorial to his great friend, John Wolley. Although the first of the four parts comprising the work was published in 1864, the last part was only completed a few months prior to his death. The delay has undoubtedly detracted from its scientific value, but as a memorial to one of the most energetic and indefatigable of ornithological explorers, it will stand for ever.

Bird Protection was a subject on which he was greatly interested, and he was largely instrumental in getting many of the earlier acts passed. He was also one of the Committee appointed by the British Association to study the migration of

birds, the results of which have been so ably dealt with by Mr. Eagle Clarke.

In our own special branch, Aviculture, he also took the keenest interest, and used to keep a certain number of birds, chiefly waterfowl, at Elveden, in his younger days. He was a Fellow of the Royal, Linnean and Zoological Societies, and received in 1900, one of the Royal Society's Gold Medals and the Gold Medal of the Linnean Society.

Newton's value to the world of Science, however, cannot be measured alone by his published works, great though they be. He was endowed with a fascinating personality, and possessed that instinct for discovering each man's special bent, and encouraging it, and there must be many of the former undergraduates, who studied at Cambridge during those forty-one years in which he occupied the Professorial chair, who feel that they owe no small part of their subsequent success in life to his kindly help and encouragement.

His Sunday evening 'At Homes,' where the youngest undergraduate was as equally welcome as the oldest don, will be treasured memories in the minds of many now scattered throughout the world. Many an expedition has been planned, and many a young Zoologist has gone out into the world, stimulated to energy by the quiet, but infectious enthusiasm of his Professor.

Although educated and brought up two generations ago, his mind never grew old, but was alert and ever receptive to the great changes continually taking place in scientific thought, but at the same time he retained all those best qualities of the old time gentleman, and remained courteous, quiet, unobtrusive, and thorough in all he did and said. Kindest of friends, truest of gentlemen, and best of ornithologists, his place will never again be adequately filled. J. L. B.

On June 28th a Redshank (*Totanus calidris*) hatched a brood of three chicks in the Waders' aviary at the Zoological Gardens. So far as we are aware this is the first instance of this species breeding in captivity.

THE NIGHTJAR.

Caprimulgus europaeus.

By Gordon Dalgliesh.

The Nightjar is one of the last of our summer migrants to arrive, and it is well towards the middle of May that its curious whirring song is to be heard. There is perhaps no bird that has suffered more from ignorance and vulgar superstition than this. It has been accused of sucking goats and cattle dry, hence the popular name "goatsucker." Even in these days of enlightenment and education keepers and others still regard the Nightjar as "vermin," which must ruthlessly be shot down at every opportunity. It is of no use trying to explain to these sort of people that the bird is not a hawk, they simply won't believe you and stare at you in undisguised contempt at your ignorance (?). The old Surrey name for the Nightjar is "Puckeridge" and Bucknill in his "Birds of Surrey," quoting a correspondent writing in "Nature Notes," Oct. 1897, says:—"'One old man near the village of Haslemere was heard to say last summer that to his thinking 't' Puckeridge is a sort o' hawk 'at maakes a cry most like door latch rattlin' up and down, and when it flies from tree to tree in a hevenin' and maakes a great noise, folks do say as how 'tis a sign of hot weather'—but added the old fellow in conclusion—'he be a hill meaning bod, he be that.'" Besides the name of "Puckeridge" it is known by a number of others, as "Fern Owl," "Eve Charr," "Churn Spinner," and "Wheel Bird," all having reference to its song. It is also known in some districts as "Dame Durden," and when it commences tuning up country people will say "hark at Dame Durden at her spinning wheel."

As the shades of evening darken and the last day bird has gone to roost the Nightjar leaves its retreat and flits among the tree tops in search of the brown chafer, or chases the white moth across the dusky moorland, uttering a sound which can easily be imitated by vibrating the tongue against the roof of the mouth, and can only be compared to the whirr of a spinning wheel, and so exactly similar are the two sounds as to deceive many people, as it rises and falls on the warm summer air. It will at other

times make a chattering cry and a squeak, while its wings are brought sharply over its back producing a clapping noise not unlike that of a Woodpigeon in flight, only louder and more distinct. Anon the Nightjar will leave off chasing insects and indulges in playful aërial gambols with its mate. A pair of birds will haunt the same locality, year after year, arriving with due regularity.

The favourite breeding grounds are on the Moors among heather and fern, and in oak coppices where dry leaves strew the ground, and the plumage so harmonizes with the surroundings that a keen sight indeed is required to detect the crouching bird. It will also perch on a bough, and contrary to the general rule, along and not across it. If one should happen to flush the female bird from her eggs she will perform that pretty stratagem peculiar to many other birds, feigning a broken wing. Just as the birds' plumage so blends with its surroundings, so do the eggs. It is very often impossible to find them, and I once actually stepped on one and broke it in my search. No nest is made, the eggs being laid on the bare ground amid flinty chalky pebbles common on moorlands. The eggs are perhaps the most beautiful of any of our native birds, being white, and marbled with purple brown and grey. The Nightjar is a late breeder and I have found fresh eggs in the middle of July. The young when first hatched are covered with down and are fed by the parents after the manner of pigeons. Mr. Edmund Selous has shown that the use of the wide mouth and row of bristles by which it is fringed is to engulf the food when the bird is feeding on small insects.

In India a species of Nightjar closely allied to our bird—which by the way is also found there—*Caprimulgus asiaticus*, is often known as "Ice Bird" from its note which exactly resembles the sound made by a stone when thrown along a frozen pond, while the Whip-poor-will (*C. vociferus*) so called also on account of its cry is well known. Nightjars inhabit all the warm and temperate regions and are exclusively insectivorous. Our bird rears but one brood in the season and leaves this country in September.

FRESH AIR FOR CAGE-BIRDS.

About two months ago a pair of Yellow-winged Sugar Birds was sent me from a London dealer, who paid me the compliment of saying that although they were in very poor condition, he thought I might bring them round, and I might pay him in return what I thought fit.

The female was miserable. Her feathers were clogged together in a sticky mess so that she was hardly able to move, much less fly: she was thin and, as I found the day after their arrival, she had a horrid cheese-like growth beneath the root of the tongue. No bird ever looked more wretched!

To operate upon this growth, which seemed to me to be the same malady that attacks pigeons, was no easy matter. It meant holding a bird in one's left hand, a bird no larger than some of the Humming-birds, open a long slender curved bill, and *hold* it open, and then with the free hand, brush under the tiny tongue with a rather stiff small oil-painting brush dipped in "Lysterine."

The strength of the little bird was extraordinary as regards her bill, for I had to introduce an ivory paper-knife, and positively prize the two mandibles apart.

In a week's time I cured her of the growth. She was gently sponged with warm water, the only way to remove the stickiness from her feathers, and of course kept in a warm temperature whilst an invalid. And now, in spite of the miserable weather of the Spring-time, the cold and the damp, she is as sprightly and well-feathered as any bird can be.

But this is a prelude. What I want to draw the attention of members who are interested in the subject to is this: the Yellow-winged Sugar Birds are, I believe, kept in a glass case (as if they were stuffed birds!) at the Zoological Gardens of London, where no really fresh air can possibly reach their lungs. My Sugar Birds, in spite of their having been in such a bad condition only a short time ago, have been kept in my bird-room with the windows (large French windows) open day and night, and have also been frequently put out on the balcony outside when the weather was—well! everyone knows what the weather

was in April, May, and June! No artificial heat in the room either. I do not think any pair of Sugar Birds in a cage could look more sprightly, or be stronger. *Fresh air is most important for all birds.* And yet, by the Society which one would imagine ought to know more than most people what birds need, these and other birds are kept in hot stuffy places, and their lives shortened accordingly.

The airlessness of the Parrot House is proverbial, or ought to be, yet nothing could eclipse (not even in the Australian Bush) a male Crimson-winged Parrot in my unheated outdoor aviary, where he has been now for about nine years, in snow, rain, fog, and all the other samples of the climate of England. However, with the Cockatoo Aviary, the authorities are finding out that foreign birds can breathe in fresh and even cold air, and not die, although I confess that any bird within the radius of the dirty soot-begrimed air of London is decidedly handicapped, not only as to its lungs but also its plumage.

HUBERT D. ASTLEY.

THE CRESTED PIGEON AT LARGE.

Last year I turned out into my garden at Villa La Vigie near Monte Carlo three pairs of these birds. One pair very soon left the neighbourhood, but the other two pairs remained near the Villa and since last year have built several nests.

A pair persisted in building their fragile home in the branches of a pine tree quite near the house, and time after time the eggs were blown out of the nest, and this year the male bird was killed by flying against one of the telegraph wires; the other pair however were much wiser in their choice of a breeding place, having chosen a tree with thick foliage which protected the nest from the gales and storms; they have already reared successfully several broods, and although they change the trees in which they make their nests, they are all within a few yards of each other.

Again in April this year (1907) I have let loose six pairs of the Crested Bronze-wing. They return to the garden, in which

the aviary is located, morning and night, to feed on the seed which is placed at their disposal; but if they are nesting they have chosen trees a long way from their former home. I hear of their presence in villa gardens as far away as a couple of miles, two have been seen in the Casino Gardens at Monte Carlo, and I greatly fear that when the shooting season begins in August so-called sportsmen may destroy the majority of the pigeons which are at liberty. WILLIAM INGRAM.

[Of the Crested Pigeons liberated in the London Zoo. we know of at least two nests actually in the Gardens, and as about forty of these birds were liberated there are doubtless many other nests in Regent's Park.—ED.]

REVIEWS.

BRITISH BIRDS.*

The first number of this Magazine, of which we gave a notice from the prospectus last month, has now appeared. It contains an important paper by Mr. Howard Saunders on the "Additions to the List of British Birds since 1899," the date of publication of the second edition of his excellent "Manual of British Birds." No less than twenty species have been added to the list during the eight years that have elapsed since that work appeared. Mr. P. H. Bahr writes on "The Home Life of the Osprey"; Dr. Sclater, "On a supposed new British Tit of the genus *Parus*," while Mr. Selous deals with "Nesting habits observed abroad of some rare British Birds." Some interesting notes, and a review complete the number.

THE BIRDS OF RUTLAND.†

That every County should have its own ornithological history written is a step in the direction which leads towards the solution of the problem of the distribution of our wild birds, and although general works on British birds are perhaps quite numerous enough, we welcome new books which deal separately with each County.

* *British Birds, an illustrated Magazine devoted to the Birds on the British List.* London: WITHERBY & Co., 326, High Holborn, monthly, One Shilling net.

† *The Birds of Rutland*, by C. REGINALD HAINES, M.A., F.Z.S., etc. London: R. H. PORTER, 7, Princes Street, Cavendish Square, W. Price 7/6.

Rutland, the smallest County in England, with but 100,000 square acres, possesses few features which are particularly attractive to bird life, nevertheless two hundred species adorn the list of its birds, besides a few doubtful occurrences. The Little Owl, introduced by the late Lord Lilford into Northamptonshire, has increased to an extraordinary extent and is now common in Rutland.

We are told that the "old English Pheasant" is probably extinct in Rutland, the Rutland birds of the present day being hybrids "between the old breed and the Ring-necked Pheasant (*Phasianus torquatus*), the Kallege or Silver Pheasant (*Euplocamus nythemerus*), and perhaps also the Japanese variety (*Phasianus versicolor*)." We can well believe that the Pheasants of Rutland are a mixed breed, as are almost all the wild Pheasants in England, but we doubt much if the Silver Pheasant has had any influence on the stock. That it will cross with a true *Phasianus* is granted, but the progeny would be sterile hybrids.

Mr. Haines' book shows every sign of being the outcome of much careful research and may be regarded as a very reliable history of the County's avifauna. It should be specially interesting to Uppinghamians to the memory of whose late master, Dr. Thring, it is dedicated.

CORRESPONDENCE, NOTES, ETC.

HOOPOES IN CAPTIVITY.

SIR,—No doubt Mr. Phillipps is right that I was wrong. I mean with regard to the feeding of my Hoopoes. I think however that if one gave them heart, which is much more tender and digestible than mere raw meat, and if one mixed the heart well up in shredded scraps amongst finely powdered silk-worm cocoons which have been passed through a fine sieve, adding chopped green food, grated carrot and some good insectivorous stuff, they might do. All the ingredients must cling more or less to the shredded heart, so that when the Hoopoes swallow these pieces, a good proportion of the rest would be bound to go down too.

Last summer I saw two very healthy Hoopoes in the Zoological Gardens at Hamburg, in the month of July, and they were certainly fully adult. They were fed upon a mixture of insectivorous food and were in good feather and condition. And I also saw some under the same conditions at Frankfurt a/M. In either case the Hoopoes were in cages by themselves.

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Examined and found correct, LEONARD W. HORTON.

June 8th, 1907.

THE AVICULTURAL SOCIETY.

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Examined and found correct, LEONARD W. HORTON.

June 8th, 1907.

Why should not small earthworms be placed in a deep vessel under damp moss, into which the birds would push their bills? They need, I think, a good layer of sand to run on, always clean and dry.

As far as I can remember, my Hoopoes certainly threw down their throats the so-called "ant' eggs" as sold by dealers.

Mealworm beetles would probably be very good for them.

——— HUBERT D. ASTLEY.

SIR,—I have no doubt that Mr. R. Phillipps has had far more experience of Hoopoes in confinement in this country than I have, but all the same, the only good Hoopoes in Europe that I have seen have been fed mainly on mealworms. One in the Frankfurt-am-Main collection had practically nothing else: he was absolutely perfect, and had been there eight years. Those that have lived longest in our Zoological Gardens have had chiefly mealworms: two or three years is about their limit of life. The present specimen is a very good one, and has been there some time—over two years, I think.

Abroad, I have had many Hoopoes. A pair bred annually in a crack (originally caused by an earthquake) in our house in the Canary Islands, while two pairs nested in the terraced walls of the garden. Each year I used to take a brood and place them in a large aviary in our verandah; they were fed by the parents and by us as well. They showed no fear, and when the parents had done with them they would follow us for food all about the garden, and down into a barranco (dry water-course) about two hundred yards away, where they would hunt for and obtain their natural food, viz. cricket-larvæ, from under stones. We usually had a brood of six or seven, but these used to dwindle down to two or three by November (the rest ceasing to come back to their aviary); while by January the others looked so wretched that we gave them their full liberty. They had their natural food, cricket-larvæ, centipedes etc., the larvæ of a beetle that is common in the roots of a certain plant, and in addition, Carl Capelle's food, with yolk of egg (Abrahams') added. These birds got split beaks! and I have seen several wild birds in trouble from the same cause. I caught one in Morocco evidently starving from having its upper mandible split.

It is amusing to see old Hoopoes feeding their young. They only carry one insect at a time, as a rule, and quite at the tip of their beak. A centipede is carefully folded into about four loops. The Hoopoe feeds its young largely on smallish centipedes about two-and-a-half inches long; but the Roller on a very large and poisonous one, quite six inches long. I camped once for a long time in some ruins swarming with Rollers, quite three hundred pairs, and they brought in little else but these most unappetizing (to us) looking creatures. While the Hoopoes—there was a nest within five yards of my bed—brought small brown centipedes and crickets.

If bread and milk should prove to be the best food for Hoopoes, it is an interesting thing, and shows on what extremely unnatural food a bird

can survive; but this is not unique by any means, for the Eider-duck thrives, if kept with care, on barley-meal and liver, and I believe will not touch shell-fish, mussels etc., in confinement! and the two pigeons peculiar to the Canary Islands, *Columba bollii* and *C. laurivora* will not, in confinement touch the food that is their only supply in a wild state, but live for years, breed and thrive on hemp, wheat etc. E. G. B. MEADE-WALDO.

POLYGAMOUS AND MONOGAMOUS BIRDS.

The following correspondence appeared in *The Field* of May 4th and 11th last, and is perhaps worth reproducing here especially in connection with the subject of polyandry, dealt with by Mr. Astley on another page.

"With the hosts of observers throughout the world and the number of ornithological works extant, it might well have been thought that in the case of the larger and commoner kinds of birds all that was worth knowing about their general habits and mode of life had long since been recorded. According, however, to an article on the mating of birds, contributed by Dr. R. W. Shufeldt to the April number of the *American Naturalist*, this is by no means the case, and we are still in ignorance as to whether several well-known species are polygamous or monogamous. While it is well-known, for instance, that the Ostrich and the South American Rhea are polygamous, it is only reported that Emeus are monogamous, and no information appears to be available under which category Cassowaries should be classed. The same, according to Dr. Shufeldt, is the case with the rapidly-vanishing Kiwis (*Apteryx*) of New Zealand. Such information as we have regarding the South American Tinamous points to their being monogamous; but in this case also observations with regard to breeding habits seem to be very imperfect and unsatisfactory. All water birds, inclusive of Divers, Penguins, Petrels, Pelicans, Gulls, Auks, etc., seem to be exclusively monogamous; and with the exception of the Ruff, the same apparently holds good for the group of Waders (*Limicolæ*) in general, although there is some degree of doubt with regard to the Solitary, or Double Snipe, Darwin, in the *Descent of Man*, including that species among the polygamists. The Bustard, is, of course, a well-known polygamist, but whether other members of the group have the same habit is uncertain. The Indian Florican are reported, however, to be polygamous, and the author considers it not unlikely that all Bustards "possess strong inclinations in this direction, even if they are not actual polygamists." The Stone-Curlew, or Thicknee, is on the other hand, monogamous. Although none seem to be polyandrous, the game birds present a curious mixture of polygamous and monogamous types, some affording very strongly marked examples of the former practice, while others never depart from the latter. Whether, however, the Button-Quails or Hemipodes are polygamous or not the author could not ascertain, although it is known that the males, which have

duller plumage than their mates, perform the duties of incubation. The same uncertainty prevails in the case of the Brush-Turkeys and Megapodes; while the author cannot do more than suggest that the South American Guans and Curassows are probably a monogamous group, as the two sexes are nearly alike. The general rule among game birds appears, indeed, to be that when the cock is conspicuously larger and more brilliantly coloured than his mate, the species is polygamous, and *vice versâ*. It is, however, not known with certainty whether the Argus Pheasant is a polygamist, although it probably comes under the same category as other Pheasants, all of which have large harems. With the monogamists are included Partridges, most Grouse, and all Ptarmigan, but Sagecock, Capercaillie, and Blackcock, together with Quail, are as markedly polygamous. Although Peacocks retain their polygamous nature under all circumstances, domestication in certain instances causes some strange changes in the breeding habits of game birds. Guineafowls, for example, are normally monogamists, but in confinement a cock has been known to take charge of some half-dozen hens, and these, too, without interfering with the number of eggs normally laid by the latter. This last instance indicates the necessity of caution on the part of observers who may endeavour to supply the gaps in our knowledge indicated by Dr. Shufeldt from birds kept in a state of captivity."

From *The Field*, May 11th, 1907.

"Sir,—In *The Field* of May 4th appears a communication under this heading, in which an article by Dr. Shufeldt in the *American Naturalist* is quoted. It appears to me that many of the conclusions arrived at are very far from correct. In the first place we are told that "it is well known that both the Ostrich and the South American Rhea are polygamous." There appears to be little doubt, however, that the Ostrich is strictly monogamous in a wild state, and success in breeding from tame birds can only be assured by carefully pairing off the birds, or allowing them to pair off naturally. Hunters tell of the finding of Ostrichs' nests owned by a single pair of birds, no others being within several miles; and in an account of Ostrich farming in South Africa which appeared in the *Ibis* for January, 1906, the author clearly proves that these birds are not polygamous, and will only breed successfully in pairs.

"Now for the Rhea. It is well known that in these birds the male performs the duty of incubation, and it would seem to be almost an impossibility for a species in which this is the rule to be polygamous. It would be quite impossible for a single male to incubate all the eggs laid by all the hens of a harem, and the waste of eggs would be enormous. There is very little doubt, I think, that Rheas are polyandrous, and that those observers who have credited the species with polygamy have mistaken the sexes.

"The case of the Guinea-fowl, a naturally monogamous species, becoming polygamous in captivity is quoted as an instance showing the

necessity of caution on the part of observers in accepting results of experiments on birds in captivity, but though the habits of a species may undergo certain change after many generations, the wild habits remain almost unaltered for the first few generations at any rate, and a careful observer may discover many points connected with their life-history that it would be quite impossible to find out from the wild birds in their natural habitat. The results, therefore, of some experiments in the breeding of the Tinamous and Hemipodes should be entitled to consideration. In France M. Dulaurier has experimented with the breeding of the Martinetta or Crested Tinamou, and in England I have done so with the Tataupa (*Crypturus tataupa*) and in both cases I think we have proved conclusively that these two Tinamous at any rate are polyandrous. I would refer those who may be interested in this subject to the *Bulletin de la Société Nationale d'Acclimatation de France* for October, 1903; to the *Avicultural Magazine* for August and October, 1904; and to the *Proceedings of the IVth International Ornithological Congress*, 1905, page 667-669.

"With regard to the Hemipodes, of the breeding habits of which Dr. Shufeldt seems to be in ignorance, as with the Rheas and Tinamous, the males perform the duties of incubation. The male is, with most species, not only duller but much smaller than the female, and it is as much as he can do to cover the clutch laid by one female, and it would be impossible for him to incubate the combined clutches of two or more birds. Hence polygamy would be impossible. I have kept several species of Hemipodes in captivity, and two, the Indian *Turnix tanki* and the Australian *T. varia*, have bred freely under my observation. The female does all the courting, and after she has paired and laid her clutch of four eggs, and the male has commenced to sit, she leaves him and recommences her booming call, which suggests that were there another male available she would pair with him, and thus show herself to belong to a polyandrous species, like the Tinamous. The results of my experiments with Turnix were published both in the *Avicultural Magazine* and in the *Proceedings* of the Ornithological Congress above referred to. Hemipodes are certainly not polygamous, they may be strictly monogamous; but their habits certainly tend to suggest that they are polyandrous, though I have never been able to prove this. DAVID SETH-SMITH."

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BICHENO FINCH (Miss Gladstone). Fatty degeneration of the liver was the cause of death. It was a hen.

Answered by post:

Mr. E. J. Brook. The Hon. Lady Harvey.

NOTICES TO MEMBERS—*(Continued from page ii. of cover).*

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(Continued on opposite page).

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THE JOURNAL OF THE AVICULTURAL SOCIETY.

CONTENTS.

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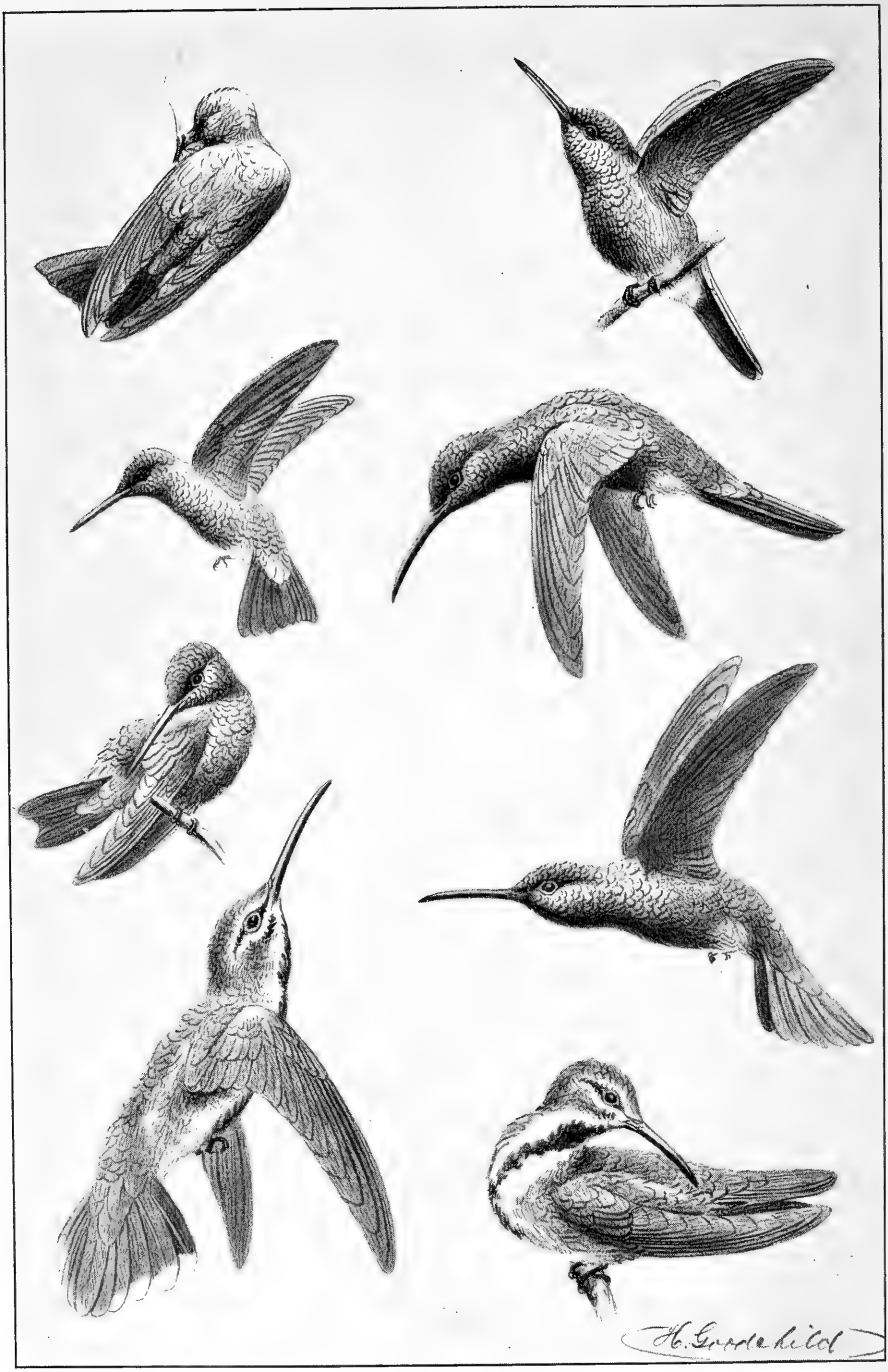
(*Continued on page iii. of cover*).



