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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
GRAHAM RENSHAW, M.D., F.R.S.E.

THIRD SERIES. VOL. IX.
NOV. 1917 TO OCT. 1918.

247040

ADLARD & SON & WEST NEWMAN, LTD.,
BARTHOLOMEW CLOSE, LONDON, E.C. — 1918.

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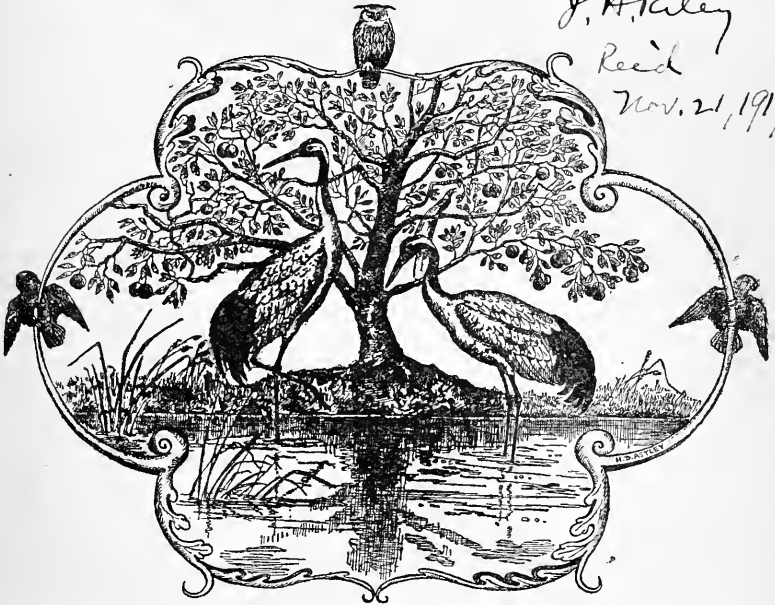
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AVICULTURAL MAGAZINE.

J. A. Riley
Reed
Nov. 21, 1917.



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VOL. IX. No. 1.

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NOVEMBER,
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- 50 BURDON, MRS. W.; Hartford House, Bedlington, Northumberland. (1913)
- BURGESS, MRS. J. H.; Kingsweir, 52, Clarendon Road, Redland, Bristol. (June, 1917)
- BURGOYNE, F., F.Z.S.; 116, Harley Street, W. 1. (1912)
- BURTON, WALTER; Mooresfoot, East Sheen, S.W. (Dec., 1901)
- BUSBY, Miss, c/o Mr. Weeks, Mount Penang, Gooford, New South Wales.
- BUTLER, ARTHUR G., Ph.D., F.L.S., F.Z.S., M.B.O.U. (*Hon. Correspondence Secretary*); 124, Beckenham Road, Beckenham, Kent. (Orig. Mem.)*
- BUTLER, A. L., F.Z.S., M.B.O.U., The Lower Lodge, Brownsver, Rugby. (August, 1906)
- BUTLER, ARTHUR LARCHIN, M.Aust.O.U.; Waimarie, Lower Sandy Bay, Hobart, Tasmania. (July, 1905)
- BÜTTIKOFFER, Dr. J., C.M.Z.S., M.B.O.U., Director of the Zoological Gardens Rotterdam, Holland. (Oct., 1907.) (*Hon. Member*)
- BUXTON, E. HUGH; Fritton Hall, Great Yarmouth, Norfolk. (June, 1909)
- 60 CAMPS, H. T. T., F.Z.S.; Linden House, Haddenham, Isle of Ely. (Orig. Mem.)
- CARPENTER, The Hon. Mrs.; 22, Grosvenor Road, S.W. 1. (Feb., 1908)
- CARRICK, GEORGE; 13, King's Terrace, Maryhill, Glasgow. (March, 1898)
- CARR-WALKER, HERBERT; Tyrie, West Park, Leeds. (June, 1917)
- CASTELLAN, VICTOR E.; Hare Hall, Romford, Essex. (Orig. Mem.)
- CATTLE, C. F.; Thurston, Bury St. Edmunds. (Jan., 1905)
- CECIL, The Lady WILLIAM, Baroness Amherst of Hackney; Didlington Hall, Stoke Ferry, Norfolk, and 23, Queen's Gate Gardens, S.W.
- CHAMBERLAIN, WALTER; Pendock Grove, Cobham, Surrey. (1912)
- CHAWNER, Miss; Forest Bank, Lyndhurst, Hants. (July, 1899)
- CHRISTIE, Mrs.; Newton House, by Elgin, Scotland. (Sept., 1904)
- 70 CLITHEROW, MRS. CLAUD STRACEY; 20, Park Square, Regent's Park, N.W. 1. (June, 1903)
- COLTON, R.; 9, Birkendale Road, Sheffield. (Feb., 1917)
- CONNELL, Mrs. KNATCHBULL; The Orchard, Brockenhurst, Hants. (Nov., 1897)
- COOK, Mrs. ALICE M., F.Z.S.; 21, Oxford Road, N.W. 6. (Sept., 1917)
- COOPER, Sir EDWARD E., Berrydown Court, Overton, Hants. (1912)
- COOPER, JAMES; Cayton, Scarborough. (Orig. Mem.)
- COOPER, WILLIAM; Aislaby Hall, Pickering, Yorks. (March, 1907)
- CORY, REGINALD R.; Duffryn, near Cardiff. (August, 1905)
- CRAIG, Prof. WALLACE; Orono, Maine, U.S.A. (1912)
- CRONKSHAW, J.; 3, Holly Bank, Accrington. (Dec., 1894)
- 80 CROSS, W. SIMPSON, F.Z.S.; Otterspool House, Aigburth, Liverpool. (Jan., 1898)

- CUNNINGHAM, MARTIN ; Goff's Oak House, Cheshunt, Herts. (Oct., 1908)
 CURREY, Mrs. ; The Pit House, Ewell, Surrey. (Feb., 1906)
 CUSHNY, CHARLES ; (*No permanent address*). (June, 1906)
- DAVIES, Lieut. CLAUDE G., M.B.O.U., 1st S.A.M. Riflemen, Enindbuk, S.W. African Protectorate. (July, 1909)
 DAVIES, G. ; 96, Greenfield Terrace, New Tredegar. (July, 1914)
 DECOUX, A. ; Géry-près Aix, Hte. Vienne, France. (April, 1917)
 DELACOUR, Lieut. JEAN ; 28, Rue de Madrid, Paris. (April, 1916)
 DELL, CHARLES ; 12, High Street, Harlesden, N.W. (July, 1900)
 DENMAN, ARTHUR, M.A., F.Z.S., F.S.A., 12, Harley Gardens, South Kensington, S.W. (Sept., 1909)
- 90 DENNIS, Mrs. H. E. ; St. Leonard's Park, Horsham. (March, 1903)
 DE PASS, Miss O. ; 6, The Orchard, Bedford Park, W. (March, 1914)
 DE TAINGNIES, La Baronne Le Clément ; Cleveland, Minehead, Somerset. (Feb., 1902)
 DEWAR, D., I.C.S. ; 33, Sheepcote Road, Harrow, Middlesex. (Sept., 1905)
 DE WINTON, WILLIAM EDWARD, F.Z.S., M.B.O.U. ; Southover, Burwash, Sussex. (Aug., 1903)
 DILKUSHA, THE SUPERINTENDENT OF ; Burwan Raj, Burwan, India. (Nov., 1915)
 DIRECTOR, THE ; Zoological Museum, Tring, Herts. (1912)
 DONALD, C. H. ; c/o The Alliance Bank of Simla, Ltd., Simla, India. (March, 1906)
 DOUGLAS, Miss ; Rose Mount, Pitlochry, N.B. (June, 1905)
 DOUGLAS, WILLIAM C., F.Z.S. ; 26, The Boltons, S.W. (Nov., 1910)
- 100 DOWSON, E. M. ; United Universities Club, Suffolk Street, London. (June, 1915)
 DRELCOURT-CAMPBELL, A. C. ; 48, Rockcliffe Road, Bathwick, Bath.
 DREWITT, FREDERICK DAWTREY, M.A., M.D. F.R.C.P., F.Z.S., M.B.O.U. ; 14, Palace Gardens Terrace, Kensington, W. S. (May, 1903)
 DUNLEATH, The Lady ; Ballywalter Park, Ballywalter, co. Down, Ireland. (Aug., 1897)
 DUTTON, The Hon. and Rev. Canon ; Mosborough, Grafton Road, Cheltenham. (Orig. Mem.)
- ECKSTEIN, F. ; Ottershaw Park, Ottershaw, Surrey. (1912)
 EZRA, ALFRED ; 110, Mount Street, London, W. 1. (1912)
 EZRA, DAVID ; 3, Kyd Street, Calcutta. (*Hon. Treasurer*). (June, 1912)
- FALKNER, GUY ; Westbourne House, Belton, Uppingham. (Oct., 1915)
 FASEY, WILLIAM R. ; The Oaks, Holly Bush Hill, Snaresbrook, N.E. (May, 1902)
- 110 FIELD, GEORGE ; Sorrento, Staplehurst, Kent. (March, 1900)
 FIELD, Miss HILDA ; Ashurst Park, Tunbridge Wells. (1912)
 FINN, FRANK, B.A. ; 23, Chalcot Crescent, Primrose Hill, N.W. (*Hon. Member*)
 FIREBRACE, Mrs. ; 18, Buckingham Palace Gardens, S.W. (Feb., 1911)

- FLOWER, Major STANLEY SMYTH, F.L.S., F.Z.S., M.B.O.U. ; Director Egyptian Government Zoological Gardens, Ghizeh, Cairo, Egypt. (Jan., 1913)
- FLOWER, Mrs. STANLEY ; Longfield, Tring, Herts. (March, 1909)
- FOLLETT, The Lady JULIA ; Woodside, Old Windsor. (Oct., 1903)
- FORTESCUE, Col. H. ; Falmouth House, Newmarket. (Oct., 1908)
- FOSTER, E. HUBERT ; Lower Bowden, Pangbourne, Berks. (1912)
- FROST, WILFRED ; 13, Fairlawn Avenue, Chiswick Park, W. (July, 1908)
- 120 GHIGI, il Prof. ALESSANDRO ; Via d'Azeglio, Bologna, Italy. (March, 1911)
- 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)
- GODDARD, H. E. ; Rothesay, Thicket Road, Sutton, Surrey. (Feb., 1899)
- GODMAN, F. DuCANE, D.C.L., F.R.S., F.Z.S., President of the British Ornithologists' Union ; 45, Pont Street, S.W. (Oct., 1904). (*Honorary Member*)
- GOODALL, A. A. ; 64, Park Road, West Dulwich, S.E. (Nov. 1909)
- GOODALL, ALEXANDER ; 5, Maria Street, Kirkcaldy. (March, 1916)
- GOODCHILD, HERBERT, M.B.O.U. ; 59, Leslie Road, N. 2. (Oct., 1912)
- GOSSE, Dr. PHILIP, M.R.C.S. ; Curtlemead, Beaulieu, Hants. (April, 1911)
- GRABHAM, Dr. ONLEY ; The Museum, York. (June, 1914)
- 130 GRAY, HENRY, M.R.C.V.S. ; 23, Upper Phillimore Place, W. 8. (June, 1906)
- GREENING, LINNÆUS ; Fairlight, Grappenhall, near Warrington. (Jan. 1911)
- GREGORY, Mrs. ; Melville, Parkstone, Dorset. (Dec., 1901)
- GREY, Lord, of Falloden, K.G. ; 33, Eccleston Square, S.W. (1913)
- GRIFFITHS, M. E. ; Caizley House, Temple Road, Stowmarket. (May, 1902)
- GRÖNVOLD, HENRIK, British Museum (Nat. Hist.); Cromwell Road, S.W. (Nov., 1902)
- GROSSMITH, J. L. ; The Grange, Bickley, Kent. (Nov., 1912)
- GUIFORD, Miss H. ; 23, Lenton Avenue, The Park, Nottingham. (March, 1903)
- GULBENKIAN, C. S. ; 27, Quai D'Orsay, Paris. (Dec., 1908)
- GURNEY, JOHN HENRY, F.Z.S., M.B.O.U. ; Keswick Hall, Norwich, and Athenæum Club, Pall Mall, S.W. (Dec., 1904)
- 140 HAAGNER, A. K., F.Z.S., M.B.O.U., Director, National Zoological Gardens ; Box 754, Pretoria, South Africa. (Nov., 1905)
- HAGGIE, G. E. ; Brumcombe, Foxcombe Hill, Oxford. (June, 1914)
- HARCOURT, Rt. Hon. LEWIS, P.C. ; 14, Berkeley Square, W. 1. (1913)
- HARDING, W. A., M.A., F.Z.S. ; Histon Manor, Cambridge. (Dec., 1903)
- HARDY, LAWRENCE, M.P. ; Sandling Park, Hythe, Kent. (Nov., 1906)
- HAREWOOD, The Countess of ; Harewood House, Leeds. (March, 1903)
- HARLEY, Mrs. F. ; Brampton Bryan, Herefordshire. (1908)
- HARPER, EDWARD WILLIAM, F.Z.S., M.B.O.U. ; Post Box 86, Calcutta, India. (Feb., 1901)

- HARTLEY, Mrs.; "Lynchfield," Bishops Lydeard, Somerset. (April, 1897)
- HARVEY, The Hon. Lady; Langley Park, Slough. (Oct., 1906)
- 150 HAWKINS, L. W.; 206, Clive Road, West Dulwich, S.E. (Jan., 1899)
- HAYES, Miss PHYLLIS; Harcourt, Wem, Salop. (1915)
- HEBB, THOMAS; "Brooklea," The Downs, Luton, Beds. (April, 1914)
- HEMSWORTH, The Rev. B., M.A., J.P.; Monk Fryston Hall, South Milford, Yorks. (June, 1901)
- HERBERT, 2nd Lieut. EDWARD G., R.F.C.; c/o Cox & Co. (R.F.C. Dept.), 16, Charing Cross, S.W. 1.
- HEUMANN, G. A.; "Ramona," Beecroft, Sydney, New South Wales. (Sept., 1913)
- HEWITT, HAROLD, F.Z.S., East Sooke, Vancouver Island, B.C. (Jan., 1905)
- HEYWOOD, RICHARD; Narborough, Norfolk. (Oct., 1911)
- HILL, ARTHUR W.; Assist. Director, Royal Gardens, Kew, Surrey. (Oct. 1915)
- HILL, Mrs. E. STAVELEY; Oxley Manor, Wolverhampton. (Oct., 1905)
- 160 HINDLE, R. FRANKLIN; 34, Brunswick Road, Liverpool. (Sept., 1898)
- HODGSON, The Hon. Mrs.; Clopton, Stratford-on-Avon. (March, 1903)
- HOLDEN, RALPH A., F.Z.S.; 5, John Street, Bedford Row, London, W.C. 1. (May, 1906)
- HOPKINSON, Dr. EMILIUS, D.S.O., M.A., M.B.Oxon.; Gambia, West Africa; 45, Sussex Square, Brighton. (Oct., 1906)
- HOPSON, FRED C.; Northbrook Street, Newbury. (March, 1897)
- HORSBROUGH, Mrs. BOYD R.; Tandridge Priory, Oxted, Surrey.
- HOUSDEN, JAMES B.; Brooklyn, Cator Road, Sydenham, S.E. (Orig. Mem.)
- HOWARD, ROBERT JAMES, M.B.O.U.; Shear Bank, Blackburn. (April, 1903)
- HOWARD-VYSE, H.; Stoke Place, Slough. (Nov., 1906)
- HOWMAN, Miss; 6, Essex Grove, Upper Norwood, S.E. (Mar., 1897)
- 170 HUNTER, W. G., West Street, Sydney, N., N.S.W.
- HUBBARD, GEORGE; 112, Fenchurch Street, E.C. 1. (Jan., 1905)
- HUTCHINSON, Miss ALICE; Alderton, Chippenham, Wilts. (August, 1907)
- INCHIQUIN, The Lady; Dromoland Castle, Newmarket-on-Fergus, County Clare, Ireland. (Nov., 1897)
- INGRAM, Capt. COLLINGWOOD; The Bungalow, Westgate-on-Sea. (Oct., 1905)
- INGRAM, Sir WILLIAM, Bart.; The Bungalow, Westgate-on-Sea. (Sept., 1904)
- ISAAC, CHARLES; Somerton, Bath Road, Slough. (March, 1906)
- JEAKINS, A. E., The Studio, Simla, India. (March, 1915)
- JOHNSON, Mrs.; Phoenix Lodge, Lingfield, Surrey. (Jan., 1917)
- JOHNSTONE, Mrs. E. J.; Burrswood, Groomsbridge, Sussex. (May, 1908)
- 180 KNOBEL, Miss E. MAUD; 32, Tavistock Square, W.C. (Aug., 1916)
- KUSER, J. DRYDEN; Faircourt, Bernardsville, New Jersey, U.S.A. (1912)
- LANCASTER, JOHN; Dunchurch Lodge, near Rugby. (March, 1904)

- LATHAM, Miss GRACE ; 3, Trevanion Road, West Kensington, W. (April, 1915)
- LAWRENCE, Mr. S. A. ; Miya, Alma Road, E. St. Kilda, Vict. (Sept., 1916)
- LEACH, C. F. ; Vale Lodge, Leatherhead, Surrey. (June, 1914)
- LEE, Mrs. E. D. ; Hartwell House, Aylesbury. (July, 1906)
- LEEKE, Miss DOROTHY ; 9, Hertford Street, Mayfair, W. 1. (May, 1909)
- LEIGH, CECIL ; Lyburn Park, near Lyndhurst, Hants. (Nov., 1906)
- LE SOUËF, A. SHERBOURNE ; Zoological Gardens, Sydney, New South Wales. (Aug., 1913)
- 190 LE SOUËF, DUDLEY ; Zoological Gardens, Royal Park, Parkville, Melbourne, Australia. (1912)
- LIEMAN, C. H. A. : "Newbury," 23, Victoria Avenue, Unley Park, South Australia. (Oct., 1917)
- LILFORD, The Lady ; Lilford Hall, Oundle, Northamptonshire. (Jan., 1898)
- LOCKYER, ALFRED ; St. Monica's Lodge, Elm Park Road, Winchmore Hill, N. (Dec., 1905)
- LOVELACE, The Countess of ; Wentworth House, Chelsea Embankment, London, S.W. 3. (May, 1906)
- LOVELL-KEAYS, Dr. L. ; East Hoathley, Sussex. (Aug., 1913)
- LOVELL-KEAYS, Mrs. ; East Hoathley, Sussex. (July, 1916)
- LOVETT, C. ; 48, Thorncliffe Road, Summertown, Oxford. (Dec., 1912)
- LOW, GEORGE E. ; 14, Royal Terrace East, Kingstown, Ireland. (Mar., 1913)
- LUCAS, Dr. N. S. ; University College Hospital, Gower Street, W.C. (Jan., 1913)
- 200 MANCHESTER PUBLIC LIBRARIES ; Reference Library, Piccadilly, Manchester. (July, 1913)
- MCGEAGH, Dr. R. T. ; Mona Lodge, Lezayre, nr. Ramsey, Isle of Man. (Aug., 1908)
- MCGEE, The Rev. Father ; St. Laurences, Forbes, N.S.W. (July, 1908)
- MALONE, Mrs. M. L'ESTRANGE ; West Lodge, Malton, Yorks. (Jan., 1902)
- MANNERS-SMITH, Lieut.-Col. ; The Residency, Nepal, India. (1911)
- MARLOW, R. ; 115, Manchester Road, Denton, Lancs. (Jan., 1915)
- MARSDEN, JOHN W. ; Thornhurst, Tewit Park, Harrowgate. (Dec., 1916)
- MARSHALL, ARCHIBALD McLEAN ; Chitcombe, Brede, Sussex. (Jan., 1906)
- MARSHALL, F. ; 16, Vale Avenue, Chelsea, S.W. (1916)
- MARTIN, H. C. ; 147, Victoria Road. Old Charlton, Kent ; and Saladero, Liebig, Fray Bentos, Uruguay. (Jan., 1897)
- 210 MARTORELLI, Professore GIANCINTO, M.B.O.U., etc. ; Collezione Turati, Museo Civico di Storia Naturale, Milan, Italy. (July, 1906.) (*Honorary Member*)
- MASON, D. ; Maisonette, Broadstairs. (June, 1914)
- MAUD, Mrs. CHARLES E. ; Monterey, California. (July, 1913)
- MEADE-WALDO, E. G. B., F.Z.S., M.B.O.U. ; Hever Warren, Hever, Kent, Jan., 1895)

- MERCER, WILLIAM; Doylestown, Pennsylvania, U.S.A. (March, 1913)
- MILLS, The Hon. VIOLET; The Wilderness, Sevenoaks. (Oct., 1907)
- MILLSUM, O.; 79, Northdown Road, Cliftonville, Margate. (Aug., 1909)
- MITCHELL, HARRY; 6A, Brunswick Terrace, Hove. (Feb., 1904)
- MONTAGU, Hon. E. S., M.P., M.B.O.U.; 59, Bridge Street, Cambridge; and
12, Kensington Palace Gardens, W. (May, 1912)
- MONTGEON, Mlle. de; Eastington Hall, Upton-on-Severn, Worcs. (Oct.,
1913)
- 220 MORRISON, Hon. Mrs. McLAREN; Queen Anne's Mansions, St. James's Park.
S.W. (Sept., 1911)
- MORTIMER, Mrs.; Wigmore, Holmwood, Surrey. (Orig. Mem.)*
- MUNDY, Miss SYBIL MILLER; Shipley Hall, Derby. (Jan., 1909)
- MUNT, HENRY; 10, Ashburn Place, S. Kensington, S.W. (1912)
- MYLAN, Dr. JAS. GEORGE, B.A., M.B. (Univ. Coll.); L.R.C.P. and L.R.C.S.
(Ed.), etc.; 90, Upper Hanover Street, Sheffield. (Dec., 1901)
- NEVILL, Capt. T. N. C.; Bramall Hall, nr. Stockport. (July, 1917)
- NEWMAN, T. H.; F.Z.S., M.B.O.U.; Newlands, Harrowdene Road, Wembley.
Middlesex. (May, 1900)
- NEWMARSH, C. T., at Gamage's. Ltd.; Holborn, W.C. (Aug., 1915)
- NICHOLS, WALTER B., M.B.O.U.; Stour Lodge, Bradfield, Manningtree.
(Jan., 1907)
- NICOLL, MICHAEL J., M.B.O.U.; Zoological Gardens, Ghizeh, Cairo, Egypt.
(1906)
- 230 OAKEY, W.; The Angler's Inn, Pole Street, Preston. (March, 1896)*
- OBERHOLSER, HARRY C.; 1444, Fairmount Street, N.W., Washington, D.C.,
U.S.A. (Oct., 1903)
- OGILVIE-GRANT, W. R., F.Z.S., M.B.O.U.; British Museum (Nat. Hist.),
Cromwell Road, S.W. (Dec., 1903)
- OGLE, BERTRAM SAVILLE, M.B.O.U.; Steeple Aston, Oxford. (Dec., 1902)
- ONSLow, The Countess of; Clandon Park, Guildford, Surrey. (July, 1910)
- O'REILLY, NICHOLAS S.; 144, Eastern Road, Kemp Town, Brighton. (Dec.,
1894)
- OSTREHAN, J. ELLIOTT D.; Bank House, Thame, Oxon. (April, 1903)
- PAGE, WESLEY T., F.Z.S.; Langstone, Lingfield, Surrey. (May, 1897)
- PAGET, Miss; 39, Berkeley Square, W. 1. (June, 1917)
- PAM, ALBERT, F.Z.S.; Wormley Bury, Broxbourne, Herts. (Jan., 1906)
- 240 PAM, HUGO, C.M.Z.S.; 65, Bishopsgate, E.C. 2. (Sept., 1911)
- PARMENTER, Miss; Sedgemere Hall, Roydon, Essex.
- PEIR, P.; c/o Taxation Department, George Street North, Sydney, N.S.W.
(July, 1903)
- PENNANT, The Lady EDITH DOUGLAS; Soham House, Newmarket, Cambs.
(Sept., 1908)
- PENROSE, FRANK G., M.D., F.Z.S., M.B.O.U.; Rathkeale, 51, Surrey, Road
Bournemouth. (Dec., 1903)