SKETCHES OF HUMMING BIRDS AT THE ZOO.

Bale & Danielsson, Ltd.

THE

Avicultural Magazine,

BEING THE JOURNAL OF THE

AVICULTURAL SOCIETY.

New Series—VOL. V.—No. 10.—*All rights reserved.* AUGUST, 1907.

HUMMING-BIRDS IN CAPTIVITY.

By Albert and Hugo Pam.

Last year the Editor wrote some remarks on the subject of the few Humming-Birds which were brought back from South America for the Zoological Society. Since that first trial another small consignment was brought over in the month of June of last year, and last May we again succeeded in landing twenty Humming-Birds, which were duly deposited in the Society's Gardens on the 27th of that month. The death of the last survivor of this consignment has caused us to review the facts which these three trials have brought out, and also the experience gained by us in the feeding and care of these small birds, which has been largely increased since the first article appeared in this Magazine on the subject.

The last consignment of twenty birds was put on board the mail steamer in La Guayra in good condition, and the last bird to survive died after having been in captivity in London between four and five weeks. Inasmuch as this bird was caught about a fortnight before it left Venezuela, and the voyage took sixteen days, we can roughly state that it was in captivity for about nine weeks.

It has now therefore been clearly proved that Humming-Birds, under favourable conditions, *can* be kept in captivity for a short time even in this country; but we have regretfully come to the conclusion that, owing to the climatic conditions which obtain in England, and the uncertainty of the weather, it is not to be expected that these little birds can be kept in a cage for any considerable period in England.

There remains no doubt in our minds at all that, apart from the question of feeding, the most important requirements of these birds are sunshine and fresh air, and, except under very particularly favourable conditions, these two requirements can very seldom be obtained together inside a London building. The question of heat is to our mind a minor consideration, provided that the temperature does not fall very much below 55 to 60° at any time, but an adequate supply of bright light and fresh air is an absolute necessity.

If during a warm summer one could liberate a number of these birds in a large open-air aviary (naturally with a very small mesh wire) in which a good supply of flowering plants had been placed, we consider that there is no reason why they should not live until the late autumn, but the great difficulty of keeping these birds in small cages is this that, in a house such as the Insect house, in which they were placed in the Zoological Gardens, they must be protected against the draughts caused by the doors being continually opened and shut, and the temperature being kept fairly high causes the air to be too 'stuffy' and the ventilation deficient.

It will therefore be seen that it is practically impossible in this country to obtain the ideal conditions which would permit of Humming-Birds being seen in captivity in all their splendour and colouration, and we have therefore decided that unless some new scheme can be devised which would give these birds more natural conditions in which to live, we must give up our efforts to introduce them into this country.

It may be of some interest to the readers of this Magazine to hear of the plans which we had worked out for bringing over and keeping here this last consignment.

We had carefully discussed the question of the food with Dr. Chalmers Mitchell, and had come to the conclusion that the solution of molasses sugar, with the vegetable extract Marmite added did not contain a sufficient quantity of albuminoids to sustain life for any length of time. We therefore decided on the following plan. Every other day we added to a solution of the molasses sugar a quantity of well beaten up white of egg, and we found that the birds readily took this food and did very well on it.

When the birds arrived in the Zoological Gardens we also gave them a small quantity of sweetened milk which they took very greedily indeed, but we are unable to say whether this food was really beneficial or otherwise.

In the former consignments we had experienced considerable difficulty owing to the fact that the birds, in taking the thick solution of molasses sugar, very often dipped their feathers into the feeding glass, and owing to the sticky nature of the solution were thus often prevented from flying properly. This question was most important as the only movement which a Humming-Bird is capable of is that of flying. It cannot walk or hop, and if it wishes to move half-an-inch along the perch on which it happens to be sitting it has to make use of its wings. In order to eliminate this danger we arranged for the glasses containing the solution to be fixed outside the cages with just sufficient opening for the birds to put their beaks through, and thus drink without any possibility of making their feathers sticky. This answered very well indeed, after the birds had got used to finding their food, but caused a considerable mortality before they had learnt how to get at it.

Altogether we succeeded in getting thirty-three Humming-Birds of different species on board the steamer at La Guayra, Venezuela, and of this number twenty reached London alive. On board ship the same difficulties which are mentioned above were met with, and it was very difficult to place the cages in such a position that they obtained a sufficient quantity of light and air without being in a draught. But thanks to the interest displayed in this venture by all the officers and men of the s.s. "Trent" and to the facilities granted by the Chairman of the Royal Mail Steam Packet Co. the trouble of bringing the birds over was very much reduced.

We think that we can now safely say that there are no insuperable difficulties in the way of bringing Humming-Birds alive to this country. The food which, after many trials, we decided to give them was sufficiently nourishing to keep the birds in good health and condition: but the one point over which we unfortunately had no control was the uncertainty of the weather, and inasmuch as even in its native state the

Humming-Bird droops and is miserable at all times except when the sun is shining brightly, it is no wonder that in the London climate the birds cannot live for any length of time.

It must be recognised that the Humming-Bird is to a great extent, if not entirely, insectivorous, and that a sugar solution alone is under no circumstances sufficient to keep it alive. That is the reason why the natives of South America have never succeeded in keeping these birds in captivity for more than a few days. In Venezuela itself we have kept Humming-Birds in cages for between three and four months, and we are convinced that under suitable conditions, with proper care and individual attention, there is no reason why they should not live in captivity as well and as readily as most other insectivorous birds. In any case the actual length of the Humming-Bird's life has never been established, but it is hardly to be expected that it would extend over any considerable time.

One point is absolutely certain, and that is, that of all the different birds which we have at different times kept in captivity, both abroad and here, the Humming-Bird is by far the tamest. It knows no fear, and a very few minutes after it has been caught will sit on one's finger and take its food. It is a bird of more than average intelligence and very readily adapts itself to its surroundings. Altogether we have kept a large number in captivity, and do not recollect one case in which a Humming-Bird has failed to make itself at home in its cage within a very short time after it has been caught. Even in their wild state these birds enter without fear inhabited rooms and balconies, and have often been known to build their nests and hatch out the young inside rooms, halls, etc., allowing the passers-by to watch them sitting on their eggs and feeding their young.

In conclusion, we may repeat that the Humming-Bird is, above all, a creature of sunshine and liberty: in its habits it resembles a tropical butterfly much more than a bird, and the same ideal conditions which would be necessary to keep the former in captivity are also required in the case of Humming-Birds. For those who have seen these beautiful birds free in their native state, it can but be a sad sight to note their ruffled plumage and dejected appearance in captivity; and it has made

us very miserable to watch them slowly dying for the want of that sunshine which is so essential to their life. All lovers of animals will therefore understand our reasons when we say that we shall not try again to import Humming-Birds into England.

[We feel sure that aviculturalists in general will be very grateful to Messrs. A. and H. Pam for the amount of trouble they have taken to introduce living Humming-Birds, and to give us in this country an opportunity of studying these wonderful birds. The last consignment which arrived unfortunately came in for one of the most sunless Junes on record. Had they been favoured with the amount of sunshine that one expects during an English summer, and perhaps if they had had a somewhat less stuffy cage, they might have lived longer. At any rate we do not think the experiment can be regarded as quite a failure, and, although we quite understand Messrs. Pam's reason for not wishing to repeat the experiment, still we believe that under more favourable conditions Humming-Birds could be kept in this country for some time.—Ed.]

MY AVIARIES AND THEIR INMATES.

By E. J. Brook.

When the Editor of the *Avicultural Magazine* asked me to write an account of my aviaries I felt that he had asked me to do something disagreeable, like making a speech or listening to a budget debate. However, I will do my best, and he can scrap any part of this paper he does not think of interest—all of it if he thinks right—and he may use his blue pencil to his heart's content.

Foreign birds, especially those of the parrot kind, have always taken my fancy, and for a number of years I have kept one or more confined in cages. There always seemed to me to be something wanting—some touch of life and movement—in a bird kept confined in even the largest cage possible in a room; so, about two years ago, I set about building substantial aviaries in which my birds could get a considerable amount of freedom, and yet not so large that the inmates could not be easily and closely watched.

My aviaries vary slightly in size, but, speaking generally, they consist of a room 6ft. by 10ft. and about 14ft. high, and this room opens by half doors into a flight about 6ft. by 16ft. by 10ft.,

some of the flights however being considerably larger. There is a passage at the back of the inner rooms that can be heated if required, and from which the birds can be observed without causing disturbance. This passage is divided by doors at every 18ft. to cut off draughts.

Like all other aviculturists I have experienced both the joys of success and the mortification of disappointment; but careful watching, air, good food, cleanliness, and advice freely and generously given by members of the Society are making the joys of aviculture more numerous by a long way than these disappointments.

When I first began aviculture my losses were mostly among the Lories, which usually died from fits, and among the seed-eating parrots which often succumbed to apoplexy, both brought about from error in diet; but recently I lost two birds through accident, which caused my aviary man, who was nearly in tears, to exclaim, "Well! at first it was fits and apoplexy, now it is bashed heads and broken necks," and my only way to comfort him was to point out how low our per centage of loss was amongst so many birds.

Birds are strange creatures and do odd things. For instance, a hen Crimson-wing Parrakeet lays two eggs now and then, and sits on them closely now and then, which is not of much use. One pair of eggs this bird laid I placed under a Rock Peplar that had just commenced to sit on only one egg, and the result is most satisfactory.

Last Autumn in one aviary there was a pair each of White-eared Conures and Golden-headed Conures; the White Ears laid eight eggs and reared seven young in a small hollow log. The nest was rather crowded with this family, but in spite of this the Golden Heads also used the log as a sleeping place at night.

I am often asked which kind of birds I like best, and my answer is always Lories and Lorikeets, but that these birds are only suitable for aviaries, and where great care and attention can be given. I always find the Lories the most amusing and the tamest birds in the aviaries; one of a pair of Red-naped Lorikeets delights in searching me all over and it is impossible to frighten the bird. The cock of a pair of Blackcap Lories you

can do nearly anything with, but the end of a game is generally a sharp nip and what sounds very like a roar of laughter from the bird. My first experience of offering three Black Lories (*Chalcopsittacus ater*) a basin of warm water was that, with a loud scream, the whole lot tumbled in and began to splash; now if I hold the bath in my hands I put on a mackintosh.

Recently, owing to the kindness of a member of the Avicultural Society, my aviaries have been enriched by the addition of one Twelve-wired Bird of Paradise, one Red Bird of Paradise, and some King Birds of Paradise, all in most beautiful condition; also a pair of a new species of Lorikeet that I understand has just been named by Mr. Ogilvie-Grant, at a meeting of the British Ornithologists' Club.*

My experience of keeping birds in aviaries is that the most dangerous time of the year is the Spring, when there is a hot sun and a cold wind combined; this is far more dangerous than any amount of general cold, and usually nips the hardy kinds that have borne the cold of Winter with impunity. Another thing I notice is that very few birds like the hot sun, and in warm summer weather the only time the majority of them are out in the open is in the evening and early morning.

I do not know whether there is any medical virtue in it, but I find that many birds are very fond of a slab of old oak bark and that they eat a good deal of the outer bark of the slab.

If I may venture on advice to any who are thinking of keeping Parrots and kindred kinds of birds in aviaries, but who have at present no experience, I would suggest that they begin with some easily kept species, and as they gain experience add the more delicate and more uncommon kinds. Let the beginner make up his mind not to keep more birds than he can keep properly, and to feed his charges only on the best food even though the extra cost is considerable.

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* *Trichoglossus brooki*; *Bull. B.O.C.* Vol. XIX. p. 102.

THE PARTRIDGE PIGEONS OF AUSTRALIA.

By D. Seth-Smith, F.Z.S., M.B.O.U.

The two species of Pigeons forming the genus *Geophaps* are known to the Australian colonists as "Squatter Pigeons" or "Partridges" from their terrestrial habits. In this respect they closely resemble *Lophophaps*, the Plumed Pigeons, which are also very Partridge-like in their habits of running swiftly over the ground and rising like gallinaceous birds. It is convenient however to confine the term "Partridge Pigeon" to the two species of *Geophaps*, the others being known as "Plumed Pigeons" or "Plumed Doves" (cf. *Avic. Mag.* Vol. V. p. 51). The Partridge Pigeons or Partridge Bronzewings, are fine plump birds, about the size of English Partridges. They nest and roost on the ground, rarely perching on trees, though they sometimes fly up on to stout horizontal branches. Both species possess a low crooning coo.

The Partridge Bronzewing Pigeon, *Geophaps scripta* (see plate) is said to inhabit North-Western and South-Eastern Australia. It is quite one of the most handsome of Australian Bronzewings. The prevailing colour is greyish-brown, the wing-coverts being edged with a much lighter band, the head conspicuously marked with black and white, the flanks white, and a metallic green speculum on the wings. The sexes are alike in plumage. The male of this species displays in the same way as others of the Australian "bronze-wing" group, namely by bowing and throwing up the wings and tail.

These Pigeons seem to be perfectly hardy, three specimens in my aviary having endured the cold of last winter with apparently no discomfort. They live on good terms with other birds except other nearly allied Pigeons such as *G. smithi* or *Lophophaps*. I have not been successful in breeding *G. scripta*, but fertile eggs, which were hatched under Barbary Doves, were obtained from a pair kept in the Zoological Gardens in 1891, but apparently no young were reared to maturity.

Smith's Partridge Bronzewing, *Geophaps smithi*, the "Red-eyed Squatter Pigeon" of the colonists, inhabits North-Western Australia. It is about the same size as *G. scripta*, the prevailing

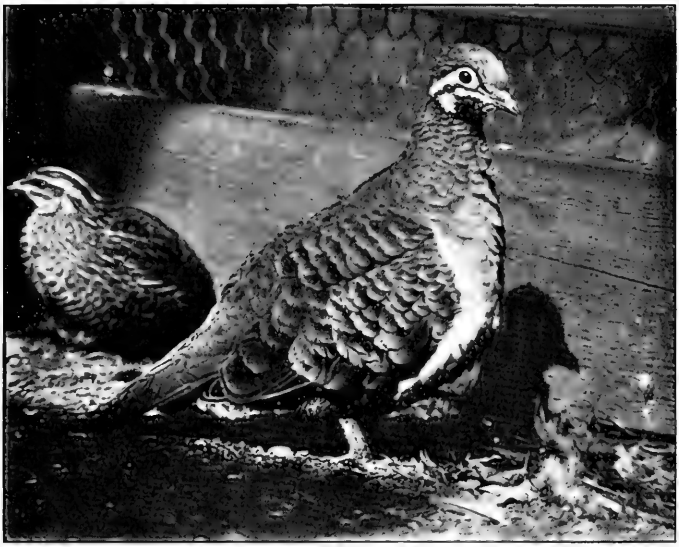

Photo by D. S-S.

PARTRIDGE BRONZE-WING PIGEON.

Geophaps scripta.

Bale & Danielsson, Ltd.

colouring being olive brown, the flanks white, the eye surrounded by a large patch of naked red skin which in its turn is surrounded by a narrow band of white feathers, the speculum on the wings is purple with greenish reflections. I have possessed four specimens of *G. smithi* and found them similar in habits to *G. scripta*. The Zoo. has possessed one pair, and another pair was kept for some time by Mrs. Johnstone. I have been unsuccessful in my attempts to breed this rare Pigeon although I have got as far as chipped eggs.

A pair were most anxious to nest, but would insist on doing so in the winter when they inhabited a somewhat crowded aviary where the eggs invariably came to naught. They usually elected to make their nest, which consisted of a scratch in the ground and a few bits of hay or small sticks, in the corner close to the door of the aviary, so that it was impossible to enter without disturbing them. When disturbed the sitting bird would run away and beat violently at an imaginary enemy with its wings. The two birds took turns on the nest like other pigeons. In April they were allowed to go out into the large open aviary, and here they immediately nested under a thick clump of brushwood, an excellent place where all would doubtless have gone well, had it not been for our most trying English weather. So far as I could judge incubation lasted seventeen or eighteen days, but I was not quite certain when it commenced. One day I noticed both birds off the nest together, an ominous sign, and I discovered one egg with a dead chick half way out of it, the other with a dead chick just about ready to hatch. There had been quite a sharp frost in the night. After this the birds evidently considered the breeding season to be over as they made no further attempt at nesting. The chick was thinly covered with whitish down, not naked as with most pigeons.

It will perhaps be of interest to quote Gilbert's notes on this species in a wild state, as quoted by Gould in his "Handbook." He writes: "Like the *G. scripta* this bird, which at Port Essington is termed the Partridge, differs considerably from its congeners in its general habits, flight, voice, mode of incubation, and the character of its newly hatched young. It is rather abundant in all parts of the Peninsula, is mostly seen in small

families and always on the ground, unless when disturbed or alarmed; it then usually flies into the nearest tree, generally choosing the largest part of a horizontal branch to perch upon. When it rises from the ground its flight is accompanied with a louder flapping or burring noise than I have observed in any other Pigeon.

"Its note is a coo, so rolled out that it generally resembles the note of the Quail, and which, like that bird, it scarcely ever utters but when on the ground, where it frequently remains stationary, allowing itself to be almost trod upon before rising. Its favourite haunts are meadows covered with short grass near water, or the edges of newly burnt brush. It would seem that this species migrates occasionally from one part of the country to another; for during the months of September and October not a single individual was to be seen, while at the time of my arrival and for a month after they were so abundant that it was a common and daily occurrence for persons to leave the settlement for an hour or two and return with several brace; in the latter part of November they again appeared but were not so numerous as before; and in the January and February following they were rarely to be met with, and then mostly in pairs, inhabiting the long grasses clothing the moister parts of the meadows.

"It incubates from August to October, making no nest, but merely smoothing down a small part of a clump of grass and forming a slight hollow, in which it deposits two eggs, which are greenish white, one inch and a quarter long by seven-eighths of an inch in breadth. The young bird on emerging from the egg is clothed with down like the young of the Quail."

The last sentence in the above interesting notes has given rise to a mistaken idea that *Geophaps* is much more closely allied to the game-birds than other Pigeons, and should therefore be classed with these.

In his paper "A Review of Recent Attempts to Classify Birds," read before the International Ornithological Congress at Budapest in 1891, Dr. Bowdler Sharpe proposed to separate the pigeons belonging to this genus from the true Pigeons and associate them with the *Turnices*, an arrangement which would not meet with the support of those who know these birds in a

living state. The *Geophabes* are perfectly true Pigeons and, except that they are purely terrestrial, are almost identical in their habits with the other Bronzewings of Australia. Both species are very rare in captivity.

On February 2nd 1892, Dr. Sclater exhibited (in spirit), at a meeting of the Zoological Society, two nestlings of *G. scripta* which had been hatched in the Zoological Gardens on the 7th of June 1891, also an egg of the same species, and made the following remarks (*P.Z.S.*, 1892, pp. 76,77): "I cannot at all agree with Dr. Bowdler Sharpe in his recent proposal to divide the very natural order 'Columbæ' into two portions, and to associate the *Geophabes* or Ground Pigeons with the Gallinaceous birds.

"According to the observations we have made from time to time in the Society's Gardens, where several species of the Ground-Pigeons* have bred repeatedly, the young of the Ground-Pigeons when hatched are nearly naked and quite helpless, and differ in no respect from the young of the typical 'Columbæ.' In proof of this I exhibit two specimens of the young of the Partridge Bronzewing Pigeon (*Geophaps scripta*), hatched in the Gardens on June 7th last, and about fourteen days old when they died. It will be observed that at this date they were barely covered with feathers and hardly fledged. In fact one of them was actually killed by falling from a slight elevation in the aviary, having been hatched in the nest of a Barbary Turtle-dove (*Turtur risorius*), to which the egg had been removed in consequence of the bird that laid it refusing to sit upon it. It cannot therefore be said that these birds are 'able to run soon after birth.' Nor, in the reference given by Dr. Sharpe, does Mr. Gilbert, so far as I can gather from his remarks, say so; he merely states that 'the young bird on emerging from the egg is clothed with down like the young of the Quail.'"

N. B.—In the photograph, here reproduced, the bird in the background is an Australian Quail (*Coturnix pectoralis*).

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* Under the term "Ground Pigeon" Dr. Sclater includes *Phaps*, *Ocyphaps*, and other forms which are quite as arboreal as they are terrestrial.

THE BAIKAL OR JAPANESE TEAL.

(Nettium formosum).

By HUGH WORMALD.

In a family in which all the male birds are conspicuous for their handsome markings, the Baikal Teal is in my opinion the most beautiful species, though perhaps closely rivalled by the Falcated Teal.

Owing to its rarity and consequent high price, it is seldom seen in captivity in this country, and as some of our members may never have seen an example, it may be as well to describe roughly its leading characteristics.

In size it is half as large again as the Common Teal (*Nettion crecca*) and sits high in the water. The bill is black; the top of the head is brown with lighter and darker markings, but at a little distance it appears to be a uniform dark brown. A light streak extends from the bill, passing above the eye and meeting in a point at the back of the head. The cheeks are divided up into stripes of metallic green which appear quite bronze in some lights, the feathers between these stripes being cream-coloured.

The breast is rather pinker than a Widgeon's, with black spots: the sides are bluer than in the Common Teal, and the pencillings are smaller and less noticeable; there is a crescent-shaped patch of white just below the shoulder, but the most noticeable features are the beautiful elongated scapular feathers, dark chestnut on the outside, black in the centre, and light creamish brown on the inside; these feathers hang down so as to touch the water when the bird is swimming, giving it a very curious appearance when viewed directly from behind. The back is brown with lighter and darker markings; tail brown, under tail coverts black, with a small splash of chestnut at the base of the tail.

The duck is rather richer in colouring than the Common Teal, and has a cream patch on either side of the head at the base of the bill.

I had never seen a living example of this species till last August, when I saw a pair at an Agricultural Show in Staffordshire, the drake of course being then in eclipse plumage. On

looking them up in the catalogue I found that the price asked was £50! However I wrote to the exhibitor and eventually bought them at a very reasonable figure.

When showing off the drake lowers his head and then throws it up, at the same time elevating the feathers on the top of his head so that they appear almost like a crest, and muttering his note, a monotonous grunt, which he keeps up for hours on end, occasionally varying it with a double grunt!

The duck is a very quiet bird, and in my pair much shyer than the drake; the latter is just going into eclipse as I write and was much later than most drakes in assuming his full plumage last winter, as it was not complete till the end of December, though I have often known Shovellers and Garganey later even than this.

I hope next year to be able to report on their breeding habits as I shall have them on a stream in an enclosure by themselves; this season my pond is too overstocked with ducks—and rats, to expect any results.

I read with interest that an immature drake was caught last year in England which I think must have been an escaped one. I believe I am right in saying that the Duke of Bedford has, or had, a large stock of these lovely birds, so possibly this specimen was bred at Woburn.

I may mention that the speculum in this species is nearly entirely black with very little green.

TAMBOURINE DOVES, &c.

By A. G. Butler, Ph. D.

I have not heard the opinion of bird-breeders generally respecting breeding-results this year; but I know that, as regards my birds there is little to record so far:—my cock Gouldian Finch broke his wing in his violent efforts to prevent me from catching him out of his cage, so that (as he died the next day) my prospect of continuing to breed that species was quashed at the beginning of the season. My Diamond-doves also were disinclined for greater freedom and the hen temporarily lamed one wing in her efforts to avoid the net; she recovered in a week

or so and went to nest, incubated her eggs the full time, but without result; the eggs were clear; two days later she began to sit again.

Greenwing Doves paired but did not build or lay: and now to come to the Tambourine Doves.

I caught and turned out my old pair on May 12th, and shortly after heard the cock-bird sounding his tom-tom (the song is far more like that than the tambourine).

In June, although I had found no shells on the floor of the aviary, I was convinced that young had hatched; because the cock bird disappeared during the day, the hen only being visible: I would not, however, risk disturbing them by venturing to that end of the aviary until the end of the month, when the cock bird began to coo again and I feared that the young must have died.

The nest made this year was placed quite two feet higher up than that of last year and was absurdly small for the species: for some time I could not see it and was just turning away under the impression that I had been deceived as to the birds having young when there was a violent fluttering and the nestlings alighted on the branches below it. I just glanced at the empty nest and made haste to leave the aviary.

On the 1st July I opened the door at the farther end and looked in: I saw one of the young birds waddling along on the floor below the thicket of branches on which the nest was built and went away satisfied. On the 2nd both of the old birds were at the end of the aviary farthest from the nest and the cock bird was cooing to the hen. I could see nothing of the young, and after waiting some time, I went inside to investigate: eventually I found one of them sitting up dead close to the wall at the back of the thicket. So far as I could judge this bird appeared to be about three weeks old; well-feathered but with the tail-feathers only partly out of their sheaths: I sent it off to the Natural History Museum.

In the afternoon of the same day I saw the second young bird crouching on the ground half way down the aviary and panting: I picked it up and found that the parents were not feeding it: I therefore placed it in last year's nest, where I

thought they were more likely to pay attention to it; but if they fed it at all they evidently did not satisfy its needs, as on the 3rd I found that it had followed them to the other end of the aviary where it lay on the floor dead.

The question is—Has the incessant cold and damp of the present summer anything to do with the neglect of their young by these birds, or have they been too highly fed? In the mixture provided for them there is a certain amount of hempseed, all of which the Doves swallow greedily; and, although with the same mixture this same pair successfully reared one male youngster, I am inclined to believe that the birds would have done better on millet and dari alone. At the same time there seems to have been a general failure in results among all types of birds this year.

A few weeks back I noticed an article in "Canary and Cage-bird Life" upon the results from a number of pairs of finch-mules: in each case the eggs were incubated the full time but proved infertile.

My Goldfinches built a neat little nest in one of my indoor aviaries, but the hen died egg-bound with the first egg. I turned out a pair of Pintailed Nonpareils and they have not even built up to the present time; but perhaps, like the Gouldian Finch, they begin their moult in June and will not do anything until that is over.

I turned out an Orange Weaver with two hens of its own species and one of the Napoleon Weaver: the cock bird has not even attempted to build yet, though I have known this bird to do so while yet in its winter dress: it is now just beginning to show the first traces of orange in the plumage and therefore is much behind the Grenadier Weaver, which was in full breeding-plumage a month ago.*

Several pairs of Australian and African Grassfinches of various species have built and been pretty energetic in defending their nests, but hitherto none of them have laid eggs: there must be something wrong with the season to account for such a

* I believe this bird would breed with the hen of any other Weaver; it displays itself and sings to every bird in the aviary and especially a White Barbary Dove, with which it has tried to pair.

general failure in results; but possibly some of our members have been more fortunate than I have.

My Cockatiels seem very busy over a large nest-box (of the cigar-box pattern), they have stuck to it constantly for the past month, but whether they have young or not I am unable to say: I know that they have been laying and smashing eggs in all sorts of places for many months past; indeed one hen died from exhaustion in consequence of this incessant laying, so that I am not particularly sanguine about the result of the present manœuvres.*

If the weather would but improve, there is still time to do something this year, but I am afraid it is too much even to hope for now that winter has continued into July.

NOTES ON A NESTLING
CALOPSITTACUS NOVÆ-HOLLANDIÆ.

By W. P. Pycraft, A.L.S., F.Z.S. etc.

In the last issue of the "Avicultural Magazine" it may be remembered that I described certain peculiarities of the beak in a nestling *Psephotus multicolor*. I have now the good fortune to be able to draw attention to some interesting facts concerning a nestling *Calopsittacus novæ-hollandiæ* given me by Mr. H. E. Bishop, to whom my best thanks are due.

This nestling, which is of about one day old, has the upper surface thickly covered with long, canary-coloured down, umbelliform in character. The head however is bare except for a few weak down-tufts extending, from the eye backwards, over the parietal region, leaving the crown of the head and frontal region bare. The under-surface of the body is entirely bare, a few minute almost bristle-like down-barbs faintly indicating the course of the ventral feather tracts. The arm and forearm are thickly down-clad, but the hand is bare—that is to say of the upper surface of the hand. The whole under side of the wing is bare.

* Since writing the above I have heard one young one being fed: it appears that since it hatched the hen has laid several eggs.

But the most remarkable features of this nestling are to be found in the feet, and the beak.

As to the feet. These are peculiar inasmuch as all the toes except the hallux are turned forwards, whereas in the adult of course the first (hallux) and fourth toes are directed backwards. In other words, this nestling is *not* zygodactylous. I would suggest that those who are interested in the breeding of Parrots should examine *very* young living nestlings to see whether this generally obtains among Parrots at this stage.

The beak agrees in all its essential characters with that which I described in the *Psephotus multicolor*. And for purposes of comparison is here figured together with that of an adult, and that of the young *Calopsittacus*.

In this last named, as may be seen by a reference to the figures, the abrupt angle which the premaxillary forms with the maxillary portion of the jaw, is extremely well marked. The lower is also wider than the upper jaw, and its cutting edge is also membranous, this being especially noticeable at the gape where the free edge of the lower overlaps that of the upper jaw, though not in as marked a manner as in *Psephotus*.

It is by no means easy to describe these several peculiarities of the jaws so as to convey an accurate impression of the actual conditions, but the illustrations given may help towards this end. The change in the form of the beak which takes place during the passage from the nestling to the adult stage is certainly striking.

In the adult *Calopsittacus* (Cockatiel) it will be noticed that if a line be drawn vertically, from the anterior margin of the cere downwards, it will cut through the *middle* of the lower jaw; in the nestling such a line passes *in front* of the jaw. Again, in the adult the tomium or cutting edge of the upper jaw is "festooned" and the jaw terminates in a sharp point. In the nestling the tomium of the upper jaw is straight as far as the level of the anterior end of the mandible, when its free edge turns sharply downwards to form the margin of a great "scoop." In the mandible or lower jaw, no less striking differences between adult and nestling are observable. In the first place, the tomium of the mandible in the former is sinuous, in the latter

hollow: while the inferior border of the jaw in the adult is semicircular, in the nestling straight, until near the tip.

The fact that the external nostrils open at a point above the angle of the gape in the adult, and much in advance of this in the nestling, suggests considerable differences in the relative rates of growth of the several parts of the jaws between the nestling and adult stages. Observations on this point are evidently much needed. As to the significance of these changes nothing can profitably be said at this juncture. But it would seem that the curious spoon-shaped tip of the upper jaw of the nestling may represent a stage in the ancestral history, when the jaws were used for softer food.

Fig. 1.

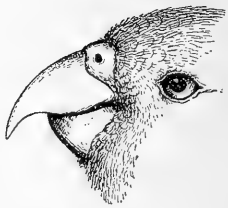

Fig. 2.

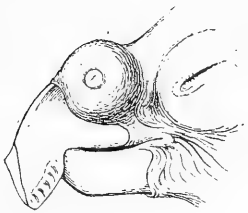

Fig. 3.

Fig. 4.

Fig. 1. Head of a nestling *Psephotus multicolor* showing the peculiar relation of the lower to the upper jaw, and the marked distinction between the premaxillary and maxillary portions of the upper jaw. Note also the striking difference in shape between the beak of the nestling and that of the adult.

Fig. 2. Head of an adult male *Psephotus multicolor* to show the marked difference in the form of the beak between nestling and adult.

Fig. 3. Head of a nestling *Calopsittacus novæ-hollandiæ* one day old, showing the great size of the premaxillary portion

of the jaw, which is capped by an "egg-tooth," (T), of a peculiar type and the curiously hollow edge of the under jaw.

Fig. 4. Beak of an adult *Calopsittacus novæ-hollandiæ* to compare with that of the nestling.

ON REARING HEMIPODES BY HAND FROM THE EGG.

By D. Seth-Smith, M.B.O.U.

In the *Avicultural Magazine* for August 1905 I described the rearing in my aviary of young of the Australian Varied Hemipode or Bustard Quail, *Turnix varia*.

It will be remembered that in this interesting group of birds the female is larger and more brightly coloured than the male. She does the courting and he hatches and rears the young. The pair that bred so successfully in 1905 made no attempt to repeat the process in the following year, though the female frequently displayed to her mate. This year, however, they seemed inclined to nest. A nest was made of hay in a corner of the inner part of the aviary in May. Three eggs were laid and the male duly incubated them, but to no purpose; they were unfertile. Soon after I had removed the eggs another clutch of three was laid, but the male declined to repeat the process of incubation. Seeing that he refused to sit I took the eggs and placed them in an incubator with very little hope of their hatching, as the last clutch were all clear. However on the fourteenth day (June 26th) a lively and vigorous chick made its appearance and I noticed a second egg was chipped. This I left until the following morning when, finding the young bird still unable to leave the shell, I gently helped it out. It seemed very weak, but soon became as strong as the other.

The question that now presented itself was as to how the young were to be reared? They were put in a small run with their father who ought to have brooded them, but he refused to have anything to do with them. I determined therefore to attempt to hand-feed them, knowing full well that I was letting myself in for a difficult and tedious task.

The young birds of this species when first hatched are less than two inches in length, they absolutely refuse to pick up any food from the ground, taking everything from the bill of their parent, and will only eat living insects.

The two babies were put into the drying box of the incubator, and every half hour, from five o'clock in the morning until dusk, they were taken out and fed with a pair of tweezers on *living* ants' cocoons, small gentles, or any small grubs that could be obtained. When first taken out of the warm chamber and put into a box in which I fed them they would rush at one

NEWLY HATCHED YOUNG OF *TURNIX VARIA*.

(From *The Proceedings of the IVth International Ornithological Congress*.)

another and peck vigorously at each other's beak, showing the inborn instinct to look to the beak for food. My wife kindly took charge when I was away, and had it not been for her help the chicks could not have lived for many days.

When seven days old the quill feathers were well developed in their sheathes, and then a trying time arrived, the drying box of the incubator was too warm for them and they began to flag. One had a fainting fit in my hand as I took it out to feed on the eighth day, but it soon recovered and took a hearty meal.

On the ninth day the chicks were transferred to a Tamlin's foster-mother which was put out on the lawn, and the day being sunny and warm (almost the first sunny day we had had since

they were hatched) they spent most of their time in the run sunning themselves. They now commenced to pick up food for themselves, and our chief troubles were ended. They grew rapidly, feeding on fresh ants' cocoons and gentles almost exclusively; soft food and small seeds were supplied but hardly touched. When the sun shone they basked in it, but when the weather was cold and dull they retired into the warm foster-mother. By the twelfth day they were practically feathered with the exception of their heads which still retained the down, and when fifteen days old (July 11th) they were transferred to a sheltered run in the aviary. I left home on this date, and on my return a week later the chicks had grown well. Their heads, which feather last of all, are now covered with quill feathers and the birds are nearly as large as the adult male. One shows very distinctly the reddish nuchal collar of the adult female, and is doubtless of that sex.

I think they may now (July 21st) be considered completely reared.

THE RELATIONS of INDIAN INSECTIVOROUS BIRDS TO VARIOUS BUTTERFLIES OF THAT COUNTRY.

By F. Finn, B.A., F.Z.S.

(Summary of Experiments, reprinted by permission from the Journal of the Asiatic Society of Bengal, Vol. LXVII. Pt. II., 1897).

The Common Babblers (*Crateropus canorus*) dealt with in my first paper (J.A.S.B., LXIV., Pt. 2, 1895, p. 344) ate the Danaine butterflies readily enough in the absence of others, but when offered a choice showed their dislike of these "protected" forms by avoiding them. This avoidance was much more marked when the birds were at liberty, though even so a few of the objectionable butterflies were eaten. *Delias eucharis* and *Papilio aristolochiæ* were also disliked by this bird, more especially the latter.

Although I did not experiment on any of them at liberty, my experience with the Liothrix (*Liothrix luteus*), Mesia (*Mesia argentauris*), Bhimraj (*Dissemurus paradiseus*), King-crow (*Dicrurus ater*), Starling (*Sturnus menzbieri*) and Shama (*Kittacincla*

macrura) was similar, in that all of these birds objected to the *Danainæ*, *Delias eucharis*,* and *Papilio aristolochiæ*, (especially, as a rule, to the last) in comparison with other butterflies, or absolutely.

I never saw the Chloropsis (*Chloropsis aurifrons* or *malabarica*) or the Sibia (*Malacias capistrata*) eat any "nauseous" butterfly, except that in the case of the former, one *Euplœa* body and a few bits of wing were eaten.

The latter bird refused with apparent dislike the male of *Elymnias undularis*, which should be palatable, and was as a matter of fact usually liked by the birds to which I offered it. Another mimetic species, *Papilio polites*, was not very generally popular with birds, but much preferred to its model, *P. aristolochiæ*.

The Hornbill refused *Danainæ* and *Papilio aristolochiæ* absolutely, but ate the only *Delias eucharis* given.

In several cases I saw the birds apparently deceived by mimicking butterflies. The Common Babbler was deceived by *Nepheronia hippia* and Liothrix by *Hypolimnas misippus*. The latter bird saw through the disguise of the mimetic *Papilio polites*, which, however, was sufficient to deceive the Bhimraj and King-crow.

I doubt if any bird was impressed by the mimetic appearance of the female *Elymnias undularis*. But this is not a first-rate imitation, and a mimic is put to a very severe test when offered to a bird in a cage or aviary.

Young hand-reared birds, like the Shama and Bhimraj, had no instinctive knowledge of the "nauseous" forms, and ate them quite readily at first, but soon gained experience. Birds caught when old, when watched from the first, like the Sibia, first Mesia and Starling, appeared to know and avoid the unpalatable species. The latter bird's action in greedily devouring the first whole *Papilio aristolochiæ* given, and then avoiding this species, seems to show that it did not know this insect, and had no general prejudice against Warning Colours.

So far the results of these experiments on the whole bear out the accepted theory, but certain birds, like the Lizards, were more indiscriminate in their tastes.

* The first Mesia had not this species offered to it, but those subsequently kept had, and evidently disliked it.

The two Red-vented species of Bulbuls (*Molpastes bengalensis* and *Otocompsa emeria*) when they would eat butterflies at all (some were very reluctant to do this) showed little discrimination, and often devoured the *Danianæ* as readily as other kinds. The contrast in this respect between these birds and Liothrix, when kept under the same conditions, was very noticeable.

The Yellow-vented species (*Molpastes leucotis*) though the only bird by which I saw *Acraea* eaten, was rather more discriminating on the whole towards the *Danianæ*, and all three agreed in objecting, as a general rule, to *Delias eucharis* and *Papilio aristolochiæ*.

The Button-Quail (*Turnix taigoor*) was also very ready to eat the *Danainæ*, and objected to the other two protected forms above specified. But I do not consider the tastes of this little ground-bird of any importance, and in fact did not keep it for experiment.

The Bulbuls offer a more serious difficulty, as they are very common birds, and undoubtedly do eat butterflies in a wild state. I have myself seen a wild individual of one of the Red-vented forms eat a white butterfly. Experiments should be made, by those who have the opportunity, with wild Bulbuls getting their own food.

Mynahs (*Acridotheres tristis*) in a few experiments made, cared little for butterflies, or showed no great discrimination when taking them, though at liberty.

Though most birds which are at all insectivorous with which I experimented, captive or wild, showed more or less desire for butterflies, some would not eat them at all, Crows (*Corvus splendens*) for instance.

I conclude from these experiments:

1. That there is a general appetite for butterflies among insectivorous birds, even though they are rarely seen when wild to attack them.
2. That many—probably most species—dislike, if not intensely, at any rate in comparison with other butterflies, the "warningly-coloured" *Danainæ*, *Acræa violæ*, *Delias eucharis*, and *Papilio aristolochiæ;* of these the last being the most distasteful, and the *Danainæ* the least so.

3. That the mimics of these are at any rate relatively palatable, and that the mimicry is commonly effectual under natural conditions.
4. That each bird has to separately acquire its experience, and well remembers what it has learned.

That therefore on the whole, the theory of Wallace and Bates is supported by the facts detailed in this and my former papers, so far as they deal with birds (and with the one Mammal used). Professor Poulton's suggestion that animals may be forced by hunger to eat unpalatable forms is also more than confirmed, as the unpalatable forms were commonly eaten without the stimulus of actual hunger; generally also, I may add, without signs of dislike.

To future experimenters I would offer the following hints derived from my experiences as detailed in this series of papers.

1. Use animals at liberty for experimenting with if possible.
2. If these are not available, confine your subjects singly, and feed them well and naturally, letting them be neither hungry nor pampered. Cages should be of portable size (about two feet every way) and made (for birds) of half-inch mesh wire netting with plain wooden floor without a tray. This is to prevent insects getting out or being concealed.
3. Use wild-caught specimens in preference to hand-reared ones.
4. Remember that the best and often the only way to determine an animal's tastes is to offer it a choice.

The second number of *British Birds* contains, as a frontispiece, an excellent photogravure portrait of the late Professor Newton and a memoir of that distinguished naturalist, from the pen of Dr. Bowdler Sharpe.

Mr. P. H. Bahr continues his interesting account of the home life of the Osprey as observed by him in America. The claim of the British Willow Tit to be recognised as a distinct species is defended by the Hon. Walter Rothschild. Mr. Selous continues his account of the nesting habits of some rare British Birds as observed abroad, while Messrs. Witherby and Ticehurst write on "The more important additions to our knowledge of British Birds since 1899."

Many interesting notes and letters combine to make this number an exceedingly good one.

"CAN TWO WALK TOGETHER, EXCEPT THEY BE AGREED?"

It is a good thing for the male to give the lead, and to take the direction of affairs into his own hands. Where there is weakness, shilly-shallying, and uncertainty, there the results will be correspondingly feeble, or wholly negative.

During a good part of June and July of this year, a pair of Cuba Finches, *Phonipara canora*, were nest-building about the aviary, now in one part, now in another; but nothing came of their toil and labour. Recently they commenced to build in the front of the aviary, where their proceedings could be watched. Both birds were busy, both energetic: the place selected, the inside of a log, was well sheltered, and seemed suitable in every respect. For these little Cubans, unlike many species, no matter how luxuriant the growth of the shrubs and bushes may be, will usually choose some artificial box in preference to a natural site; and, moreover, they seem to prefer a good large place, often fixed up high, into which they will carry a mass of material, the nest proper being far back at the top of the heap, the upper part of the box being accepted as the dome—for these birds build covered nests.

It was not until after the lapse of some days that I took in what was actually going on in this particular case. Both of the Cubas were carrying to the same high corner, both were evidently very much in earnest—*but they were carrying to different receptacles:* the male was building his nest in the log I have mentioned, the female hers in a box behind the log. Quietly and steadily the male worked away; the female, on the contrary, after carrying up a piece, would dart viciously and hysterically at the male. Time after time this would be repeated. What annoyed and upset her most was the methodical and apparently indifferent manner in which the male went about his business. Let her kick and squeal as she liked, without retaliating, and with supreme indifference, he pursued the even tenor of his way. The results so far, needless to say, have been *nil*.

Perhaps there are others besides Cuba Finches who might with advantage take a hint from the wise saying of the ancient herdsman of Tekoa. But if agreement cannot be arrived

at, at any rate then, as I have already remarked—It is a good thing for the male to give the lead, and to take the direction of affairs into his own hands. REGINALD PHILLIPPS.

AMERICAN BIRDS AT THE ZOO.

A fine collection consisting of about 150 American birds arrived on the 10th of July, obtained by exchange from the New York Zoological Park. Of these the following may be mentioned as especially interesting. Those marked with an asterisk are new to the collection:—

2 White-headed Sea Eagles (*Haliaetus leucocephalus*).
2 Turkey Vultures (*Cathartes aura*).
2 Virginian Eagle Owls (*Bubo virginianus*).
1 Barred Owl (*Syrnium nebulosum*).
2 Montezuma Quails (*Cyrtonyx montezumæ*).*
1 Great American Heron (*Ardea herodias*).
1 Ward's Heron (*Ardea wardi*).*
2 Red-billed Tree Ducks (*Dendrocygna autumnalis*).
4 Sulphur-breasted Toucans (*Ramphastos carinatus*).
3 Black and Red Tanagers (*Pyranga erythromelas*).*
2 American Crows (*Corvus americanus*).
3 Kingbirds (*Tyrannus tyrannus*).
1 Purple Grackle (*Quiscalis purpureus*).
2 Baltimore Hangnests (*Icterus baltimore*).
2 American Blue Jays (*Cyanocitta cristata*).
1 Water Thrush (*Sciurus novebonacensis*).*
2 Meadow Larks (*Sturnella magna*).*
5 American Robins (*Turdus migratorius*).
6 Wood Thrushes (*Turdus mustelinus*).*
1 Wilson's Thrush (*Turdus fuscescens*).*
5 Catbirds (*Galeoscoptes carolinensis*).
4 Brown Mock Thrushes (*Harporhynchus rufus*).
2 Blue Mocking Thrushes (*Melanotis cœrulescens*).*
2 Cuban Mocking Thrushes (*Mimocichla rubripes*).*
4 Black-capped Titmice (*Parus atricapillus*).*
4 Pine Siskins (*Chrysomitris pinus*).
5 Indigo Birds (*Cyanospiza cyanea*).
4 Rose-breasted Grosbeaks (*Hedymeles ludovicianus*).
3 Fox Sparrows (*Passerella iliaca*).
4 White-throated Song Sparrows (*Zonotrichia albicollis*).
6 Snow Birds (*Junco hyemalis*).
2 American Tree Sparrows (*Spizella monticola*).
4 Song Sparrows (*Zonotrichia melodia*).*
6 Chipping Sparrows (*Spizella socialis*).
1 Field Sparrow (*Spizella pusilla*).*
2 Purple Finches (*Carpodacus purpureus*) (?). *
2 Oven Birds (*Dendroica discolor*).*
2 Red-eyed Vireos (*Vireo olivaceus*).*
2 Phœbe Flycatchers (*Muscicapa phœbe*).*
3 Yellow Warblers (*Dendroica æstiva*).*
1 American Redstart (*Setophage ruticilla*).*

CORRESPONDENCE, NOTES, ETC.

ON MR. HUBERT ASTLEY AND SOME ASPECTS OF AVICULTURE.

SIR,—A couple of years ago I was told upon the highest possible authority that the Lories in the Zoological Gardens should be fed on a different diet from that in use; but since the information was accompanied by the naïve and candid admission that the birds appeared to be in perfect health, the value of the friendly advice was diminished to vanishing point. And although the opinion of the incorrectness of the Society's method was the result of long experience with Lories, the adhesion to that method has been fully justified by the health and longevity of our birds.

Again, only last week a message was sent to me from one aviculturist through another—both personal friends and men of repute whose names wild horses shall not drag from me—to the effect that if a particular kind of Starling was fed on the food he was having that morning, the span of his life might be measured in days. If my kindly adviser had known that the bird in question has looked neither sick nor sorry on those daily rations since he came to the Gardens about a year ago and is apparently in excellent condition at the present moment, his reported prophecy would have been less positive and more hopeful. Now this bird belongs to a species which, so far as I am aware, has never been imported before. Hence my friend's opinion was not based upon practical experience, but was inferentially drawn from bibliographical acquaintance with the species. I am not now concerned with the justice of the inference; I merely tell the story—a sample of many I could recount—to illustrate the truth that it is impossible to know without a wealth of experience exactly what conditions will suit a given animal or bird in captivity.

That there is more than one way of feeding Hoopoes has been shown by the letters recently published in this magazine on the subject; and in confirmation of what Mr. Phillipps says about the necessity of warmth for these birds, I may add, parenthetically, that a few years ago our efforts to keep them in our Western Aviary failed. In the Insect House, on the contrary, where the air is always moist and the temperature high, they have lived all the year round in good health.

These preliminary remarks on the limitations of avicultural knowledge and the wisdom of caution in criticism bring me to Mr. Astley's paper entitled *Fresh Air for Cage Birds* in the last issue of our magazine. The writer indulges in one or two gibes, which are perhaps intended to be funny and not unfriendly, but are wholly inexcusable withal, against the Zoological Society for exhibiting Sugar Birds in cages with glass fronts and backs and perforated zinc sides. I say inexcusable because these birds and others, despite adverse preconceptions, did on the whole very well when so caged; and to crown it all made an uncommonly pretty show, a point which

the Society is obliged to consider. This obligation on our part to combine exhibition with preservation is too often lost sight of by thoughtless critics who are wearying in their repetition of the patent absurdity that the Society, handicapped in that and other ways, ought to be able to keep birds and animals better than private owners who have a perfectly free hand and nothing to consider but the welfare of their species. Glass cages may not appeal to Mr. Astley's æsthetic side; that is a quite unimportant detail. When, however, he proceeds to assert dogmatically that the lives of birds are shortened by that method of exhibition, he puts himself in the position in which it is necessary to remind him that he is stating as a fact what is at best an opinion, and an opinion worth very little attention, because it is founded on assumptions of the flimsiest kind. How in the world can he or anyone else know that some birds that died in similar cages would have survived if differently accommodated? Other birds of the same and of different kinds lived in them for months in perfect health; and for anything Mr. Astley can know to the contrary the days of those that died may have been lengthened by the method of keeping them. If one Cockatoo dies in the Parrots' House and another in the Parrots' Aviary in the Gardens, there are people who can see nothing illogical in concluding that the first would have lived in the aviary and the second in the house; and the inference is just as defensible as the inference regarding the Sugar Birds put forward by Mr. Astley as a logically domesticated conclusion.

No one will be surprised to hear that Mr. Astley's Sugar Birds thrive in his bird-room with open windows or even on the balcony. One of ours lived a long time in our Parrot House and others have done so in the Insect House. They also appear to thrive in the New Birds' House. Personally I think they would do splendidly in the Western Aviary, if they proved themselves capable of competing with larger birds. All this merely goes to show that these birds are hardy in the sense of having considerable power of environmental adaptation in captivity. This is a conclusion of practical value and interest to aviculturists; and this Mr. Astley would probably have seen had he been less intent on proclaiming the superiority of his own methods over those practised in the Zoological Gardens.