- PERCIVAL, WALTER G.; Nanga, Chania Bridge, British East Africa. (Feb. 1915)
- PERCY, The Lord WILLIAM; Alnwick Castle, Alnwick. (May, 1913)
- PERRING, C. S. R.; 1, Claremont Avenue, New Malden, Surrey.
- PHILLIPS, JOHN C.; Knobfields, Wenham, Mass., U.S.A. (March, 1910)
- PHILLIPS, MRS. E. LORT, F.Z.S.; 79, Cadogan Square, S.W. 1. (April, 1907)
- 250 PICHOT, M. PIERRE A.; 132, Boulevard Hausmann, Paris. (Sept., 1910)
- PICKFORD, RANDOLPH JOHN; Thorn Lea, Carmel Road, Darlington. (Feb. 1903)
- PIKE, L. G.; Kingsbarrow, Wareham, Dorset. (1912)
- POCOCK, R. I., F.R.S., F.L.S., F.Z.S., M.B.O.U.; Zoological Society's Gardens, Regent's Park, N.W. (Feb., 1904)
- ORTAI, MAURICE; High Sandhoe, Hexham. (April, 1913)
- POTTER, DR. BERNARD E.; 58, Park Street, W. 1. (March, 1914)
- POWIS, The Earl of; 45, Berkeley Square, W. 1; and Powis Castle, Welshpool. (April, 1902)
- PRINCETON UNIVERSITY, LIBRARY OF; Princeton, New Jersey, U.S.A. (Nov., 1907)
- PYCRAFT, W. P., A.L.S., F.Z.S., M.B.O.U., etc.; British Museum (Nat. Hist.), Cromwell Road, S.W. (Nov., 1904). (*Hon. Member*)
- QUINCEY, Flight.-Lieut. RICHARD S. DE Q.; Inglewood, Chislehurst, Kent. (April, 1913)
- 260 RADCLIFFE, Captain A. DELMÉ, 105th Maratha Light Infantry, Poona, India.
- RATHBORNE, HENRY B.; Dreenan, Boa Island, Pettigo, Co. Fermanagh. (May, 1901)
- RATTIGAN, G. E.; Lanarkslea, Cornwall Gardens, S.W. 7. (Aug., 1908)
- RICKMAN, PHILIP; Brookmead, Windsor Road, Bray, Berks. (July, 1915)
- REID, Mrs.; Funchal, Madeira. (Feb., 1895).
- RENSHAW, GRAHAM, M.D., F.R.S.E. (*Editor*); Bridge House, Sale, Manchester. (Jan. 1910)
- RICE, Captain G.; Persey House, Blairgowrie, N.B. (May, 1912)
- RILEY, JOSEPH H.; U.S. National Museum, Washington, D.C., U.S.A. (June 1906)
- ROBBINS, HENRY; (*Address unknown*). (April, 1908)
- ROBERTS, MRS., C.M.Z.S.; Beaumaris, Montpelier Street, Hobart, Tasmania. (June, 1903)
- 270 ROGERS, Lieut.-Col. J. M., D.S.O., F.Z.S., M.B.O.U. (late Royal Dragoons); Riverhill, Sevenoaks. (April, 1907)
- ROGERSON, A.; Fleurville, Ashford Road, Cheltenham. (Dec., 1902)
- ROTHSCHILD, Hon. LIONEL DE, M.P.; 46, Park Street, W. (Nov., 1913)
- ROTHWELL, JAMES E.; 153, Sewall Avenue, Brookline, Mass., U.S.A. (Oct., 1910)
- ROYAL ZOOLOGICAL SOCIETY OF IRELAND, Phoenix Park, Dublin. (Oct., 1905)

- ST. QUINTIN, WILLIAM HERBERT, F.Z.S., M.B.O.U.; Scampston Hall, Rillington, York. (Orig. Mem.)
- SCLATER, W. L., M.A., F.Z.S.; 10, Sloane Court, S.W. (Aug., 1904)
- SCOTT, Lieut. B. HAMILTON, R.F.A.; Hamildean, Ipswich. (1912)
- SÉGUR, M. LE MARQUIS DE; 45, Avenue d'Iéna, Paris. (Sept., 1913)
- SEPPINGS, Captain J. H. W., A.P.D.; The Army Detachment Command Pay Office, Durban, Natal. (Sept., 1907)
- 280 SARGEANT, A. ST. GEORGE; "Exbury," Padstow, Cornwall. (June, 1915)
- SAMUELSON, Lady; Hatchford Park, Cobham, Surrey. (July, 1916)
- SETH-SMITH, DAVID, F.Z.S., M.B.O.U.; 34, Elsworth Road, South Hampstead, N.W. 3. (Dec., 1894)
- SETH-SMITH, LESLIE M., B.A., M.B.O.U.; Alleyne, Caterham Valley, Surrey; and Kampala, Uganda. (July, 1912)
- SEBAG-MONTEFIORE, Mrs.; 2, Palace Houses, W. (1913)
- SICH, HERBERT LEONARD; Corney House, Burlington Lane, Chiswick, W. 4. (Feb., 1902)
- SIMPSON, ARCHIBALD; Oakfield House, Stanks, Crossgates, nr. Leeds. (Feb., 1901)
- SMALLEY, F. W., F.Z.S., M.B.O.U.; North Cove Hall, nr. Beccles, Suffolk. (1912)
- SMITH, C. BARNBY; Woodlands, Retford. (Aug., 1906)
- SMITH, Miss DORRIEN; Tresco Abbey, Isles of Scilly, Cornwall. (Aug., 1908)
- 290 SMITH, O. C.; 73, Audley Street, Reading. (March, 1915)
- SMITH, W. PROCTOR; Haddon House, Ashton-on-Mersey, Sale, Manchester.
- SOUTHESK, The Countess of; Kinnaird Castle, Brechin, N.B. (Feb., 1901)
- SOUTHPORT CORPORATION, Curator of; Hesketh Park, Southport. (Jan., 1904)
- SPENCE, G. O.; Elmwood, Hartburn, Stockton-on-Tees. (1913)
- SPRANKLING, E.; Brookland Cottage, South Road, Taunton. (Feb., 1914)
- SPROSTON, Mrs.; Elm House, Nantwich, Cheshire. (June, 1917)
- STANSFIELD, Captain JOHN; Dunninald, Montrose, N.B. (Dec., 1896)
- STAPLES-BROWNE, R.; Bampton, Oxfordshire. (Aug., 1898)
- STEVENS, H.; Gopaldara Mirik P.O. *via* Kurslong D.H.Rly., Bengal, India. (Oct., 1911)
- 300 STOCKPORT CORPORATION; Superintendent, Vernon Park, Stockport. (Oct., 1902)
- STURTON-JOHNSON, Miss; Oratava House, Ore, Hastings. (May, 1897)
- SUFFOLK and BERKSHIRE, The Countess of; Charlton Park, Malmesbury. (Feb., 1909)
- SUGGITT, ROBERT; Suggitt's Lane, Cleethorpes, Grimsby. (Dec., 1903)
- SUTCLIFFE, ALBERT; Fairholme, Grimsby. (Feb., 1906)
- SUTTON, Lady; Brinsop Court, Hereford. (Dec., 1901)
- SWAYSLAND, WALTER; 47, Queen's Road, Brighton. (Orig. Mem.)*
- TAKA-TSUKASA, Mr.; Nobusuke, No. 106, Honmura-Cho, Azabu, Tokyo, Japan. (Feb., 1914)
- TANNER, Dr. FRANK L.; Vanvert House, Guernsey. (Jan., 1914)

- TAVISTOCK, The Marquis of ; Warblington House, Havant, Hants. (1912)
- 310 TEMPLE, W. R. ; Ormonde, Datchet, Bucks. (June, 1907)
- TERRY, Major HORACE A., M.B.O.U. (late Oxfordshire Light Infantry) ;
Compton Grange, Compton, Guildford. (Oct., 1902)
- TESCHEMAKER, W. E., B.A. ; Ringmore, Teignmouth, Devon. (May, 1904)
- THOM, ALFRED A. ; The Citadel, Hawkstone, Preston-Brockhurst, Salop.
(June, 1913)
- THOMAS, F. INIGO ; 2, Mulberry Walk, Church Street, Chelsea, S.W. (June,
1914)
- THOMAS, HENRY ; 15, Clinning Road, Birkdale, Southport. (Jan., 1895)
- THOMAS, Miss F. G. F. ; Weston Hall, Towcester, Northants. (March, 1899)
- THOMASSET, BERNARD C., F.Z.S. ; The Manor House, Ashmansworth, near
Newbury. (July, 1896)
- THOMASSET, H. P. ; Mahé, Seychelles. (Nov., 1906)
- THOMPSON, Mrs. F. F. ; Canandaigua, N.Y., U.S.A. (July, 1907)
- 320 THORNILEY, PERCY WRIGHT ; Shooter's Hill, Wem, Shrewsbury. (Feb.,
1902)
- TICEHURST, NORMAN FREDERICK, M.A., M.B., F.R.C.S., F.Z.S. ; 24, Pevensey
Road, St. Leonards-on-Sea. (Dec., 1906)
- TOWNSEND, STANLEY M. ; 3, Swift Street, Fulham. (Sept., 1898)
- TRENOW, EVELYN HENRY, F.Z.S. ; Ivy Lodge, Epping, Essex. (Nov., 1910)
- TRESTRAIL, Mrs. ; Southdaile, Clevedon. (Sept., 1903)
- TREVOR-BATTYE, AUBYN B. R., M.A., F.L.S. ; Ashford Chace, Petersfield, Hants.
(July, 1898)
- TURNER, Mrs. TURNER ; Abbey Spring, Beaulieu, Hants. (July, 1910)
- TWEEDIE, Lieut.-Col. W. ; c/o Mrs. Tweedie, 8, Glebe Crescent, Stirling
(April, 1903)
- URWICK, DOUGLAS R. ; Prior's Barton, Winchester. (March, 1913)
- VALENTINE, ERNEST ; 7, Highfield, Workington. (May, 1899)
- 330 VAN OORT, Dr. E. D. ; Museum of Natural History, Leiden, Holland.
- VAN SOMEREN, Dr. ; Nairobi, British East Africa. (June, 1915)
- WACHSMANN, A. E. WRIGHT DE BERRI ; "Maitai," Murray Road, Beecroft,
New South Wales, Australia. (August, 1914)
- WADDELL, Miss PEDDIE ; Balquhatstone, Slan Annan, Stirlingshire. (Feb.,
1903)
- WAIT, Miss L. M. St. A. ; 12, Rosary Gardens, S.W. (Feb., 1909)
- WALKER, Miss H. K. O. ; Chesham, Bury, Lancs. (Feb., 1895)
- WALKER, Miss ; Persey House, Blairgowrie, N.B. (Jan., 1903)
- WARNER, PERCY ; Nashville, Tenn., U.S.A. (March, 1916)
- WALLOP, The Hon. FREDERICK. (*No address.*) (Feb., 1902)
- WATERFIELD, Mrs. NOEL E. ; Blyburgate House, Beccles ; and Port Soudan,
Red Sea. (Sept., 1904)
- 340 WATTS, R. J. ; "Sunnyside," St. Peter's Road, Huntingdon. (Feb., 1914)

- WAUD, Capt. P. REGINALD ; Hoe Benham, near Newbury. (May, 1913)
- WELLINGTON, Her Grace the Duchess of ; Ewhurst Park, Basingstoke. (Oct., 1913)
- 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)
- WHITLAW, Miss ROSA M. ; Amerden, Taplow. (August, 1914)
- WIGLESWORTH, JOSEPH, M.D., M.B.O.U. ; Springfield House, Winscombe, Somerset. (Oct., 1902)
- WILKINSON, JOHN ; West Park, Shelmorlie, Ayrshire. (Dec., 1914)
- WILLFORD, HENRY ; Upland View, Havenstreet, Ryde, Isle of Wight. (Nov., 1907)
- WILLIAMS, Mrs. C. H. ; Emmanuel Parsonage, Exeter. (May, 1902)
- 350 WILLIAMS, Mrs. HOWARD ; 24, Harley House, Regent's Park, N.W. (April, 1902)
- WILLIAMS, SIDNEY, Jun., F.Z.S. ; Oakleigh, 110, Riverway, Palmer's Green, N. (Feb., 1905)
- WILSON, Dr. MAURICE A. ; Walton Lodge, Pannal, Harrogate. (Oct., 1905)
- WILSON, T. NEEDHAM ; Harrow Lodge, Bransgore, Christchurch, Hants. (Dec., 1901)
- WINCHELSEA and NOTTINGHAM, The Countess of ; Harlech, Merioneth. (April, 1903)
- WINDHAM, Lady EDITH ; Soham House, Newmarket.
- WOLFE, Miss GEORGINA ; St. John, 57, Granada Road, East Southsea. (August, 1904)
- WOODWARD, KENNETH N. ; 1, Madison Avenue, New York, U.S.A. (March, 1915)
- WOOLRIDGE, Prof. G. H., F.R.C.V.S. ; Ypsilanti, 13, St. Andrew's Road, Golder's Green, N.W. (1912)
- WORKMAN, Wm. HUGHES, M.B.O.U. ; Lismore, Windsor Avenue, Belfast. (May, 1903).
- 360 WORMALD, HUGH ; The Heath, Dereham, Norfolk. (Dec. 1904)
- YEALLAND, JAMES ; No. 028043 A.O.C., Weedon, Hants. (July, 1913)
- YOUNG, Rev. HALFORD. The Vicarage, Stone, Aylesbury. (July, 1917)

Rules of the Avicultural Society.

As amended January, 1908.

1.—The name of the Society shall be THE AVICULTURAL SOCIETY, and its object 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 10s., 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 10s. 6d.; 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 the 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 subscriptions 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 or the Publishers. 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 no less than fifteen Members proposing them, must reach the Hon. Business Secretary 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.

If any Member of the Council does not attend a meeting for two years in succession the Council shall have power to elect another member in his place.

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 fill temporarily 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 matter 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 initialled by the Executive.

It shall be lawful for the Business Secretary or Editor to pledge the Society'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 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.

16.—That each Member (not a Dealer) be entitled to one advertisement, free of charge, each month, the Editor to be sole judge as to whether such advertisement can and shall be published or not, priority shall be given to those who apply first.

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 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 *bona fide* property of the breeder. An 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 possible.

The Medal is struck in bronze (but the Committee reserve the right to issue it in *silver* in very special cases) and measures $2\frac{1}{2}$ 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 recipient*) for rearing the young of (*name of species*) a species not previously bred in captivity in the United Kingdom."





NEST AND EGGS OF THE BLACK RAIL.

THE
AVICULTURAL MAGAZINE,

BEING THE JOURNAL OF
 THE AVICULTURAL SOCIETY.

Third Series.—Vol. IX.—No. 1.—*All rights reserved.*

NOVEMBER, 1917.

SOME RAILS AND GALLINULES.

By WM. SHORE BAILY.

A writer in a recent issue of our paper asks why it is that no aviculturist has attempted to breed our English Water Rail. I think that the answer to that is—the extreme difficulty there is in procuring these birds, and more especially in true pairs. I have never seen them advertised by either bird-catchers or dealers, and doubt whether they frequently come into their hands. It is possible that some of the old-time watermen may occasionally take one or two when snaring snipe, but these they would probably consign with the latter to the London game dealers. Having very suitable aviaries for this kind of bird, I should be pleased to secure a pair and try to breed them; but although there are always one or two on the stream that supplies my aviary ponds, I see no chance of getting hold of them. I have kept several varieties of Rails and Gallinules, and have found most of them very interesting. My first were a pair of those extremely beautiful birds, the Purple Gallinule (*P. porphyrio*). At that time I had no large aviaries, and was forced to keep them in one about 15 ft. square, with a small pond in one corner. They were a very steady pair, and would, I have no doubt, have nested had I kept them, but, like most of their kind, they were murderously inclined, and would soon have exterminated the smaller occupants of their enclosure, so I was reluctantly compelled to dispose of them. I should like now to get them back. My next venture was with a pair of Greyheaded Gallinules (*P. poliocephalus*), a slightly smaller bird

than the one last mentioned, having the head and neck grey and the rest of the body purple. These were great climbers, and spent a good deal of their time in the branches of the trees and shrubs that were growing in their enclosure. They made no attempt to breed whilst in my possession, but neither did they molest the other birds kept with them. Both these varieties were very fond of dead mice, which at that time were unpleasantly numerous in all my aviaries, and a day seldom passed without their having one or two for breakfast. They were also keen on lettuce and similar green-stuff. Their other food was principally the waste seed from the other birds' tables, so that they were easy to cater for. These are large birds, and so are not suitable for the ordinary aviculturist, but since then I have had several smaller varieties that might easily be kept in most aviaries, and would be quite likely to breed. The most attractive of these both in looks and manners is my Amazon Rail. I don't know its scientific name, but it is possible that some of your readers may be able to name it for me.* In general body-colour it is rufous, the neck and face bluish-grey, top of head rufous, tail and abdomen black, legs carmine, bill greenish-yellow, eye very prominent and rich ruby red. Size about as our Moorhen. Two came over, but one escaped when in the hands of the dealer. My bird is absolutely tame, and loves to be petted. Its call is an extremely clear whistle: Pip-pop! Pip-pop! Pip-pop-pop-pop! many times repeated. It is quite as loud or louder than the whistle of our Curlew, and could be heard I should think even further. It will always sing to order for my wife or children, but the writer it greets with a few low grunts, which have a weird effect when coming from the centre of a thick growth of water-weeds. This winter it met with a disaster, getting its feet and legs frost-bitten. We did everything possible for it, amongst other things giving it iodine baths for several weeks, but all was without avail. One morning I found that one of its legs had broken off, so as the other seemed likely to follow suit I amputated it. The stumps quickly healed, and it is now as well as ever, except that its body is some six inches nearer the ground than formerly. It gets about very well, but it is not now able to run races with my

* [The Chiricote Rail (*Aramides cayanae chiricote*), a subspecies of the "Cayenne Gallinule" of Latham (*Aramides cayanae*).— G. R.]



AMAZON RAIL ON HIS LEG STUMPS.



AMAZON RAIL.

children, which, when it was full-limbed, it was fond of doing. Not one of them could get away from it then. This winter I shall see that it has shelter when the cold weather sets in. Another charming little bird that I still have is the African Black Rail (*Limnocorax niger*). This bird is about the size of our Water Rail, but stands higher on the legs. In colour it is a rich velvety black, with carmine legs and a primrose-coloured bill; eye rich red. Although not so tame as its Amazon cousin, it is by no means shy, and can be generally seen at any time of the day, and in my few spare moments this summer I have had much pleasure from watching its pretty ways and habits. Its call is a kind of laughing grunt, but it has various other croaks and chuckles. The dealer from whom I got it offered me a pair, but on their arrival I found that one of them was the African Dwarf Moorhen (*Gallinula angulata*). Unfortunately this little bird was evidently damaged on the way down, as it died the next day. In colour it was almost an exact replica of our Moorhen, having even the red leg-collar, but it was only half the size. It seems strange that a dealer, with a reputation as a naturalist, should have sent out such dissimilar birds as a true pair. The middle of June I missed this little Rail for several days, and thought that it might be incubating. True enough, a diligent search around the edges of its pond revealed a neat little nest, well hidden in the long grass, and containing five rather large eggs. These were cream-coloured, and thickly covered with red spots, slightly denser at the larger end. What a pity that she has not a mate! Late last summer I got a pair of American Moorhens, but neither lived very long. They are too much like our own birds to make them very interesting. The principal difference seemed to me to be an extra length of leg in the American bird. The bare skin on the head of the male also appeared to be larger. Much more interesting were a pair of little Brown Gallinules from Central America that I obtained about the same time, believed to be *Porphyriola parva*. These were of about half the size of our Moorhens, and of much the same build. The bill, however, was much heavier, being of the type of *P. porphyrio*. They did very well with me for a time and I had great hopes of breeding them this summer, but one morning I missed them, and found that they had both, as well as a small Blue Rail from the same district,

escaped through the roof of their aviary. This was covered with 2-in. netting, and I had no idea that they would be able to get through it. Their bodies are much smaller than they look to be, and I have now found that much larger birds can get through this size mesh with ease. For some time the birds remained about in the neighbouring villages, visiting the villagers' chicken-pens, and I had some hopes of recovering them, but although stimulated by a promised reward, none of the village boys succeeded in capturing them. My last venture in this type of bird was with a trio of White-breasted Waterhens from India. When they arrived I was much interested in them, as they were not unduly shy, in the small aviary in which they were first placed, and they were rather striking-looking birds, and I thought that they would be likely to breed. But alas! they have proved very disappointing in the large aviary in which they are now located. Here they have unlimited cover, with a nice pond surrounded with flags and rushes. Their habits seemed to have entirely altered. They skulk in the thick cover all day, and the only time that I see them is when they visit the pond to drink and bathe in the late evening. I understand that in India they nest in the late summer, so there is still a chance that they may redeem their character by doing so later on.*

BIRDS IN MACEDONIA.

By CAPT. BERNARD E. POTTER, R.A.M.C.

The Finch family is well represented here. On January 1st two pairs of bullfinches were seen in a village, the males looking superb with their black caps, crimson breasts, and white rumps. Later in February I watched a bullfinch, goldfinch, and chaffinch in the same hedgerow, and could not help thinking the bullfinch surpassed the goldfinch in magnificence. But all bird-lovers must like to know that the goldfinch is the commonest finch in this country.

* [Since writing the above the Black Rail has again nested. This time the nest was suspended from the rushes, a foot or more above the water. The white-breasted Waterhens have built a similar nest, but so far have not laid.]

Early in the year they fly about in clouds, and as they wheel together the glint of gold in the bright sunlight is wonderful.

The chaffinches were in fine song, and reminded one forcibly of home and the English summer. But on April 10th I have a note that all chaffinches had disappeared, and none have been seen since. In the middle of February it was my good fortune to see a hawfinch close by our camp on the foothill. Its general chestnut hue is a contrast to the other finches. The short, stout bill makes it somewhat like a miniature parrot. I noted the black "bib" and edge of wings, and the white, short tail, as it was very tame and easily approached. The great brown linnet is always with us; it, too, has the black marking on the breast. Its droning song resembles somewhat that of the yellow-hammer, which, by the way, I have never seen yet in Macedonia. A bird resembling the brown linnet in shape, but smaller, is new to me. It is evidently a linnet, but it has two lovely patches of crimson on sides of the breast.* Green linnets were plentiful in the winter, but, like the chaffinch, have gone.

As this country has more bushes than trees—due, no doubt, to wasteful habits of the natives or to the unrest which led the Turks to destroy trees as possible cover for their enemies—the greenfinch is much more visible than at home, where he always seems to me to make himself heard, and not seen, from leafy hedgerows. Only twice have I seen a hedge-sparrow, and that was on January 1st this year and later on February 17th. Their absence was commented upon by Dr. Lovell Keays, who is not far away on the same front.

Two kinds of doves are common here, and very tame—the ring-doves, which I have kept at home and knew so well. How interesting to see them wild, to note the curious noise of their wings—the note resembling the sound made by blowing paper against a comb—when they alight, and of course their cooing in the trees and on the ruined cottages. The turtle-doves came much later. They are tame too, so that one can observe the splendid blue and black which emblazon the sides of the neck and hear the "turr-turr-turr"

* [Our male British Linnet has these two patches in a wild state during the breeding season, and the forehead is of the same rose-red. It never acquires this lovely colouring in a cage.—ED.]

cooing. They arrived in flocks, but quickly paired, and now one sees the newly fledged young. I have never yet seen a Quist, or wood-pigeon, out here. Early in the year one can observe flocks of blue pigeons with no ring on the neck. These I have thought must be stock-doves; they are not rock-pigeons.

The ring-doves—our domestic kind—are common in Salonika, and take the place of our London pigeons.

This morning, while out to put up notice boards indicating our advanced dressing-station, I stopped to watch some gunners fire cordite from their rifles into a stream to stun and catch fish for culinary purposes. A good basketful was being obtained. But during this I heard a note which has haunted me in Macedonia. The sound was an oft-repeated “cuckoo” and “cuckookoe.” This is a monotone, and not the major, or even minor third of the cuckoo’s song. Sometimes I had thought this was a dove’s note. It was a naturalist’s delight to unravel the mystery and to spot the bird, only 30 yards away, on the bough of a dead stunted tree—a fine hoopoe.* I turned my field-glasses upon him, and let the gunner fishermen enjoy the sight too. Even the most unemotional must like to watch so quaint a bird with so rich a colouring, with its fine, long, black, delicately curved bill; its buff head, with two black bars separated by white upon the crown; and the long thick crest of black with white bar. During its song the neck would swell up to resemble a goitre. From time to time it changed its position, and in flight the black and white barred plumage shows to perfection. In profile the short legs look comical. The length of the bill is especially noticeable when used for preening the feathers.