I fear Mr. Astley also needs reminding that air may be hot or moist or odorous, or all three combined, and yet be fresh in the sense of having its proper percentage of oxygen. That the air of the Insect House, despite its alleged "stuffiness," is not seriously lacking in that vital essential is proved by the success with which the Hoopoes, Paradise Birds, and other species have been kept in it. True we lost two King Birds, and one of them within the twelve-month; but he died in faultless condition of feather and flesh. The second lived about two years and a quarter and died in moult, emaciated. Will any body be foolish enough to say that the cause of the death in either case, or both, was persistent or temporary vitiation of the atmosphere? The birds might have done better or they might have done worse elsewhere.

Who can say? As for the Greater and Lesser Birds of Paradise, the verdict as to the suitability of this so-called "stuffy" house for these specimens may be quite safely left in the hands of all aviculturists who have seen them. Nevertheless they are shaping as if they would thrive in their new quarters in the Small Birds' House; and I believe they would do as well in the Western Aviary as they did in the Insect House. Certainly they could hardly do better. However that may be Mr. Astley's condemnation of the Insect House as a place where the lives of birds are shortened may be politely dismissed as a judgment thoughtlessly formed and recklessly expressed without reference to facts.

To think there is only one way and that one's own way of doing things and to wrangle or remonstrate with those who follow a different course is intensely human and is apparently almost as rampant now as it was in Neolithic times. But older than the Neolithic age is the little realised truth of the moral metaphorically expressed in the last two of the following four lines:—

Here's my wisdom for your use, as I learnt it when the moose
And the reindeer roared where Paris roars to-night:—
There are nine and sixty ways of constructing tribal lays,
And—every—single—one—of—them—is—right.

R. I. Pocock.

We have received from Professor Giacinto Martorelli, of Milan, a copy of a very interesting contribution of his to the "Società Italiana di Scienze Naturali," on some new appearances in Italy of certain Siberian and American migratory birds, and on the influence of the rotatory motion of the earth on the general direction of migration.

After referring to his previous investigations on the subject of migratory birds, especially with respect to the Thrushes and to his theory that the direction of their migration has to do with the rotatory movements of the earth and the great aërial currents which are produced, the Professor in this paper turns his attention to migratory Geese and gives very interesting details and measurements of three specimens that came under his notice in 1906, and which he identifies as belonging to *Branta nigricans* (The Black Brent Goose) a form which occurs in Western Arctic America and N. E. Siberia. He then passes on to consider the geographical area of each of the three forms into which the original species (*Branta bernicla*) is now divided and summarises all the information we have of these birds.

Passing from the *Branta* specimens he dilates upon another great migratory bird, the North American Great Northern Shrike (*Lanius borealis*) a bird which has not previously been recorded in Italy.

His general concluding considerations are very interesting as showing the bearing of the air currents in determining the deviation from N. to S.

into N.E. to S.W., which can be observed on the great migrations, the birds moving in one direction in the spring and reversing it in the autumn.

In a final note the Professor alludes to four other specimens of the Black Brent, which have just come under his notice and which were also procured in Italy; the time when these four birds had been obtained corresponded with that of a very abundant appearance of all sorts of water fowl.

THE SOCIETY'S MEDAL.

In the May number of this journal Mr. W. E. Teschemaker recorded the successful breeding, in his aviaries, of *Serinus angolensis*, the Black-throated or Yellow-rumped Serin of South Africa. This is believed to be the first instance of this species rearing young in this country and it is proposed to award a medal. Any member or reader knowing of a previous instance is requested to communicate immediatedly with the Hon. Business Secretary.

POST MORTEM EXAMINATIONS.

RULES.

Each bird must be forwarded, as soon after death as possible, carefully packed and postage paid, direct to Mr. ARTHUR GILL, Lanherne, Bexley Heath, Kent, and must be accompanied by a letter containing the fullest particulars of the case, *and a fee of* 1/- *for each bird.* If a reply by post is required a fee of 2/6 must be enclosed. Domestic poultry, pigeons, and Canaries can only be reported on by post.

PINTAIL WHYDAH. (Mrs. Noble). This bird died of cerebral meningitis.

YELLOW BUDGERIGAR. (Lady Harvey). Apoplexy.

DEMOISELLE CRANE. (Mrs. Gregory). Tuberculosis of the liver.

BLUE MOUNTAIN LORY. (Mrs. Johnstone). Acute inflammation of the liver.

Answered by post:

The Rev. HUBERT ASTLEY.

Messrs. C. CASTLE-SLOANE, C. S. OGLE.

The Misses ST. QUINTIN, WALKER, WILDE (2 birds).

Mrs. MELLOR (3 birds).

NOTICES TO MEMBERS—*(Continued from page ii. of cover).*

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Colonel R. DRUMMOND HAY, Second Coldstream Guards; Ramillies Barracks, Aldershot.

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Proposed by Mr. R. I. POCOCK.

Miss ALICE HUTCHINSON; Alderton Vicarage, Chippenham, Wilts.
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Capt. R. D. FANSHAWE; Adbury Holt, Newbury, Berks.
Proposed by the Hon. Business Secretary.

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Mr. C. B. HORSBRUGH *to* c/o Stuckey's Banking Company, Milsom Street, Bath.

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A. SUTCLIFFE, Field House, Grimsby.

(Continued on opposite page).

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THE JOURNAL OF THE AVICULTURAL SOCIETY.

CONTENTS.

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Persons wishing to join the AVICULTURAL SOCIETY are requested to communicate with either of the Hon. Secretaries or the Editor.

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All MSS. for publication in the Magazine, Books for Review, and Private Advertisements should be addressed to the Editor, Mr. D. SETH-SMITH, Glengarry, Canning Road, Addiscombe, Surrey.

All Queries respecting Birds (except *post mortem* cases) should be addressed to the Honorary Correspondence Secretary, Dr. A. G. BUTLER, 124, Beckenham Road, Beckenham, Kent.

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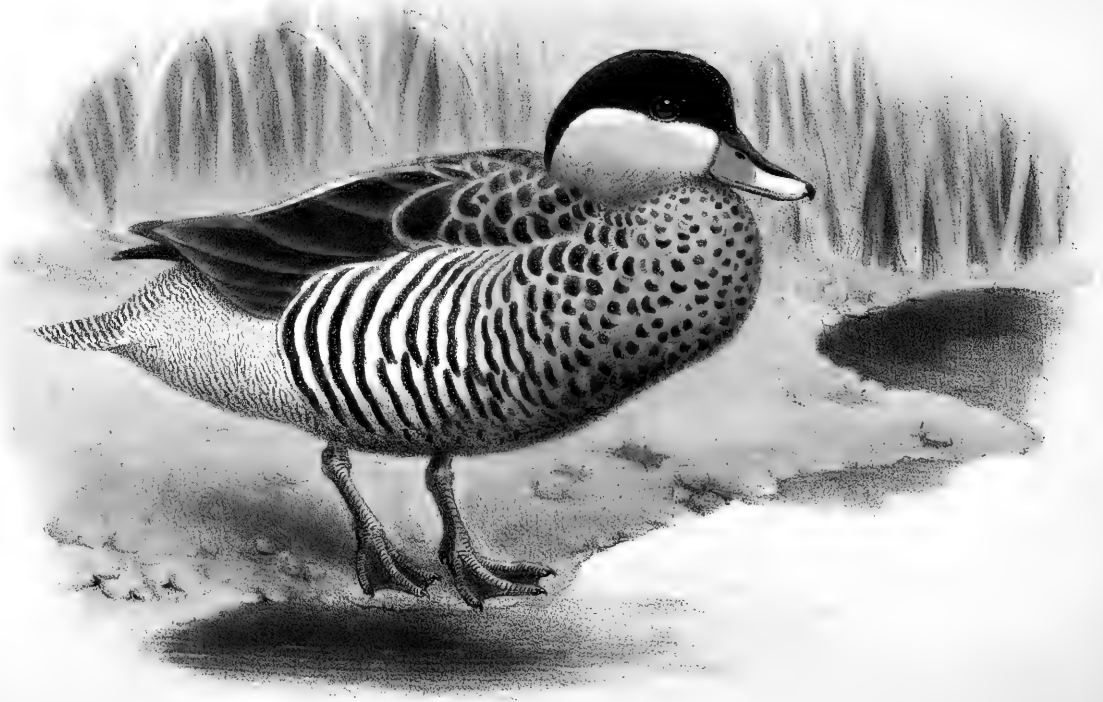
(*Continued on page iii. of cover*).



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THE GREY TEAL.

Querquedula versicolor.

THE

Avicultural Magazine,

BEING THE JOURNAL OF THE

AVICULTURAL SOCIETY.

New Series—VOL. V.—No. 11.—*All rights reserved.* SEPTEMBER, 1907.

NOTES ON TEAL.

By F. Finn, B.A., F.Z.S.

I fear I have not time to say much on these pretty ducks, which are not very familiar in aviculture, with the exception of our two well-known British species, the Teal and the Garganey. Many are, I think, rather too small to be fairly left at large unpinioned, and are better allowed free use of their wings in a large aviary, where they will fly round in the evening and look very ornamental. A place like the Waders' Aviary at the Zoo. would suit them well,—I am glad to see they have a pair there now—but they will thrive at a pinch with a much smaller pond.

I here append a list of the species I have seen in captivity with brief descriptions and some notes.

The Common Teal.

(*Nettium crecca*).

This is the smallest kind kept; it is only about as big as a common Pigeon. The duck is almost an exact miniature of the common wild duck, except that the bill and feet are dark, not orange at all, and the bar on the wing is bright metallic green. The drake is pencilled grey, with a spotted breast, brown head with a green streak on each side, and cream and black markings down the back and on the lower tail coverts. In summer he goes into a dress much like the duck's, but is less distinctly marked.

The Japanese Teal.

(*Nettium formosum*).

It is not necessary for me to describe this very handsome

bird, as it has been done recently. I may, however, mention a curious variation I have observed in the colouration of the feet in different specimens: in some they are grey—the normal colour apparently—in others olive. Differences of this kind are very rare in birds, but I have seen a similar case in the small Indian Hemipode (*Turnix dussumieri*) in which some specimens have blue-grey and others fleshy-white feet.

The Brazilian Teal.
(*Nettium brasiliense*).

This bird has brown plumage and a spotted breast; the wings are mostly of a beautiful metallic green. The feet are rosy red, and the drake has also a red bill, that of the duck being black. There is not much sex-difference in plumage, and I believe there is no seasonal change, but am not sure of this.

The Andaman Teal.
(*Nettium albigulare*).

This is a sombrely-coloured Teal, chocolate with narrow buff edgings to the feathers. Except in young birds, there is a white patch surrounding the eye, which white tends to spread all over the face, and even to appear on the back of the neck. This is a variation which has become much more common of recent years—a curious case of evolution actually in progress. The wing bar in this Teal is a velvety-black with a bronze streak through it, and there is also a large white patch on the wing. The Andaman Teal is about the most active duck I ever saw: it is constantly on the move, running briskly and easily, swims and dives well, flies lightly, and perches freely. Unlike most perching ducks, however, it nests on the ground. It bred in the Zoo. last year, and I observed the drake accompanied the brood as well as the duck.

The Chilian Teal.
(*Nettium flavirostre*).

This Teal closely resembles the Chilian Pintail in colouration, being a plain mottled-brown duck, with a bill yellow at the base and bluish at the tip, with a central black streak. Its

much smaller size and shorter and straighter bill will, however, distinguish it at once. It is not common, but there is a specimen at the Zoo. at present.

The Garganey Teal.
(*Querquedula circia*).

The Garganey is probably more familiar in captivity than at large, being a local bird in England where, unlike other ducks, it is a summer visitor. Yet it bears our winter as well as other ducks in captivity. In Bengal, at all events, it seems to be the commonest of the migrant ducks from the north. The drake is easily recognisable by his speckled-brown head with broad white eyebrows; his body is beautifully pencilled on the sides, the tail-end being mottled brown; and the wing-coverts are lavender-grey. The duck is almost exactly like the female common Teal, but has not the bright green wing-bar. The drake in undress plumage, which in this species is in actual fact a winter plumage, is very like the duck, but his lavender wing-coverts distinguish him. Pallid or "cinnamon" varieties of the Garganey seem to be not uncommon in India, where I have seen several. They have flesh-coloured bills and feet, instead of dark grey, but the eyes in those I have seen alive are not pink, but normally coloured.

The Grey Teal. *(See coloured plate).*
(*Querquedula versicolor.*)

"Grey" is hardly a fair descriptive title to apply to this handsomely coloured South American species, which is so variously marked that it is hard to describe in a few words. It may, however, be readily recognised by the colouring of the head, which is black on the crown and buff on the cheeks. The breast is spotted, and the body beautifully pencilled, producing a grey effect. The sexes are almost indistinguishable, so that here, as in the Chilian Wigeon, we have another case of a South American species, both sexes of which bear a quasi-male plumage. As in that bird, also, there is no seasonal change in the present one.

THE HALF-COLLARED TURTLE DOVE.

Turtur semitorquatus.

By T. H. Newman, F.Z.S., M.B.O.U.

This handsome bird is the largest of all the Turtle-Doves, though the Eastern Turtle (*Turtur orientalis*) may approach it in size, and the Double-collared Turtle (*Turtur bitorquatus*) surpass it in length, it is nevertheless a much more bulky bird than either of them.

It also probably has the widest range of any Turtle-Dove, as it is found in suitable localities all over Africa from about 14° N., lat. Southwards.

Briefly it may be described as a bird with the whole upper surface of the body dark brown, the outer wing-coverts passing into bluish slate colour, two central tail feathers dark brown, the lateral ones brown grey with a blackish band about the middle, and pale grey towards the tips; there is no white on the outer edges of the outermost tail feathers; the under tail-coverts, leaden-grey; the breast, back of head and *cheeks*, deep vinous pink; the crown, grey, lighter towards the forehead; and a broad black collar more or less bordered with grey on the hind neck; iris seems to range from orange red to salmon pink; bill, black, a little dark red at the gape; feet, carmine; broad bare skin round the eye, dark purple carmine, hence the usual name in S. Africa for this bird of Red-eyed Turtle-Dove, which however may lead to confusion with *Turtur decipiens ambiguus*, Bocage's Red-eyed Dove.

Though this bird must have been familiar to thousands of travellers, not very much about its wild life seems to have been recorded; the following accounts are among the more recent. Reichenow, in the first volume of his great work, "Die Vögel Afrikas," writes: "These large doves are very noticeable through the dark colouring of the upper surface, inhabit the fields by Tabora (German East Africa), especially at the beginning of the maize and mtama harvest. They usually nest on the parched trees which are scattered about everywhere. Their muffled 'huhū huhū huahud' in which the last note is the loudest and highest, resounds also from the thick foliage of the forest edge.

They do not penetrate the inner parts of the forest. The usual call is now and then broken by a soft 'turr-ruck' when in a more passionate humour, especially on alighting, or when one jostles an already alighted companion. The humorous translation of the Wass Waleli of the principal call runs when complete, "Kuku mtupa tupu mimi mama tupu," that is "The hen has nothing but bones, I only flesh." Pairing takes place in the middle of May. The male dove shows himself very attentive to the female. Cooing and puffing out his crop he bows down before her, while the female responding (schnarrend) loudly and followed by her admirer hops coyly from branch to branch, at times also leaving the tree, but returning after a short flight, to be received with redoubled cooing and bowing. After the nesting season the birds often assemble in large flocks, which wander about together. Their food consists of grass-seeds and berries. The call consists of two long and four short notes."

Mr. W. L. Sclater writing in "The Birds of S. Africa," Vol. IV. says: "The Red-eyed Dove is not very common in S. Africa, except in more thickly-wooded districts from Swellendam eastwards; it is found along the South coast of the Colony and extends to Natal, Mashonaland and the Zambesi, but does not appear to have been yet noticed in the Transvaal. Beyond our limits it is spread over the greater part of Africa as far as Abyssinia and Senegal." He also quotes from Messrs. R. B. and J. D. S. Woodwards' "Natal Birds," p. 131: "This dove is very common throughout the country, and its loud pleasant cooing is heard wherever there is any cover for them, during the warmer months of the year. They are sometimes seen in large flocks, but as a rule they go about in pairs, and feed principally on tree berries. The natives have no love for these birds as they devour a considerable quantity of grain during the planting season; but there would not be much loss if care were taken to plant the seeds deeper. They get very fat during the summer, and are excellent eating. This dove lays its eggs on a few sticks, which are merely an apology for a nest, generally in a low tree."

From the above it is evident that the Half-collared Dove is not an inhabitant of dense forest land, but is found on the

edges of clearings or where there is open waste land in the neighbourhood of trees, that it feeds on wild fruits, such as figs and berries, but like most of its congeners, does not fail to take toll of grain crops when opportunity affords; and that it lives in pairs during the nesting season, but unites in flocks afterwards.

Three fine specimens came into my possession on the 4th April 1906, consisting of a pair and an odd hen. The pair came with the reputation of nesting too fast, and so neglecting the young of the previous nest. I am glad to say they have not done this since. I cannot say that I can see any appreciable difference in the size of the sexes, though individuals differ in this respect, but the cocks seem to be a good deal more ashy on the crown, the hens being more slatey there.

They seem rather wild by nature and to want a lot of space, as they dash about in a very lumbering way when alarmed. I have found them very peaceable birds for Turtle-Doves, seldom fighting and allowing birds very much smaller than themselves to live with them without interference. At first my birds showed no signs of nesting, but were kept in fear and trembling by a rather fierce Deceptive Dove: he was removed, and within a week the first egg made its appearance. Every single nest has been made ever since in the same zinc bowl,* which is about seven feet from the ground on a bundle of faggots close to the glass roof of the open shelter which protects the inner house of the aviary they are in. The eggs, as I have invariably found to be the case with all doves, are laid the first one towards the evening, then a day is missed and the second egg appears on the following morning.

The eggs are white and rather coarse-grained, and are remarkably small for the size of the bird. I have ten examples before me, laid by three hens: they vary a good deal in size, but are all rounded, in some it is hard to say which is the smaller end. I have some eggs laid by Common Turtle × Barbary and Necklace × Barbary hybrids, birds much smaller than the Half-collared Doves, which are distinctly larger than any of these. This may be accounted for by what I consider the most extra-

* Since writing the above, a fresh nesting site has been selected.—T. H. N.

ordinary circumstance connected with the nidification of this bird. It must be borne in mind that this is a large bird almost equalling in size the smaller breeds of the domestic pigeon, and yet I find the eggs sometimes hatch in twelve days. I have the exact records of six young ones, which, counting from the laying of the second egg when incubation may be said to begin, are as follows: One in twelve days; three in thirteen days, but one of these probably hatched in twelve days as it was some hours old, with food in crop, when discovered on the thirteenth day; and two in fourteen days. Both these last were however under other birds, which is not quite the same as the natural parents, so I think incubation may be said to be from twelve to thirteen days. I have no personal record of any other species of Turtle-Doves' eggs hatching in twelve days.

The following is a description of the young at one day old: Body, head and neck well covered with longish yellow buff down, longest on the under surface of neck and crop region; bare face and base of bill purplish; chin dark flesh-colour; bill grey with reddish tinge, dark purple grey band at end, extreme tip pale flesh-colour; legs and feet livid flesh; claws bright pink. I was also struck with the rapidity with which the young mature. I kept some notes on the first pair of young, hatched on the 17th and 18th of June 1906. The bird hatched on the 17th was given to a cock Necklace and hybrid Necklace × Barbary hen to bring up, the other bird was reared by its parents. On the 2nd July the bird hatched on the 17th June, being fifteen days old, first left the nest and flew down quite lightly, though rather unsteadily; it was replaced in the nest. The next day it again flew down, and seemed to be able to fly quite well, as it flew from floor to perch (about four feet from the ground) several times, flying backwards and forwards (about ten feet) quite well, roosted at night on a branch about seven feet from the ground. On going into the aviary on the morning of the 4th the young bird was on a branch about eight feet from the ground; it flew through the open door into the flight for about twenty feet, alighting in a bush. The following day it was flying strongly about the bushes in the flight, and on being frightened, it flew into the inner house on to a

branch quite eight feet from the ground. On this day the second young one (hatched on the 18th June) flew. It seemed quite as strong on the wing as the other one, for a day or two it had been sitting on edge of nest. The young birds were now about the size of full-grown Barbary Doves; they were well feathered, though showing a little bare skin under the wings, which were very rounded looking, owing to the outer primaries not being so well developed as the rest; tail about two inches long; iris just beginning to turn colour from the brown of the early stage; skin round the eye grey; feet dark grey with faint tinge of purple; bill dark grey with slight purple tinge, most of the smaller feathers retaining yellow nest down at end of feathers, especially on breast, very noticeable on back and upper tail-coverts, very little on head; the young appeared unusually well furnished with yellow down when hatched. July 6th, first young one flying about as strongly as an old bird, very wild, went to roost beside its foster parents on high branch; the other young did not leave neighbourhood of nest to which it had returned of its own accord. 24th July, the birds being between five and six weeks old, both beginning to moult, grey feathers coming on top of head, also vinous ones on back of head and breast; feathers nearly full grown round base of bill; grey skin round eye beginning to turn purple; iris a narrow ring of dull orange. The bird hatched on the 18th of June was now considerably the larger and more advanced bird, but showed no black collar on hind neck, which was however showing quite distinctly in the one hatched on the 17th.

Here I may compare these birds reared during the present year. The young bird in first feather differs very markedly from the adult, the entire head and breast are of a warm chestnut shade; the former showing no trace of the handsome grey crown, nor the latter a vestige of the beautiful vinous pink of the adult; the feathers of the upper surface are edged with chestnut, though some young birds are more uniformly coloured than others, the primaries are edged with very conspicuous broad chestnut tips and the black collar is absent. Beginning with the youngest, which is just five weeks old, it is still entirely in nest plumage, though it shows signs of just being on the point of commencing to moult. The skin round the eye is grey with a

strong purple tinge, iris with a narrow ring of dull orange. The feathers have not grown round the base of the bill yet. The outer primaries are full grown but retain vestiges of their sheaths at their base. The next one is just over ten weeks old. Nearly all the smaller feathers have been renewed, and a few black feathers of the collar are appearing on each side of the neck, two primaries in each wing have been moulted and replaced by full grown feathers; skin round the eye bright carmine; edges of mandibles at gape carmine; feet dark purple grey; iris narrow ring of pale orange. This is the biggest bird of the three and was the only one reared by its own parents. The third is just over fifteen weeks old, it has moulted all its smaller feathers and has assumed the black collar, which is not however so broad as in the adult. Nearly four primaries have been renewed and several secondaries; some tail feathers have also been moulted, iris bright orange, skin round eye brighter red than in the previous bird, and the feet are pink.

I have found the Half-collared Turtle wonderfully prolific. My pair started nesting early in June 1906, and laid by the end of November five pairs of eggs, from which six young were reared, though not all by their parents. They started again in January of this year and have so far laid seventeen eggs from which the three above-mentioned young have been reared. As for hardiness I need only mention that they were sitting in a situation practically quite out in the open, except for a glass roof, during the arctic spell we experienced in the beginning of the year, bringing off a young bird, which however died the following day. My birds are excellent sitters and bring up their young ones splendidly. I have not yet had a weakly one, but they are rather wild and will not stand interference: any unusual occurrence in their compartment being sufficient to make them desert their eggs. Young have been reared at least several times before: my pair had bred before I had them.

The bird has several notes, each set being used for a particular purpose or purposes; I find them very difficult to put into words. When mated it is only the cock bird which is heard to coo much, but an unmated hen is even more loquacious than a cock and seems to be able to utter all his notes. All the

Collared Turtles which I have so far kept (five species) have a note which evidently corresponds to the well known laughing note of the Barbary Dove, but in each species it is quite distinct. This note in the Half-collared Turtle is a sort of whistled *weehá weehá*, it is often uttered by the male on alighting on a perch or before beginning to coo to the hen. This coo is a four-syllable note, sounding something like ōō-ōō-cōō-ŏŏ, drawing up his head and expanding his chest he makes a dignified but not very low bow to the accompaniment of each set of notes, between each of which a step or two is often taken towards the hen if she retires before him. These notes are very deep and may almost be said to be whispered into the hen's ear. I have often been unable to hear them distinctly when only about twelve feet from the birds.

Much louder, however, is what may be called the call note of the bird, which is often uttered when it is perched alone; it is a resounding cheerful cōō-cōō cōō cŭ-cōō-cŭ, altered several times but invariably ending with the *coo-coo*. The note used by the cock to attract the hen, when he is sitting in the nest before the eggs are laid sounds like this also, only it may then be continued for a considerable time.

As is to be expected in a species having such a wide range as the subject of these notes, specimens differ a little from different localities. Erlanger in the J. f. O. 1905 has described two races as differing from typical examples. The birds from the high lying regions of S. Abyssinia, Gallaland, Equatorial, and S. Africa are said to be smaller and darker brown on the upper surface. The name of *intermedius* has been bestowed on this form, while the birds from S. Somaliland are called *minor* from their still smaller size and are distinguished by being greyer and less vinous on nape and breast. Swainson's *erythrophys* does not probably differ from typical birds.

BIRDS OF PARADISE.

The collector sent out to New Guinea and the Aru Islands by Sir William Ingram, Bart. has recently returned to Europe with a number of King Birds of Paradise, males and females, five or six adult females of the Great Bird (*Paradisea apoda*), the first to arrive of this sex, two Manucodes, and other rarities.

FURTHER NOTES ON THE VIOLET-EARED WAXBILL,

Granatina granatina.

(Avic. Mag. N. S. IV., p. 295.)

By REGINALD PHILLIPPS.