At this same spot in the stream I heard the muffled croak of a large green frog, which I saw in the rushes. Only a few moments later did I discover that a water-snake—a variety with yellow bands along the sides and black under parts—had seized the frog, whose plaintive cries died away as it was slowly engulfed. The distended, flattened head of the snake looked terrifying.

On April 10th, when searching a marsh for the whereabouts of larvæ of the perilous anopheles mosquito, a bittern flew up and

* [The Hoopoe’s note to us seems more like “Hoo-hoo-hoo-hoo!” repeated rather rapidly.—ED.]

alighted upon a pollarded tree only 20 yards away. It seemed tame enough, and did not resent my scrutiny. It was the first wild one I had ever seen, and it looked like a dwarf heron. The long plumes were of thin, light, and dark shade; the general colour light sandy; wings and under parts white. In flight, head retracted and feet extended. Bill is straight, stout, and long. Perhaps I may yet hear "the bittern sound his drum, booming from the sedgy shallow."

More good fortune awaited me. The beautiful pied fly-catcher appeared in the trees above the marsh, and the thrice-repeated white and black from head to tail was noted; but from below it was all white. Its actions in catching flies resembled exactly those of our sober-plumaged spotted variety in that it would frequently return to the same perch. Quite near the main stream a kingfisher sat facing me, showing its rose-coloured breast.

The storks call for some comment. I saw them first on March 23rd. They are majestic birds and thoroughly tame. Chimneys in these shelled villages they have no use for, but the many pollarded elms and poplars support their enormous nests. It is an incongruous sight to see the birds poised on one leg upon the nest. They have no fear of man; their nests are close above the dug-outs and encampments. When one joins its mate, heads are thrown backwards and forwards, and there is a loud, rapid clapping of bills which can be heard a long way off. The lower parts of the nest are used by jackdaws and sparrows, who are thereby saved much labour. In these days of dearer fresh meat rations the stork's lot is enviable; he can find an easy living in the many marshes where the frogs abound, and day and night keep up the chorus of Aristophanes, "brek, kek, kek, kek," and "koax, koax," each one distending enormous transparent membranes, puffed out at the base of the neck to the size of its own head. Yesterday I observed a stork get up from dry ground with a great mole in its bill.

The varieties of the *Raptores* are very numerous; in spite of much questioning, few officers can help one. Dr. Lovell Keays, whom I had the luck to meet at a field hospital, confessed that identification is difficult. I have notes of some sixteen, which may be of interest. The little kestrel is very common and tame, nesting in the eaves of houses. The colours are, roughly, blue and crimson,

the females being more of a brown hue. At Brigade Headquarters the other day I came upon the Brigadier and his Major in shirt sleeves lustily blowing eggs. On being asked, I readily identified the sandy-brown but variable colours of our own kestrel's eggs. He called the bird the Lesser Kestrel. The Editor and others now have settled the name for a whitish-blue harrier we see much of—Montagu's pallid harrier. There is no other bird like it. Another bird of similar size and habits flies irregularly low down and rapidly over the bushes and hillocks, as if about to alight any moment. This bird is very dark in colour, but has conspicuous white above the tail. Also I recently observed that when seen at rest it has some white marking on the front of the head.*

Another large hawk I first observed a year ago above a village on the Salonika hills. It swooped down a gully upon a wheatear, which it would have caught, if undisturbed. It is of very dark brown hue, but has definite white on cheeks or upper parts of neck.† High aloft on several sunny days I have watched with glasses a soaring eagle or buzzard, which is wholly white beneath except the wing primaries, coverts, tail, and part of the head, which are black. With still wings it glides for minutes at a time, but the head can be seen turning about as if watching for some quarry.‡

Late last year I watched a fight between a pair of lesser kestrels and a larger hawk of chequered brown and yellow, as far as could be detected.§ Each tried to get above the other. Finally the large bird got above, and both dived into a deep ravine. I dismounted from my horse, and ran to the edge. There I saw the kestrel beneath its large antagonist, which was pulling out feathers, but flew off when it saw me. But the male kestrel remained still, too exhausted or injured to move.

An eagle, frequently seen on the plain where I now am posted, has a light-coloured head and light patches above the wings, as noted when it turns in flight. But in the luxuriant deep vegetation, when it alights on the ground, I have seen only the yellow top of

* [The Harrier Eagle (*Circetus gallicus*).—G. R.]

† [Bonelli's Hawk Eagle (*Nisatus fasciatus*).—G. R.]

‡ [The Black-winged Kite (*Elanus caeruleus*).—G. R.]

§ [The Saker Falcon (*Falco sacer*).—G.R.]

the head. It is a very large bird, but no dimensions could be given.*

There is another large bird, all of a brown colour, which has a long tail resembling that of a fish, with sharp outline. As it turns in the air the tail is often seen to twist into a plane reverse to that of the wings. Might this be one of the kites? [Undoubtedly.—Ed.]

The small Athene owl is very common. One delightfully tame one remained with us in three camps, though at liberty. One night I was awakened, when sleeping beneath trees in the open, by this bird, which hopped on and off me, and allowed its feathers to be stroked. The colours are brown, with white dots and streaks on the wings. A large brown owl resembles our wood owl, but is of greater size. I hear of the eagle-owl, but do not know it. One officer, clever at skinning, sent the skin home, and stated that its value was ten pounds. It has not been my luck to see any horned owls. Last July a mounted brigade headquarters had a tame golden eagle which used to be on view outside the tents. Another buzzard-looking bird which I see is of a general bluish colour.

Vultures appear from time to time; the best view I had of them was a year ago, near Lembet. There happened to be a bamboo-grass enclosure of some nomadic Roumanian shepherds for the lambing season. It was in a heavy thunderstorm that six of these great birds flew down one after the other, then sat together with their great clumsy wings drooping beside them, and around were a chattering group of magpies, hoodies, and jackdaws—pigmy among giants. Some offal thrown out was the cause of the gathering. In the dim light they were little scared by my observations. One vulture was very light yellow, whereas the rest were dark brown. After four had gone, the light yellow one rested with one of the brown. I cannot help thinking it might have been an albino specimen.†

I have ridden close to a bird of much less size by approaching as usual in circles. It eats carrion, has a general vulture appearance, but not the naked head and neck. Its head is yellowish,

* [The Imperial Eagle (*Aquila heliaca*).—G. R.]

† [The Black Vulture (*Vultur monachus*) is very variable, and pale individuals often occur.—G. R.]

and the yellow colour gradually darkens to the tail and wings, which are dark.*

Two lovely birds, which we shall always remember after the war is over, are the "sun-bird," or bee-eater, and the roller (or blue jay). They are often seen together, and there are men who confuse them. There is much blue about them both; but whereas the roller has a uniform sky-blue hue, the colour of the bee-eater is much more mysterious and suggestive. The blue of the body is deeper and more iridescent. Its upper parts are varying shades of yellow, the head being a fine copper colour, with light yellow in front, edged behind with white. The cry is heard much, and resembles a short, high-pitched "purr purr." The flight is graceful and swallow-like,

tail has a long, central projection, producing a spike instead of two long laterals, forming the forked tail of the swallow.†

It must prey upon very large flying insects, because these can be so distinctly seen, even at a distance. I hope to find a nest in the hole of a bank, and describe it and the eggs. The roller has a nut-brown back. It is very active, consorting much with jackdaws, upon which it makes prodigious dives in the air when it is disturbed. Perhaps these dives with the rolling motion and semi-closed wings give the name of "roller" to the bird.

Mere enumeration of the birds of Macedonia would be tedious, else I might also describe various waders—the Little Bustard, a small Cormorant on the ponds, the Black-headed Tern, Black-headed Yellow Wagtail, Great-Crested Grebe, Gold-Crest, the Shrikes, Great Grey and Red-backed Quail, and Pelicans, a flock of which passed over us yesterday. ‡

* [The Egyptian Vulture (*Neophron percnopterus*).—G. R.]

† [In 1908 several bee-eaters were observed flying at a considerable height over a river in Algeria. So swallow-like did they appear that the writer only recognised them by their flashing yellow breasts.—G. R.]

[We should be most pleased to have some more of Captain Potter's interesting notes, and congratulate ourselves on being able to publish these, since it was very evident that the MS. had been in the sea!—ED.]

CUCKOOS IN CAPTIVITY.

By Dr. E. HOPKINSON, D.S.O., M.A.

As cage-birds the Cuckoo family does not excel, "of that there is no shadow of doubt, no shadow of doubt whatever." This is, I suppose, the reason why they find no place in Dr. Butler's invaluable two volumes, 'Foreign Birds for Cage and Aviary.' Nevertheless, as a few are possible cage-birds and have been kept as such, an account of the species which come under this head, with a collation of what records there are of these birds in confinement, is of some interest. May I also hope that it will perhaps be of assistance to the learned doctor, if he is thinking of giving us a new edition of his book, to deal with the many additions to aviculture of the last ten years, an event which would receive, I feel sure, the warmest welcome.

Except for one of the Coucals, which I kept for a short time in West Africa, I have had no personal experience of the members of this family as cage-birds, and what follows is the result of gleaning in the literature at my command. These records, however, I hardly think will lead me or anyone else to become a Cuckoo-enthusiast, for they contain little to recommend apart from the difficulty of obtaining as well as keeping most of these birds and their rarity as cage-birds, circumstances which, however, will always attract or be a stimulus to endeavour to some minds. Anyhow, records *are* records, and as such are always worth preserving, so I give them for what they are worth.

1. The Common Cuckoo (*Cuculus canorus*).

This, the best known member of the family, is also the only one which has been at all commonly kept in captivity, and it would appear, under these conditions, to have the worst character of all. Yet in spite of this, in Greene's 'Notes on Cage-birds,' a correspondent is mentioned as having kept one two seasons. This correspondent kept his Cuckoos in a large garden aviary, but even then and even from his own account, one can only wonder at his forbearance.

Bechstein, the pioneer of cage-bird literature, devotes a chapter (page 113 of Bohn's edition) to this bird, and has very little

good to say of it, while he quotes an account by another amateur, who damns his subject pretty thoroughly and is worth quoting here. This early bird-keeping Hun, whose name was "Herr von Schaueroth," says of his feathered Huns :

"The Cuckoo has hardly any recommendation as a house-bird. When old it is too stubborn and greedy ; and in general is either obstinately fierce, or sits in sullen melancholy. I have reared some : the last I found in the nest of a Yellow-hammer, who was very puzzled with it. It was yet blind, and nevertheless flew at me with great fury, when I took it out. . . . I had hardly had it six days, before it ate in a passion everything that was offered it ; and I reared it on bird's flesh. It was a long time before it learnt to eat out of its trough ; and it was so violent in its habits and quips, that it upset all small vessels. The tail grew very slowly. It never became quite tame ; it always darted at my face and hands, as well as at everything that came too near it, and at other birds. It ate of the first universal paste largely, and discharged as copiously, and dirtied itself very much ; it also ate its own excrement. It is exceedingly clumsy with its short climbing feet ; it cannot walk at all, and at best can only be said to jump. It flies, however, very cleverly."

Since Bechstein's time there have been numerous records of Cuckoos in confinement. Of these I select Dr. Bradburn's,* at whose hands the wretched bird fares but little better than it did in the previous quotation. He writes :

"I have hand-reared this migratory bird, and for its size I can unhesitatingly pronounce it the most filthy and disgusting that was ever placed in a cage. It is in nowise to be recommended as a cage-bird to fanciers, for if you possessed one full-grown, it would not feed, and if you rear it by hand you will spend a deal of trouble for no adequate return, as they seldom live long in confinement. These birds require to be fed very much longer than nestlings of other species, and they

* 'British Birds,' Dr. J. Denham Bradburn. First edition, 1891. The quotation is from the third edition, revised and enlarged by Allen Silver, 1903 (p. 24).

“ will make you feed them a long while after they in reality can help themselves. Moreover, they are most dull, uninteresting creatures, which sit in a sleepy, half-sulky fashion in one corner of their cage, the remainder of the time being spent in administering to their inordinate appetite. . . . You will find the requirements of this bird, as far as food is concerned, simply insatiable, but unfortunately it has no redeeming properties to offer you in return for your hospitality. . . . It should be provided with a box-shaped cage, . . . a false bottom being especially insisted on, in consequence of its dirty habits; but whatever you do, you will find the wretched captive always wallowing in its dirt, after—in consequence of its continued restlessness—it has broken pretty nearly every quill in its body.”

Our Cuckoo, then, is no cage-bird, and even in freedom its well-known parasitic habits bring it no good-will, but on the other hand it is really not quite as black as it has been painted by some, especially by the poets, if one may judge from the following, which I find in Phil. Robinson's 'The Poets' Birds':

“ The idle Cuckoo, having made a feast*
 “ On sparrow's eggs, layes down her own i' th' nest.
 “ The silly bird, she owns it, hatches, feeds it,
 “ Protects it from the weather, clocks and breeds it;
 “ But when this gaping monster hath found strength
 “ To shift without a helper, she at length,
 “ Not caring for the tender care that bred her,
 “ Forgets her parent, kills the bird that fed her.”

QUARLES, '*Divine Fancies*.'

We will now turn to the foreign Cuckoos, but before taking those about which I have found definite records, I will note one other, of which I find a couple of casual mentions, which should bring it within the scope of this article. This is the **Great Spotted Cuckoo** (*Coccyzus glandarius*). This bird (or rather the genus

* [The idea that Cuckoos ate other birds' eggs no doubt arose from the fact that they have been seen when in the act of taking their own eggs into their mouths, after laying them on the ground, since it is almost impossible, and often quite, for a cuckoo to lay its egg in the nests of such birds as wagtails, robins, etc.—ED.]

Coccytes) is incidentally mentioned as a cage-bird by Dr. Russ in the chapter on "Food for Birds" in his 'Lehrbuch,' and in Stark and Selater's 'Birds of S. Africa' (vol. iii, p. 195), there is an account of a young one taken from the nest which lived four months.

Emerald Cuckoo (*Metallococcyx smaragdineus*).

This, one of the lovely "Golden Cuckoos" of West Africa, is a bird about 8 in. long, the male of which is most beautifully clothed in metallic emerald-green and gold. The one record of this bird in confinement I know is that of Keuleman's, who thus closes an account he writes to accompany a coloured plate of this species, which appeared in 'Bird Notes,' vol. v (1907), p. 245:

"It feeds on berries as well as insects, and with insect food given it in large quantities it will live in confinement for a long period, but never becomes tame. The one whose portrait, originally drawn in 1866, accompanies these notes, was caught by myself in Prince's Island and remained alive for two years."

This long life was doubtless due to the fact that, the experiment took place in West Africa, so that the "large quantities of insect food" required were always obtainable. This—the ease with which the food-needs of "soft-bills" can be supplied—is one of the few advantages of West Africa, but it is an advantage which will only appeal to the very few. Plenty of bird-food means plenty of white ants, and therefore, plenty of damage to one's belongings, while besides there are, of course, the hosts of mosquitoes, flies, and other creeping and flying tormentors to remember as well.

The Koel (*Eudynamis honorata*).

This is a large black bird, with a rather long tail, which is a native of India. The male is entirely metallic black, the female brown spotted with white. These birds, like the Common Cuckoo, are parasites as regards their eggs, victimising for this purpose the two Indian Crows. In vol. iii of the 'Fauna of British Indian Birds,' by Oates and Blanford, from which the above particulars are derived, we read (p. 229) that "Koels are often kept caged by natives of

India, who admire the bird's rich melodious notes." Finn, in a most interesting paper in the 'Ibis' for 1901 (p. 423) on "The Cage-birds of Calcutta," says that the male Koel is a very popular pet with natives and always on sale there, many being reared by hand. According to Russ the London Zoo received it for the first time in 1864. Other examples, he says, have also been exhibited there and in other zoological collections and been satisfactorily fed on boiled rice, fruit, and berries. In India this is no doubt supplemented by *suttoo*, the gram and butter paste, which Finn tells us, is the regulation food for all "soft-bills" in India.* In a wild state it feeds entirely on fruit (Oates and Blanford, *l. c.*).†

Hawk Cuckoo (*Hierococcyx varius*).

This Cuckoo, also a native of India, owes its right to a place here to Finn's above-mentioned paper, where, after referring to the Koel, he continues :

"The only other Cuckoo I have met with commonly in cages is the '*Papiya*' or Brain-fever Bird, the note of which is as much esteemed by natives as it is disliked by Europeans. It does not keep its plumage in such good condition as the Koel, which seems to do very well as a cage-bird."

In a wild state it is very common throughout India and Ceylon, where its loud maddening call, "*Papiya, papiya*," which during the breeding season is to be heard all day and often for the greater part of the night also, has earned for the utterer its name of "Brain-fever Bird." The plumage is grey above and white tinged with rufous below. In size it is rather larger than the European Cuckoo.

Society Cuckoo (*Urodynamis taitensis*).

The range of this species extends from the Pacific Islands to New Zealand, its breeding-place being the latter, where it lays its

* [A bright yellow pea-meal, ground to the consistency of flour, which is mixed with melted butter.—ED.]

† [In 1902 there was a small importation of koels: a female which I purchased on September 9th lived till November 10th, and was described by me in *The Avicultural Magazine* for March, 1903. She was very tame, but greedy and sluggish.—G. R.]

eggs in the nests of the native Flycatchers (*Gerygone*). It is a spotted brown bird, some 16 in. in length. As a cage-bird I have only one record, that of its inclusion in the London Zoo collection in 1864 (Russ, 'Die Fremdländischen Stubenvögel,' 1899, p. 662).

The next group are the Coucals, which are found throughout the greater part of the warmer regions of the Old World. These birds build their own nests and hatch their own eggs and they are more or less terrestrial in habit, being strong on the leg but rather clumsy and slow on the wing. A characteristic feature of the group is the harsh, stiff plumage. Some half-a-dozen of the forty odd species appear to have been known as cage-birds. With these I will now deal.

Senegal Coucal (*Centropus senegalensis*).

This inhabitant of Tropical Africa I know well in the Gambia, where I kept one for a short time once and could often have had others, had I so desired. I do not, however, propose to try for any more unless at the end of a tour it happens that I can get one or two just before I am due for leave, so that I can get them home to the Zoo quickly and without having to waste cage-room on them for any length of time.

My bird was caught in the kitchen-hut, which he had entered to pick up scraps, so I presume from this and from the ease with which he was "meated off," that in a natural state the Coucals are accustomed to supplement their ordinary diet of insects, reptiles, etc., with any offal or dead things they can pick up. It was only a very short time after capture before he settled down to cage-life, and he did well until his unregretted escape a month or six weeks later. At first I fed him on live locusts and any other large insects which could be easily obtained; then I got him on to dead food, such as mice and bats, and before very long he would eat almost anything in the shape of animal matter, such as raw or cooked meat, chicken guts, and other kitchen refuse. He got tame in a wonderfully short time, but nevertheless I can hardly give him a good character as a cage-bird, as his diet would make him a smelly and unpleasant indoor pet, and his rough loose plumage is so easily soiled, that he soon loses the few good looks he may originally have possessed.

These birds are very common in the Gambia, where they are locally known as "Fool-birds," from the idiotic way they have of offering themselves as targets at the closest range to anyone out with a gun. In every way they are in a natural state remarkably tame birds with but little fear of man, of whose presence they scarcely take any notice as they hop heavily about the bushes and long grass in search of food. In colour they are chestnut above, with black head and tail and dirty white under parts. The bill and feet are black, the latter furnished with powerful claws, that on the hind-toe being specially long and straight, a feature to which the Coucals owe their occasional names, "Lark-heels" or "Spur-heeled Cuckoos." In length our bird measures about 16 in., of which the tail forms nearly half. Their irides are bright red and give them an alert and rather fierce expression. Their usual note is one of the commonest sounds of the evening and (at the commencement of the breeding season) of the early part of the night as well. It can be heard on all sides from sundown onwards as one bird answers another, "Wu-tu-tu-tu" repeated *ad lib.*, with a gradually falling pitch, the performer attitudinising the while on his perch, his throat puffed out and collapsed alternately, his head bowed forwards till the beak points to the toes, the tail held stiffly parallel with the legs, and the whole attitude apparently one of rigid and grotesque discomfort. At other times they utter a sort of cackle not unlike a "Bush-fowl's" call.

The nest is placed low down in a bush always just inside a patch of really thick growth. The natives believe that one always finds in the nest a living but crippled snake kept there to scare away intruders. The origin of this tall story is no doubt the fact that these birds may frequently be seen carrying off small snakes still alive and wriggling, and that they may often ornament their nests with pieces of cast snake-sloughs. From such a basis a Mandingo would have no difficulty in evolving an even more marvellous tale.

According to Russ the Senegal Coucal has been on exhibition in the London (first arrival, 1869) and Amsterdam Zoological Gardens. I also remember that some few years back one of the London dealers had a couple of African Coucals, but can find no record of what happened to them. I am not sure, too, to what

species they belonged, but rather think they came from South Africa and were therefore probably *burchelli*.*

Indian Coucal or "Crow-Pheasant" (*C. sinensis*).

The range of this bird extends from India to China, Malaya, the Malay Islands, and the Philippines. Its plumage is black glossed with green and set off by a chestnut wing-patch; in length it measures 19 in. Finn (*l. c.*) says that it is often brought into the Calcutta bird-market, but not as a pet, but on account of some fancied medicinal value. In Oates and Blanford will be found a full description of the plumage, etc., and a paragraph on its habits in a natural state. As a cage-bird it is included among the Coucals mentioned by Russ (*t. c. supra* under "Society Cuckoo"), who tells us that it first appeared in the Zoo list in 1867. To this writer I also owe the cage records for the remainder of the Coucals which I mention.

Lesser Coucal (*C. bengalensis*).

This species, also a native of India, is a small edition of the preceding. It has been on exhibition in the Amsterdam Zoo.

Australian Coucal (*C. phasianus*).

A black bird with chestnut wing-patches and dull green under parts. Its exhibition in the London (1872) and the Berlin Zoos (1897) is on record.

New Guinea Coucal (*C. menebeki*).

This is another black bird not unlike the Australian, which inhabits New Guinea and some of the neighbouring islands. Russ records one instance of its living arrival in Europe, the importation of some by Fockelmann, of Hamburg, in 1894, who, in reference to this event writes as follows to Russ:

"In May, 1894, I had five 'Mohrenkukuke,' since then
 "I have seen no others. One of them, the Zoological Garden
 "at Hamburg had, two went to a private customer in Italy

* [Since the above was written when looking through some back numbers of the Magazine, I have come across (1909, p. 119) an account by Mr. G. H. Gurney of the keeping in captivity of another species of Coucal, the White-browed (*C. superciliosus*) from East Africa. This is described by the writer as having been a charmingly tame and interesting pet.

“and one to Copenhagen; of the fifth I can find no particulars,
 “most likely it died. They are strong birds which are contented
 “with ordinary thrush-food. I have never heard a call or any
 “note from these Cuckoos.”

Russ also mentions another Coucal, which he calls the Sunda Islands Coucal as having been kept by the Amsterdam Zoo. This is probably *C. javanicus*, which has an extensive range from Assam and Malaya to the Malay Islands, the Philippines, and Celebes.

Radiated Fruit-Cuckoo (*Carpococcyx radiatus*).

This bird is a native of Borneo and the last of the Old World Cuckoos with which I have to deal. Above it is a dark metallic green glossed on the wings and tail with bluish; below brown with dark green cross-stripes. The bill is green and a red bare eye-patch is a noticeable feature. One of these rare birds lived for a long time in the Zoo, a record of which is to be found in the following foot-note to a paper on the anatomy of the bird, which appeared in the ‘Ibis’ for 1901, p. 200:

“Received August 31st, 1882. See ‘P.Z.S.’ 1882,
 “p. 358. It lived nearly eighteen years in the Gardens, and
 “died June 7th, 1900. It was fed mostly on a vegetable diet
 “with a little scraped meat intermixed; occasionally insects
 “were given, and a dead mouse every other day.”

Russ mentions the same individual in his list, and here we have one of the few records of a long and doubtless honourable life of a captive Cuckoo.* I wish I could find and give the same amount of information about the Coucals mentioned above, where the particulars are so meagre that they probably indicate but short and unsatisfactory sojournings in their European homes.

Guira Cuckoo (*Guira guira*).