From casual words that reach me from time to time, it seems that the Violet-eared Waxbill is still a prime favourite with British aviculturists. In August, 1906, I wrote my own experiences up to date of the species, and since have been waiting with expectancy, month after month, for some other member to come forward and complete the story. But in vain have I waited; and another year has rolled round; and it seems after all to fall to my own lot to have to fill up the blanks which want of knowledge caused me to leave in my former account. Besides, I should like to modify some of my earlier statements, in order to bring them into accord with more recent observations; and at the same time I may take the opportunity of placing on paper such further thoughts as my four little friends may have suggested to me during these latter months.

For it is of the same four Violets which were in my hands last year that I am now again about to write, a fact that seems to point to a bird which may be called a good liver; but, as I intimated before, it is not especially hardy, and it needs thoughtful care—but not coddling.

The more robust and vigorous my Violet-eared Waxbills become, the more I find that it is impracticable to keep two of the same sex together within a reasonable space*. As soon as new arrivals become accustomed to their surroundings, and gain a sufficiency of health and spirit to assert their individuality, then the absolute necessity of separation becomes urgent in the same ratio as the strength of the birds increases. To this point of vital importance I may add a few supplementary notes.

I do not find the species to be very courageous; birds of equal and often of less size and strength will bully and drive

* I do not refer to birds in little cages; of these I have not had any experience. They seem to be without individuality, to feel that they are prisoners in a prison—and nothing more: such examples are not living their natural life, but are simply vegetating. —R. P.

them about, with two principal results: (1) If there be many birds in the same aviary with them, they become cowed and will not assert themselves, so that, if the place be large, even two pairs may be kept together without very great danger; but such a state of things is not satisfactory, for it means that the true nature of the bird is more or less suppressed and hidden. (2) Although they may *nest*, it is unlikely that they will breed successfully. But I do not say positively that they will not breed successfully, for happily there is a reserve of stubbornness and quiet obstinacy about the species which becomes developed in connection with nesting if they be given anything like a chance. The following will help to illustrate these points, and will lead up to other matters.

Last year, owing to illness and laziness, I allowed all my birds (the Burrowing Owls excepted), large and small, to fly together as they liked, the connecting holes between the two aviaries, and between the aviaries and the birdroom, being left open. This arrangement, or want of arrangement, as may be supposed, spoilt most of the nesting; more than once during the summer my anger burned within me at the sight of aggressive knaves wrecking a nest, and I caught the culprits and clipped their wing-feathers; but, for the most part, everything was left to take its chance. After some preparatory shuffling, the two pairs of Violet-eared Waxbills found themselves in contact. Then came a period of chasing; but, owing to the lengthy space, the amount of covert, and especially to the division of the place into three well defined sections and the good condition of the weaker male, the strength of the pursuer always failed before he could work mischief. For a time, the weaker pair kept much to the bird-room, from which they would make occasional sallies; and, thanks to the trees and the other birds, after a while they so far established themselves along a narrow slip of the inner aviary as actually to build two nests. One of these was built back to back with a Blue-breasted Waxbills',* some 9 ft. off the ground. The

* This Blue-breasted Waxbills' nest was a curiosity in its way. It was constructed and occupied by two *males*, one of which assumed the *rôle* of a female, and sat steadily for the best part of the summer, until, indeed, the 'male', who had found a way out of the aviary and went backwards and forwards at will, finally disappeared. The 'female' is still with me, and is an undoubted male. They were both old birds without mates.—R. P.

strong male stood a little in awe of these Waxbills, and usually gave their corner a wide berth. Did the weak one deliberately seek the protection of the Blue Breasts? It is rather contrary to the nature of the Violet-eared Waxbill to build at such a height, for, if I may judge from my own birds, the 'four feet' mentioned by Stark (I., p. 105) is about the maximum; the majority of the nests built here have been between 3 ft. and 4 ft. from the ground. Nevertheless the Violets are sensible birds, with a fine disregard for red tape. The second nest constructed by the weaker male and his mate was an independent and normal one, but they never dared to occupy it.

More than once during the year I did, indeed, see all the four Violets feeding and taking exercise together without quarrelling; but all through another point was confirmed. The meetings of the one pair with the other were accidental, brought about by the narrow confines of their little world. They never associated together; at the best, it was but an armed neutrality; they kept as far apart as they well could; otherwise than when taking exercise—to which I will refer later—perhaps they never met without a disturbance except when on some neutral ground: for, after a while, each pair settled down to a particular district, the boundary line between the two being generally respected. If the weaker trespassed even for a moment, a fierce pursuit was immediately set up. On the other hand, when the stronger male crossed the border, the action clearly was regarded on both sides as a raid and as a trespass; and the raider, after a wild dash hither and thither, would quickly withdraw within the limits of his own domain. All the same, the shadow of the raider oppressed the land, so that the second nest of the weaker male was soon deserted.

This and everything I see and hear confirm my expressed opinion (N. S. IV., 305-6) that the Violet-eared Waxbill does not, in the wild state, go about in promiscuous flocks; Dr. Edmond Symonds' (p. 306) is the only statement to the contrary with which I am acquainted.

Moreover, the available evidence, as far as it goes, tends to point to a species that customarily pairs for life.

The male and female are very companionable and friendly,

are rarely seen far apart, and are greatly distressed if separated but they are not of the kissing cuddling sort, and do not always, even when at roost, sit so close as to touch one another.

Although two of these birds of the same sex, when properly established, may not be kept together with impunity, it is satisfactory to be able to over-ride my statements of last year so far as to say that at any rate a contented pair with plenty of elbow-room, under ordinary circumstances, may be trusted not to hurt those of other and distinct species. The following story speaks for itself, and is worth recording.

Last year, a pair of Ringed Finches, *Stictoptera annulosa*, reared a brood in a thorn situated in the front of the inner aviary, and took them off to the rear. On August 10, I noticed a large nest, larger than that usually builded by the Ringed Finch and more rotund, situated on one of the old sites in the thorn. The Rings wanted to nest again after a while, and, as is their custom if not disturbed, desired to come back to the old place. They were perpetually hovering and fluttering about the tree; some powerful attraction drew them thither, but some antagonistic influence repelled and kept them aloof. It was not until some days had elapsed that I detected that one of the Violets, now the male, now the female, was always on guard, crouching down immovable close to the nest. This was the first nest in the garden—which, as I have stated, was given up last year to a miscellaneous collection of birds—which this pair had fully constructed and attempted to defend. Occasionally the male would make a dart at some bird approaching too near, but otherwise everything was perfectly quiet.

But this nest was pulled to pieces by some miscreants (who had their wings cut for their trouble), the Violets went off, and the Rings returned and builded once more in the thorn. On September 21, I found the Violets in possession of this nest, which for some reason had been deserted by the Rings. On the following day I found that the Rings, who had meanwhile built a nest in an unsuitable position and had decided that it was too unsuitable, wanted to come back to the one in the thorn. Finding that the Violets would not turn out, after much ado, they constructed a complete and independent nest at the back of the

one in which the Violets now were sitting, the two nests being back to back and attached the new to the old.* Occasionally, when the Rings were unusually tiresome, I would see the male Violet come slowly forth with bristles erect, like some faithful coach-yard dog who approaches a doubtful stranger; the Rings would just flit off a yard or so, but in no instance were they injured, or even pursued. I may finish this case off by adding that the Violets sat most faithfully, through the cold and wet, not relaxing their devotion to duty for a moment until October 7, when, finding their labour hopeless, they closed the aperture with a feather and went elsewhere. There were two clear eggs in the nest, which I compared with those of like species in my cabinet; but I had none which closely corresponded with them. They were small elongated ovals, perhaps a hair-breadth shorter than those of the Blue-breasted Waxbill but much less stout.

My birds have moulted only once during the last twelve months, but the process occurred at different times with different individuals, and extended altogether from November until the beginning of May. It was more or less mixed up with their early thoughts of nesting, and probably had much to do with their erratic behaviour this summer, the breeding impulses, usually strongest in the spring and in the autumn, of the males and females not being always conterminous. It must be borne in mind with this species that their natural summer occurs during our winter.

I have not been so well pleased with their singing this year; they have rather displayed a disposition to bring in their call-notes, and other cries, the result of contact with bad companions.

The murder-call is *psis* or *psit;* uttered loudly and continuously as the would-be murderer pursues his vicious chase, the female of the latter meanwhile maintaining a beautifully soft and melodious warble—how often are the sweetest notes of the birds misunderstood! When a nest is approached, a very similar note is uttered, but rather *tit,* and in a very much lower tone,

* Could this have been a case of imitation? It is strange that there should have been two such instances during the same summer. The Rings eventually deserted nest and built elsewhere.—R. P.

and frequently in a semi-ventriloquial voice. A very similar note again is uttered by the male when he seeks his missing female. A common note, with modifications, is a sort of *chisel*, often used as a note of warning of the presence of a stranger or of any strange or dangerous object or creature; it rather reminds me of the notes of some of our Wagtails.

When the male wants to invite a reluctant female, he will occasionally build a sort of platform some 3ft.-4ft. from the ground, squatting on which he will warble forth some singularly soft and sweet 'rolling' notes, to the accompaniment of the various movements of nest-building — the weaving, interlacing, construction of the dome, &c., &c., often with a blade of grass in his beak. This species, I am satisfied, customarily pairs inside the nearly completed nest.

When in the garden, I notice how exceptionally keen the Violet-eared Waxbill is in its search after aphides, examining the foliage day by day most diligently. This in a general way, but very specially when they have young, which seem to be fed largely on tiny insect life. I have seen them go for centipedes and even larger creatures, but only I think when aphides are scarce. I never give them mealworms, but occasionally they will take them.

The Violet-eared Waxbills, at certain seasons, usually only in the rather early morning, fly backwards and forwards, day after day, *between the two farthest-apart points* of the place in which they are confined, keeping up the 'constitutional' for quite a long time, so strongly do they feel the need of a good 'breather.' While engaged in this exercise, feuds are forgotten, and all fly backwards and forwards together, usually for a good half-hour or more. In the six-foot cage during the winter, a Violet will thus take exercise, a circumstance which points to the superiority of the long over the high and the more cube-shaped cages. Certain lofty cages in the New Birds' House at the Zoo. are not faultless in their construction in this respect, being high but comparatively narrow and shallow; for other captive species besides Violet-eared Waxbills habitually will take exercise in a precisely similar manner. A lofty aviary or aviary-cage is good, but a lengthy one is very much better.

During last winter, being short of accommodation for birds which could not be kept together, while carefully stowing away separately my best pair of Violet-eared Waxbills in two six-foot cages in my dining-room, I left the second pair to take their chance in the birdroom, flying loose with a miscellaneous collection. On most days, the window was left a little open for a longer or shorter time according to the temperature, so as to allow the inmates to take a fly in the open aviary should they feel so disposed; in this the Violets, differing from some species, displayed an intelligent discrimination, when cold keeping snug in the room, and, in any case, retiring early in the afternoon of their own free will, but taking free exercise on every favourable opportunity. The result has been that these latter birds, which took the second place last year, have this summer been the most powerful and the best, proving again, if any proof were needed, the superiority of the aviary over the cage, even when the cage is a six-footer.

In may be an important point to note that the pair which did *not* lay and sit last year commenced early this year, whereas the two birds that were sitting last September, although apparently in faultless condition and placed in the thickly-wooded aviary, had not done anything this summer up to the end of July.

The male selects the breeding site, in a *thick* bush from preference, and does most of the carrying and building. The female assists, but not very energetically. She shines most when she sits in the nest and arranges the materials as they are brought to her by her mate, but this is the exception rather than the rule. The nest is domed, large, and roundish under ordinary circumstances, very roomy inside, constructed of grasses and thickly lined with feathers. Although dried grasses, hay, &c., will be used, yet the male seems by nature to prefer the green growing grass, which he tugs up by the roots. He prefers rather large feathers, with a natural curl or curve corresponding with that of the arc of the inside of the nest.

The aperture, in the earlier nests, was moderately high up, and consequently admitted rain. Then it was placed lower down; and again, later, a substantial and unmistakable 'eyebrow' or eave was constructed across, above, and projecting over

the aperture. In No. 3 nest of this year, an 'eye-brow' was deliberately added to the completed nest in the early morning following a heavy storm—special work is usually carried out in the early morning. The way in which these Waxbills adapt their building to circumstances is sufficient of itself to prove not only that birds, to quote Prof. Henslow (Avic. Mag. N.S. I., p. 218), "*can* build normal nests without parental instruction," but a great deal more: it shews that they can and do profit by experiences and 'improve the occasion' in a quite remarkable way. This year, between March and July inclusive, my one pair of Violets constructed four nests, all in different positions, and all differing from one another; to describe them in detail would be instructive, but tedious to the general reader, so to the first three I will refer but briefly.

This year the two aviaries have been kept distinct, and the two pairs of Violet-eared Waxbills have been kept apart. The inner aviary has abundance of natural vegetation, the outer being comparatively bare. In the latter there are just a few dead trees; and one of them, a golden elder, eventually gave signs of life by throwing out a bunch of shoots at the bottom and another, a very feeble one at first, about 3ft. 9in. from the ground. In March, when the birds commenced to build seriously, there was not a vestige of green in this aviary; the lifeless trees were crowded with miscellaneous birds during the day; and Violets, remember, do not like artificial nest-boxes of any kind. They chose a quiet corner on the top of the wire-netting roof of the Burrowing Owls' enclosure, and here a large heap of twigs, some stout enough to be called sticks, was collected by the male, hay following; and then I interposed, destroying the nest and changing the female, not wishing to lose a bird from cold. This is the only instance with me of a Violet-eared Waxbill in the garden building elsewhere than in a living tree or growth of some kind. Later, the same Violets were placed in the inner aviary, and a nest was built in the top of a lime tree, some 9ft. from the ground; it was large, nearly round, compact, a typical *nest* of the species. Before many days had passed it was deserted, why I do not know; perhaps it was too near the cats, perhaps too high off the ground, perhaps the birds themselves were not really ready.

Nest No. 3 was built in some Virginia creeper, hardly a natural site, but the vegetation was backward and the bushes at the time were thin. Last year the bushes were thin, owing to the aviary not having been reserved, and it was in the same creeper that this pair builded that second nest which they had not had the courage to occupy. This year's nest was a splendid construction, neat, compact, tight—exceptionally and quite remarkably so; when I came to try and force a finger through, the finger met with such resistance that I was unsuccessful until I tried the spot where the aperture had been. Judging by appearances, the female laid in this nest; but the male would not sit, and spent his time making love through the wire to his enemy's wife. I changed the females, and there was a terrible outcry; I restored them to their proper mates, but all to no good. Then I removed the pair from the inner aviary, and placed the other there, in order to give them a chance—this was on June 10th. Some time afterwards, I examined this last nest; it then was empty and the aperture firmly built up.

Notwithstanding the absence of covert in the outer aviary, and the presence of its miscellaneous occupants, these same birds went to nest again, this time in the semi-dead elder tree I have referred to, in a site that was fully exposed to view, wind and rain, and offered a not very safe hold for the nest—but *there* was the bit of green, such as it was, 3ft. 9in. off the ground. Seeing that they meant business, on June 16th I shut up all the other birds, and left the Violets in sole possession of the aviary. On the 18th, both were building; 19th—Male building steadily, assisted rather feebly by female; 20th—Roof put on; 21st—Dome finished before breakfast: afternoon, they began to carry feathers; 22nd—Before breakfast, position of aperture altered from the west to the south side of the nest, apparently because the wind was now blowing sharply from about the north-west: a few feathers carried late in afternoon: the male was in the nest most of the afternoon, and the female, *just outside,* like a wife leaning her head on her husband's shoulder, had the appearance of resting her head lovingly against the side of the nest; 23rd—Before breakfast, aperture altered so as to face S.W., our peeping from a window about 11ft. to the south being resented: at some

later date, as the bunch of elder twigs grew and partially sheltered and hid the nest from the west side, the aperture was shifted back to its original position, where eventually it was entirely concealed by leaves, the birds having to approach the nest from the south and work their way round the side in order to gain the aperture: both on nest together a good deal: a few feathers carried; 24th—Nest seemed finished: it was on the afternoon of this day, during a heavy storm, noticing that the birds had taken shelter out of sight round a corner of the house, I fixed up two little boards above the nest, which threw off much of the rain. The birds would not return until after noon of the following day; but without some protection so exposed a nest could not have withstood the constant downpours. Soon afterwards, the birds themselves greatly strengthened the roof, not only with grasses, but especially by working in quite a quantity of feathers, giving the roof a curious appearance; 27th—Both busy, male carrying feathers and fine grass; 28th—Touching up nest, and especially attending to roof, and completing 'eye-brow' over aperture.

I feel that, before I proceed, I ought to write a little more particularly about the general structure and appearance of this nest. There was only wheat, no grass, growing in the outer aviary, and the stalks were now long and unwieldly. It was deeply rooted, so I assisted by cutting and uprooting a good deal. To get at the actual nest, the birds had to approach from the side, and to carry over a dead branch or two on one side and a little lower down. The long wheat-stalks trailed over this branch, and formed altogether, at any rate to the casual observer, something which had an appearance not far removed from an untidy collection of rubbish, measuring, within a fraction of an inch, two feet from apex to tip of lowest straggler.

Here we have a case of an experienced and capable builder, who only a few weeks previously had built such a proper right-and-tight nest as No. 3 already referred to, putting together this shapeless affair, reminding one of nothing so much as a lot of drift caught in the branches of a willow overhanging a stream which has recently subsided after a spate, for of course the green wheat-stalks withered and externally soon became bleached. It was the case of a bird, ignoring personal experiences and the

examples of others, simply adapting himself to circumstances. Now, compare this with the abnormal nests of certain English Chaffinches in New Zealand which have become, I feel tempted to say, rather ridiculously historical. That Chaffinch (or those Chaffinches) found itself amongst a foreign vegetation, with foreign material to build with. The trees were strange, the materials were strange, the climate was strange, all the surroundings and attendant circumstances were strange, even the very seasons were topsy-turvey. That a Chaffinch, half demented and out of order after its long voyage, should have built a strange nest under such strange conditions was about the only item in the affair that was not strange; it would have been strange indeed if it had not. It was hardly a case to found an argument upon. And this abnormal nest of the Violet-eared Waxbill, an abnormal nest like that of the Chaffinch but constructed as we know by an experienced builder, seems to weaken still more the case of those who hold that, if opportunities of imitation, &c., be wanting, a bird cannot build a typical nest of its species. The more the case is considered, the more one sees that this abnormal nest of the Waxbills was a splendid instance of a bird making a clever and intelligent best under very untoward circumstances; and that of the Chaffinch may well be regarded in a somewhat similar light.

Although going about their work very quietly, the Violets, especially the male, were endearingly tame. When the male wanted anything, feathers for instance, directly I appeared he would fly to and perch close beside me, and look up into my face asking for what he needed as plainly as any dog would beg for its tit-bit. When I produced the feathers, and stooped down to separate and spread them out under a shed, I would find the male on my one side and the female on the other; and they would commence to examine and select them before I had completed my work, and would carry to the nest before my face in perfect confidence—but I never approached the nest, and kept away as much as possible. In the inner aviary, where they liked to think that I knew nothing about the nest, they had been much more secretive and non-evident. Really their great care seemed to be to conceal the aperture; and, for the rest, surely

the extraneous matter took away all shape and appearance of a nest from the one in the elder, and was quite sufficient to diddle a mere man!

It is an unimportant point, and scarcely worth noting, but, when the tips of their tails became curved from constant sitting in the nest, while that of the male curved to the right, the female's pointed to the left.

All during the building and sitting, the male, when unoccupied, sang repeatedly; but he ceased as soon as the young were hatched.

To return to the nesting. The dates given below were taken solely from the movements and behaviour of the old birds, but I expect they are not far out.

The first egg may have been laid on June 29, but perhaps it was not laid until the following day. An egg may have been laid on July 1. Incubation dated from and included June 30. A young bird was probably hatched during the 12th; there certainly were young in the nest on July 13. One bird was *always* in the nest,—now one, now the other, sometimes both, the relieving bird invariably going into the nest *before* the relieved came out. Last year, when all the birds were about, the male sat almost entirely, evidently in order that the eggs might be the more efficiently guarded. This year, no other birds being in the aviary with them, the female took her fair share of the work. Towards the close of the incubation period, probably on account of the cold and wet, both birds were more and more frequently on the nest together; both slept in the nest at night.

After the young were hatched, a little change was made: the bird outside did not enter the nest until *after* the other had come out; the former would come to the nest, say 'tit,' the bird inside would pop out and the other would pop in.

It soon became apparent that something was wrong. One is so accustomed to regard a small seed-eater as a bird which will rear young without giving trouble that it came with a shock to find that these Violet-eared Waxbills wanted to feed their young on living creatures. Now the male, now the female, as each bird was off the nest, dashed against the netting that cut it off from the thick foliage of the other aviary, darting from side to side in

its almost frantic endeavours to get to the trees, in order that it might search for minute examples of life among the leaves. They had one small patch of wheat which they searched through and through many times a day and day after day, but clearly there was a great shortage of live food. They would dart into the air after any tiny creature, but were not clever at the work. The male was by far the most industrious and useful, and would dig away with his beak, especially near to where the garden wall entered the ground; and he continued this work so industriously that he must have found something good. Occasionally, but infrequently, he would scratch with his feet, much after the manner of the Combasou and some of the smaller Whydahs. He constantly, although the weather was now dry, nibbled and seemed to suck away at the ends of growing wheat.

On the afternoon of July 15, a glorious day, both birds were off the nest together. They were as tight as sticks, and as slim; with feverish activity they were searching for food; in the bright sun, the brilliant colours of their beautiful plumage shone and almost sparkled as they darted about—a truly charming little picture.

On the afternoons of July 16 and 17, bright and warm, both were off together and working hard. I noticed that they were gathering aphides off the elder leaves—black nasty-looking things; could they have been harmful? it is unusual for birds to touch them, I think.

All along I had been supplying what artificial food I could think of. I had heard of some 'fresh live ants' eggs'; they arrived on the evening of the 17th, and some were at once supplied to the Violets. 18th—Very cold morning: neither hunting much: both looked full and contented; 19th—Too 'contented': female carrying feathers to nest; 20th—Carrying feathers: female on nest almost the whole day. Was this a final effort to revive a feeble chick? 21st—Nest deserted, and female 'sleepy.' Nest empty: no trace of young: one half of an egg which had once contained a young bird found below nest; 22nd—Female very ill; 25th—Dead.

The change in the behaviour and appearance of the old birds synchronized so precisely with the arrival of the fresh ants'

eggs that I attributed the illness of the female to them; and when I did realize what was wrong it was too late—it is doubtful if she could have been saved in any case. Notwithstanding something like a week of dry weather (some of the nights and mornings were exceedingly cold), the foundation and lower parts of the nest were found to be wet and mouldy, the heavy solid dome being dry. The parts of the tree-stem and branches, and the bunch of branchlets, where the nest had been pitched, were well covered with mildew, mealy-bug, and the like. When I saw the birds carrying feathers, I put an evil construction on their actions: the poor creatures were really endeavouring to ameliorate the miserable condition of the nest. Such a state of affairs was more than sufficient to account for the death of the young—probably two, possibly more—and the fatal illness of the mother. She died of acute inflammation of the kidneys.

Just about the same time, a pair of Ringed Finches reared three young in the adjoining aviary. The Rings are delicate, they had the same weather as the Violets, and yet their young are now flying about well and strong, and *their* mother is sitting again—for the third time this summer. Why success in the one case and disaster in the other?

The Rings' nest was built at the top of a pollard lime tree's upright stem, in the midst of a thick clump of leaves, the materials being old hay and feathers, no green wheat nor grass. The tree in which was built the nest of the Violet-eared Waxbill was quite dead from the top of the thickly-branched head and downwards as far as the fork where the nest was pitched. At this joint, there was a cluster of thickly-leaved branchlets, which held the damp and screened the nest from the sun. The thick leaves of the lime dispersed the rain. The bare branches of the elder not only collected the rain, but acted as so many runnels to conduct the water to the fork, where it was intercepted, sucked up and held by the mass of materials which had been collected at this spot. Even the thick wheat-stalks helped to contribute to the mischief; externally they appeared to have been dried up, but the inner mass must have become heated. A fermenting nest may be a very delightful place for a Dabchick, but can hardly be quite the thing for a Violet-eared Waxbill. When I put the

boards up over the nest, I should have decapitated the tree and not have stopped at half measures; better far that it should have been deserted altogether than that this calamity should have been permitted.

How delightful it is to be so wise—*after* the event!

It was with a heavy heart that I dismantled the nest; it was a splendid piece of workmanship, and deserving of much more praise than I have bestowed upon it.

Only one thing more is needed—that the Violets become so far civilized (and, alas! degenerate) as to nest in artificial structures, safe from rain and damp.

GREEN TODIES.—NOTES ON AN ATTEMPT TO REAR THE YOUNG IN JAMAICA.

By Harold E. Attewell.

Having long suspected a certain gully but a girl's stone throw from my house to be the headquarters of sundry Green Todies *(Todus viridis)* frequently seen, I, late in June, paid the locality a visit, the result proving most abundantly the reasonableness of my conclusions.

The gully is a typical Jamaican storm-water course, which, except for possibly a few hours once in six months, is dry. The bed is of sandy shingle, and what vegetation does exist is of the coarsest nature. The banks are usually sheer and may be inches or many feet in height. When the water is there it usually sweeps everything before it, leaving a clean-cut course.