These South American Cuckoos have been not infrequently kept at the Zoo and in other collections of birds. In the Zoo they have nested but never succeeded in rearing their young. This

* [This individual was figured in the *Illustrated London News* as “A New Arrival at the Zoo: the Radiated Fruit Cuckoo.” I well remember seeing it in 1899: it was kept in the then Insect House at the Gardens, and had injured one leg at some time or other.—G. R.]

happy result, however, has been attained elsewhere, by Lord Poltimore, a record of whose success (in a large aviary) in 1911 appeared in 'Bird Notes' for that year, p. 273. The Guira may, I think, from this be given the first place, with the Radiated Fruit-Cuckoo a good second, among the very scratch lot of "Cuckoos as Cage-birds." It at least is the only one to have reached the zenith of having reproduced its species in confinement. All the rest I am afraid we must class very near the Nadir of the avicultural sphere.*

In a wild state they nest like the Ani and the African Buffalo Weavers in communities, many pairs sharing in the building and occupation of a huge tenement dwelling. Their general colour is light brown streaked especially on the head and neck with black; in size they are slightly larger than the European Cuckoo.

Ani (*Crotophaga ani*).

This is another South American bird, whose range extends to the West Indies, where it is popularly known as "Blackbird," "Black Witch," or "Cattle-bird," names derived from its colour (uniform black glossed with purple) or its habits. A whole flock will share a large common nest, in which the accommodation is often so strained that numbers of the eggs laid by the tenants are crowded out and fall to the ground. See 'Ibis,' 1910, p. 274, where the eggs are described as pale blue covered with a white chalky substance, and also 'Avicultural Magazine,' 1903, p. 22.

As a cage-bird, this species appears in the Zoo List, its first appearance being in 1875 according to Russ, who also records it in the Berlin Zoo in 1892.

ON THE BREEDING OF THE TROPICAL SEED-FINCH (*Oryzoborus torridus*).

By F. E. BLAAUW.

On my way home from South America in 1911 I spent a day in the beautifully-situated capital of Brazil, Rio de Janeiro.

* [A Guira Cuckoo, which I purchased on November 14th, 1903, when let out into my aviary, ran rather than climbed about the branches: it uttered a mew-like whistle, and shivered its wings in true picarian fashion. When surprised or interested it crouched down and extended its neck. The iris was orange red.—G. R.]

I had made a tour in an auto amongst the slopes of the Tujuca, where the beautiful blue *Morpho* butterflies were playing amongst the flowering trees.

I had visited the wonderful botanical gardens, where small Finches and Sugar-birds were flying amongst the wonders of tropical vegetation, and having about an hour or so before I had to go back to the ship, I paid a visit to the "Mercado Central," where, amongst vegetables, meat, and every other conceivable thing, I found two small bird shops.

It is not very easy for a foreigner to buy birds in a "Mercado Central" of a South American town.

Of course they see at once, and if they don't see it they hear it, that one is a stranger, and they accordingly think it their duty to themselves to ask tremendous prices for the most common things—prices which rival or surpass very often what would be asked in a bird shop in Europe for those same birds.

Their value is a milreis, and these "thousands" of reis multiplied by fancy figures give tremendous numbers of reis! If, to put their demands into proper limits, one bids what they think too low a price, they get offended and are as likely as not to refuse to sell altogether!

In this way I lost three of the rare Violet-bellied Parrots (*Trichloria cyanogaster*), an example of which was owned by Mr. Astley (our Editor) some years ago, and which I admired very much. Two of the three birds seemed all right, but number three had a deformed leg. I asked the price. Many thousands of reis were wanted. I made a bid and the owner, after having given me a murderous look, turned round and . . . began to close his shop. Nothing could be done!

The pair of *Oryzoborus torridus* fortunately had another owner, and in addition to other small birds I managed to get them. The man thought me rather a fool to buy the female, which he told me could not sing and would be of no use to me.

However, she wandered to the ship with her husband and the other acquisitions. The lovely little male, with his shining black dress and beautiful deep chestnut breast and belly, looked a little delicate and continued to do so all through the voyage, so that I

thought that he would not survive. I was mistaken, however, for he recovered and has now lived here all these five years.

The male has a very nice song, and when he is courting the female he displays in various ways with wings and tail. He will also jump into the air whilst he is singing.

The female is of a pale milk-chocolate colour all over. Both have very short and powerful bills.

Since their safe arrival at Gooilust I have kept the birds during the summer in a small aviary in the garden, with other small birds, and in winter in the bird-house.

This season, having an unoccupied compartment in a garden aviary, I thought I would give them a chance to breed, and put the pair of birds into it with no other ones to disturb them.

They seemed to like this privacy very much, becoming very lively, and the male sang from morning till night. The first attempt at breeding was a clear egg laid on the bare board in a nesting-box with no attempt at a nest.

After this, thinking that there was something wrong with the nesting-site and material, I put up a kind of witch-broom made out of a birch, in which I had formed a cup-shaped hollow, against one of the sides of the aviary.

As nesting material I gave a lot of rootlets and fine branches, adding some feathers.

It seems that this new arrangement suited the birds, for they at once took possession of the witch-broom, and the female built a shallow nest in it with the rootlets and fine branches, finishing off with a few feathers.

As I found out later three eggs were laid, which were spotted with brown and purple, and were not unlike Sparrows' eggs.

How long the female incubated I cannot say, but after about three weeks the voice of a baby was heard occasionally, and the female caught all the small insects she could get.

I had given her fresh ants' eggs as well, and with one and the other, and probably later or also with the help of seed, the youngster grew very well, and after not many days left the nest looking like a stumpy miniature of an owl, as it could not boast of much of a tail. Although it could fly it spent its first days of comparative inde-

pendence on the ground in a warm corner of the aviary, the parents feeding it with great care.

The two other eggs were clear, and were evacuated from the nest.

As soon as anyone came near the aviary the male would begin to sing and come very near one, looking very inquisitive. This he also did when the female was incubating.

I fancy that in this way he would try to draw away the attention of the visitors from the female or young one, in the same way as a Crane will feign to be lame if one comes upon his young ones suddenly.

The young Tropical Seed-Finch in its first feathers closely resembles the female, but is much paler in colour, and the white wing-mark is not clearly defined. The bill and legs are blackish flesh-colour, corners of bill yellowish.

Has anyone bred this species in confinement before?

AVIARY NOTES FROM SOUTH AUSTRALIA.

By C. H. A. LIEMAN.

Although not a member of the Avicultural Society, I have been a subscriber to the 'Avicultural Magazine' for some time. My only reason for not being proposed as a candidate for election is that I am not personally acquainted with any of the members, so that I could not ask them to recommend me. On reading through the list of members which was published in the November number of your Magazine, I note that so far there are none in this State. But being very interested in birds, and having kept most of the smaller seed-eaters at one time or another, I am taking the liberty of sending a few notes on the subject from South Australia, and sincerely trust that I am not out of order in doing so.

We have several very keen fanciers in Adelaide, a number of whom have been successful in getting young ones from some of the rarer specimens.

Mr. R. E. P. Osborne was until recently the possessor of the largest collection of birds here. He had a splendid lot of aviaries, covering nearly an acre of ground altogether, in which he kept Pheasants of all kinds, Doves, Parrots, Quail, native Pigeons, and

most of the smaller aviary birds. He has recently sold his town house and gone to live on his farm in the country. Although his birds have found good homes in the other fanciers' aviaries here, it was a great pity that such a splendid collection of birds had to be dispersed, as it had taken years to get together.

In addition to most of the aviary birds usually bred, he was successful in rearing a great number of Orange, Napoleon, and Madagascar Weavers, Pekin Nightingales, Paradise Whydahs, and Cardinals.

Last season he was successful in rearing two young hybrids between a cock crimson finch and a hen star-finch, but unfortunately they were killed by some other finches in the aviary soon after leaving the nest, so that it would be impossible to form much idea of what their adult plumage would have been like.

Has this hybrid been bred before? *

Mr. F. P. Kell is another ardent fancier who secured a great number of Mr. Osborne's birds. He has a fine and comprehensive collection of all classes and has ample accommodation for them.

Mr. D. R. Gee specialises in Parrots, of which he has a varied collection from all parts of the world, and in addition has an aviary devoted to the smaller seed-eaters.

Mr. von Rieben's special fancy is Waterfowl and Pheasants, and they show to great advantage in the grounds of his beautiful home at Rose Park. Native Pigeons, Parrots, and Finches also each have an aviary devoted to them.

Mr. H. G. Young, of Somerton, has done wonderfully well with Yellow Budgerigars. Two years ago he started with one pair. He now has over seventy, all descended from the original pair of birds.

Mr. Guy Whittington is another keen fancier, and he has been successful in breeding the Bicheno-Zebra finch hybrids, some of which were beautifully marked.

My own aviary is about 45 ft. long by 12 ft. wide. It has wire netting on the top and both sides, with the exception of 12 ft. at one end, which is roofed over with galvanised iron and covered in on the south and east sides with weather-board.

* This hybrid was bred in Mr. Astley's aviary in Italy (Varenna) in 1908. See coloured plate, vol. i, third series, p. 79, 1909-10.

With the exception of Pekin Nightingales and Silver-eyes I devote my attention entirely to the smaller seed-eaters.


There is a fairly large lemon tree growing in the centre of the open part of the aviary, and several smaller bushes of *Acacia armata* round it and in the corners. Being evergreen and rather prickly, the birds seem to prefer the acacia to all other bushes to build their nests in when flying wild. That is the reason why we plant them in preference to others.

I also keep lucerne growing on about half of the open space. This grows to a height of about $1\frac{1}{2}$ to 2 ft. Every morning in the summer I set a fine sprinkler going over it, and this helps to keep the ground cool and moist.

The birds love this, and during the heat of the day, when the thermometer soars up to 110° F. in the shade, they are nearly always to be found in or under it, and I am certain that the moist shade which it affords is very beneficial to them.

Around the edge of the open portion are planted various native tufty grasses, the seeds of which are greatly relished by the birds.

In the enclosed portion I have placed a few hollow logs, but the majority of the nests are made of cigar boxes and in these most of the birds prefer to make their nests. I cut a small

opening towards one end of the front, thus  and place

them with the lid on top, so that they can be easily opened and the contents examined. Those that prefer to build their nests in the bushes are the Pekin Nightingales, Orange and Madagascar Weavers, Gouldian, Bicheno, Cherry and Firetail Finches. I find the latter quite hardy and, with the exception of the Zebra Finches, they breed more freely than most of the others.

The Pectoral Finches almost invariably build their nests in the tufts of grass and quite close to the ground.

During last season an African Silver-bill cock mated up with a Bibfinch hen and successfully reared three young ones, which were midway between the parents in size and colour, but instead of bibs had barred marking on the throat similar to a male Zebra Finch. I also reared a hybrid between a Parson Finch and a Long-tailed Grassfinch. This turned out a hen, which mated up to a Grassfinch

and has reared young ones. These exactly resembled the long-tailed grassfinches in every particular.

In conclusion I should like to relate the doings of a cock Red-headed Finch. He has been a widower now for over twelve months.

A few weeks ago three young white Java Sparrows came out of the nest rather soon and he immediately took charge of them. He used to follow them wherever they went and fed them most regularly. He would do his best to keep them together and would preen their feathers for them and look after them in every possible way. Moreover, he would not allow their own parents to come near them and, although the young Javas can now look after themselves quite well, he still follows them about and at night huddles up close to them on the perch.

As I write, we are in the middle of winter and the foreigners are all in their winter plumage, but our Australian birds are as brilliant as ever, and I certainly think it a great advantage for birds to look their best all the year round.

Needless to say the birds are never provided with any artificial heat, but live the hardy outdoor life and so manage to come through even the severest winters.

CORRESPONDENCE.

THE TAHA WEAVER.

DEAR SIR,—What is a Taha Weaver? I bought a pair recently, and I thought they were merely Napoleon Bishops subject to melanism, but the dealer said not. I hoped they might lose the melanism, but it seems to increase and the hen is almost black. The cock is nearly in full colour, but has far less yellow than an ordinary Napoleon.

If not Napoleons, are they equally hardy, and what country do they come from?

Yours faithfully,
ALFRED THOM.

The Citadel,
Hawkstone, Salop.

The following reply has been sent to Mr. Thom:

Pyromelana taha is a southern representative of the Napoleon Weaver (*P. afra*); the latter ranges from Senegambia to the Niger and possibly to Benguela. *P. taha* ranges from Benguela eastwards to Nyasaland, south-eastward to Lake Ngami and Natal; it is common in the Transvaal and the Orange Free State, where (according to Stark) immense flocks assemble in the autumn and remain together until the following spring.

I believe *P. taha* to be quite hardy, but cannot speak from personal experience, as I have not kept the species.

A. G. BUTLER.

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At a Meeting of the Council, which was held on Feb. 17th, 1916, the following addition to the Rules was made:—"That each Member (not a Dealer) be entitled to one advertisement, free of charge, each month, the Editor to be sole judge as to whether such advertisement can and shall be published or not, priority shall be given to those who apply first."

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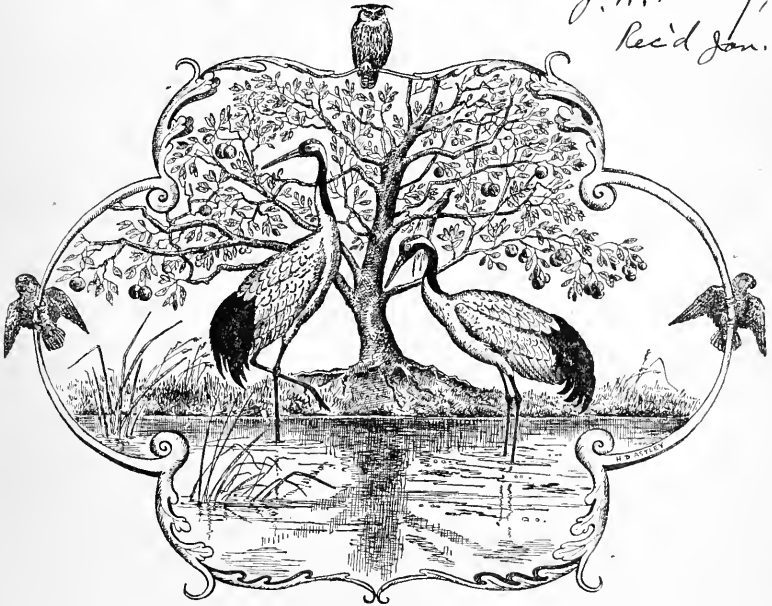
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*J. H. Riley,
Rec'd Jan. 3, 1911*



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AN AVICULTURAL NOVELTY: THE WESTERN HOODED
VULTURE (*Neophron monachus*).

THE
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DECEMBER, 1917.

MY PET VULTURE.

By G. E. Low.

A pet Vulture is, I think, somewhat off the beaten track of aviculture.

The normal appearance of the animal is not attractive; his habits are distinctly repellent, and against these he cannot lay claim to any counter-attractions, such as a melodious voice or an unduly intelligent personality.

The bird, whose photograph is reproduced, had, for me at all events, the fascination of novelty at the outset; and as time went on, his quiet unobtrusiveness developed in me an affection which I did not think I should have ever possessed for him.

He came from West Africa with my brother some years ago, and was a little under a year in my possession.

I am sorry I cannot give any information as to his early history beyond the fact that he was taken from a nest when quite young by a native, and brought in to my brother, who had a great liking for unusual pets of all kinds.

He established, in due time, an ascendancy over any other animals of his own size with which he was brought into contact, and developed a great affection for a native dog, whose life he made a burden, as he habitually took up a position on his back, in the broiling sun.

When coming home to Ireland my brother decided to bring

this bird, and he formed one of quite a consignment of wild beasts, which, so far as I can recollect, included the following: Six Crowned Cranes, one Hornbill, two Grey Parrots, one Duiker Antelope, and one Patas Monkey.

In this connection I might mention in passing that two of these Crowned Cranes were given to Mr. Baring, of Lambay Island, off the Co. Dublin coast, where they had complete liberty, and Mr. Baring has told me that the spectacle of these large birds flying about the Island was a wonderfully interesting and attractive one. Subsequently one died and the other flew to the mainland to be promptly shot, of course, as a rare visitor.

The vulture arrived in quite a small box, looking thoroughly bedraggled.

Notwithstanding his condition, however, my brother insisted on admitting my very game Irish Terrier at his liberation, assuring me that the bird would more than hold his own in any encounter.

The result was a great surprise to me, as, on the dog proceeding to tackle him, this dissipated-looking scarecrow met the attack with wings and neck fully extended—a fearsome sight, before which my friend Jack retreated gradually backwards the whole length of the garden, eventually finding sanctuary in his kennel with the vulture standing before the entrance.

As no properly-constructed dog could ever forget, much less forgive, such ignominious treatment, Jack always cherished a bitter hatred for this aggressive interloper and was continually on the look out for chances to get even. As the vulture was quite indifferent whether he presented his face or his tail to the dog, the latter had many opportunities of making attacks in the rear, which he took every advantage of, and I had to go to the rescue of the bird on many occasions.

He always roosted at night in a large box under a roof which sheltered my greenhouse stove. To reach these quarters he was obliged to “step over” Jack’s kennel, and he generally wasted no time over this operation.

He was perfectly free to come and go as he liked, being more or less pinioned, and every morning he might be seen as the sun got up, solemnly stalking up the garden to his perch in the centre of



WESTERN HOODED VULTURE.

Sub-adult individual in first feather, showing vestiges of down. Same bird as in previous figure. Note the cranium and hind neck covered by short fur-like feathers; the face and upper throat are bare, and of a purple colour during life. Bill elongated, plumage brown, feet greenish-blue.



the grass plot, where he spent most of the day, only leaving it to visit the back door for his grub—which consisted of clean, cooked meat—and to return just before dusk to his roosting quarters.

In course of time he developed a very fine coat of feathers and one windy day he sailed up in the air against the breeze and made a tour of the neighbourhood, eventually landing in an adjoining lane, where I easily secured him and provided against a repetition of this little entertainment.

He was so exceedingly independent and so well qualified to look after himself that I never worried much about him, merely glancing at his perch occasionally to see if he was there.

One morning, however, he did not appear, and on going to his roosting-box I was greatly distressed to find he had died in the night, probably owing to the stove, from which he got a certain amount of warmth, having gone out.

Poor old bird; my garden looked quite bare without his familiar figure sitting on the perch—always an interesting object.

I don't know what species he belonged to, but his appearance was more attractive than that of those one is accustomed to view in Zoological Gardens, as, presumably, owing to the fact that he was fed on clean meat and had no opportunities of burrowing into foul matter, his neck was well-clothed.

[This bird was the Western Hooded Vulture (*Neophron monachus*)—practically a smaller, long-beaked race of the better known Southern Hooded Vulture (*Neophron pileatus*). Mr. Low is to be congratulated on having possessed a very rare and interesting pet, and his photographs are probably unique. No others which certainly represent this species appear to exist.—G. R.]

SOME INDIAN VULTURES.*

By ALTHEA R. SHERMAN.

The White Scavenger Vulture (*Neophron ginginianus*) claims first consideration. It is a common species, and was seen wherever I went, except near the coast. From my window in the Cecil Hotel, Agra, one of them was seen sitting in a bulky nest in a neem tree

* From 'The Wilson Bulletin,' No. 90, March, 1915.

not more than 25 feet away. A position on the roof, overlooking the nest, was sought at once, but the nest was empty when the bird left. Such a location was highly advantageous for study when the nest life was in progress.

The White Scavenger Vulture at times has a woe-begone, dishevelled appearance, as if it appreciated the contumely heaped upon it by mankind. In view of its single shortcoming, it is a pity that the bird cannot talk back. If it could, its reply would probably be something like this: "Oh, vainglorious man! wherefore do you cast such volumes of reproach upon me? Am I not a faithful spouse and a devoted parent? Do you ever see me figuring in the divorce courts because of inconstancy, or my offspring deserted by me, left to the tender mercies of strangers in my tribe? Do you see me robbing my brothers or slaying millions of them in unholy war? Your sole accusation against me is that I am a scavenger and not too proud to eat human ordure; but what living creature do I harm by my tastes? Certainly I take nothing that turns me into a frenzied fiend so that I beat my mate, kill my offspring, and endanger the lives or happiness of my neighbours, nor do I smoke a filthy weed that poisons the air for every one near me. Oh, you contemptible man! I have seen you fill with smoke the air of a small enclosure, where were others of your kind, men and women, unable to escape, who were sickened and gasping in utter misery. So I say unto you, critical man, that unless you can show more decent taste, you have no right to criticise mine."

Besides the White Scavenger, at least three other species of vultures were seen: the Black or King Vulture (*Otogyps calvus*), the White-backed Vulture (*Pseudogyps bengalensis*), and the Long-billed Vulture (*Gyps tenuirostris*). In most instances they were distant about an eighth of a mile, but sometimes no more than half of that distance. As a rule they were in desolate places—along a river bank or about some ruin. Across the river from the Massacre Ghat at Cawnpore were several of these birds. While using my binoculars I saw one waiting for a dog to finish its repast. The object being devoured looked very human, and my guide affirmed that it was the body of a man that had drifted ashore some days before. Two human skulls lay directly in front of the Taj Mahal on

the banks of the Jumna River, and were detected when the glasses were turned upon some plovers feeding there. Such ghastly finds are not so surprising in a country teeming with millions of Hindus, whose religion forbids the burying of the dead, and where the cost of the wood for the funeral pyre is almost prohibitory for some families.

On the morning of my visit to the bathing ghats of Benares I witnessed two Hindu funerals; the first was that of a woman, and her nearest relative, after walking five times around the pyre, applied the torch; the other was that of an infant, whose body was weighted with stones preparatory to its being cast into the Ganges, for this is the disposal made of the bodies of Hindu children who die before they have attained the age of three years. In this river were hundreds of pious Hindus taking their sacred baths, energetically scouring their teeth, or drinking the water dipped up by the hand.

The immense number of tombs to be seen outside of some of the cities tends to create the feeling that India is one vast graveyard, but these are Mohammedan tombs, showing the fruits of death's harvest for a few hundred years only. Another religious sect, the Parsee, holds that the elements are too sacred to be polluted by the dead, hence their bodies cannot be burned nor cast into the water as are the Hindu's, neither must they desecrate the earth by burial therein. To obviate these things Towers of Silence are provided on which the bodies of dead Parsees are exposed to the vultures—the White-backed and the Long-billed are the species in Bombay that are said to frequent these towers, there being about three hundred birds that divide their time between the towers and the slaughter-houses.

In Bombay the stated hours for funerals are nine o'clock in the morning and five in the afternoon. The vultures begin to assemble regularly an hour or two before funeral time. When I was there at 3 p.m. from twenty to thirty birds had arrived and were waiting on the walls. They are said to complete their task within the space of two hours. There are five of the towers; some have private ownership; one is for criminals, suicides, and for the bodies of the unfortunate Parsees that chance after death to be touched by someone outside the caste. The principal tower is 25 feet high and

nearly 90 feet in diameter. The approach to this strange place is up a hill, through a little park made beautiful by trees and flowers and the songs of birds.

VULTURES IN AFRICA.

By GRAHAM RENSHAW, M.D., F.R.S.E.

“Unguibus et rostro tarda trahet ilia vultur.”—*Ovid.*

Vultures may be termed a permanent feature of every African landscape. Sailing overhead in majestic circles through the azure—slowly descending in ever-narrowing curves—perched on some craggy ledge overlooking some awful precipice—in each instance these strange wild-fowl add a touch of savage romance to the scene. Some years ago the writer had the opportunity of studying at close quarters the habits of the Egyptian species (*Neophron percnopterus*).

One afternoon remains imprinted on the memory. The scene was a romantic rocky gorge, along the bottom of which there flowed a little stream: a cascade rushed into the abyss, dissolving in a shower of spray. Swarms of Swifts wheeled about the rocks, their nests dotting the rugged surface in profusion; and crowds of Pigeons, Jackdaws, and Lesser Kestrel enlivened the scene with their numbers. High overhead the Vultures circled, black and white against the blue: with their ample pinions it was difficult to distinguish them from their neighbours, the Storks, and this difficulty has been experienced by others—indeed, as they passed overhead the Vultures recalled the Manchurian Cranes depicted on Japanese screens. As the writer watched, a lovely being floated along the gorge—the Scarce Swallow-tail Butterfly (*Papilio podalirius*) with wings of primrose yellow, zebra-striped in black. So near did it come that it seemed that it could easily have been captured, but it was allowed to depart in peace.*

On the rough ledge opposite nine Vultures sat in a row, there were several others below them, though they were difficult to make

* [This butterfly is literally “zebra-striped,” for the varying breadth and intensity of the bands on the wings wonderfully resembles the stripes and “shadow stripes” of Burchell’s Zebra (*Equus burchellii*).—Ed.]

out from the scarred and fissured rock. Once a mother bird in white adult apparel was seen feeding her dusky, well-grown chick: the food probably consisted of the abundant locusts which seemed everywhere, and the remains of which were observed upon or close to the path. When flying the Vulture's wing, as in so many other birds, curls up at the tip, as if warped by the wind. The writer saw a Lesser Kestrel *deliberately attempt to perch on the back of a flying Vulture*, this was most interesting, as the fact has been asserted to occur by other African travellers, and I think it is Chapman who in his book published a figure of a small bird actually taking a ride in this way. Any such occurrences that may have been observed by Members of the Society resident abroad would make excellent reading for this Magazine.

"A glowing landscape of red hills, seamed with cracks and ravines," says one's note book. "A green tint on them like a feeble wash of colour toning down the red. Blue haze on distant hills. A great sense of clear atmosphere and breadth and elbow room. Landscape in a shimmering silky glow of heat."

Such is the home of the African Vulture.

THE REARING OF GREY LAG GEESE.

By MAURICE PORTAL.

In April, 1911, I obtained four eggs from the Hebrides and put them under a hen. After twenty-eight days two birds hatched, the other two eggs were found to be bad. The trouble at first was that the young birds showed no desire to eat the finely-chopped egg provided, or, indeed, any of the other delicacies which were offered. Matters looked serious after twenty-four hours, but a hurried visit to a farmer's wife produced the solution. Her reply was: "Don't bother them, and just give them a turf of fine grass." The advice was followed, and they began to eat at once, and the coop was moved on to a piece of fine shortish pasture.

After a few days they would eat a little egg and biscuit meal, but never cared for it; fresh water was given four times a day and fine gravel, and they thrived fast. After four months a little wheat was given, and later wheat and barley mixed; but to this day they

prefer wandering about and eating grass for choice, and eat but little corn.

Lord William Percy hatched out two birds at the same date from three eggs, and allowed his to have access to water early, so it does not appear that going in water when young does any harm. His two are a pair, and the female this year, for the first time, gets distinctly cross if approached. They may breed this year, which is their third spring (1914).

At one time, when shooting, I looked on a black-spotted breast and under breast as a sign of age and respectability, but, as will be seen from the photograph, a bird barely three years of age may possess it. Last year the same bird had only three black spots showing. There is little doubt that if my birds had a lake or good pond they would certainly breed, but in the indifferent place I have it is doubtful. If they do, it will be due to their great tameness I think.

The length of life of the Grey Lag is very great—how great no one quite knows; but a farmer in Ross-shire is reputed to have had one forty-two years, and the late Lord Lilford winged “an old gander” on the Guadalquivir in 1882, and the bird was alive in 1900, and may be yet.

Unfortunately, fewer breed in Scotland each year, due to disturbance by tourists and quasi-egg collectors. About three years ago I knew of close on thirty-one nests in Ross-shire, Sutherland, and Uist, but last year (1913) there were very few.

Crofters in Uist dislike them—with some reason from an agricultural point of view, but to the detriment of the ornithological one—and now that a great portion of South Uist is taken by the Crofter Commission, there will be less.

In 1766 to 1800 they were said to be common in the Fens and bred there, but probably, in a few years, *Anser cinereus* will be amongst the ever-increasing number of birds who rarely breed in Great Britain.

P.S. (April, 1915).—My Grey Lag nested in May, 1914, but all eggs were clear, as were Lord W. Percy's.

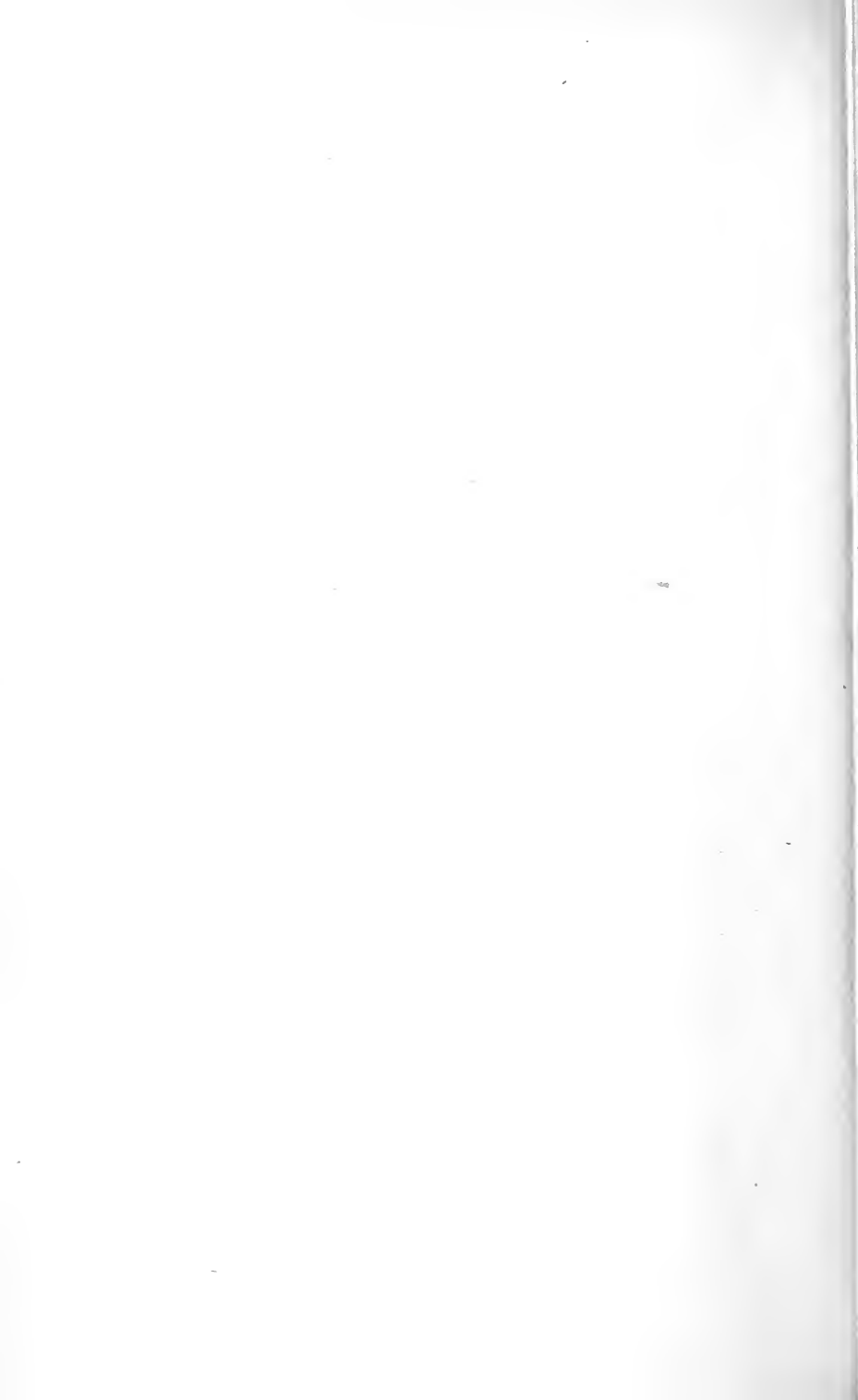
It raises the question as to whether the Grey Lag does breed in the third year or takes longer to come to maturity on the part of the male.



Male.

Female.

GREY LAG GEESE.



VARIATION IN COLOUR OF WILD GEESE.

By MAURICE PORTAL.

Variation from the normal in Grey Lag Geese or Pink-foot Geese is uncommon though by no means unknown.

A White Grey Lag Goose visited Uist for some years before coming to an untimely end by a chance shot.

It is probably a rare occurrence, as it is so seldom seen in spite of the great numbers which make South Uist a home for the winter or a resting-place on migration and immigration.

Two years ago a Cream-coloured Goose in immature plumage was seen on the Solway and eventually killed. It proved to be a young male in good plumage—the colour of the feathers was a uniform sandy-cream colour, slightly darker at the extremities. This year a White Goose has appeared—pure white, except that the head is brown-cream colour—whether it is a Grey Lag or a Pink-foot I am unable to say, as I have not had time to go and see it with a telescope. There is also another uniformly coloured Cream Goose in, but that may pass on, as it is early yet in the season.

The White Goose is not a Snow Goose, as it has no black feathers in the wings, and its head is as stated.

It may be possible that it is one of the cream-coloured ones of more mature age, and that cream colour turns into white with mature moulting.

If one could catch it alive one might learn much, but the chance is too remote to hope for or expect.

That variations are rare is proved by the fact that these three instances are the only ones noted in the past seventeen years out of the many thousands of geese which pass up and down the Solway or remain there for a few months.

BREEDING OF THE BITTERN IN NORFOLK.

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

(Reprinted from 'The Zoologist'.)

The summer of 1911 was terrible, being the hottest and most rainless summer experienced in the counties of Norfolk and Suffolk since 1868 (see Weather Report, by A. W. Preston, F.R.Met.Soc.) In many places fields of barley took fire by the sparks emitted from adjacent lines of railway. July 31st was supposed to have been the hottest July day for fifty-two years, and on August 9th my thermometer stood at 96° in the shade. Young Partridges did not suffer nearly so much as many people, who are unaware how little moisture these birds require, expected, and, contrary to anticipation, it proved an extraordinarily good year for wild Pheasants.

The great event of 1911 was the breeding of the Bittern, possibly due to the drying up of some of the Dutch swamps by the great heat. Miss Turner has already published an admirable account of the way in which she found the young one (*cf.* 'British Birds' and 'Country Life' (December 2nd, 1911)), but I can add a few particulars to this record. The last nidification of a Bittern in Norfolk, if not in England, was in 1886, when a young one was obtained. Although nearly full-grown, there was no doubt about its being home-bred, for there was still down upon it.

May 8th.—This was really a summer's day, and perfect for birds'-nesting. Accordingly, it was with no small pleasure that Mr. Gerard Gurney and I directed our steps, by invitation, to one of the smaller Broads, where Redshanks and Reed-Buntings were soon seen, but on this occasion no Grasshopper-Warblers, although it is a favourite place for them, and some had been recently heard. Flitting among the reed-tops were a good many Bearded Tits, which the absence of wind had tempted up from their recesses. Although the "Reed Pheasant" no longer suffers from the rapacity of dealers, the gradual growing up of our Broads must more and more limit its area of distribution. A Coot's nest was presently found, containing two eggs and four newly-hatched young ones, whose orange heads were quite resplendent among the reeds. These active mites speedily

slipped over the sides of the nest, but one bolder than the rest crept into its fabric, evidently thinking that between the blades of bolder-rush its brilliantly coloured head would be concealed, and it was less conspicuous than might have been expected. In six weeks these young Coots would be white-breasted Coots. Further on, Mr. R. Gurney punted us to a Great Crested Grebe's nest, and again the scarlet countenance of a very young Grebe was seen eyeing us from between the blades of the bolder. About 1 p.m. the "boom" of a Bittern was distinctly audible, and again at 1.20 the strange sound swept over the water, not loud this time, but rising in volume like some distant fog-horn. Naumann expresses it on paper by the syllables "ii-prumb," repeated slowly, which perhaps is as near to it as any imitation can be. It seemed very similar to the "booming" of the Little Bittern which I heard at Saham Mere in 1894.

July 8th.—*Nesting of the Bittern.*—After an arduous search in a dense reed-bed, higher than a man's head, a well-feathered young Bittern was found by Miss E. L. Turner and J. Vincent, which it was naturally concluded could not be the only one, as the Bittern lays four eggs. It refused to take food when placed in its mouth, whence Miss Turner judged that the young are fed by regurgitation, and the only sound it uttered was "a curious bubbling note." As the young of the Bittern are not hatched simultaneously it is possible that this was the youngest bird of the clutch. The illustration of a young Bittern taken at Ranworth long ago (Gurney and Fisher, 'Zool.,' 1846, p. 1321) will hardly bear comparison with Miss Turner's beautiful photographs. The discovery of the nest fell to the Rev. M. C. Bird eleven days later. From Mr. Robert Gurney, who was with him, I learn that when found it was full of Bittern's feathers, with a few fish-scales, probably those of rudd and roach. This nest, which I had an opportunity of examining afterwards, viz. on August 1st, was, according to my tape measurements, 18 × 15 in. at the water's edge, with a depth in the centre of about 4.7 in.; roughly speaking, it was an ovate circle. It rested on no solid foundation, there being about 18 in. of water below it, in which I felt about in the hope of finding a rotten egg. The fabric is well shown in a photograph by Miss Turner, who thought that its flatness was probably owing to its having been trampled down by the nestlings. But even in this

condition it hardly deserved the epithet of a careless structure, which has been applied to it by some writers. The nest was situated among the stems of the reeds, and could only be approached by wading. It was principally composed of broken stalks of the bulrush, here called "bolder-reed" (*Scirpus lacustris*), by vast tracts of which it was surrounded.

The young Bitterns kept about, and on the 27th two were seen by Mr. Robert Gurney, but not together. This was within half a mile of the nest, and the old bird could be plainly heard croaking to them. That they eventually got off unmolested there is every reason to believe, and I think a general desire was shown to protect them.*

BREEDING NOTES FOR 1917.

By the MARQUIS OF TAVISTOCK.

The "present disturbed state of Europe," as railway notices used to put it, still decrees that the majority of my birds shall spend their time in temporary quarters, to which I can only pay an occasional flying visit at long intervals. In addition to being rather small, these quarters have the disadvantage of lying within what I may term the "septicæmia zone." My first experiments in aviculture were carried on in the Midlands, where cases of septicæmia were almost unknown, and I used to read with some scorn the statements by old writers to the effect that it was useless to try and keep many-coloured or Paradise Parrakeets as they always die of "cerebral hæmorrhage." But when, at the beginning of the war, I was compelled to move my collection to the Isle of Wight, I found out that there was something in what the old aviculturists had written after all. At irregular intervals, and without warning, one after another of my Yellow-bellies, Many-colours, and Red-vented Bluebonnets was seized with a brief, violent, and fatal illness, and not only they but other rarities besides, including two Red-shining Parrakeets and an Albino Grey Parrot. For a long time the *post-*

* [The *American* Bittern figured in this number was kept by Miss Dorrien Smith for six years in captivity (see *Avic. Mag.*, January, 1916.)]



AMERICAN BITTERN (*Botaurus lentiginosus* Mont.).

See 'Avic. Mag.', Jan., 1916.

mortem reply came back, "cerebral hæmorrhage," until examination by an expert more accustomed to bird ailments pronounced it septi-cæmia, an internal inflammation being the real cause of death and the brain symptoms of secondary importance. Everything was tried as a preventative—medicine, diet, boiled water—without avail, and the remnant were only saved by sending them to a friend in Gloucestershire.

But fortunately only certain species seem susceptible to the disease, and the breeding season of 1917, though not without its disappointments, has proved not unsatisfactory as a whole. The birds from which there was at least a hope of obtaining young were 3 pairs of Stanleys, 4 pairs of Barrabands, 1 pair of Queen Alexandras, 1 pair of Pileated, 1 pair of Bauers, 1 Yellow-mantle paired to a Rosella, 1 pair of Redrumps, 1 pair of Bourkes, 3 pairs of Blue-winged Grass Parrakeets, 1 cock Rock Grass Parrakeet paired to a Bluewing hen (who is minus one foot, but a good layer), 2 pairs of Guiana Parrotlets, 1 Lutino Indian Ringneck paired to a green cock, 1 Lutino African Ringneck similarly mated, 1 Lutino Blossom-head similarly mated, 3 pairs of Hooded and a Blue-faced Lorikeet (*T. hæmatodus*) paired to a cock Swainson.

Of these birds the Stanleys, the Barrabands, the Queen Alexandras, the Pileated, the Redrumps, and the cock Palæornis Parrakeets had wintered out of doors and stood the severe weather extremely well. There are only two satisfactory ways of wintering valuable Parrakeets in captivity: If there is a good chance of their standing the cold, put them in a sunny, unheated aviary whose flight communicates with an open shed, one half of the front of which is boarded up from roof to ground. In this way you get shelter from wind and wet without draughts or sudden changes of temperature. If the birds are delicate, put them in roomy cages, protected by a shield on the back and two sides, and keep them at a high, even temperature. If you are asking for trouble try a room with a moderate and varying temperature, or a heated aviary with an outdoor flight attached.

The three pairs of Stanleys hatched and reared five, three, and two young respectively, but did not nest a second time.

Two of the four pairs of Barrabands nested and hatched one

chick each. One was reared ; the other was accidentally crushed by its parents, who were wild and clumsy.

The Pileated hatched two strong chicks, but, to my great disappointment, lost them when half grown—I fear through feeding them on strawberries.

It is noteworthy that Stanleys, Barrabands, and Pileated have invariably failed to hatch their eggs with me when the cock birds have been caged during the winter, even though they have appeared in the most vigorous breeding condition and perfect plumage.

The Queen Alexandras were also a disappointment, the cock alone coming into breeding condition.

The cock Bauer, who has never forgiven me for depriving him of the wife of his heart—a Barnard—four years ago, bullied his own mate, and fed his Stanley neighbour's. The expression of the hen Bauer while watching this scandalous conduct was said to be very amusing!

The Yellow-mantle and Rosella had three clear eggs only, though in particularly fine condition and out all winter.

The Redrumps reared four young, of which one was deformed.

The Bourkes got no further than inspecting their nest barrel, the hen being a very shy breeder and a nervous sitter.

When the other Grass Parrakeets were first turned out an unlucky thunderstorm gave one pair of Bluewings the excuse (for which members of their family are ever on the lookout) of killing themselves against the side of their enclosure. I then locked the stable door by giving the aviaries an inner lining of string netting, and at the time of writing one pair have four well-grown young in the nest* and the others eggs, which, however, I fear are overdue to hatch. Two pairs which shared the same aviary did not quarrel, though the hens rather disturbed one another and broke a few eggs ; Bourkes, however, I have found quite willing to murder one another in the breeding season if more than a single pair are kept together. *A propos* of string netting, I may say that I have never had accidents through its use as one might expect, since *Neophema* Parrakeets never bite anything, nor do they settle on vertical surfaces and climb about.

* [These have been reared ; the eggs of the other pairs were clear.]

One of the cock Guiana Parrotlets died when the hen was beginning to use the nest-box; the other pair broke or ate their eggs.

The Indian Ringneck nested in a small indoor flight, but her seven eggs, though all fertile, failed to hatch. Last year, when the cock also was wintered indoors, the eggs were clear.

The African Ringnecks paired but did not nest, and the Blossom-heads did likewise. Last year the hen, perverse bird! laid and incubated but refused to pair.

The Lorikeets broke their eggs through playing in the nest.

The Hooded, which are among the few Australian birds which do not accommodate themselves to our seasons, began to moult as soon as they were turned out. One hen, however, has just started to sit on five eggs,* and there is a chance of getting something from the others when they have been turned loose in a warm room. To allow Hooded to lay at a low temperature is almost certain to mean egg-binding and loss of the hens.

A pair of Western Black Cockatoos have been feeding each other, but as they must come indoors this month there can be no hope of breeding results.

My three New Zealand Parrakeets have caused me to regret the day I purchased them for a big figure. I had heard that the species was prolific and gentle. Well, mine weren't! As the pair—brother and sister who had never been separated—were on the worst of terms, I turned the hen into an aviary with my old cock. He murdered her a fortnight later, and not long afterwards the second cock died as well. No. 1 is as savage with other birds as with his own kind, and were he not so rare I would gladly part with him!

AFRICAN SUNBIRDS.

By GUENDOLEN BOURKE.

I was asked to send a few notes to the 'Avicultural Magazine' if I succeeded in bringing back any sunbirds from South Africa, and this I was lucky enough to do in April last. Through the kindness of the Director of the South African Museum,

* [Two young were hatched and are being reared by the cock, the hen unfortunately dying when they were half-grown. Another pair have eggs.]

I was able to start for home with a pair of Malachite Sunbirds and a pair of Lesser Double-collared Sunbirds, the smallest of the South African species, I believe; the latter, at the time of writing—May—being in perfect condition, the cock in full colour and singing all day, his beautiful green head, neck, and back glistening in the sun; looking almost as if they were wet, the steel blue band across his chest making a splendid contrast with the broader scarlet band. The hen is a sober little grey bird.

I am sorry to relate I lost the hen Malachite Sunbird in the Tropics owing to the exceptional heat we had on that voyage. The butcher's shop, where the birds have to travel, was lit artificially, and the heat almost unbearable, so I got permission from the captain to hang the cages under the awning on the upper deck, but the heat seemed to beat through the canvas, and it was as bad as being below. All the birds were sitting with their beaks open, panting, and while I was wondering what I could do, the hen Malachite reeled off her perch in a fit, and was dead in a few seconds.* I sprayed the remaining three with water, and asked if I could not be allowed to have them in my cabin, but I was told it was impossible. Regulations, rules, must be upheld, so back they had to go to the inferno below.

The next day, when I went to feed them, the cock Malachite was too weak to get on his perch, so I took them along to my cabin and fed them there, in the daylight. The Malachite revived, and I suddenly realised the bird would not feed by gaslight, and so only had four hours of daylight out of the twenty-four while he was with me. To make a long story short—well, I cannot tell you exactly where he spent the remaining ten days of the voyage, but there was a hook over the sofa in the cabin, from which my dresses were suspended, and he seemed to enjoy disappearing into the folds of these dresses while the captain made his daily inspection of the cabins. Anyway, he never saw the butcher's shop again! and managed to live till I got him to London, where, thanks to timely hints from Mr. Ezra and the Comte de Ségur, I was able to give him the warmth and live food he needed.

He is now in splendid health and condition, though out of

* [A most vivid description. One can almost see the bird fall!—G. R.]

colour, singing all day, and on warm days (which is not very often so far) enjoys a fly in the garden aviary, where it is very interesting to watch him catching insects on the wing. I feed him on condensed milk, crumbled sponge cake, honey, Mellin's Food, or Horlick's Malted Milk, and Marmite, any live insects I can find, and grapes. He lives in a 3-foot cage with natural boughs for perches, in a temperature of about 58° to 60°, coming out for a fly round the room the days it is not warm enough to take him out of doors.

Words cannot describe the beauty of these birds in full colour, but those who visited the L.C.B.A. Show in November last will remember the wonderful team of sunbirds shown by Mr. Ezra, the Malachite Sunbird being one. The hen is a dark grey bird with a yellow breast, and strange spots on the throat that remind one of a lizard. They are most tractable and make charming pets, nibbling the end of one's fingers, hoping for spiders or other insects, of which they are very fond.

"JACK" : A MAGPIE.

By MRS. GREGORY.

I bought him in Poole Park and carried him home in a paper bag! Passing through on my way to Poole, I had noticed a pair of magpies bullying a third one. Mentioning to the keeper how unhappy the bird looked, "Yes," he said, "I would gladly have half-a-crown for him and be rid of him!" "Then," said I, "I think I had better have him." So I called on my way from Poole and took the bird home with me.

In a nice large aviary, with an aged and amiable Gold Pheasant for company, "Jack" settled down quickly, and became very attached to me. Although I had been assured he was a "bit wild" and not at all tame, he appeared to me just the reverse.

In the course of a few days a friend saw him, and on her saying she had long wanted a magpie, I gave him to her, for I already had a second, older and finer than "Jack," and I knew he would have a good home. To my surprise, after four days, my friend brought him back, for he had moped all the time, and would scarcely eat. "It is you he wants," she said, "for he has plenty of

birds for company. I am too fond of them to see him pine, so I have brought him home!"

"Jack" was delighted to be in his old quarters again; he ate at once and fussed about, making much of me, and showing his joy in every possible way.

He was such a dear, confiding bird, that I felt it would be very nice to give him his liberty, so after a week or so I left the aviary door open, in spite of my husband saying, "He will be off, and you will never see him again!" But no; "Jack" trusted me, as I trusted him. He just took a short fly, then came back and settled on his perch contentedly.

That was just five years ago, and since then the door has been left open all day, for him to go in and out as he likes, which is what the pheasant is accustomed to do.

At first he always came in to sleep, but each spring for the last three years he has built a nest (bachelor as he is!) on the window-sill of a small staircase window, which he prefers as a sleeping place. In the nests I have seen pheasants' feathers, bits of bright coloured wool, pins and hairpins, and once a small photograph! I don't think he has carried off anything more valuable, although he goes into all the rooms in turn. Not only is he so tame as to fly on my lap or shoulder to be fed or caressed, but he has no fear of guests, and one friend who was fond of lying on the lawn on a sunny day constantly had his boots unlaced for him by this impudent magpie, who is also fond of slyly pulling the pheasants' tails and flying off with a bit of favourite pudding from under the Trumpeter's very beak! For my French poodle he has more respect, but is not afraid of her.