A number of circular borings of about 1½ inches in diameter first indicated the likeliness of the Tody's domestic quarters, and, singularly enough, the very first tunnel examined proved to be one then occupied for breeding. The soil here was extremely friable and would have yielded to a matchstick, thus reducing to a miminum the efforts of the engineer. At about 9in. from the entrance, in a rounded chamber of possibly 2½in. diameter, lay, with no nesting material whatever, on the bare soil, two lovely globular eggs of lustrous pink pear-like translucency, quite the most beautiful eggs I have seen, and evidently newly laid. Just as the most beautiful gems are discovered

amongst the roughest surroundings, so it would seem the most beautiful birds' eggs are deposited in borings or holes on the bare earth. For the size of the Tody their eggs are larger than might be expected. So much for clutch No. 1.

Not many yards distant another pair of Todies had laid their young. Under exactly similar circumstances, here were a probably two-day old chick, an egg about to hatch and another in the earlier stage of incubation, its lustre was clouded.

It is quite evident incubation begins with the first egg and that these are laid at some interval. The period of incubation is probably short and it may be the earth would assist rather than retard the same, for, as in caverns, the temperature would, in the mean, prove higher than in the tree-top.

Within little more than an hour I had the good or misfortune to find four other breeding holes, nesting-places would hardly be correct, for, in no case was so much as wisp or feather to be found. In one case only did the boring deviate from a slightly inclined and oblique shaft, and, in every case these were of approximately 9 in. depth. The exception mentioned, quite near the entrance, turned at right angle to the left, and thus, but 2 in. from the surface, to which the shaft ran parallel, were discovered three callow young with a very perceptible difference in size.

The other two broods not yet accounted for each contained three young; one brood being partially and the other fully fledged. In the hopes of rearing young Todies I carried home these ten infants.

For four days they flourished exceedingly and their growth was rapid. Wasp-grubs, moths, flies and such like were relished and the readiness with which they fed filled me with hope. In order to give them most regular feeding I carried them with me to Kingston. It may have been an expression of approval or dissent, but, at any rate, these tiny creatures were so voluble, especially so when the tramcar stopped and more particularly so on the homeward trip, that, on the morrow, I did not care to advertise myself in this way and thankfully entered into a twelve hours contract with Mrs. Attewell. The chirruping of the birds being like that of a brood of chicken settling down for the night.

Alas on the evening of the fourth day a death occurred, and, one by one, without apparent reason, the infants dropped off, until, on the eighth day one only remained on the perches, and he, so vigorous was he, managed to escape, flying clear and easily away.

Gosse expresses surprise that the natives do not cage and keep the Tody in confinement; knowing both bird and native, my surprise would be rather to find the Tody so entertained. Not every Jamaican can understand the reasonableness of caring for a creature that yields no tangible return. I have frequently been asked by some urchin for a canary or other cage-bird, and, on enquiring the use for such, have in most matter of fact way been told "eat him!"

In Gosse's time he writes the Tody was common. It is, in view of the ease with which my six examples were found, singular, that he should admit having no knowledge of the 'nest,' eggs or young. It is also equally strange that he should have been so badly informed by Mr. Hill, who stated the material of which the *nest* was made and the colour of the *markings* on the eggs. The beautiful lustre of these is due to a particularly dark yelk and the mere shell is disappointingly dead.

Mr. Taylor, too, I fancy mistakes when he says the Tody is much reduced in numbers by the mongoose, for as a matter of fact, quite near this gully, I have in one trap caught five mongooses within a fortnight, thus proving the prevalence of the animal in proximity to considerable numbers of Todies.

Reverting to the breeding site again, it is noteworthy that all the six examples were found in the more sheltered north bank and three eggs would appear to be a normal clutch.

The trip I write of is of more interest to me, for, although I have accidently and otherwise handled hundreds of scorpions, until now, I have not had the good fortune to be accidentally stung. Here was a means of defence the Tody had that I did not reckon on. A black scorpion was at home in one hole my fingers investigated, and a well deserved reception was accorded me. Profiting by this, a stick did deputy-finger work after, with the result that a larger scorpion in one instance and a croaking lizard another were evicted.

The plentifulness of the Tody is demonstrated, yet on the occasion of which I write, although I was on the look-out for old birds I saw but two. It is oftener *not* seen. And even when perched on a favourite bare twig-end, despite its scarlet throat, it is easily unobserved, so like foliage is the bird's green. There he sits with an inoffensive expression and an attitude of absolute indifference, with his head pointing upwards. But he is not strong flighted, nor can he, living on insects, capture them by chase as do the Swallows; the insect must be allured near him, and my idea is, that scarlet throat is calculated to deceive. The unsuspecting insect mistakes it for some flower, hovers near it for a moment, just long enough for the Tody to make a dart of a few feet, and the consequence is another misguided insect is entombed. Its only requiem being a 'snap,' 'snap' of the bird's mandibles.

Kingston, Jamaica,
July 16th, 1907.

NESTING OF THE ADELAIDE PARRAKEET.

By W. R. Fasey.

My pair of Adelaide Parrakeets came from our Editor towards the end of last year, and when writing me recently he said he had no record of these birds nesting successfully in captivity.

As most of our members have seen, these birds are not unlike immature Pennants just finishing the moult and not in full colour. I remember that I once bought a pair of immature Pennants which the dealer at the time declared were Adelaides.

The Adelaides were given an aviary in which only two other small birds resided—a pair of Parrot-Finches—and I have nothing of interest to relate, until a few weeks back I saw they were nesting, and finally four young ones left the nest and are now flying about. Their markings are like those of their parents excepting that the ground-colour is of a more greenish shade. I consider the red marks quite as distinct as the parents'.

My birds have nested very freely this year and I have quite a number of young birds. One interesting Parrakeet, not

quite able to leave the nest yet, is a hybrid whose parents are a hen Princess of Wales' Parrakeet and a cock Rock Peplar, and I hope soon to get some young Blue-banded Grass-Parrakeets.

REVIEWS.

PHOTOGRAPHS OF AUSTRALIAN BIRDS.*

This little book contains some extremely good photographs of Australian birds and their nests, accompanied by notes from the pen of Mr. Robert Hall. It is intended to be quite popular, and to create an interest for birds amongst those who do not profess to have any knowledge of the subject: but this object would not have been frustrated had the notes been a little fuller and more precise and the scientific names of the species given. Of the Blue Wren we are only told that he is "a friend of the tiller of the soil," and eats eighty noxious grubs a day. If his nesting habits and change of plumage had been described it would surely have been to the advantage of all concerned. The Varied Hemipode is photographed on its nest, but the accompanying note merely tells the reader that it is the Painted Quail and that it "lies quietly in its nest upon the ground and is at once photographed."

We should have expected that so experienced an ornithologist as Mr. Hall would have seen that a popular booklet of this kind was made as instructive as possible.

FAMILIAR INDIAN BIRDS.†

This little book of about seventy pages consists of a series of essays on various Indian birds, some of which have been reprinted from "The Field," the "Zoologist," the "Journal of the Bombay Natural History Society" and the "Avicultural Magazine." It is intended to aid visitors to India in the identification of the birds they are likely to meet with, and those contemplating a visit to that country would do well to

* *Glimpses of Australian Bird-Life;* thirty-one original photographs direct from nature, with notes by ROBERT HALL, F.L.S., C.M.Z.S. Melbourne: T. C. LOTHIAN, 49, Elizabeth Street. Price One shilling.

† *Familiar Indian Birds*, by GORDON DALGLIESH. London: WEST, NEWMAN & Co., 54, Hatton Garden. Price Two shillings and Six pence.

read it. The illustrations, which are mostly reproductions of pen and ink sketches, leave considerable room for improvement.

THE SOCIETY'S MEDAL.

A medal has been awarded to Mr. W. E. Teschemaker for having successfully bred the Yellow-rumped Serin Finch (*Serinus angolensis*) for the first time in the United Kingdom.

Mr. W. R. Fasey has successfully bred the Adelaide Parrakeet (*Platycercus adelaidensis*) and, although this species has been crossed with other species, we are not aware of any previous case of pure-bred Adelaide Parrakeets being reared in the United Kingdom. If any member or reader knows of a case it is particularly requested that the Hon. Secretary may be at once informed; otherwise the case will go before the Committee to decide whether a medal shall be awarded.

OFFICERS FOR THE YEAR 1907-8.

The Council recommend, in accordance with Rule 9, that Mr. O. E. Cresswell and Mr. Arthur Gill retire from the Council by seniority, and that Miss R. Alderson and Mr. Hubert D. Astley be elected in their stead. Also that Mr. L. W. Horton be elected as Auditor, and Mr. Arthur Gill as Scrutineer.

CORRESPONDENCE, NOTES, ETC.

SOME ASPECTS OF AVICULTURE, ETC.

SIR,—It is no pleasure to me to express a different opinion from an old friend and colleague, but I think if Mr. Pocock had confined his remarks in answer to Mr. Astley to the single fact that he is obliged to combine exhibition with preservation he would have been wiser. When he tells us that the opinion of "the highest possible authority" has been regarded as unworthy of attention, because the birds which were being improperly fed appeared to be in excellent health, I am afraid he rather gives himself away.

A Parrot may be fed upon improper food (upon the same food indeed which has caused the early death of hundreds of its own species), and yet, on account of its individual constitutional vigour may continue to live in apparently excellent health for ten, fifteen, or even twenty years; yet in the end this vigorous bird breaks down in exactly the same manner, exhibiting

precisely the same symptoms as those individuals of its species which succumbed to improper treatment within a few weeks: the slow breaking down of a strong constitution does not justify the use of improper diet.

The importance of fresh air and the comparative unimportance of heat in aviculture, have been more and more realized as the study of living birds has advanced in this country, and Mr. Astley's views are shared by many of those who have not had so long or so wide an experience of bird-keeping as he has. It is true that there are some birds, like *Neochmia phaëton*, *Granatina granatina* and apparently some of the Humming-birds, which seem unable to bear cold; but this may be in part due to the fact that they have been for some time confined in a more or less close atmosphere. I have always regarded the African Weavers as extremely hardy birds; but, after keeping some of these birds four or five years in an indoor aviary, I turned four into an open aviary at the end of my garden; the result was that, for two months whenever the weather was dull or at all cold they would all be seen huddled up on the branches and apparently ill; one of them died (plump and in perfect plumage) the others are now quite indifferent to the weather.

In my opinion even Humming-birds, in spite of their love of sunshine, would stand a better chance of survival in the open air than in a hothouse temperature: if some Humming-birds do not object to cold and even snow, there seems no reason why others should not become accustomed to the same. In his "Naturalist's Notes in Ecuador," *Avic. Mag.* 1st series vol. VI., p. 66, Mr. Walter Goodfellow says:—"The little Black Hummer with a sapphire throat, known as Jameson's Humming-bird, I have seen, when camping out on the volcano of Pichincha, Condor shooting, flying past our tent in a heavy snow storm, with its mournful *twit, twit,* at an altitude of over 14,000 feet."

It is one thing to think one's own way of doing things the only way, and it is much the same thing to persist in one's own way of doing things when those whom we ourselves admit to be the highest possible authorities have pointed out our errors: it is very human not to relish advice, but where there is the least possible chance of our being in the wrong, and the welfare of our fellow creatures—"Little brothers of the air" as they have been called—is threatened, it is inhuman not to attend to it.

Mr. Astley, like all sensible aviculturists, would be the last to overlook the enormous labour of superintending our extensive Zoological Gardens and the many considerations which must weigh with a Superintendent in deciding upon the housing and treatment of animals reputed to be delicate; and I am perfectly sure that in his criticism of the arrangements for keeping birds in the Insect and Parrot-houses, he never thought for a moment that Mr. Pocock would consider himself to be personally attacked; he merely desired to emphasize the fact that close confinement was unnatural and not conducive to health.

A. G. Butler.

FRESH AIR FOR CAGE BIRDS.

SIR,—In criticising the methods adopted by the Zoological Society of London of keeping certain of the birds in the collection at the Gardens, I thought that I might have done so without having thrown at my head several brickbats by the hands of one of the officials, and also without having the honour done me of an article in our magazine written (apparently) on *myself*. It is true I have for a great many years made birds so much a part of my existence, that I may possibly have become one, but certainly without being aware of it! and it would seem to be *permissible* to criticise a Society which in a manner belongs to the public, and of which I have been a Fellow for a goodly number of years, without such an onslaught! I am told that I have "indulged in one or two gibes, which are perhaps intended to be funny and not unfriendly," but which "are wholly inexcusable withal"; that my opinion "is worth very little attention because it is founded on assumptions of the flimsiest kind," and that I "should probably have seen" the Superintendent's points had I "been less intent on proclaiming the superiority of my own methods over those practised in the Zoological Gardens."

I am not *quite* sure whether all *this* is intended "to be funny, and not unfriendly?"

When I wrote about the Sugar Birds (in the July magazine) not needing glass cases, being as yet unstuffed, I certainly wrote seriously, and there was no idea of either unfriendliness or the contrary, as I merely wished to impress the fact that caged as they were, they were kept in an extremely unnatural condition, and moreover distinctly showed the effects of it.

Nor had I any idea of "proclaiming the superiority of my own methods," for I was trying to support the methods of someone rather more important than myself, namely Dame Nature! On *her* opinion are founded my flimsiest of assumptions! Some years ago, people would have shrieked with dismay had they been told that consumptive patients with hacking coughs and failing lungs, must if they wished to be cured, sit out all day with the snow lying round them, and sleep all night with window-sashes removed. Now they know better.

In conclusion, I merely intended in my former letter to support a very excellent principle that birds, like everything else, need "a proper percentage of oxygen," which is only to be found in a *truly* unadulterated and inodorous condition as Nature gives it us, and that is most certainly not in a glass-case within a heated "conservatory!"

Nor did I for one moment intend to imply that no artificial heat or protection from cold and damp is needed in certain cases, or at certain times. Cela va sans dire! I rather anticipate an indignant letter from one of the officials of the L.C.C., because I was impertinent enough in that same former article to disparage the soot-begrimed air of the Metropolis.

HUBERT D. ASTLEY.

Printer's Error. In Mr. Pocock's letter in our last number, page 312, line 22, for "logically domesticated conclusion" read "logically *demonstrated* conclusion."

NOTICES TO MEMBERS—*(Continued from page ii. of cover).*

NEW MEMBERS.

Mrs. HAIG THOMAS; Creech Grange, Wareham.

Miss ALICE HUTCHINSON; Alderton Vicarage, Chippenham, Wilts.

Capt. R. D. FANSHAWE; Adbury Holt, Newbury, Berks.

CANDIDATES FOR ELECTION.

Captain SEPPINGS; Turf Club, Cairo, Egypt.

Proposed by Mr. MICHAEL J. NICOLL.

Mr. FREDERICK BOYES; Beverley, Yorkshire.

Proposed by Mr. W. H. ST. QUINTIN.

Mrs. BLANCH NORMAN ROBERTS; The Beeches, Baslow, Derbyshire.

Proposed by Mr. C. BARNBY SMITH.

Lieut.-Col. G. A. MOMBER, F.Z.S.; La Junia, San Remo, Italy.

Proposed by the Hon. Business Secretary.

ILLUSTRATION FUND.

The Committee have received, with many thanks, the following donations:

Mr. T. Turner, 10/-; Mr. B. C. Thomassett, £2 2/-; Mr. J. H. Gurney, £1.

MEMBERS' SALE AND EXCHANGE COLUMN.

The charge for private advertisements is SIXPENCE FOR EIGHTEEN WORDS OR LESS, *and one penny for every additional three words or less. Advertisements must reach the* EDITOR *on or before the* **26th** *of the month. The Council reserve the right of refusing any advertisement they may consider undesirable.*

Imported personally by advertiser in July: rare Hawk-headed Parrot (*Deropterus accipitrinus*) hand-reared, £6; Yellow Conure (*Conurus solstitialis*) £3; Black Hangnest (*Cassidix oryzivorus*), this bird has an amusing 'display,' £2; pair Red-breasted Marsh-birds * (*Leistes guianensis*) £4; odd cock, £2; pair Maroon Tanagers * (*Ramphocœlus jacapa*) £4; cock Black-cheeked Tanager * (*Calliste cayana*) £2; pair Black Tanagers (*Tachyphonus melaleucus*) 25/-; hen Black-headed Sugar-bird (*Chlororhanes spiza*) 25/-; Thick-billed Seed-finch (*Oriziborus crassirostris*) 25/-; Tropical Seed-finch (*Oriziborus torridus*), 25/-; hen Brazilian Blue Grosbeak (*Guiraca cyanea*). this sex seldom imported, 25/-; Black-headed Lined Finch * (*Spermophila ocellata*) 25/-; cock Lavender-backed Finch * (*Spermophila castaneiventris*) 50/-; cock Fire-red Finch (*Spermophila minuta*), good songster, 50/- Those marked thus * are believed to be new to British aviculture.

E. W. HARPER, 55, Waterloo Road, Bedford.

(Continued on opposite page).

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THE JOURNAL OF THE AVICULTURAL SOCIETY.

CONTENTS.

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should be sent to the Honorary Business Secretary.

THE AVICULTURAL SOCIETY.

Persons wishing to join the AVICULTURAL SOCIETY are requested to communicate with either of the Hon. Secretaries or the Editor.

NOTICES TO MEMBERS.

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All MSS. for publication in the Magazine, Books for Review, and Private Advertisements should be addressed to the Editor, Mr. D. SETH-SMITH, Glengarry, Canning Road, Addiscombe, Surrey.

All Queries respecting Birds (except *post mortem* cases) should be addressed to the Honorary Correspondence Secretary, Dr. A. G. BUTLER, 124, Beckenham Road, Beckenham, Kent.

All other correspondence, and Subscriptions, should be sent to the Honorary Business Secretary, Mr. T. H. NEWMAN, Newlands, Harrowdene Road, Wembley, Middlesex. Any change of address should be at once notified to him.

Advice is given, *by post*, by members of the Council to members of the Society, upon all subjects connected with Foreign and British birds. All queries are to be addressed to the Hon. Correspondence Secretary and should contain a penny stamp. Those marked "Private" will not be published.

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Vols. I., III. & IV., are out of print. Second-hand copies sometimes reach the Publisher, to whom application should be made.

(*Continued on page iii. of cover*).

Photo by Mr. Reginald B. Astley.

AUSTRALIAN "NATIVE COMPANION" CRANES AT BENHAM PARK.

Bale, Sons and Danielsson, Ltd.

THE

Avicultural Magazine,

BEING THE JOURNAL OF THE

AVICULTURAL SOCIETY.

New Series—VOL. V.—No. 12.—*All rights reserved.* OCTOBER, 1907.

THE CRANES.

By Hubert D. Astley, F.Z.S., M.B.O.U.

It might perhaps be useful to some of our members to catalogue a list, with a short, and I fear incomplete, description, etc., of the members of one of the most splendid families amongst birds. The Cranes are so stately in their movements, so easily kept in captivity, so tameable and as a rule so long-lived, that it is not to be wondered at if with some aviculturists they rank amongst their very first favourites. The late Lord Lilford was especially fond of them, and possessed nearly every known species, if not every one.

Let us consider their names and habitats, etc.

* * *

1. The Common Crane (*Grus communis*).

Once fairly abundant in England, now alas! like the Great Bustard and others, no longer to be found.

Hab.: The greater part of Europe and Asia, wintering in North Africa and Northern India, etc.

Of a fine dark grey colour, face and neck black with white on the cheek running downwards longitudinally. Skin on crown of head, cherry red. Wing feathers elongated and curved like a cock's tail. The call is sonorous and can be heard at a great distance.

* * *

2. The Black-necked Crane (*Grus nigricollis*).

In style very like the Common Crane.

Hab.: Tibet and Koko-nor.

General colour, pale ashy grey; tail black; larger wing

feathers black, the inner secondaries being curved and arched as in the Common Crane.

Crown of head covered with rough red skin. Bill, greenish horn. Legs, black.

Very rarely, if ever captured.

* * *

3. The Mantchurian Crane (*Grus japonensis*).

Perhaps the most splendid of the family, and one of the most magnificent of birds; well known as depicted upon Japanese screens.

Colour, snowy white. Throat and cheeks, deep black-grey, the same running downwards on each side of the neck, and meeting near the base, behind.

Secondaries, black, the feathers being broadened and curved. Bill, greenish horn; legs, greyish black.

The Mantchurian Crane has often nested in captivity. The call is extremely sonorous and resounding.

Habitat: Eastern Siberia and Mantchuria; wintering in Corea and China.

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4. The Hooded Crane (*Grus monachus*).

After the style of the Common Crane. General colour, dark slately-grey with a brownish tinge, deepening into slately-black on the curved wing feathers and the tail. Face and greater part of neck, pure white. Forehead: red skin with black hairs. Hab.: Eastern Siberia, wintering in China and Corea. Extremely rare in confinement in Europe. Lord Lilford possessed one specimen.

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5. The American Crane (*Grus americana*).

Called also the Whooping Crane. Alas! all but extinct, (according to Herr. Carl Hagenbeck). A most beautiful bird. Snowy white with black primaries, and the skin on the crown of the head of a brilliant maroon-cherry red.

A pair still exists in the Zoological Gardens at Amsterdam, but there are probably not many more in the world. It inhabited Central North America, wintering in Florida and Central Mexico.

Its general style and size is that of the Mantchurian Crane.

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6. The Canadian Crane (*Grus canadensis*).

A sombre edition of the Common Crane, being of a general grey colour, with no well defined black and white on the face and neck as in the European bird.

It is also called the Sandhill Crane.

Hab.: North America, south to Mexico. They live well in captivity.

* * *

7. The Sarus Crane (*Grus collaris*).

A very tall and stately bird of a fine French grey colour, the elongated plumes of the wings that hang over the tail, being whitish.

Skin on forehead and crown, pale ashen green; rest of head featherless and of a scarlet red with black hairs.

The upper part of the neck is white, forming a collar. The French call it "Grue à collier."

Hab.: Northern India.

Not infrequently imported, but has probably never bred in Europe.

* * *

8. The Eastern Sarus Crane (*Grus antigone*).

Exactly the same style of bird as the Indian Sarus, but of a general grey colour *throughout*; the red skin of the head extends further down the neck, and the skin on the crown is more yellowish. Perhaps even taller than the *G. collaris*.

Hab.: Burmah, Siam and Malay Peninsula.

Rarely imported.

Imagine a flock of 600 of these magnificent birds circling round in mid-air, which sight Dr. John Anderson once witnessed in Upper Burmah.

* * *

9. The Australian Crane (*Grus australasiana*).

The Native-Companion of the Colonists.

[See Vol. VIII., *Avicultural Mag.*, Nov. 1901, for the account of the nesting of a pair of these birds in my possession.—H.D.A.]

Not unlike the Sarus Crane, but less tall. General colour, pale blue-grey, feathers of back and wings having lighter margins. Primaries, black. Crown of head and bill, olive-green; eye, fine orange-yellow; round the ears and the back of the head, coral-

red papillose skin, with fine black hairs. A gular pouch of bare skin, olive green.

It is the only Crane in the whole of Australia. Both male and female call loudly together, standing with their heads back and their bills pointed upwards, the male meanwhile drooping his wings and moving them up and down. The cry is very loud, and, at a little distance, wild and musical.

Like most of the Cranes, the Australian Native-Companion is very hardy, and I lost my first old male through his persisting in standing at night knee-deep in a stream during hard frost, the consequence being that he was frozen in, and killed himself in his evidently frantic struggles to be liberated.

Previously he had had one wing amputated at the shoulder, having been kicked by a horse, in the park, which he had attacked, his whole wing being completely shattered.

* * *

10. The Demoiselle, or Numidian Crane (*Anthropoides virgo*).

The smallest of all the family, and one of the best known.

General colour, pearly grey. Wing feathers (secondaries), very elongated and pendant, grey with black tips. Tail, dark grey. Crown of head light grey, the remainder of the head, throat, and foreneck, slaty black, the feathers of the latter very elongated. A white tuft of silky white feathers springs from behind the eyes, and curves downwards on each side of the neck. Eyes, bright crimson, bill and legs greyish horn colour. Total length, 33 inches.

The males are usually the largest, and the ear tufts are longer.

[See Vol. VII., No. 5, March 1901, *Avic. Mag.*, Mr. Lascelles' account of the nesting of these Cranes in captivity].

Hab.: S.E. Europe and throughout Central Asia to Mongolia, wintering in N. and N.E. Africa and N.W. India.

A most graceful and tameable bird, as well as perfectly hardy; thriving best on a dry soil. This Crane is imported in large numbers. In some parts of Europe the eggs are collected and hatched out under hens. It's cry is a rather harsh crake, but very musical in the distance.

* * *

11. The Stanley Crane (*Anthropoides paradisea*).

A most beautiful species, larger than the Demoiselle, but not so large as any of the other kinds.

General colour, pearl grey with a bluish tint; primaries, black; secondaries, dark grey with black tips, which are enormously lengthened and almost touch the ground. Feathers of the cheeks and back of head lengthened and loose, so as to form a puff. Forehead and crown, white; bill, flesh colour. Total length, about 40 inches.

Hab.: South Africa, Mashonaland, Great Namaqualand, and Damaraland. In a wild state, it devours large numbers of locusts, and on that account requires more meat food in captivity than most of the other species. This Crane becomes very tame, and will often remain, when allowed full liberty, near the place where it has been reared. Regularly imported to Europe.