No magpie could look in better health and plumage, for none could live under better conditions. He has a pond to bathe in, plenty of fruit and insects in the garden, and his "food" consists of scraps of raw meat, pudding, and cheese. His tameness seems to increase, in spite of the liberty he has, and I could catch and shut him up at any time if I wished to do so. It is an ideal way of keeping a magpie; he loves watching all that goes on in the house, and appears always happy and interested.

In the early morning, before anyone is stirring, I can hear

“Jack” tapping with his beak on the glass of the window to call us; and if I look out at night, I see him sleeping on his nest, with his tail erect, resting against the pane.

Perhaps this little account may interest someone who keeps a magpie. They may consider whether they should give their bird freedom, as I do, which must make its life far happier than being in an aviary, however large. If so, the magpie must be tamed, and have perfect confidence in its owner *first*.

SPOONBILLS.

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

(Reprinted from ‘The Zoologist.’)

In the opinion of the late Professor Newton, the Spoonbill was in former days in the fullest sense of the word a native of England, and there is no reason why it should not become so again. Accordingly, throughout the summer, protection has been afforded to any which had the good sense to avail themselves of a sanctuary on Breydon mud-flats. One longs for the time when a pair or two of these splendid birds may again breed at Reedham, where there is a wood admirably suited to them, in preference to the marshes of Holland. Mr. S. H. Long, who has recently been in that country, kindly obtained from the Secretary of the Netherlands Protection Society some particulars about the laws enforced there, which are somewhat strict and require to be observed by visitors. It appears that for many years there have only been two, or at the most three, carefully watched Spoonbill settlements in Holland, which at the present time are situated as follows, viz.: one on the Naardermeer, near Amsterdam, where there were ninety protected pairs of Spoonbills nesting in 1913, and one at Zwanenwater, near Helder, where about a hundred and fifty pairs were nesting. I learn from Mr. Long that, by applying in the proper quarter, leave can be obtained to visit Naardermeer, but Zwanenwater is barred alike to natives and foreigners. Of the two places, Zwanenwater is slightly the nearest to Norfolk, its position on the map lying a little to the south-east of the latitude of Breydon.

Looking back some two hundred and fifty years, it is with a feeling of curiosity that we remember that in June, 1663, the botanical studies which John Ray was prosecuting with such vigour took him and his pupil Willughby to Holland, where they found Spoonbills breeding near a village called Sevenhuys, situated at four leagues (about thirteen miles) from Leyden, not in marshes but as they did in Norfolk, "in great numbers on the top of high trees" ('Ornithology,' p. 289). This settlement, from which the young Spoonbill described by Willughby was probably taken, has long since become extinct, for even in Pennant's time the wood where Willughby saw them breeding had been cut down ('British Zoology,' ii, p. 634). At the present day this would have been of less consequence, for trees do not seem to be required, piled-up reeds being preferred by European Spoonbills, which, like Herons, vary considerably in their habits. A somewhat fuller account of this visit to Sevenhuys, and of the four species, including the "Lepelaers," as Spoonbills were called in Dutch, found breeding there, is supplied by Ray in his journal of 'Travels through the Low Countries' (second edition, 1738, p. 33), one of the very few references to Natural History to be discovered in that somewhat disappointing volume.

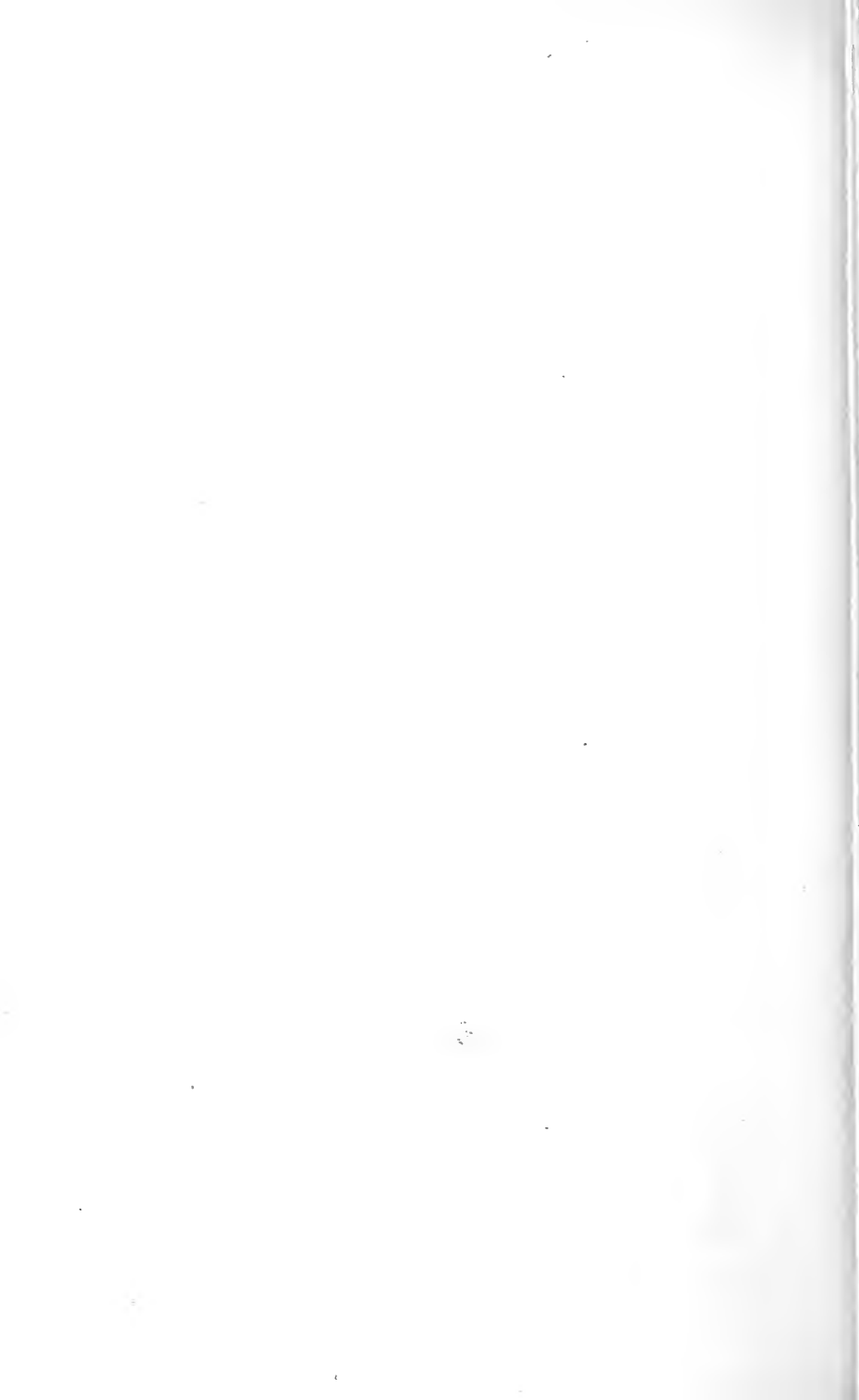
Allusion has already been made to the protection which our ill-supported Society* still continues to afford to Spoonbills, a protection of which this year twelve availed themselves. The first one to be viewed on the mud-flats was rather early, appearing on April 7th, but Dr. Long tells me they come to Holland much earlier than this. In all probability its presence was due to a strong west wind (W., force 5) which had been blowing on the previous evening. It was evidently contented with the society of Gulls and their muddy surroundings, and it remained in the creeks, except for short absences when they were covered up and it could not feed, until the 14th. After an interval of six weeks, another turned up on June 2nd (W., 2), and this was joined by three more on the 3rd (N., 2), all in fine plumage, exhibiting white "copped crownes," as Sir Thomas Browne would have said, in allusion to their pendent plumes. They were tame enough to feed within fifty yards of the Watcher's houseboat,

* Breydon Wild Birds' Protection Society, Hon. Sec. H. P. Frederick, Esq., Great Yarmouth.



SPOONBILL.

" Lo, there the hermit of the waste,
The ghost of ages dim ;
The fisher of the solitudes,
Stands by the river's brim !" — *Horrell*.



and I regretted an engagement prevented my going over to see them. All four took their departure on the 7th (W., 2), but on the 18th (S., 1) three of them came back again. Mr. Patterson, who had an opportunity of watching, thinks they were feeding on sand shrimps and ditch prawns, which is very probable, as Sheppard and Whitear remark that one killed on Breydon was full of the shells of shrimps, and another which I had several years ago (October, 1871) had also good-sized shrimps in its stomach. Mr. Jary does not say how long these three stayed, but on July 4th another was seen, which he considered to be a young one, and if so, a bird of the year. On the 31st there were again three (W., 1), which may have been the trio first seen on June 2nd. On August 2nd two Spoonbills were remarked flying out to sea by Mr. F. Chasen, perhaps on their way to Naardermeer, as the following day none were visible on Breydon Broad. However, one came back on the 4th (W., 2), after which the Watcher, who has supplied nearly all the above memoranda, saw no more. Breydon is the only one of the Norfolk Broads which Spoonbills habitually visit, none of the others being tidal. Now and then, however, one is seen on Hickling Broad, probably in search of sticklebacks (see 'Zoologist,' 1866, p. 348).*

EARLY DAYS OF AVICULTURE.

By DR. E. HOPKINSON, D.S.O., M.A.

The following is mainly a translation of what Dr. Russ calls "a short historical survey of the history of bird-keeping from the earliest days up to the present time," which that writer gives in the introductory pages of vol. iv of his great storehouse of information on cage birds, 'Die Fremdländischen Stubenvögel.' This is also supplemented by further translation from the third volume of the same work, by quotations from other sources and by a few additional notes.

The translation is as accurate a one as I can produce, though in places not quite literal, where the author's use of idiomatic or colloquial forms of speech is beyond me. I think, however, that it

* [The beautiful photograph of a Spoonbill, reproduced in illustration of the above, is the work of Commander Rotch, R.N.]

always gives his meaning, and at any rate, as far as I am concerned, it is now too late to think of any change, for the translation was made some years ago, when I knew more German than I know or want to know now.

Dr. Russ, starting from the very beginning of things, writes (iv, p. 2) :

“In the Bible ornamental birds (‘Schmuckvögel’) are several times mentioned. As early as the time of Noah, the Dove was undoubtedly a common house-bird. In the Book of Kings (i, 10, 22) and in Chronicles (ii, 9, 21) it is related that King Solomon brought in his ships from Ophir gold, silver, ivory, apes and peacocks.* Although we have but little information as to the development of bird-culture in China, it is certain that there, as well as in Japan, the cult of living animals has been in vogue for thousands of years. Three thousand years ago there were certainly Chinese Zoological Gardens, and the domesticated small birds, which we nowadays import from that country, the white Java Sparrows and the white Japanese Mannikins [*i. e.* the ‘Bengalis.’—E. H.] show clearly that aviculture was known there from remote ages.

“The legends of the Greeks say that the Argonauts (1350 B.C.) brought back with them to their own country the Pheasant from the River Phasis in Colchis; from the Greeks the cult reached Rome, where and whence it spread rapidly. A good deal later the Gold Pheasant was imported and was no doubt the origin of the well-known fable of the Phœnix, on account of the gleaming red colour of its plumage. In the time of Pericles, in the fifth century before Christ, the Peacock was so extremely rare in Greece, that, as Athenæus relates, people came immense distances to see a pair which a citizen of Athens possessed. Ælian says that at first Peacocks were exhibited for money, and the orator Antiphon, a contemporary of Pericles, mentions in this connection that the price of a pair was a thousand drachmæ, that is, a thousand marks of our money. In the temple of Juno at Samos Peacocks were kept as sacred birds and their portraits are to be seen on Samian coins. Alexander the Great saw them in India and admired their beauty so much that he threatened to inflict the severest punishment on anyone who dared to kill these birds. Among the Romans, we learn from various sources that, as early as 116 A.D., one, Marcus Aufidius Lurko, was carrying on Peafowl breeding on a large scale, his annual profits being said to be 60,000 sestertia (9540 marks). In those days, too, Parrots were highly valued, and those which could talk were among the most prized luxuries in demand among the grand ladies of Rome, who also kept white Blackbirds and other rare birds, while Pliny tells us that Agrippina, the wife of the Emperor Claudius, possessed a Blackbird which was gifted with speech.”

* Bird-catching and fowling are also frequently mentioned; in Jeremiah is a reference to “a cage full of birds,” the capture of Sparrows for food was commonly practised, and the sellers of Doves in the Temple are familiar to all. but whether the old Israelites kept birds for other than culinary and sacrificial purposes, must be considered at least doubtful.—E. H.

In his Parrot volume (iii) Dr. Russ gives more details of the early history of this bird, which it will be convenient to deal with.

He writes (p. 6) :

“The old Egyptians did not know the Parrots and in their hieroglyphics we find no sign or any indication of them. In like case were the Israelites, at any rate research shows that the name of Parrot is never once mentioned in the Bible. In the time of Alexander the Great they were introduced into Greece, for we are told, though there is some doubt about the correctness of this statement, that one of his retinue brought with him from India a species of Parrot, which he found was commonly kept tame among the natives there. This species, according to Wagler, was the *Psittacus eupatrius* of Linnæus, now popularly known as the ‘LARGE ALEXANDRINE PARRAKEET.’

“As Aristotle [see Sundevall, ‘Thierarten des Aristoteles’ (Stockholm, 863) and Lenz, ‘Zoologie der alten Griechen und Römer’ (Gotha, 856)], gives such a very short description of the Parrots, we may assume that he had but very rarely seen one, for otherwise such a painstaking author as he would have given a more satisfactory account. It was the RING-NECKED PARRAKEET (*P. torquatus*, Bodd.), also commonly nowadays known as the SMALL ALEXANDRINE, which the Romans knew, for this species was discovered in farthest Syria by Diodorus Siculus, a contemporary of Julius Cæsar and Augustus, and accurately described by Pliny, the first real description of a Parrot we have. Martial tells us that they were kept in costly cages of silver, ebony and tortoise-shell, and were taught to speak human words, especially the name of Cæsar. For their training special teachers were appointed and the price of a well-trained bird often exceeded that of a slave.”*

“On this the stern Censor, Marcus Portius Cato, thus chides them, ‘O

* As regards this training Pliny’s account is interesting, as given by Turner, the earliest English writer on birds, in his ‘Historia avium,’ 1544. This I take from Mr. A. N. Evans’ ‘Turner on Birds,’ Cambridge, 1903, p. 151 : “Beyond all, Psittaci repeat men’s words, and even talk connectedly. India sends this bird, which they call Psitace, with the whole body green marked only by a scarlet ring upon the nape. It will pronounce ‘Hail Emperor,’ and any words it hears; it is especially sportive after wine. The hardness of the head is the same as of the beak, and when the bird is being taught to speak, it is beaten with an iron rod, else it feels not the strokes. When it flies down it receives its weight upon its beak, and supports itself thereon; and thus lightens itself to remedy the weakness of its feet.” May we not take this account of what Parrots said in those days to support as far as it goes the modern idea as to what was the Roman pronunciation of Latin. One can imagine a Parrot saying, “Kaiser, Késar, or Kísar” perfectly; in fact, “À’we Kíser” is a parrot-language sentence pure and simple, which is still doing duty as “Kiss me,” “Do kiss me,” or “You kissy,” but I have yet to hear a Parrot say, “Ave Cæsar” (“Évy Sísar”) as I was taught in my schooldays. An initial S-sound seems beyond them, but the hard K suits their voice to perfection; I had almost said to a T.

ye Senators! O unhappy Rome! What does this portend? On what ev times have we fallen, when we see our wives nursing puppy dogs on their laps and our men carrying Parrots in their hands! In how great esteem were these birds then held, is shown by the fact that the poet Ovid wrote an elegy* on Corinna's dead Parrot, while later on Statius glorified another in a similar way. Then, as now, only the young were selected for instruction. So we learn from Apuleius and we may assume that frequently mentioned Ringneck was the only species known in ancient days. Kiranides describes one of these, but one in which the ring was lacking [*i. e.* a hen or young bird.—E. H.]. Aelian tells us that in India there were many Parrots, which were held sacred by the Brahmans, because they could imitate human speech, and which were therefore neither killed nor captured by the Indians. By the time of the Emperor Nero Parrots had been discovered ('bei Tergedum') on the Nile, and were probably afterwards imported in gradually increasing numbers from Africa into Europe, as has been the case with many of our domestic animals and birds, which originally came from foreign parts. The notorious glutton, the Emperor Heliogabalus, Aelius Lampridius relates, had dressed Parrot heads served at his banquets and even fed his lions on Parrots and Peacocks. From this it is clear that these birds must have been then imported in vast numbers."

We will now leave the Parrots awhile and return to vol. iv, and what Dr. Russ has to say there on other birds in the days of Rome, just incidentally referring to what every school-boy knows, another item on the imperial and plutocratic menus of the time—Nightingale tongues. He continues thus:

"In their parks the Romans kept various kinds of ornamental fowl—Flamingos, Purple Gallinules, Cranes and other Water and Game Birds, for in those days it was the larger sorts which were the special favourites and the Parrots were the only representatives of our present day chamber birds. The methods and objects too of the bird-fanciers of those days were radically different from those of to-day. The inherent roughness and unbounded love of gain in the Romans of the Decline made them see only one objective in the pets they kept and reared, namely the filling of their own bellies. To quote an instance of this horrid characteristic of theirs, we hear that it gave the actor Aesop the greatest pleasure to eat the best singing and talking birds, because they were like men, and that on one occasion he had prepared a dish, the contents of which were nothing but the most famous feathered singers and talkers. The price of each of these was 6000 sestertia, so that the cost of the whole dish must have come to about 100,000 S. His son was an even worse waster than he was, for not only did he buy only the costliest birds, but would only drink wine in which pearls of price had been dissolved. The gormandising Emperor, Heliogabalus, regaled himself at his banquets on the combs of living cocks and the tongues of Peafowl and Parrots. The self-indulgence of the Romans led to even the smallest birds being made to

* "Psittacus, Eois imitatrix ales ab oris, Occidit."

minister to their pleasures and the demands of their dainty appetites, which they tried by every possible means to satisfy. Lucullus had an aviary built in his dining hall, so that when the dishes of cooked birds were brought in at his banquets, he could at the same time watch the living ones and enjoy their colours, movements and gambols. This Roman also had, Varro states, an 'Ornithon' (bird-house), which was so large that it could hold a thousand Fieldfares,* Blackbirds, Ortolans and Quails, which were fattened on a paste made of figs and meal. The writers of those times give very complete descriptions of these bird-houses and the methods of fattening employed, and we learn that in the state butcheries there were commonly special cages to let on hire, in which birds were fattened up before sale."

A full account of these old Roman bird-houses is to be found in an old book, 'The Architecture of Birds,' published in 1831 under the superintendence of the Society for the Diffusion of Useful Knowledge, but without any author's name on the front page. This account has no apparent connection with the title of the book, but is quite interesting, and well supplements what Dr. Russ has to tell us, to much of which, too, the same objection might be made—that instead of dealing with the early days of real aviculture, it is much more a record of ancient poultry-yards and food supplies. But let that pass, and we will see what our anonymous friend of 1831 has to say about these "voleries," as he calls them. He tells us that his information is derived from the writings of Varro and Columella, and writes as follows :

"Each of these voleries contained many thousand Thrushes and Blackbirds, besides other birds excellent for eating, such as Quails and Ortolans. So numerous were these voleries in the vicinity of Rome, and in the territory of the Sabines, that the dung of the thrushes was employed to manure the lands, and what is remarkable to fatten oxen and hogs.† These Thrushes had little liberty in their prisons, for they were never suffered to go abroad, and they laid no eggs; ‡ but as they were supplied with abundance of choice food, they fattened to the great profit of the proprietor. Each fat thrush, except at the time of migration, sold for three denarii, equal to about two shillings sterling; and on the occasion of a triumph or public festival, this sort of trade yielded a profit of twelve hundred per cent. The voleries were a kind of vaulted courts, the inside furnished with a number of roosts. The door was very low; the

* Russ' word is "Krammetsvögel" (= Fieldfare), but he probably meant Thrushes.

† Had the writer been a bird fancier he would have seen nothing remarkable in this.

The half-digested remains of the fig and meal paste would form a most fattening food for animals, and one which would be readily eaten by cattle, much more so by pigs.

‡ Were either of these likely? This author was *certainly not* a bird fancier.—E. H.

windows very few, and placed in such a manner as to prevent the captives from seeing the fields, the woods, the birds fluttering at liberty, or whatever might awake their sensibility, and disturb the calm so conducive to corpulence. A little glimmering was sufficient to direct them to their food, which consisted of millet and a sort of paste made of figs and flour. They had also given them the berries of the lentisk,* of the myrtle, of the ivy, and whatever, in short, would improve the delicacy and flavour of their flesh. They were supplied with a little stream of water, which ran in a gutter through the volerie. Twenty days before they were intended for killing, their allowance was augmented; nay, so far was the attention carried, that they gently removed into a little anti-chamber the Thrushes which were plump and in good order, to enjoy more quiet; and, frequently, to heighten the illusion, they hung bowers and verdure, imitating natural scenery, so that the birds might fancy themselves in the midst of the woods. In short, they treated their slaves well, because they knew their interest. Such as were newly caught were put in small separate voleries, along with others which had been accustomed to confinement; and every contrivance, every soothing art was employed to habituate them somewhat to bondage; yet these birds were never completely tamed."

We will now return to Russ, who writes that the first of these bird-houses was, according to Pliny, that built by Marcus Laenius Strabo, and goes on to say that—

"since his time, authors have lamented, that the custom has grown up of keeping in prisons animals which Nature intended to live out their lives in freedom."

He next introduces us to Alexander Severus, the successor of Heliogabalus, whom he calls—

"a noteworthy bird-fancier according to our ideas, a true animal-lover in the best sense of the words, who kept dogs, cats and other four-footed pets, as well as birds, the latter in great numbers, for instance his collection of Doves numbered some 20,000 head. All his birds were most carefully kept and tended for the sole purpose of facilitating the observation of their life-habits and ways."

But surely 20,000 head was rather a large number for the purposes of study only, and one can hardly believe that Severus had not, like his contemporaries, the kitchen and the banqueting hall in view as the proper end, sooner or later, of his feathered captives. Our author then continues:

"Ancient Rome soon became for other reasons the headquarters of the importation of live stock from all parts. For the great combats of the arena thousands of wild beasts were brought over and this necessitated hunting and catching expeditions to all parts of the then known world. With these vast

* The mastic tree (*Pistacia lentiscus*), one of the resin-producing shrubs of the Mediterranean.—E. H.

numbers of the larger animals there must also have come a certain number of Parrots and other ornamental birds. The downfall of Rome, however, put an end to all this and the wild beast trade and import practically ceased for centuries; at any rate [we turn again to the Parrot volume, p. 7.—E. H.], information on this period fails us, or the little there is at our disposal is only most vague and traditionary. We know that at the time of the Crusades Parrots were becoming known throughout Europe and were to be found in ornamental cages in the palaces of Princes and the more wealthy. The ladies of the period (the Middle Ages) had their Parrots, their "Mignons," with which to console and amuse themselves in their loneliness, while their knights were away at the wars; and we hear also of Parrots even in the cloister, where they would seem quite out of place, even if they could babble bits of the Bible and the Prayers."

With the last sentence we have got back again to vol. iv, and will continue the translation from the place where we broke off (p. 4):

"As navigation improved and wider voyages of discovery were made, sailors began to bring back birds with them. Moreover, as Ferdinand Cortes relates, wild beast-keeping was in great vogue among the aboriginal inhabitants of America. The Emperor Montezuma had a zoological park on such a grand scale that 600 keepers were needed for the care of the animals. Talking Parrots were particularly beloved and the natives were well advanced in their knowledge of these. Among the most valuable acquisitions, the results of his voyage, which Columbus brought home were some of the large gaudy Macaws. The rich merchants of Augsburg of the 15th and 16th centuries were accustomed to keep numerous Parrots and other foreign birds in their mansions, and at about the same period, so Piccolomini writes, in Vienna so many Parrots and other birds, both native and foreign, were kept either in the rooms or summer-houses, that when walking through the streets, one could imagine oneself in the woods, so lusty were their songs and calls. Very shortly after this came the *Canary** . . . to rapidly spread through Europe and more particularly Germany. Finally with the commencement of the 17th century began, first in Portuguese ships, the importation from Senegal of the small African birds, which are to-day everywhere known and loved under the name of 'Ornamental Finches.' Very shortly the Spaniards, French and Dutch got the chief part of this trade, which was already by the middle of the same century a most flourishing one, and later the English, Germans, Americans and others took their share of it, till the very extensive bird market of to-day was established."

We have now followed Dr. Russ from Noah until to-day, and in taking leave of him may conclude with the few further details of the growth of the import trade, which is to be found in the Parrot volume, when he writes:

* "Imported into Europe very early in the sixteenth century."—Newton, 'Dict. Birds,' p. 71.

“It is fairly certain that in the 14th and 15th centuries birds were imported into Europe by the Venetians and Portuguese, in whose hands the trade with the Indies then was. We know that the last-named in the year 1498 rounded the Cape of Good Hope and eventually possessed themselves of a great part of India and the island of Ceylon, whence they brought to Europe Indian Parrots, which they found already tamed by the natives of that country. The same was the case when the Spaniards discovered America; they also found the aborigines keeping tame Parrots. When Columbus made his solemn entry into Seville on his return from his first expedition, he had with him, among other valuables, some living Parrots. So also the English on their voyages to the New World brought home with them—first in 1504—live Parrots, which were at first considered great curiosities in that country. Later on however as the result of keen search, they were brought to Europe from America in larger numbers, and among them even the big Macaws were included, birds which were at that time thought fit to grace only princely houses.”

Our authority then goes on to the writings of Aldrovandi, Gesner, and other naturalists of the time, and with these we may fitly leave him, as they belong to quite another chapter in the book of aviculture.

AVIARY NOTES FOR 1917.

By MISS CHAWNER.

March 6th.—Eagle Owl down on nest previously dug for her by the male.

March 10th.—The Eagle Owl is sitting. Jardine's Pygmies clearing out their nest-box.

Same date.—A Pied Woodpecker destroying larch poles supporting a pergola in the kitchen garden. The poles had been much used during last summer by tree wasps. Doubtless the Woodpecker is attracted by their grubs, but the result is disastrous for the poles!

March 6th to 10th.—My caged Nightingale has started warbling, and every day his notes are a little stronger. He is a fine, bold bird, and has become very tame.

Same date.—My cock Yellow-winged Sugar Bird is about half-way through his spring moult. He has sung continually for several weeks regardless of the weather. He is kept in the inner aviary,

which is slightly heated. The Indigo Bunting, who lives exclusively in the uncovered flight, has come into glorious colour.

The Yellow-rumped Serin is hesitating between a hen Goldfinch and a hen Bullfinch, but the latter is not at all of an oncoming disposition. I think he may have a better chance with the Goldfinch.

October.—Our Editor has asked me to publish “results” in connection with these notes, which I, unfortunately, can do in one word—*nil!*

The Eagle Owl went to nest three times, and sat steadily for the full period on each clutch, but nothing hatched out, greatly to the poor bird’s disappointment. The same thing took place with the Marble Owls in the next aviary.

The Jardine’s Pigmy Owls hatched two or three young and tended them well for a week; then (in consequence, I fear, of too many visitors) they devoured the whole brood.

The cold weather in April, really our third winter! cost me both my Yellow-winged Sugar Birds and the cock Indigo Bunting. I have since sold the hen, who promptly went to nest with her new owner, but did not hatch anything.

The Yellow-rumped Serin finally paired up with a hen Greenfinch, as the others would have nothing to say to him. She laid and sat steadily, but the eggs were clear, and soon afterwards she died.

The Diamond Doves turned out to be both cocks, and fought all day and every day.

This autumn I regretfully decided to give up keeping birds, save only the Nightingale and my Owls. When better days come I hope to start again, and meanwhile possess my soul in patience and solace myself with visions of glorious successes in time to come.

CORRESPONDENCE.

AN AVICULTURAL MYTH.

Dr. W. T. HORNADAY writes: Certain feather exporters of Hankow, China, have made a determined effort to persuade the United States Treasury Department that “Numidi” feathers, derived from the Manchurian Eared Pheasants, come from “domesticated birds,” that are reared in captivity in great numbers, and,

therefore, that such feathers are entitled to free entry into the United States, in accordance with the terms of our new Tariff Law.

The papers in the case, and the specimens submitted, were referred to me by the Treasury Department for an opinion. All the feather specimens submitted proved to be blood feathers, that were plucked when only half developed, from birds that evidently were either shot or trapped. It was pointed out to the Secretary of the Treasury that no feather grower in his senses ever would pluck live birds, if he had any, when the feathers were only half grown and worth only a fraction of their value when fully developed!

Fortunately for the purposes of the inquiry, Mr. C. William Beebe, our Curator of Birds, visited Hankow and the surrounding districts of China, while studying the Chinese Pheasants in connection with the preparation of his monograph on the Phasianidæ. Mr. Beebe found no Eared Pheasants in captivity, could *hear of none*, and returned from China absolutely certain that there is no Pheasant-raising industry whatever in any of the portions of China that he visited.

The final decision of the Treasury Department was that the evidence submitted in support of the exporters' contention in behalf of the existence of a feather-raising industry in China with Eared Pheasants, was by no means conclusive, and that the claims made were not sustained.

EDITORIAL.

In this number of the Magazine considerable space has been allotted to the Old World Vultures. Future issues will similarly deal with special aviculture—for instance, the study of little-known families of birds, notes on zoological garden methods at home or abroad, the history of aviculture, applied aviculture, and so on. Papers dealing with the usual work of the Society will be inserted as in the past.

A number of interesting and unusual photographs have been received, portraying rare birds or interesting phases of bird study. From these selections will be made from time to time, as funds permit.

In the January number space will be devoted to Australian and New Zealand birds. A unique photograph of a running Apteryx will appear in this issue.

G. R.

PROPOSED CANDIDATES FOR ELECTION.

HERBERT SMITH RENSHAW, M.D., 2, Richmond Hill, Altrincham, Cheshire.
Proposed by the EDITOR, Dr. GRAHAM RENSHAW, F.R.S.E.
 Lieut. E. N. PRICE, Royal Field Artillery, Headquarters 6th Divisional Artillery,
 B.E.F., France. *Proposed by Lieut. B. HAMILTON SCOTT.*
 Mrs. GODDARD, The Lawn, Swindon. *Proposed by Mr. ASTLEY.*

NEW MEMBERS.

Mr. ARTHUR HORNE, Bonn-na-Coille, Murtle, Aberdeenshire.
 Mr. PHILIP SMITH, Haddon House, Ashton-on-Mersey, Sale, Manchester.

MEMBER RETIRED.

Mrs. FLOWER, Longfield, Tring, Herts.

ILLUSTRATION FUND.

	£	s.	d.
Mr. H. Carr-Walker	0	10	6
Mr. Guy Falkner	1	0	0
Mr. W. B. Gibbins	0	10	0
Mr. T. Hebb	0	10	0
Mr. F. Marshall	0	5	0
Mr. Meade-Waldo	2	1	1

ALTERATION TO RULES.

At a Meeting of the Council, which was held on Feb. 17th, 1916, the following addition to the Rules was made:—"That each Member (not a Dealer) be entitled to ONE ADVERTISEMENT, FREE OF CHARGE, EACH MONTH, the Editor to be sole judge as to whether such advertisement can and shall be published or not, priority shall be given to those who apply first."

MEMBERS' PRIVATE 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. TRADE ADVERTISEMENTS ARE NOT ALLOWED IN THIS COLUMN. Dealers who are members, wishing to advertise, should apply to the Publisher for terms. 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.

WANTS.

For Exchange.—Indian Shamah. Wanted to exchange very perfect tame young aviary-bred this year's cock for another cock not too old to breed, to introduce new blood. G. E. Low, 14, Royal Terrace East, Kingstown, Ireland.
Wanted.—Pair of Yellow Budgerigars.
 ALFRED THOM, "Citadel," Hawkstone, Salop.

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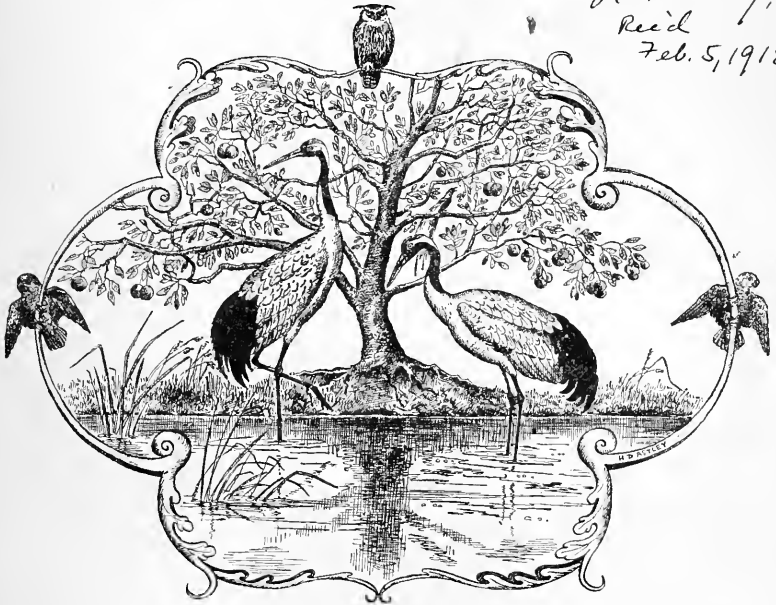
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RARA AVIS IN TERRIS: MR. G. E. LOW'S UNIQUE PHOTOGRAPH
OF A RUNNING APTERYX.

THE
AVICULTURAL MAGAZINE,

BEING THE JOURNAL OF
 THE AVICULTURAL SOCIETY.

Third Series.—Vol. IX.—No. 3.—*All rights reserved.*

JANUARY, 1918.

A UNIQUE PHOTOGRAPH.

We have pleasure in publishing herewith the photograph of a running Apteryx promised last month. Careful search through Apteryx literature has revealed many excellent studies of these birds—standing, stooping, or crouching—but none of them portrays the curious, characteristic running pose shown in our illustration. Our member, Mr. G. E. Low, has made a unique contribution to aviculture.

Mr. Low writes regarding this bird: "He dwelt many years ago in the Dublin Zoo. I well remember the keeper taking him out of bed to be photographed. He resented this very much, and would not sit. So I said to the keeper—'If he won't sit let him run,' and indicated the line I wanted him to take. The photo is the result of this."

All such photographs of rare birds threatened with extinction are of the utmost value. What would one not give for similar records of the life of the Great Auk, of the Labrador Duck, of the unwieldy Dodo, or the vanished Moa? The Pigeon Hollandais has gone never to return; and, though another species now bears its name and keeps its memory green, the extinct form has disappeared almost unrecorded by the pen and utterly unrecorded by the camera.

The accurate nature photographer can render great service to zoology.

G. R.

NOTES ON THE EGG OF MANTELL'S APTERYX.

By GRAHAM RENSHAW, M.D., F.R.S.E.

In May last the writer examined a female Apteryx in the London Zoological Gardens. The bird was languid and apparently out of sorts, and the keeper said she had been wandering about in the daytime, contrary to her habit.* On being released, she made no attempt to run under the straw, as is usual with these birds, but stood quite still, with the head turned to the left—an attitude, by the way, which has been admirably rendered in a stuffed example recently adorning the window of Rowland Ward, Ltd. On water being offered she drank at once, but still made no effort to run away. She exhibited, in fact, all the dulness and sluggishness which characterises these birds on the eve of egg-laying—probably on account of the enormous size of the egg. On May 8th the egg was duly laid, and, by the courtesy of the Zoological Society and Mr. Seth-Smith, has passed into the writer's possession. In view of the rarity of specimens of late years, it may be well to call attention to its characters and structure.

(1) As regards *size*, the specimen measures $5\frac{1}{4} \times 4$ in.

(2) The *shape* is the usual elliptical form, there being but little difference between the large and small ends. Some eggs are quite ovoid (Kirk), being wide in the middle and narrowing towards each pole; but this is not one of them.

(3) On extrusion, the egg weighed $11\frac{1}{2}$ oz.—probably on account of the bird being old, as she had been in the Zoo over eleven years, having formed part of the great Apteryx consignment brought over in 1905.† [The smallest egg collected by Sir W. Buller, it may be remembered, weighed only $11\frac{1}{2}$ oz., while his largest weighed $15\frac{1}{2}$ oz.] The specimen described in this paper was clear, but so

* Contrary to the habit of this individual bird, but not entirely contrary to that of the *species*, for Apteryxes have been known to come out voluntarily to bask in the sun. Other nocturnal species, such as Owls, have a similar habit in the daytime.

† On June 26th, 1905, no less than eleven Mantell's Apteryxes were received at the Zoo. Seven were the gift of the Government of New Zealand and Mr. H. C. Wilkie; four were presented by the Earl of Ranfurly. The entire consignment had been brought safely to England by Mr. Wilkie.

was the first example laid in the Zoo (June 9th, 1859), yet the egg of 1859 weighed $14\frac{1}{2}$ oz. It is thus probable that the advanced age of the bird accounts for the lightness of the present specimen.

(4) *Structurally* the egg is very thin-shelled; it is glossy like porcelain, and smooth to the touch, though minute examination shows the surface to be dotted all over with tiny pits. At the large end there are several raised hair-like lines, and a few minute raised tubercles, such as also occur in *Apteryx oweni*.

(5) A faint pink colour is noticeable, especially on holding the egg up to the light and viewing the interior through the blow-hole. This pink hue is apparently only found in clear eggs, never in incubated ones; but European aviculturists seem unlikely to be able to confirm this theory, as no fertile eggs seem to have been laid in this country, whether at the Zoo or elsewhere. The pink hue is very delicate, difficult to recognise by artificial light, and possibly fugitive at best; nevertheless, it does certainly occur, and the eggs of Mantell's *Apteryx* are by no means of the dull-white, green-grey, or pale yellowish hue stated in text-books.

NOTES ON THE WHITE-BROWED WOOD SWALLOW (*Artamus superciliosus*).

By R. T. LITTLEJOHNS and S. A. LAWRENCE.

To many aviculturists in the Mother Country the subject of this paper will be familiar. The White-browed Wood Swallow has been introduced into English aviaries apparently with a good measure of success.* The writers, as photographers and observers, have had a fair experience of the bird in the wild state, and the following notes on its habits have been gathered during wanderings within a few miles of Melbourne.

The White-browed is one of three species of Wood Swallow which nest annually in this south-eastern extremity of the continent. One of the other two species remains in the locality all the year round, but the White-browed and the third species are summer

* [We saw a species of Wood Swallow in the Cologne Zoological Gardens in 1909.—G. R.]

visitors only. Some years also they appear in greater numbers than in others. They usually arrive in the month of November, and journey north again soon after rearing their broods. The species under review is gregarious, always travelling and hunting in flocks. At nesting-time even the flock does not break up entirely, although the nests are built far enough apart to ensure each nesting pair a distinct territory of its own.

It is quite evident that a colony of birds will return to the same locality to nest year after year. On this account the writers, who have a very soft spot for these graceful birds, make it an annual practice, no matter what other urgent business is afoot, to pay at least one visit to a picturesque little spot known between them as the "Wood Swallow Paddock." It is a grassy paddock intersected by two small gullies forming a **V**, and covered with a six-foot growth of native and introduced bushes—very quiet and undisturbed notwithstanding the fact that the heart of the city is only twelve miles away by rail. The white skeletons of ring-barked gum-trees dotted at intervals complete a picture evidently as attractive to the birds as to ourselves. Here, in the area of five or six acres, one is sure to find, a few weeks before Christmas, upwards of a dozen families busy with their nestlings. The anxiety we feel each year as to whether the birds have chosen other pastures is dispelled by the notes of alarm as the paddock is reached. The location of the several nests is always an easy matter. As previously mentioned, each pair of birds jealously guards a fixed area surrounding its own nest. In every case this area contains a dead tree, and from the bare limbs of this point of vantage attacks are made on the intruder the moment he crosses the invisible frontier. The nearer to the nest the greater becomes the fury of the attack, an unfailing "hot or cold" tell-tale soon pointing out the conspicuous nest. So dearly do the birds hold to their theory of a look-out and a surrounding allotment that not one case has been noted in this particular colony where a nest was not associated with a dead tree. Further, each pair minds its own business and leaves the intruder wholly to the fury of the next family as soon as he passes out of their own domain. We have never, except when experimenting as described later, been attacked by more than one pair of birds at one time. Should a Wood Swallow trespass



NEST AND EGGS OF WHITE-BROWED WOOD
SWALLOW (*Artamus superciliosus*).

on his neighbour's estate, he is very suddenly and surely reminded that his own part of the world is safer.

A comparison of the contents of all the nests invariably shows that the whole flock commence nesting at the same time. If half-fledged young are found in the first nest it is quite safe to expect the same all round. On one or two occasions one pair, apparently overtaken by misfortune on the first attempt, has been found a week or more behind the others.

The nest is a shallow structure, usually composed of twigs, grasses, and fine roots, bearing the unmistakable imprint of hasty construction. Building operations take, on an average, about three days. The position chosen also indicates a certain amount of carelessness. Any small bush, straggling or otherwise, is availed of, and the nest dumped in an upright fork or on a horizontal branch. Very often it is easily discernible from a hundred yards off. The eggs, most often two in number, are of a slaty stone colour, heavily blotched with darker markings.* One of the photographs reproduced gives a fair impression of the class of shrub selected, the general build of the nest, and the appearance of the eggs. It will be noticed that one of the eggs shown is of unusual shape, being much longer than the other, which was a normal one. This was very noticeable in the eggs themselves.† It was quite a disappointment to find on a subsequent visit that apparently the business part of the egg was normal, as the chicks were identical. Both parents take part in incubation and in the feeding of the young. The eggs hatch in about twelve days, and at the end of another twelve the nestlings are well covered with streaked light grey feathers, and are showing a strong inclination to be moving. They are fed throughout on insects obtained in the air and on the ground. The wisdom of the grey-streaked plumage of the young becomes apparent when one searches for a family either in the dry grass or on a dead tree. A well-maintained silence when in danger completes their protection.

* [We have before us an egg of the allied *Artamus sordidus* taken at Moora, West Australia, on September 20th, 1908. It is of a pale cream colour, spotted with greenish-grey and purplish-grey.—G. R.]

† [Similar discrepancies occur in clutches laid by our own Stone Plover or Thick-knee (*Edicnemus scolopax*), the two eggs often differing considerably in shape.—G. R.]

The writer's attachment to these birds must certainly be for some reason other than their trustfulness. They are about the most difficult birds, from a photographer's point of view, that we have come in contact with. Some small birds, after a short time, have become so trustful as to feed their young on our hands or shoulders. Such a thing in a wild Wood Swallow is barely imaginable. From the time the photographer arrives until he is tired of the "fun" and moves on to similar treatment at the next nest the irate parents sweep down from their tree and back again almost unceasingly—a vicious snap of the beak at camera or operator on both the outward and the return journey. Various tricks of the trade to which most birds will usually succumb are useless. On one occasion the young from three different nests, labelled to show their correct addresses, were removed to a point between the nests in the hope that there would be one brave parent among the six, or that the greater number interested would make them bolder. The unexpected result was a harvest of feathers from a six-handed battle in mid-air. The human sentiments regarding comrades in distress apparently does not apply to Wood Swallows. The labels were hastily consulted and the causes of the trouble returned to their respective homes. This tendency to fight at the smallest provocation disappears as soon as the young are safely on the wing. The augmented flock again soars in harmony, and the feuds of nesting days are forgotten.

On two occasions only has success attended our photographic efforts. In the first case, both birds showed up with the required courage and actually visited the nest together. Unfortunately a ten-shilling box camera was in use at that time, and the picture is not what it might have been. On the other occasion the apparatus was better, but the male refused to be convinced of the harmlessness of the camera. The female, after a couple of hours' indecision, gave the photographers unlimited opportunities.

Notwithstanding a bad record from a photographic point of view, the Wood Swallow cannot do otherwise than command the admiration of every Nature lover. The easy, soaring flight and the characteristic circular movement of the tail when at rest provide a fitting setting for the graceful form and slaty-grey plumage. A proudly defiant parent sitting on its small, frail nest, or a family of five on a

dry bough—three small stumps of tail doing their best to imitate the mature swing of the other two—makes a picture sufficient to compensate for many camera failures. Nor would it be correct to think that the habits of the birds always savour of ferocity. In the course of a day's photography there is often a vexatious delay of half an hour while two erring parents, huddled together on their favourite branch, express their mutual affection by a multitude of looks and gestures—"spooning," to use a time-worn expression. Very pretty, no doubt, but not always satisfying to two parched and sun-baked photographers watching the scorching summer day drawing to a close, and seeing no prospect of their deserved reward.

BIRD-TALK.

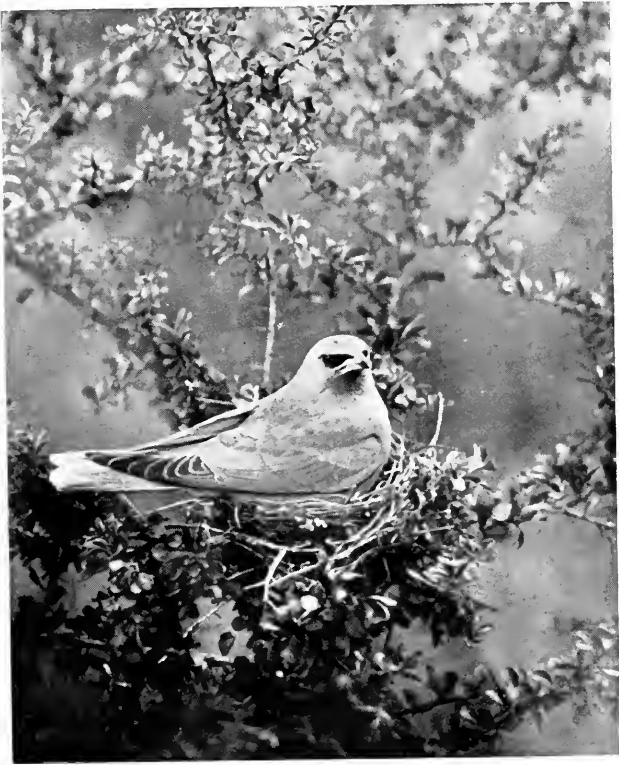
By AN OLD AUSTRALIAN BIRD-LOVER.

The study of bird-life in freedom should be one of the subjects taught, along with the need of bird protection, in every school. How many pleasant moments those miss who give no thought or look towards other things in Nature besides themselves. In the following I give a few of my own observations. I could give more, but leave it to other members to follow on.