* * *

12. The Wattled Crane (*Anthropoides carunculata*).

One of the rarest in captivity. A large bird of striking appearance. General colour above, ashy grey. Mantle, underparts, primaries, and secondaries, black; the secondary wing-feathers much elongated and pendant. Crown of head, slaty grey. Whole of neck, cheeks, and fore breast, white. Face covered with red skin. Two wattles with white feathers depend at the throat. Eyes, orange yellow; bill, yellowish brown; legs, dark grey.

Hab.: S. Africa, part of the Congo, and E. to Shoa. Very tame and playful in captivity. Very partial to water.

* * *

13. The White-necked Crane (*Anthropoides leucauchen*).

The Imperial Crane. A splendid bird after the style of the Mantchurian.

General colour above, slaty grey. Wing coverts, lighter; secondaries, white, being lengthened, curved, and pointed. Fore-neck, breast, and underparts, dark slaty grey. Head, hind neck to the back, white. Forehead and face, covered with red skin, on which are black hairs. Eyes, yellowish; bill, greenish; legs, dull pink.

Hab.: E. Siberia, N.E. Mongolia and Mantchuria, wintering in Corea and parts of China.

Rare in captivity, but very desirable. A young one was hatched in the Zoological Gardens of Amsterdam in 1872.

* * *

14. The Asiatic White Crane (*Anthropoides leucogeranus*).

A large showy bird. Colour: Purest white, with black primaries. Red bare skin on the face, extending to just behind the eyes. Eyes, bright yellow with a somewhat fierce expression. Beak, yellowish-brown; legs, pink.

Hab.: S.E. Europe and Asia Minor to N.E. China. Wintering in N.W. India and China.

This Crane's cry is quite different to any of the others, being weaker and more plaintive.

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15. The Crowned Crane (*Balearica pavonina*).

(*Avic. Mag.*, New Series, Vol. I., March and April, 1903).

The coloured illustrations in the magazine will show this birds' appearance better than a verbal description. The peculiarity of this Crane is the beautiful tuft of straw-like bristles on the back of the head. When the wings are spread, the bird looks much whiter, owing to the display of the wing-coverts. There are two other kinds of Crowned Cranes, viz.: *Balearica regulorum*. The Cape Crowned Crane; which is lighter in colour than *B. pavonina*, where it is grey, and usually has the skin of the cheeks white, with bare red wattles at the throat: and I believe that a third species was obtained on the White Nile, near Khartoum. It is smaller and darker than *B. pavonina*, and again differs in the shape of the red and white cheek patches.

Balearica pavonina inhabits W. Africa to Abyssinia and the tributaries of the Nile.

B. regulorum inhabits S. Africa.

The cry of these Cranes very closely resembles the trumpet of a motor-car, and people have often mistaken it for that when hearing my birds call in the distance. They are very beautiful birds, and when once acclimatized seem extremely hardy. I have possessed three specimens of *B. pavonina* for five years, which have been on open ground with no shelter even in winter time except natural rushes and bushes.

For success in breeding Cranes they require a grassy paddock to themselves. They nest on the ground, collecting rushes for that purpose. Not more than one pair should occupy an enclosure, and if there is marshy ground, so much the better, and shallow water in which thay can wade. They will eat grain, crissel, potatoes, bread, greaves, fish and meat, and they delight in grubbing up the earth in search of roots of plants and worms. They are, as a rule, long-lived birds, some specimens having been known to live more than thirty years in captivity. If allowed to walk about without being enclosed, the larger kinds are not always safe, for they will attack people fiercely and sometimes quite unexpectedly. It is best to pinion Cranes, unless their enclosure is covered over with netting, for if the wing-feathers are only clipped, it is difficult to know exactly when to catch the birds up at the moult, and I once lost a magnificent pair of Mantchurians because of this.

N.B.—Those who want to know all about the Crane family should, if they do not already possess it, purchase "A Monograph of the Cranes," a beautiful work with finely coloured plates of each species by Mr. F. E. Blaauw, whom we are glad to count as one of the members of the Avicultural Society.

SEPTIC ENTERITIS.

By W. H. St. Quintin, F.Z.S., M.B.O.U.

Some details of an outbreak of this destructive disease, which I am able to give, may be interesting, and perhaps useful, to some of my fellow aviculturists.

A sitting of Capercaillie's eggs laid here by a tame bird, was put under a cross-bred Silky-Game Bantam, and six chicks were hatched on June the 20th, one egg being unfertile. Up to July the 20th, the young birds were thriving and growing fast. On the evening of this day we noticed that one of them left off feeding before the others had finished, and huddled up against the little hen, and I remarked that the bird must have got a chill. The affected chick was worse the next morning, and died before noon on the 21st. On the 22nd another died.

Thinking that they perhaps wanted more space, I moved the brood on to some quite fresh ground, with shade and shelter, and plenty of fresh grass, and the food was slightly changed. The young Capercaillies seemed to delight in the change, and ranged about freely with the hen, scratching and dusting, and evidently finding a great deal of insect food, as well as plucking the flowering heads of the grasses. However, another chick died on the 26th and was sent to Mr. Gill for examination. To my dismay the report came back, "Septic Enteritis"; and I realized that I had to deal with a formidable outbreak. In the meanwhile the survivors, which were of about the size of Grouse, seemed perfectly well, actively wandering about the enclosure (about a quarter of an acre); but on the 28th of July another died, and another on the 3rd of August; in each case after about twenty-four hours illness. The sixth bird survived until the 6th of August. This last bird was seen to be amiss on the 1st of August, but it lingered five days, the lameness in one leg, which was greatly swelled, constantly increasing until the poor bird could not stand or move.

I am under the impression that, in the human subject, septic poisoning sometimes takes the form of local inflammatory swelling of some limb: and if I am right, this bird also had taken the infection from the same source, and only lived a few days longer than the others because the vital organs were not immediately attacked.

I was quite unable at first to account for the appearance of the disease, but after talking it over with my Bird-keeper, he reminded me that the female of an apparently sound pair of Cabot's Tragopans, which I had myself selected in London, and sent down on the 13th of June, had been noticed to be ailing on the 23rd and had died on the 26th (when I was abroad). As ill luck would have it, a violent thunderstorm occurred on the 11th of July, and the young Capercaillies were, for about three hours, placed for shelter in the shed in which the Tragopan had died.

The following dates show the progress of the disease:—

13th June. The Tragopans were placed in the shed.

20th June. The female bird was amiss, and she died on the 26th June.

11th July. The Capercaillies were shut into the shed.
20th July. The first young bird was seen to be ailing.
21st July. This chick died, and the others at intervals, as narrated above.

Besides the male Tragopan, the hen that brought up the Capercaillies has escaped the infection, but I am keeping the latter isolated, and the shed is to be disinfected, and the enclosure dressed with quicklime.

The whole thing is very disappointing, for Capercaillies are difficult to rear, and the greatest care had been taken with this brood, which was, up to the date of the thunderstorm, in the best of health.

It will be noticed that the period of incubation of the enteritis in the case of the first young Capercaillie, was about nine days, as the bird was exposed to the infection on the 11th July and it began to sicken on the 20th.

Scampston Hall.

NOTES ON THE CUCKOO.

Cuculus canorus.

By Gordon Dalgliesh.

This paper claims in no way to be altogether original, and I have drawn largely from the writings of others, and to many much of the information contained herein will not be new. I have endeavoured in one paper to collect together a mass of interesting notes as a foundation to work upon, and to induce people to study more closely, if possible, this interesting bird and to fill up many gaps in its life history.

Each year, as the pendulum of Time swings to and fro and Spring brings to our shores the Cuckoo, fresh perplexing problems of that "bird of mystery" present themselves to us in full force. Perhaps there is no bird that has claimed the attentions of naturalists more than the Cuckoo, and yet how very little we really know about it. Most of our knowledge relating to its parasitic habits are mere hypothesis based in many cases on insufficient grounds. The Cuckoo is by no means an easy bird to study, and to the majority of ordinary people is far better

known by its voice than actual appearance. It is a shy bird, having a wonderful adaptation of hiding itself from view, though its audible and far penetrating cry makes itself heard for a considerable distance.

Thanks to numerous observers throughout the country many actual facts have been established, which now make it possible to base our theories on substantial ground, in spite of the everlasting verdict of "probable though not proven" presenting itself on every hand. An old Scotch name for the Cuckoo is "gowk" (a fool in Scotland is spoken of as a "gowk,") but why this should be I can never understand. That a bird should save itself the trouble of catering for and looking after a family is, I think, sufficient proof of cunning and deep thought and not want of intellect. A Cuckoo's cry is easily imitated, and in consequence the bird is readily decoyed. It is perhaps on this account the name of "gowk" was given to it. When decoyed both male and female come, and on one occasion I had three hen Cuckoos flying around uttering their curious "bubbling" cry. On several occasions whilst imitating the cry, small birds, notably Willow Wrens and Yellow Buntings exhibited symptoms of excitement. Many of the pictures of Cuckoos in books are drawn quite wrong, that is with the mouth wide open. When uttering its well known cry the bird does not open the bill, the breast being then inflated like a pigeon and the tail slightly raised. This I have many times witnessed. That the female bird calls "cuckoo" is open to doubt, normally her cry is a low chuckle, or else a gurgling bubbling note, at times sounding not unlike that of an alarmed Blackbird. The old rhyme goes, "In June he changes his tune," and this is sometimes wonderfully correct. On the first of June last year 1906, I woke very early, and the first bird note I heard was the broken "cuck cuck oo"; but this is often heard in May as well. The average date of the arrival of the Cuckoo is April 20th. In many papers and periodicals there are notes about Cuckoos having been heard in March, or even February; but there is no proper foundation for these early dates. In all cases only the *cry* has been heard, but no bird has been procured or seen; and until a February or March Cuckoo has actually been secured, it is not wise to place any reliance on these reports.

As before stated the cry of the Cuckoo is easy of imitation; and on the bright sunny days that often occur in February or March, one's thoughts are apt to wander on to summer, and from summer to the Cuckoo, and perhaps unconsciously we are apt to give vent to our feelings, by uttering the cry well known to all: hence the explanation of "Early Cuckoos." Does the Cuckoo eat other birds' eggs? This is another point that wants attention. Many country people declare they do. Most naturalists, however, are agreed that the egg seen in the Cuckoo's bill was its own, and until some competent observer actually detects it in the art of pilfering a bird's nest we must leave this an open question. Personally I see no reason at all why it should not eat eggs: some of its foreign relatives do so. I once saw an Indian Cuckoo, the Köel (*Eudnamys honorata*), rob a Dove's nest, and fly off with the egg in its bill, hotly pursued by the owner. On hearing the imitated cry of a Cuckoo, a pair of Missel Thrushes I saw, got very excited, and fumed and fussed about, uttering notes of defiance. Now the Cuckoo has not been known to deposit its egg in that of a Missel Thrush's nest, so that the Thrush would have no cause of fear from that quarter. On the other hand if the Cuckoo *does* eat eggs its cry would naturally put the Thrushes on the *qui vive* for the safety of theirs.

Perhaps the most extraordinary part of the whole life history of the Cuckoo is the matching of its eggs with those of the different birds into whose nests its eggs are deposited. One theory is that a Cuckoo deposits her eggs in the nest of the species in which she herself was raised; and the argument to support this is that, on the Continent, the eggs of Cuckoos have been found in the nests of species which do not nest in this country, namely, the Orphean Warbler, Icterine Warbler and Great Reed Warbler, matching the eggs with types of Cuckoo's eggs unknown in Britain. Eggs of Cuckoos have been found in empty nests of Hedge Sparrow, Meadow Pipit, Pied Wagtail, Red-backed Shrike, and twice in Reed Warblers; in each instance the egg was designed to match those of the owners (*Countryside*, Vol. III., No. 68). Mr. Gillett Cory, writing to the same paper, says:— "I have had the privilege of seeing some sixteen nests, each containing a Cuckoo's egg of different kinds of birds with their

respective clutches of eggs, in every case of which the Cuckoo's egg (had it not been for its slightly larger size) could scarcely have been distinguished from those of the intended foster parents, even such details as the delicate pencilling seen on the eggs of Chaffinch, Goldfinch and others being closely imitated."

Though matching its eggs so well, Cuckoo's eggs found in Hedge Sparrows' nests (one of its commonest victims) are seldom blue, and one theory to account for this is that the Cuckoo during the course of evolution has only recently been attracted to this bird, and as time goes on, the eggs will eventually always be blue.

Blue would appear to be the rarest colour of a Cuckoo's egg. The British Museum possesses four authenticated specimens and these are all except one, Continental, and were all taken from the nests of the Redstart. Butler figures a blue egg in his "Birds' Eggs of the British Isles," and I find a note of another in the *Countryside*, Vol. II., No. 27, which says:—"In the case of a Cuckoo's egg taken here this year, the bird had evidently solved the problem of imitating colour as it was exactly the same shade as the Hedge Sparrows' in whose nest it was placed." Eggs I have seen taken from a Robin's nest in almost the identical spot for three seasons running were a bluish green, faintly speckled with brown, and I have been told that this type is the usual one found in Hedge Sparrow's nests, but I have seen too few to form any opinion, and to me these eggs appeared like a bluish variety of the Robins. In Europe the list of a Cuckoo's victims have been enumerated at 146. Among its commonest victims in Britain are:—Hedge Sparrow, Robin, Reed Warbler, Meadow Pipit, Garden Warbler, Sedge Warbler and Pied Wagtail. From a large series of Cuckoo's eggs, 373 in number, 74 of these were foisted on the Hedge Sparrow (*Countryside*, Vol. II., No. 27). The rarest victims selected are:—Blackbird, Swallow, Song Thrush, Bullfinch, Chaffinch and Nightingale. Mr. T. Hope, writing to the *Countryside*, Vol. III., No. 61, says:—"On May 4th, we saw two young Blackbirds dead on the ground. On looking into the nest we found a Cuckoo's egg resembling a Blackbird's." Mr. L. B. Mouritz *(in lit)* says a Cuckoo's egg was found in the nest of a Song-Thrush in Richmond Park. This was given on

the authority of a Mr. Rillman, Superintendent of the Park. Mr. Mouritz also kindly sent me the following notes of nests personally known to himself that contained Cuckoo's eggs:—Chaffinch (Reigate, 17/5/1884 and '93). Willow Wren and Nightingale. There are also two records of Cuckoo's eggs in Pheasant's nests (*Countryside*, Vol. II., No. 30). These of course were a gross mistake on the part of the Cuckoo and may be dismissed without further comment. I myself on two occasions have found eggs laid on the ground; the birds that laid them probably being disturbed just after. The earliest and latest Cuckoo's eggs that I can find any record of, is April 21st (A. P. Macklin) and July 7th (*Countryside*, Vol. III., No. 36). A Cuckoo before depositing her egg will frequently eject all the other eggs in the nest, and a deserted nest has frequently been found to contain a Cuckoo's egg. It has been found that Cuckoo's eggs deposited in the nests of Chaffinch, Bullfinch, Chiff-chaff, and Nightingale do not resemble those of the fosterer's and the explanation to this is that the Cuckoo, unable to find a suitable nest, is forced to place it in one of these rather than none at all. Mr. A. P. Macklin writes:—. . . . "I found the nest of a Hedge Sparrow, and a few yards beyond, that of a Garden Warbler both containing incomplete clutches of eggs. On re-visiting the spot some days later I found that the Garden Warbler's nest had disappeared, but in that of the Hedge Sparrow, a Cuckoo's egg of the most pronounced type but still unmistakably a Cuckoo's egg had been deposited. It is reasonable to assume that this was intended for and would have been placed in the Garden Warbler's nest had this not in the meantime disappeared. A close observer, Mr. Anthony Collett, writes:—"There is another theory that Cuckoos are split up into a number of families or clans, each of which is attracted to some particular species of small bird, and the eggs laid by the Cuckoo specially resemble the eggs of the small bird in question. This, on the whole seems very probable, though it is unlikely that the hen Cuckoo *never* drops her egg into a different sort of nest to the one in which she herself was brought up in."

Does the male Cuckoo first find the nest in which the female is to place her egg? To this query personally I believe

the male *does* direct the female to the spot. Cuckoos, as is well-known, in flight so closely resemble a Sparrow Hawk that only a practised eye can distinguish the two. Now all small birds naturally regard the Sparrow Hawk as their worst enemy and never let slip an opportunity for mobbing it on every possible occasion, (this by the way may be a special provision of nature to enable the Hawk to catch its prey the easier, for sometimes the Hawk will turn round and itself become the master of the situation and carry off one of its tormentors), and seeing a male Cuckoo would not be able to distinguish it from a Hawk and in consequence mob it. Now let us suppose the male Cuckoo has found a suitable nest of say a pair of Pied Wagtails. He will haunt the spot until they catch a sight of him and promptly pursue him. Now the female's chance comes; while her mate is leading off the Wagtails on a "wild goose chase," she, finding the coast clear, deposits her egg. The Indian Cuckoo, the Köel alluded to above deposits its eggs in the nest of the House-Crow (*Corvus splendens*). These Cuckoos are not coloured alike as in our bird, but on the contrary are totally different in plumage, the male being coal black, the female being brown and spotted. Every resident in India who has ever paid any attention to bird life there cannot have failed to see how cordially detested is the male Köel by the Corvine tribe, though no notice is taken of the female. The male in this case leads off the Crows while the female deposits her egg.

It may be as well to state that a typical Cuckoo's egg is a trifle smaller than that of a Skylark, and though differing greatly in colour is pretty uniform in shape and may be described as a blunt oval. Specimens I have personally handled showed little or no gloss, but this was probably due to their being fresh; incubated eggs are often exceedingly glossy and those of the Nightingale in particular. Dresser gives the average size of a Cuckoo's egg as ·88ins. + ·65ins. For the size of the bird the egg is very small, thus of course rendering transit in the bill an easy matter.

Does the influence of the male have anything to do with the colour of the egg? Mr. Milburn (*Countryside*, Vol. III., No. 67), says: "That the male bird has some influence in the colour

of the egg I am inclined to believe from the following instance. Every year a Hawfinch's nest is to be found on a particular fork of an apple tree near here, and the eggs, always three in number, are of a peculiar heavily-streaked type. As the species is rather too abundant from the owner's point of view the female is shot off the nest as soon as she begins to sit. Still the remaining male finds a fresh mate, and the same place is chosen, the same compliment of eggs laid, and they are always of the same type in the following season. This has been repeated this last six years, and the Hawfinch is a good test because the eggs of different pairs are usually varied. Is it not possible that this influence of the male may have something to do with the variation of the eggs of the Cuckoo? The female most likely has four or five different husbands in a season, and it is possible that a male reared from a Wagtail's nest and the similar type of egg would be chosen when the hen has a Wagtail's nest ready for consideration. The same applies to other common foster parents. This suggestion I know gives the female extraordinary powers of discrimination, but it is the only one that will account for the fact that one can obtain five or six different types of cuckoo's eggs in districts where, at most, only two females frequent the place as far as one can observe."

The Charterhouse Museum at Godalming possesses a splendid collection of Cuckoos' eggs, and amongst the fosterers they do not resemble are: Willow Wren, Wren, Spotted Fly-catcher, Yellow Bunting, three clutches of Chaffinches, Green-finch and Tree Pipit. I also find among the same collection another blue egg, but there is no name to the fosterer, and, as far as I could judge, these were probably Redstarts. These were taken in Finland.

The food of the Cuckoo is chiefly composed of caterpillars, especially those known under the general name of "woolly bear," and Dresser says it will also eat snails and seeds. The flight is extremely swift, and before alighting a peculiar loud swishing sound is produced by the wings. Cuckoos as a rule generally haunt a particular area, and I have known a male frequent a small space for three seasons. Of course this may not have been the same bird, but the fact remains that a Cuckoo was always to

be found there, and it is quite reasonable to suppose it to be the same.

During wet and cold weather it calls little or not at all, and I have frequently heard it at night, this being when the weather was very hot. "He cries as he flies," say country people, and on alighting always prefaces his well known cry with a deep chuckling note, and at times only the first syllable is pronounced several times *without* the last being uttered at all. It was Jenner who first drew attention to the newly-hatched Cuckoo ejecting its foster brothers and sisters from the nest. The late Charles Waterton, who was rather given to criticising—and not always correctly—the statements of other naturalists, ridiculed the idea. Nevertheless, Jenner was perfectly correct, as has since been proved by actual photographs taken of the young Cuckoo in the act of doing so.

There is one instance on record of the Cuckoo hatching its own eggs,* and it is probable that at times young Cuckoos, after leaving the nest are tended by the true mother or other Cuckoos; but this wants confirming. Since writing the above I have found a Cuckoo's egg in a Hedge Sparrow's nest that would—except, of course for its larger size—have exactly matched that of a Pied Wagtail, and in my own mind have no doubt it was originally intended for the Wagtail's nest, but the Cuckoo failing to find one dropped it in the first convenient nest she came across.

There are many good and competent ornithologists who are against the theory of a Cuckoo matching its eggs with those of the fosterer, and it is only fair to state in favour of these that a good many eggs do not match, as will be seen by some of the above notes; but putting these together with those that do, the latter outnumber the former, and possible solutions to this may be: (1) that the Cuckoo may not always find a suitable nest in which to deposit the egg, or (2) that it is only at a comparatively recent period that the Cuckoo has realised the importance of matching its eggs with those of its victims. I am aware that this is again mere hypothesis and may sound weak, but for want of a better explanation I am forced to suggest this. The whole

* *Ibis*, 1889, p. 219.

thing is very puzzling, and unless some more definite solution is forthcoming how can one account for "the delicate pencilling seen on the eggs of Chaffinch, Goldfinch, and others being closely imitated"? I cannot bring myself to think that this is merely accidental and fully believe that, by some mysterious instinct, the Cuckoo tries as far as possible to match her eggs with those of the bird into whose nest they are deposited. Though there are no less than four species of Cuckoos included in the "British list" only one of these—the bird under present consideration—is truly indigenous to our islands, and one of whom many idle and vulgar tales have been told. Last summer I was gravely informed by a man of good education that the Cuckoo turned into a Hawk in the winter, and I believe this superstition is current among country people.

It is interesting to note that many of the birds' names in the vernacular are derived from its cry. I quote Dresser: *Coucou gris* (French); *Cuco* (Portugese); *Cucu* (Spanish); *Cuculo* (Italian); *Kuck kuk* (German); *Koe koek* (Dutch); *Käki* (Finnish); *Kiekka* (Lapp.); *Kukushka* (Russian); *Tatouk* (Moorish): *Kukku* (Lepcha).

The range of the Cuckoo is given as the whole of Europe to a little beyond the Arctic circle; Africa as far South as Natal and Damaraland; Madeira and the Canaries; Asia from lat. 67° N., the Celebes and Eastwards to Japan. The breeding quarters are in the North and central portions of its range and it winters in the South. I have heard the Cuckoo in the Himalayas at an elevation of 6,000 feet, and its familiar cry seemed strangely out of place coming from the solitude of those vast and gloomy forests, and carried one's thoughts back to green fields and English woods.

EGG OF THE GREATER BIRD-OF-PARADISE.

By Collingwood Ingram, F.Z.S., M.B.O.U.

During his visit to the Aru Islands in quest of living Birds-of-Paradise, my father's collector, Mr. Charles Pratt, was fortunate enough to procure an egg of *Paradisea apoda*, which the natives brought to him about December of last year. Although identification was not absolute, there is no reason to discredit the word of the natives, who positively asserted that the egg in question belonged to the Greater Bird-of-Paradise. As evidence that this tropical species has no regular breeding season, it may be mentioned that an immature bird, perhaps two months old, was brought to the collector about the same time. The nest itself is apparently held in reverence by the natives and the offering of a comparatively large reward failed to secure one.

While the egg was being blown it was accidently damaged and it is now impossible to give its exact dimensions, but as near as can be judged these are shown in the accompanying illustration, the measurements being roughly 1·6 in. by 1·1 in. The ground-colour is cream, while the bold splash-like streaks radiating from the greater pole, are lavender grey and Vandyke brown. The latter predominate and are the over-lying marks; these also occur in the form of smaller streaks and spots on other parts of the shell.

Together with these notes I give a rough pencil sketch of a female *P. apoda*, the first to reach Europe alive. Of course there is no certain means of ascertaining its sex but there is every indication that this bird is fully adult and therefore a female. This statement is further corroborated by the natives who told Mr. Pratt that, to experienced eyes the two sexes were at all times distinguishable from one another owing to their slightly different build. On the other hand the possibility of a mistake suggests itself on account of the peculiar habits of this bird. With the same cries it also goes through similar dancing displays to those indulged in by the full-plumaged male. Readers of the *Avicultural Magazine* may expect to hear more about this and other females as I believe my father shortly intends to write a paper dealing with this subject.

GREATER BIRD-OF-PARADISE.

Paradisea apoda.

Sketched from a living specimen in the possession of Sir William Ingram, Bart.

Bale & Danielsson, Ltd.

EGG OF THE GREATER BIRD-OF-PARADISE.
Paradisea apoda.
From a drawing by Collingwood Ingram, M.B.O.U.

Bale & Danielsson, Ltd.

THE BLACK-COLLARED CRESTED GUINEA-FOWL.

Guttera cristata.

By L. M. Seth-Smith, B.A., M.B.O.U.

While in Unyoro (Uganda Protectorate) lately I was engaged in making a survey for a new road between Masindi and Butiaba, a port on the eastern shore of Lake Albert.

The old road passes through a corner of the Budongo forest for a few miles, a forest teeming with objects of interest to the naturalist. It is, however, almost all enclosed within the boundaries of a game reserve, of which the old road is the southern boundary. There are a few miles to the south of the road where collecting is possible. When encamped near the forest I made enquiries of the natives (as I usually do in a locality new to me) about the game and birds to be found in the forest, and among other information thus obtained, I was told of a bird called *Enkanga*, which they said was something like the common Guinea-fowl *Enjumba* (*Numida ptilorhyncha*).

Lunyoro, I may here remark, is one of the oldest of the Bantu languages, and many of the Swahili words are borrowed from it; the Swahili word Kanga, which is used for the common Guinea-fowl, evidently being borrowed from the Lunyoro name of this bird. I determined, if possible, to get some of these birds, which the natives told me were very common in the forest; they also said that they sometimes caught them in their nets when hunting a little bluish grey Duiker which is common throughout the forest, so I told them to bring me the next they caught, if possible, alive. Days went by and none were brought and I never happened to come across any myself, though now and then I found blue-spotted feathers of some species of Crested Guinea-fowl. At last, after continually enquiring as to when they were going to bring them, two were brought to me one morning; one dead and the other only just alive—this latter died the same evening. This was disappointing, but at any rate I was able to identify the species.

The natives told me that they had been out for several days trying to get them but had only just succeeded in doing so. I ate these birds and found them most delicious, far fatter and

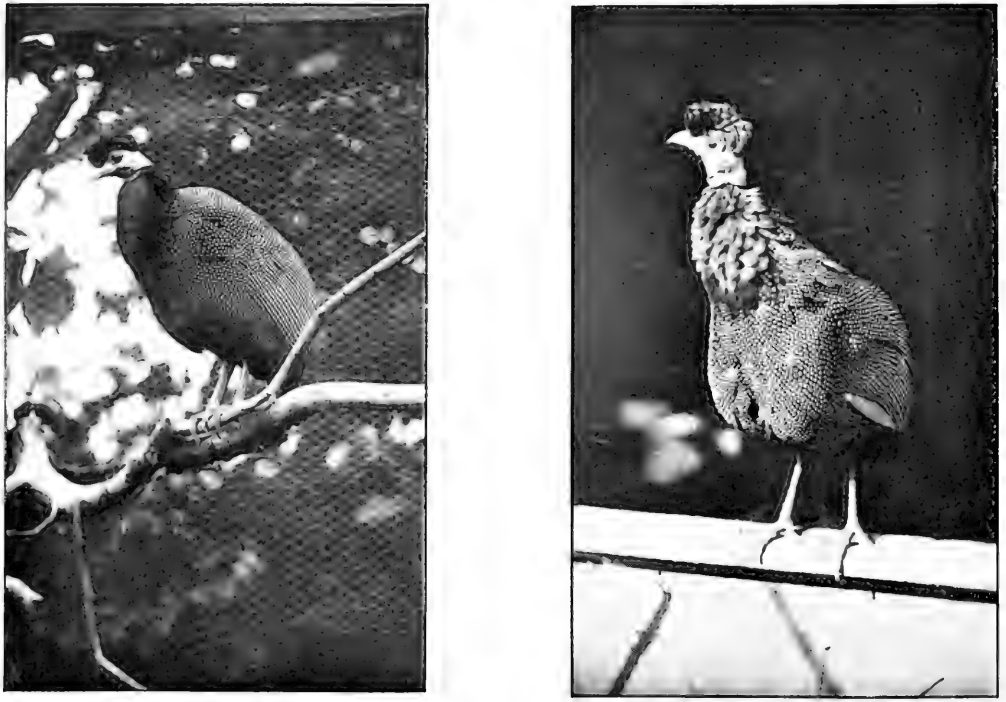
more toothsome than their commoner relative, which is also considered a delicacy.

The next day another was brought me by a man who, wiser than the majority, had set nooses and so obtained the whole of my reward for himself, instead of having it divided among five or six others, as in the case of the first two brought in. Now came the question of a cage, and as I was staying in each camp for about a week, I determined to make a big temporary one at each camp, in which the bird could have plenty of room and also perch at night; so I sent my men out for a lot of straight sticks, about five feet long, which were stuck into the ground about an inch apart, enclosing an area some five or six feet square. The top was then thatched. The whole thing took perhaps two hours to make and was an ideal place for the bird, with room for others if more were brought.

I afterwards simplified this by obtaining a native hunting net some twelve yards long and eight feet high, which I put round four corner posts, thus saving time; but I always preferred the first method as it was stronger, and I found that white ants soon attacked the netting. At the same time I knocked together a large box cage for carrying the bird in.

What struck me most was the wonderful tameness of this bird, which would take food from my hand the first day, even when in this large cage, and also its charming little chatter when feeding, which sounded to me like "That's good—that's good." Its method of showing annoyance was by putting its head down close to the object which displeased it and hissing, also frequently pecking.

The bird was slightly lame when brought in, evidently the result of the noose by which it had been caught, but was soon quite well again. A day or so later another was brought and I paid for it, but I found out afterwards that this one had been stolen from a noose set by another man, so the wrong man was paid for it. This bird also was lame but I hoped it would soon get all right again. They got on very well together, both being perfectly tame and feeding well, but the second bird, a hen I fancy, never put the lame foot to the ground always hopping about and perching on one foot. I afterwards found that the leg



CRESTED GUINEA-FOWL FROM UGANDA.

Bale, Sons and Danielsson, Ltd.

was broken, and it struck me as a wonderful thing that the bird could get on so well and be so tame under these conditions, more especially when it is remembered that these birds in their native forests are of the shiest possible nature, being seldom seen, although I believe very common where they occur.

The feeding was a difficult matter at first as insects were very scarce, however I found that they took readily to raw meat mixed with biscuit, and on this diet I managed to keep them, giving insects when I could find them and occasionally hard-boiled egg. I could not get them to touch native corn.

One incident I should like to mention to illustrate the tameness of this species after three weeks of captivity. I was sitting in my tent one morning and my boy, who was feeding them, stupidly left the door open for a moment. I happened to look out and saw one of these birds strolling quietly about *outside*, picking up a scrap of food here and there, perfectly happy, and all the while chattering to himself. I immediately went out, telling some of my men who came running up to go away again, and walked slowly round the bird which by this time had wandered some twenty yards from his cage. I gradually drove this full-winged bird back and he entered without the least difficulty.

Besides the hissing and chattering, the call note, which is usually uttered morning and evening, is very pretty, being almost bell-like, and is repeated rapidly six times with a short interval between the second and third notes; these six notes are repeated several times, and then the call is sometimes ended by a screech, but this ending is very often omitted.

To cut a long story short, I brought one of these birds home with me, the other died on the voyage, much to my regret.

The bird is now in a large aviary but still quite tame, coming inside as soon as it hears the door being opened, and taking any tit-bit from my hand.

Its favourite food now consists of cockroaches, but it also picks up a lot of seed and I have several times seen it swallow large worms with great relish.

It is really a charming bird and should be easily domesticated. There should be no difficulty in importing them from West Africa where they are, I believe, common though possibly not easily obtained.

The general colour of the bird is black with blue spots, which on the primaries run together forming blue lines. The outer edges of the secondaries are white. Round the base of the neck and on the chest there is a wide collar of pure black. The head and neck are bare except for a fine crest of curly black feathers and are of a dark slaty colour, the chin and throat being red. The skin at the back of the neck is folded in a curious manner and looks like a piece of ribbon tied round the bird's neck. On the throat also, the red skin is folded on each side looking not unlike large wattles.

IS AVICULTURE A SCIENCE?

By Dr. A. G. Butler.

In his introductory notes to the Class Aves (Birds of North and Middle America, vol. I, pp. 1, 2) Prof. Ridgway observes:—"There are two essentially different kinds of ornithology, *systematic* or *scientific*, and *popular*. The former deals with the structure and classification of birds, their synonymies and technical descriptions. The latter treats of their habits, songs, nesting, and other facts pertaining to their life-histories. Although apparently distinct from one another, these two branches of ornithology are in reality closely related and to a degree interdependent. The systematist who does not possess an intimate knowledge of the habits of birds, their mode of nidification, the character of their nests, eggs, and young, is poorly equipped for the work he has in hand, while the popular writer who is ignorant of scientific ornithology and who neglects to keep in touch with its progress is placed at an equal disadvantage—his writings may entertain, but are far more apt to mislead, through erroneous statements, than educate. Popular ornithology is the most entertaining, with its savor of the wildwood, green fields, the riverside and seashore, bird songs, and the many fascinating things connected with out-of-door Nature. But systematic ornithology, being a component part of biology—the science of life—is the more instructive and therefore more important. Each advance in this serious study reveals just so much more of the hidden mysteries of creation, and adds proportionately to the sum of human knowledge."

While the above statements evidence a breadth of view unusual amongst the majority of systematic Ornithologists, at the same time they are only an expression of the individual judgment of a first-class systematist: and the implication that the study of bird-life is unscientific, because fascinating, and the study of dead birds is scientific because it necessitates close study and mental fag, is to my mind unsound and illogical.

Science is the acquisition of knowledge, in fact it *is* knowledge; and whatever secrets of Nature we discover, whether they deal with the external or internal anatomy, or whether they deal with the habits of an animal, are of scientific value. But there is this difference between the work of the student of life and the student of death; the former deals with facts and facts only (though he may theorize as a result of his discoveries); he deals direct with Nature and truth, and what he records, if he be an accurate observer, is immutable and a definite gain to science; the latter also deals with facts, but interprets them according to his own judgment; and thus often misleads subsequent workers. In some cases a single structural peculiarity is assumed to be all-important, and a classification built up upon that alone, and later on it is discovered that this peculiarity is variable; then the little brick castle is demolished and another is built on an entirely different plan.

Systematic Ornithology is akin to an effort of the finite to compass the infinite (an admirable exercise in which we are doubtless fated to indulge into the ewigkeit). Without the Aves of the world, since they first came into existence until the present time, to study from; no absolute certainty can ever be attained to respecting the evolution of existing types: we may have convictions and form shrewd opinions, but we can never know for certain.

The study of classification is quite as fascinating in its way as the study of habits, and each succeeding strenuous worker probably gets a little nearer to the truth; but the careful observer of the living creature starts with the truth, and keeps on building up a structure of facts which cannot be overthrown. Is his labour then less scientific because it is not subject to man's criticism and unalterable, because it is a definite gain to human

knowledge?—I trow not. The single item of bird-food, because of the extent to which it affects agriculture, and consequently the well-being of man and beast, is of the highest scientific importance.

Aviculture, or the study of bird-life in aviaries and cages, is a necessary adjunct to the study of the wild life; to those of us who are not able to wander over the face of the earth, it is the only way in which we can discover many facts relating to the birds of other lands: even those who do travel are often unable to study the life-history of a bird on account of its skulking habits, whereas in a suitable aviary there is no difficulty whatever.

Of course all aviculturists do not take up the study of birds in a scientific spirit; many of them merely take pleasure in keeping them because they are charming ornaments for the home; but this fact does not prove that Aviculture in its highest sense is unscientific. Many of the truths affecting the synonymy, the nidification, the courting, the tendency to polygamy or polyandry, the duration of incubation, and the sexual characters of birds, which aviculturists have brought to light, should be of the greatest scientific interest even to a systematist.

Dr. E. Hartert says that "Aviculture is generally a hobby, and a very interesting one, but not strictly a branch of science, although sometimes scientific questions have been and will be solved by its means, especially when experiments are made with that purpose." (Proceedings of Fourth Int. Orn. Congr. p. 266). The same may be truthfully said of systematic work: the majority of those who take up the various branches of Natural History do so for the sake of a hobby; some of them, like the keepers of living birds, are mere collectors and only visit Museums in order to find out the names of their specimens, but among these private collectors are men who are fully as scientific and methodical as any Museum curator.

Dr. Hartert says that "Ornithology has advanced further than many other branches of zoology." Is this so? Can the systematic Ornithologist sex all his skins at sight as the Entomologist does his insects? If so, why is it that there are more unsexed than sexed skins in collections? A science which

has not advanced far enough to enable its votaries to sex specimens by external characters, but is dependant upon the more or less reliable statement of the taxidermist who skinned the specimen, can hardly be said to have got ahead of many other branches of zoology. In this item of knowledge of external sexual characters the aviculturist has advanced further than the systematist, and therefore in that branch of his legitimate study has proved himself the more scientific worker.

Without doubt the system of careful measurements adopted in the United States National Museum is doing much towards throwing light upon sexual differences; but, without knowledge of the exact ages of the birds which are measured, that light must be greatly obscured. We know that nestling birds have a very wide gape and that the breadth of the bill gradually narrows with age. This narrowing process has not ceased at the time of the first moult, when many birds acquire their adult plumage; at this time also the young have not attained their full length, but are noticeably smaller than their parents: now it is quite conceivable that the young birds from the same nest might all fall to the gun of a collector in one State, and when compared with adult birds from another State might be described as a distinct sub-species on the score of their smaller size and shorter broader bills.

This being so, the more species that can be bred and studied in captivity, the better will the systematic student be equipped for comprehending the meaning of the various measurements in his cabinet specimens. Without the assistance which such information as the breeder might supply, the only chance for the systematist, when searching for sexual differences, is to pick out and compare the largest sexed examples from the same locality.

Any addition to the knowledge of man is science: for any man to assert that his work is scientific and the other man's is not, when both are helping to educate the public, is unreasonable; his work may be more irksome and brain-wearing, but it is not more scientific on that account.

CORRESPONDENCE, NOTES, ETC.

NORTH AMERICAN BIRDS.

SIR,—I am delighted to learn that so many of the American birds which I sent to the London Zoo. arrived there safely. It is an honor nowadays to be instrumental in adding a new species to the long list of those which have made their home in that well-known institution, and I was indeed surprised when I saw from the list in the *Avicultural Magazine* that no fewer than eighteen were formerly unrepresented. A word as to these birds may be of interest to those of your readers who have not had the opportunity of observing them in the United States.

They comprise the commonest migrants in our Eastern States, and it seems at first inexplicable that they should be unknown in English collections. The reason is easy to imagine however. From the multitudes of English birds which reach us through dealers, and from the notices which appear in the papers, every third country man and boy on your Island seems to be an expert trapper, while with us, not one farmer or boy in ten thousand knows how to trap a bird, or to feed it after he takes it from the nest. He knows only how to shoot it. All the collections of living birds in the United States have been chiefly of foreign species, with native birds absent or sparsely represented, and now, stringent laws wisely forbid the keeping of native birds by private individuals.

The collection of native birds in the New York Zoological Park is without doubt the largest ever made in the country, and with its exhaustive labelling is of the greatest economic value in teaching thousands of people the usefulness of birds and the advisability of protecting them. Even the making of this collection was no exception to the rule of the superiority of the English in trapping, for part of it is due to the keenness and skill of an English keeper.

Our native Warblers have never been kept in confinement until within the last two years, so I was especially glad to be able to send representatives of this family, the *Mniotiltidæ*, of which we Americans think so highly. May I suggest that you have made an error in the naming of the Oven-bird, *Dendroica discolor* being the small and very different Prairie Warbler, while the correct name for the Oven-bird is *Seiurus aurocapiltus* (Linn.). Although only four species of warblers were sent, they are well representative of the wonderful adaptive radiation of this unusual family; the Yellow Warbler being perhaps typical; the Redstart showing the habits, broad mandibles and bristles of a Flycatcher, and the Water-Thrush with the wading habits and teetering motion of a Sandpiper.

Our Chickadee looks strange to our eyes under his new name of Titmouse, but as our English ancestors first called him Chickadee there is no reason why Englishmen of to-day should not replace it with another if

they see fit! But, joking aside, I am truly glad to see you use our name of Robin, prefixed by American. There is no reason why every land should not have its Robin, and ours is as dear to us under that name as your smaller, sprightlier Redbreast is to you. However, from the standpoint at least of scientific names, we in this country can throw no stones. In the case of Robin: *Turdus*, long before I can remember, gave place to *Merula*, by which name I have always known it; lately, in the twinkling of an eye, that is replaced by the strange, uncouth *Planisticus*. Whether this will be valid to-morrow morning remains with our too energetic taxonomists—*Quien sabe?* perhaps it may swing back to *Turdus* again. Hence our affection for the vulgar but far more stable name Robin!

I regret that the ornithologists of every nation cannot agree on some universal system of nomenclature and specific naming, for the benefit of those of us whose love for the bird itself and its life exceeds the desire to make of its name more than a convenient handle—a means to an end—not *vice versâ*.

C. William Beebe,
Curator of Ornithology,
New York Zoological Park.

BRONZE × MAGPIE MANNIKIN HYBRIDS.

Sir,—The rearing of this cross has occurred in my aviary from the chance pairing of odd birds. The nest was so dark and deep that I do not know how many eggs were laid, neither are there any leavings of other eggs in the nest. This may be accounted for by the fact that the young bird reared left the nest while I was away on my holidays, and there are several species in the aviary that soon clear away any eggs they can get at. The parent birds now take no interest in the nest whatever.

The young bird has been out of the nest for ten days: it is a little larger than its male parent, and is quite of a nondescript appearance, being of a dark umber-brown above, washed with chocolate colour on the upper back, and of a light umber-brown below, with a suspicion of fawn at the base of the feathers. I believe this is the first time this cross has been reared.

Wesley T. Page.

COLOUR CHANGE IN FEATHERS.

Sir,—Having for many years been puzzled at the rapid change which takes place in the Fjeld Ryper (Ptarmigan) in late autumn, from brown to pure white, I wrote last October to a Norwegian, a man I have known for many years, whose life is mostly spent in the woods, asking him to procure me some Ryper in the condition of the winter change from brown to white feathers. On the 1st of December 1906 the man wrote as follows: "I did procure six birds for you, but the brown feathers were so loose that they all fell off themselves, so I have sold the birds as I thought it useless to send them." This is clear proof of an autumn moult.

Norwegians tell me that the hare turns white by losing the brown coat, and that the Eider Duck also moults the coloured feathers to grow white ones.

I have had various Pheasants this summer: the young are beginning to put on tinges of gold in patches, and the pen is full of their moulted feathers; no adults are in the pen with them. ROSE HAIG THOMAS.

TURDUS MURINUS.

SIR,—I have once more had the *audacity* to correct the authorities at the Zoological Gardens! Having lately purchased a Thrush brought over from Guiana as *Turdus phœopygus* (Mr. Harper who brought it is in no way to blame for the mistake) and having examined the bird and compared it with the coloured plates in Seebohm's splendid work, "The Monograph of the Thrushes," I come to the conclusion that it is *T. murinus*, not *T. phœopygus*. Having also seen a Thrush, of the same species as my own, in the Western Aviary at the Gardens, labelled as *T. phœopygus*, I ventured [what WILL the Superintendent say?!] to write to Dr. Chalmers Mitchell to suggest that the said Thrush had been misnamed.

Dr. Chalmers Mitchell at once wrote to say that he would have the bird examined, and a few days afterwards I received this reply:—"I have "sent over the Thrush to the British Museum for Dr. Bowdler Sharpe to "see it. He agrees with you that it is *T. murinus*, although not quite a "normal specimen."

I might add that *T. phœopygus* is a Thrush with much more russet coloured upper parts than *T. murinus*, and also with the stripes running from the base of the bill down the throat much more defined, ending in a white patch beneath them. *T. murinus* is of a more olive brown on the upper parts, the stripes on the throat are considerably fainter, and there is no white patch at the base of them.

T. murinus rather resembles a female Blackbird. Anyone not well up in the Thrush family would, on first sight, put it down as such.

The bird that I have promises to be a very good songster, for although he is moulting he gives forth [*sotto voce*] some very sweet notes.

Mr. Harper very courteously offered to take the Thrush back if it proved not to be *T. phœopygus*, but I am quite content with it as it is.

HUBERT D. ASTLEY.

TREATMENT OF WOOD-SWALLOWS.

SIR,—Would you be so kind as to advise me on the treatment of some Wood-Swallows I have just had sent to me.

I conclude these birds are Shrikes and so at present I am feeding them on a mixture of crushed sweet biscuit, dry ants' eggs, dried flies, and egg-flake moistened, also about two or three mealworms each a day, and three times a week a very little raw meat grated into the insect food.

I have never kept this class of bird before, so am uncertain about the number of mealworms that can be given and the amount of raw meat, also whether the meat should be given daily or not.

Should any green food be given? E. J. BROOK.

The following reply has been sent to Mr. Brook:

The Wood-Swallows are generally admitted to be related to the Drongos: they have also been regarded by various writers as relatives of the true Swallows, the Orioles, and the Starlings. You must not decide upon their food by their relationship to the Drongo-Shrikes, although in their wild state the latter feed chiefly if not entirely upon insects.

The natural food of Wood-Swallows consists chiefly of living insects, but it is possible that they may also feed upon soft fruits and honey, both of which they are fond of in captivity. Any good insectivorous food, such as "Century Food" or "Improved Sekto" would be suitable as a staple: soft fruit should be added, but I should not advise honey on account of its sticky nature; living insects need only be given occasionally, especially if only mealworms are available. Do not give raw meat, it is sure to cause diarrhœa. A. G. BUTLER.

QUAIL-FINCHES AND HARLEQUIN QUAILS.

SIR,—As shortly I am obtaining a pair of Quail-finches and Harlequin Quails, I should be obliged if you would let me know if it is proper to feed the former on white millet and canary and the latter on the same with occasionally split peas and lettuce.

When acclimatised, are these two species hardy enough to winter in an outdoor aviary? NICHOLAS O'REILLY.

The following reply has been sent to Mr. O'Reilly:

Quail-finches require white, Indian and spray millet, canary seed and flowering grass. They should always have access to grass, and if kept in a cage, should be supplied with a fresh turf every two days or so. They should also have access to a piece of rock-salt. They are not particularly hardy, and would not be likely to stand the winter in an unheated outdoor aviary.

Harlequin Quails are quite hardy and may be kept all the year round in an outdoor aviary. They should have access to plenty of grass and be fed on canary and millet seed. Do not forget a piece of rock-salt.

D. SETH-SMITH.

RUFFED GROUSE AND PRAIRIE HENS.

SIR,—One reads articles and letters from time to time in various papers as to the desirability of keeping and breeding the American Ruffed Grouse and Prairie Hen in this country.

The former, at any rate, is a bird that all lovers of game birds would

wish to possess, but, according to my limited experience, it is practically impossible to obtain either it or the Prairie Hen.

Having a friend in the States (both a business man and a sportsman) I wrote to him a few months since to investigate matters, and try to get me some of these. He set to work and sent me a mass of correspondence from Game Commissioners, Naturalists, Officers of the U. S. Department of Agriculture, Bird Dealers, etc., all pointing to this, namely that the Ruffed Grouse and Prairie Hen were so scarce it was almost impossible to obtain them, and further that the laws of most of the States prohibit exportation.

I should be delighted to hear that the information is erroneous, but I fear not.

Before it is too late cannot some enterprising member of the Avicultural Society, with better means and knowledge for the purpose than I possess, be persuaded to make a determined effort to obtain a few of these birds for breeding in England? The legal difficulty in America could be got over by license or otherwise.

It is believed the birds would do well under suitable conditions in this country, and, if once a stock were obtained, the result would surely be worth the initial trouble and expense.

I would readily subscribe to a fund if anything can be done.

Matters move fast in America, and soon I fear it will be too late.

C. Barnby Smith.

NESTING HABITS OF THE LITTLE GREBE.

Sir,—On May the 19th last, I saw a Little Grebe (*Podicipes fluviatelis*) sitting on a small and weedy pond a few yards from the bank. To the best of my knowledge she had been sitting there at least a week. On my revisiting the place on July 1st, I found to my surprise the bird was still sitting on the *same* nest. Surely this could not have been the first lot of eggs? Does the Little Grebe use the same nest for the second lot of eggs? I had always understood another nest was made for these. Any information on this point I should be very grateful for, as I have before sent this query to another magazine which has altogether ignored it:

Gordon Dalgliesh.

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NOTICES TO MEMBERS—*(Continued from page ii. of cover).*

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Mrs. E. WARREN VERNON; Toddington Manor, Dunstable, Bedfordshire.
Proposed by Mr. E. W. HARPER.

The Honble. VIOLET MILLER; Wilderness, Sevenoaks.
Proposed by the COUNTESS OF HAREWOOD.

ELECTED BY COUNCIL AS HONORARY MEMBER

in the place of the late Professor ALFRED NEWTON:

Dr. JOHANNES BÜTTIKOFER, C.M.Z.S., M.B.O.U.,
Director of the Zoological Gardens, Rotterdam, Holland.

ILLUSTRATION FUND.

	£	s.	d.
Mr. W. H. St. Quintin ..	2	2	0
Mr. C. Cushney	1	1	0
Mr. L. W. Horton	2	0	0
Lady Adelaide Dawney ..	2	0	0
Mrs. Martin Gibb	0	10	0
Mr. W. Cooper	1	1	0
Mr. E. W. Harper	0	10	0
Miss Coxwell Rogers ..	0	5	0
"A Friend"	0	3	6

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Pair Gold Sparrows 10/-; eight young aviary-bred Gold Sparrows, sex unknown, 3/6 each; three aviary-bred Spice-birds, 5/- the three; pair Chiff-chaffs 10/-; pair Whitethroats 10/-; pair lesser Whitethroats 10/-; approval. R. SUGGITT, Suggitt's Lane, Cleethorpes.

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(Continued on opposite page).