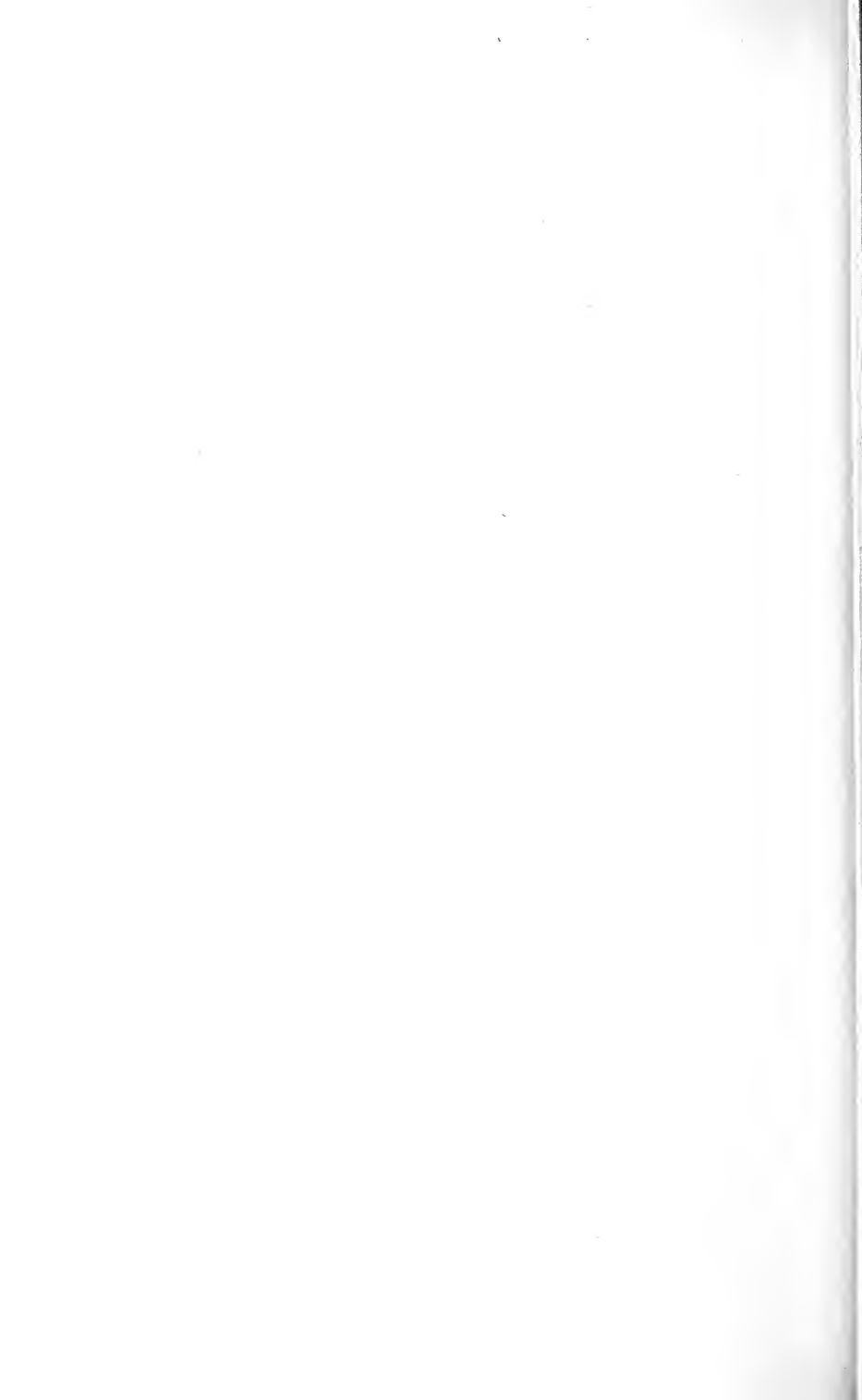
Walking in the gully near my home, I came across a Honey-sucker's nest. Originally it had contained three young of their own species and one baby Cuckoo. Two of their young lay dead below the nest; the other, also dead, still clung to the rim of the nest, where it had fastened when pitched out by the Cuckoo. It is a common sight about here during spring to see a pair of tiny Wrens feeding a Cuckoo baby four times and more the size of themselves. It is a strange fact that birds do know these Cuckoos abuse their nests, yet cannot distinguish their eggs or their offspring from a Cuckoo's. Another time my boy and myself were attracted by the distressing calls of a Striated Wren, which actually led us towards its nest, difficult to locate in the tall grass. We discovered by the faintest chirping an unfeathered nestling being dragged along in a dying condition by soldier ants. Following their trail, we found the nest containing two young still alive but partly eaten by these brutes. To complete the tragedy of this little family,

we caught the parents. The pleasure of possessing these rare and pretty birds—I have only seen one other pair—was short-lived. The hen broke her leg on the way home and died; the cock-bird strangled himself a week later between the wires of his cage. The Laughing Jackass, on account of its laudable reputation for killing snakes, is a protected bird. I know the Australian bush well, and have seen and watched hundreds of these birds, but personally have never seen one yet kill a snake. I noticed them swoop down, catch up a little frilly lizard, rise up, drop it and catch it again, probably to kill it before settling on a branch to pound the little reptile tender. But, like the famous Butcher-birds—the worry of my aviaries—they steal the broods of other birds out of the nest; for chickens they have developed a special taste. A Peewit having built on one of the tall gum-trees in my paddock, had been watched by us feeding its young for days—in fact, I intended to have them later on; but a Jackass thought it had a prior right, and we noticed it helping itself to one first under the most vociferous protestations of the parent Peewits; later on it fetched the other one.* Another time, sitting under a tree, a Wood Swallow floated to the ground not far away. Picking it up, we took it home, but it died in spite of all our care and attention. Its trouble was being egg-bound. Even in freedom I am sure epidemics occur amongst birds which must carry off many a one. I picked up one of our brightly-coloured native birds one day and brought it home, foolishly placing it in my soft-bill aviary. This act cost me every bird I had in that flight. I could only ascertain that the cause of death had been intestinal. A doctor friend, to whom I showed a bird once on account of its blindness, diagnosed it as a cataract. But there are instances brighter than those just related. Thus I had a Borneo Partridge which chose as a

* [By "Peewit" our correspondent probably means the Peewee or Pied Gallina (*Grallina picata*). This handsome black and white species is also known as the "Magpie Lark": it is as useful as it is handsome, for it destroys numbers of land molluscs—intermediate hosts of liver-fluke. A clutch of three eggs now before us recall in size and shape those of the English Missel Thrush, in colour they are of a beautiful flesh-pink hue, blotched with reddish brown and purplish grey. The clutch was taken in the mountains of Victoria on November 18th, 1904, from a mud nest lined with feathers like that of a thrush.—G. R.]



A PEARL IN AN EMERALD SETTING:
WHITE-BROWED WOOD SWALLOW ON NEST.



friend a little Green Singing Finch. The friendship was really grotesque. Each day I regaled my Partridge with meal-worms, and, although it would not allow any other bird to touch them, it always called its little friend, and, having seen it partake of one first, then itself would eat of what was left. This bird seemed to take the lead in that flight, and decide if a caterpillar should or should not be eaten; if not, it would utter a warning call, and no bird—I often watched it—would go near it. It is strange how tastes differ even amongst birds. We have a moth here, a veritable pest in the caterpillar stage, which even fowls and ducks—I tried them—refused. The only birds I have ever seen eating them were the Melodious Honey-eater and the Fan-tail Cuckoo. None of my aviary birds or another kind of native bird would touch them. We had a Sparrow once rejoicing in the name of “Billy.” One day “Billy” began to ail, and became weaker as the days went by. Examining it closely, I found between the shoulders two small lumps which moved to the touch of a pin. They proved to be maggots, conical in shape, and quite $\frac{1}{2}$ in. long. The stern really formed the lump, and when the maggots were removed two big gaping holes showed in the skin. “Billy” recovered, but eventually died an inglorious death by being drowned in the soup—mourned by the whole household. Some of my birds like Dayals and Chinese Starlings are allowed their freedom, and it has often puzzled me to know why these birds on summer evenings collect big ants, put them under their wings, keep them there for a while, and then replace them with fresh ones. The ants used are the soldier ants, which only nip, certainly very unpleasantly sometimes. It is hard to imagine a place without Sparrows, but here in New South Wales the whole of the north is free from them, simply because the railway does not run so far yet. This is a fact, that as far as the railway runs so far the Sparrow is to be found; the next township, a few miles further, is free from them. Concluding these notes, I will mention a little episode seen but once, years ago out in the west. Rising early, I saw one morning a big flock of White Cockatoos settle not more than 300 to 400 ft. away from me on two solitary gum-trees standing a little distance apart. Evidently the look-out bird had not seen me, and I was able to witness a sight to which but few white men have been treated. These birds went

through a regular set of quadrille flying in fancy figures, one might almost say, to and fro between the two trees.

In the aviaries one meets, of course, often with incidents which make one wonder, do birds really think normally at times? I remember a pair of Red-collared Whydahs breeding with me. The nest, a hanging one, similar to the Weaver nests, had such a flimsy bottom that one could count the eggs from a distance. As I anticipated, they slipped through one day and were broken. The birds set to work and strengthened the bottom of the nest in such a way that all accidents were obviated. Indeed, they raised several broods in the same nest. At the present time I have a pair of Peach-faced Love-birds breeding. They chose in the first instance a box, laid, and hatched some young; then heavy rains set in, causing the top of the box to leak. They at once arched the nest inside the box most cunningly, but failed to rear the young. This time they built in a hollow log, but, as the log is very exposed and slanting, they built a sort of breakwater half-way above the nest and entrance—all most intelligently devised and executed. In spite of the bleak winds and heavy rains of late, the young (three of them) are doing well, and I hope to rear them, thanks to the ingenuity of their parents.

SONGSTERS OF NEW SOUTH WALES.*

By ALFRED NORTH, C.M.Z.S.

Ornithologist to the Australian Museum, Sydney.

The Order *Passeres* contains nearly all the birds noted for their song or other musical powers, a few only of which can be noticed here. For richness and volume of sound, the different species of Lyre-bird must be placed first among the birds of New South Wales. To hear a fine old adult male *Menura superba*, or *M. victoriae*, especially before he has left his roosting-place near the top of some blackwood or sassafras growing in a secluded gully, pour forth his melodious and varied natural notes to usher in the dawn of day, is an experience never to be forgotten. In addition to possessing in the

* [Reprinted from the 'New South Wales Handbook,' British Association Visit.]

males rich, organ-like and other notes, they are the finest avian mimics in the world, imitating to perfection the notes of other birds frequenting the same haunts, and any sound they may hear, such as that produced by the sawing of wood or a dog barking. Within seven miles of Sydney, *Menura superba* may still be found about Middle Harbour, but on very rare occasions on the western side, owing to the comparatively recent clearing of the undergrowth. These birds are, however, more freely distributed the farther north one goes, and are fairly numerous in the scrub-covered gullies and ravines between the head of Middle Harbour and the Hawkesbury River. Unfortunately, in the mountainous districts in the south-eastern portion of the State, a large number of this fine species, and also of *M. victoriæ*, principally females, are destroyed every year by the introduced fox.

The Family Laniidæ is represented by the Black-backed Crow-Shrike (*Gymnorhina tibicen*) and the White-backed Crow-Shrike (*G. leuconota*), familiarly known, both in Australia and Tasmania, as "Magpies." They are extremely useful birds, and rid the land of countless numbers of injurious insects and their larvæ. The White-backed and Black-backed Crow-Shrikes are also early risers, and their flute-like carols are pleasant to the ear; nor must the varied liquid-like whistling calls of their smaller congener, the Black-throated Crow-Shrike or "Butcher-bird," be forgotten. The Black-throated Crow-Shrike (*Cracticus nigrigularis*), an extremely wary species, and the Collared Crow-Shrike (*C. destructor*), known everywhere in Australia as "Butcher-birds," are more arboreal in habits, the former frequenting chiefly the far central and western districts of the State. The latter is more common in Eastern New South Wales, and may be found breeding within a few miles of the metropolis. It has a *penchant* for abstracting Canaries and other small birds kept in captivity through the wires of their cages.

The Family Muscicapidæ is well represented by the various species of Flycatchers, Bush-Warblers and Robins. Of the Flycatchers, the Brown Flycatcher, or "Jacky Winter" (*Micræca fascians*), is the commonest resident species in Eastern New South Wales, frequenting and breeding in the parks and public gardens of Sydney, and the first species in early spring and summer to

welcome in with cheerful notes the dawn of day. Around Sydney and the suburbs the Brown Flycatcher utters its melodious notes at the first break of dawn, and reigns supreme amongst the numerous smaller Warblers during the early spring months. Another familiar species about the many public reserves of the metropolis is the Superb Warbler (*Malurus australis*), the adult male of which, in his velvety-blue and black attire and lengthened tail-feathers partially turned over his back, may be often seen, frequently in company with his modestly brown-plumaged consort, tripping over the grassy lawns or pouring forth his lively tinkling notes from the top of some low shrub.* A small bird, too, that is sure to arrest one's attention at this time of the year with its lively trilling notes is the White-throated Bush-Warbler (*Gerygone albigularis*), locally known as the "Native Canary." The Harmonious or Grey Shrike-Thrush (*Collyriocinclla harmonica*), a tame and familiar species about the suburbs and homesteads in the country, too, with its clear whistling notes, must not be overlooked. As a songster, few, if any, can vie with the Brown Singing Lark (*Cinclorhamphus cruralis*). The rich, organ-like notes of the male are usually poured forth while it mounts up high in the air, and the song is accompanied by a tremulous motion of the wings. This migratory species inhabits well-grassed lands, and, near the coast, dry, open heath and stunted bracken. Another of our most pleasing songsters is Horsfield's Bush Lark (*Mirafra horsfieldi*), occurring principally about grass-lands and cultivation paddocks. A fair amount of its time is passed on the wing high up in the air, singing all the while. At night at the same time of the year, among others, also may be occasionally heard the melodious notes of the Reed Warbler (*Acrocephalus australis*), the mournful piping calls of the Little Grass-bird (*Megalurus gramineus*), and of the various species of Cuckoos, the "Sweet-pretty-creature" note of the Black-and-white Fantail or "Willy-Wagtail" (*Sauloprocta melaleuca*), and the somewhat harsh piping cries of the Sacred Kingfisher.

* This species was figured in a characteristic attitude in the 'Avicultural Magazine,' November, 1902.

AUSTRALIAN SONG-BIRDS.*

By W. M. SHERRIE.

A recent statement by Mr. Gregory Mathews, who has had experience of both countries in an ornithological sense, on the relative merits of the song-birds of England and Australia has attracted a good deal of attention. It has also caused some surprise even in Australia. Mr. Mathews declared that he preferred the notes of the Golden-breasted Whistler (which used to be known as the Thickhead), the Reed-Warbler, the Grey Shrike Thrush, and the Butcher-bird to the notes of the English Thrush or Nightingale. He added that he considered the Reed-Warbler to be "in a class by itself." In this country we have taken it for granted that even the best of our native songsters were not in the same class as such famous birds as the Nightingale, the Thrush, the Blackbird, or the Mocking-bird of America. One of the reasons for this is that in the past very little of an authoritative character had been written concerning the vocal powers of the birds of this continent. What little was written and published had the effect of depreciating rather than enhancing the average Australian's estimate of the singing capacity of the birds of his native land. Adam Lindsay Gordon, for example (who should have known enough of Australia to realise the grotesque falsity and absurdity of his statement), gave world-wide publicity to the notion that Australia was a country of somewhat bizarre features, among them being "songless birds" and "scentless flowers." The poet might have used the phrase in accordance with poetic licence, or merely to secure a melodious and picturesque image, but the thing was accepted as good "natural history," and is still regarded as such in other parts of the world.

Australian people, from childhood up, had been accustomed to reading or hearing glowing verbal accounts of the vocal wonders of such birds as the Nightingale, the Thrush, the Linnet, and the Mocking-bird, while at the same time having their own birds spoken of slightly in the manner affected by Marcus Clarke, Gordon, and others who knew little or nothing about the subject. Even now there are people so destitute of judgment in a matter of this kind

* [Reprinted from an Australian paper.]

that they deny the claims of the Australian Magpie to be considered a song-bird at all! Yet the late John Gould, the greatest bird student of them all, could find no words in which adequately to describe the carol of the Magpie. "To describe the note of this bird," he said, "is beyond the power of my pen." Professor Alfred Russell Wallace was equally enthusiastic, and he was a man who devoted nine or ten years of his life to the continuous study of birds in their native haunts in the Malay Archipelago. He described the note as "a wonderfully modulated whistle unequalled among European birds." Whether we regard the blithesome Magpie as a "whistler," a caroller, or as a song-bird, there can be no mistake about its being one of the most delightful exponents of wild melody that is to be found among the birds of the world. If there are people who have any doubt on this point they would do well to make an effort to hear a group of Magpies in full song in the early hours of a spring or an autumn morning.

The writer agrees with Mr. Mathews that the little Reed-warbler—which has wonderful range and versatility of song, together with an exquisite quality of melody—is "in a class by himself;" he also has the greatest admiration for the Golden Whistler (a bird of superb singing powers), the Grey Thrush (which, however, pipes rather than sings), and the clarion-throated Butcher-bird; but he has never heard anything in the Australian bush so fine, or so thrilling, as a Magpie chorus about the dawn of day. It may be conceded, of course, that in this respect the Magpies have a great advantage over most of the other species of songsters, inasmuch as they commonly sing in groups instead of individually. To hear the Golden Whistler at his best one needs to visit some of the deep, heavily-timbered valleys in the region of the Clyde River, or other coastal districts, where the birds are numerous. In such localities the early hours of the day are made joyous to the last degree by the collective song of the Whistlers. However, even when we have mentioned the Reed-warbler, the Thrush, the Whistlers, the Magpies, the Butcher-birds, and some others, we have not nearly exhausted the list of first-rate singing birds which are indigenous to Australia. There are the singing Honey-eater (*Ptilotis vittata*) and the Bell-bird (*Oreoica cristata*), for instance. In its singing moods the Honey-eater in

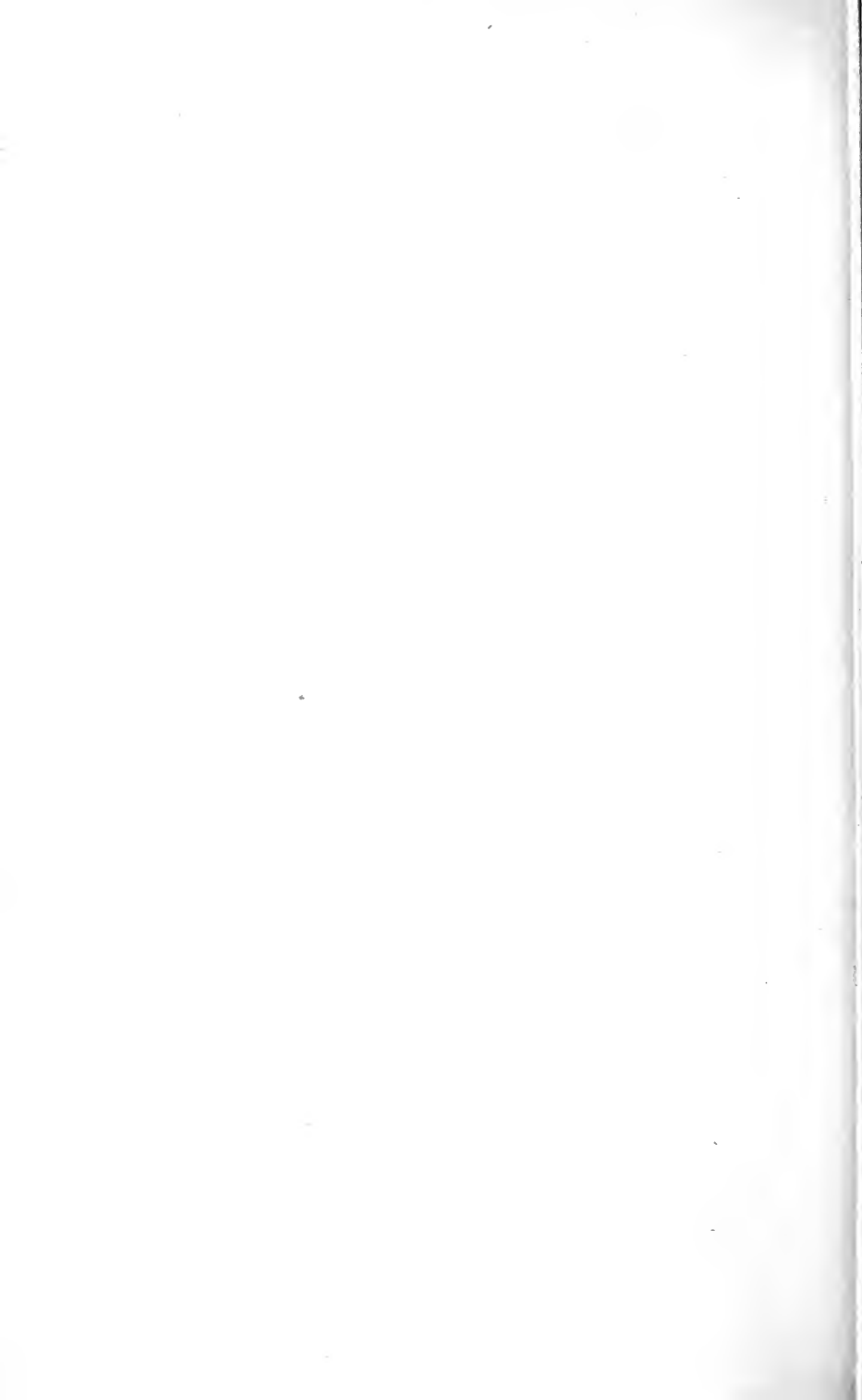


BLACK-BACKED CROW-SHRIKE OR "MAGPIE" PIPING.

The head is raised and thrown back in a characteristic attitude.

Photo. by Mrs. Staveley Hill.

Adlard & Son & West Newman, Ltd.



question is capricious and uncertain, but on occasions its loud note is delightful. For sustained effort in the production of melody I do not think that any of the bush songsters, with, perhaps, the exception of the Reed-warbler, is the equal of the Bell-bird. It is necessary to point out that this songster is not identical with the so-called Bell-bird of the coastal districts—the Bell Minah (*Manorhina melanophyra*). The latter is a honey-eater, whereas the crested Bell-bird is an insect-eater, and belongs to the wooded regions of the interior. As songsters there is no more comparison to be made between the two than there is between the Silver-eye and the Reed-warbler. Gould's collaborator, Gilbert, regarded the Bell-bird as an accomplished ventriloquist; and that is the impression one gets when listening to and observing the song and the actions of the bird. At first the notes seem to come softly and swelling from a distance. As the song proceeds they rise gradually, until one seems to be right in the centre of the flood of melody; then one discovers that the bird which seemed to be away off in the distance is close at hand, in all probability sitting quite still on a dead limb or a stump. The Bell-birds may be heard at their best in the valleys of the Murray.

SOME AUSTRALIAN BIRD TYPES.

By ALFRED J. NORTH.*

Of the Order *Striges*, or nocturnal birds of prey, inhabiting the State, the most common are the Delicate Owl (*Strix delicatula*), a species very closely allied to—by some considered identical with—the Barn Owl of Europe, and the Boobook Owl (*Ninox boobook*). One of the latter birds was captured in 1908 in the vestibule of the Sydney Town Hall. At night-time this species often visits unprotected aviaries of small birds. In the dense coastal scrubs and brushes the rare Sooty Owl (*Strix tenebriosa*) and the large Powerful Owl (*Ninox strenua*) are found; one of the latter birds shot at Richmond, on the Hawkesbury River, had an "opossum" in its claws.

In the Order *Steganopodes*, the different genera found in the State, as in Australia, all belong to Old World forms, the members

* Reprinted from the 'New South Wales Handbook' for the visit of the British Association.

of which are noted chiefly for their fish-destroying proclivities, on which diet they almost, if they do not entirely, subsist. An instance of the voracity of the Black Cormorant (*Phalacrocorax carbo*) may be seen in the Australian Museum, where one of these birds is set up as captured by a water spaniel on the Murrumbidgee River, with a partially swallowed Murray cod (*Oligorus macquariensis*), weighing over a quarter of the bird's weight, protruding from its throat. Much damage is done to the fishing industry by this and allied species, both in the inlets and large estuarine areas of the coast, as well as on the inland rivers and lakes. The Gannet (*Sula serrator*) may be seen flying some distance from the coast, dropping like a stone, ever and anon, into the sea, in order to secure its finny prey; occasionally it ventures into Port Jackson. The Australian Pelican (*Pelecanus conspicillatus*) frequents the islands, rocks awash, and the sand-spits of the bays and inlets of the coast, and the large inland lakes of the Western District, where it breeds; it also breeds on Cook Island, near the mouth of the Tweed River.

The Order *Plataleæ* is numerically one of the smallest in Australia, but it contains some of its most important birds. The Straw-necked Ibis (*Carphibis spinicollis*), the White Ibis (*Ibis mollucca*) and the Glossy Ibis (*Plegadis falcinellus*) occur in thousands, and among other food, especially the former, are remarkably fond of locusts and grasshoppers, etc., and they do an immense amount of good in ridding the grass-lands of the pastoralist of myriads of injurious insects and their larvæ. The Straw-necked and the White Ibis breed in large colonies in reed-beds, cane-grass, and low bushes in flooded country, often together, and among them is sometimes found a solitary nest of the Royal or Black-billed Spoonbill (*Platalea regia*), or the Yellow-legged Spoonbill (*Platibis flavipes*), the only other species of the Order occurring in New South Wales, also in Australia, constructing their nests, like the rarer Glossy Ibis, on the branches of trees, usually in flooded country.

Among the most important members of the Order *Herodiones* in New South Wales, are the Large White Egret (*Herodias timoriensis*) and the Plumed Egret (*Mesophoyx plumifera*). Although these birds are absolutely protected by law throughout the year, they are much sought after in the breeding season for their beautiful

white plumes; also for their eggs. Both of these species are more abundantly distributed in the central and north-eastern districts. An extremely useful bird is the White-fronted Heron (*Notophoxyx novæ-hollandiæ*), locally known in some parts of the State as the "Blue Crane," for it destroys numbers of small land molluscs, one of the intermediate hosts of fluke. This species is sparingly distributed around the neighbourhood of Sydney, frequenting trees growing on river banks and the sides of creeks and dams. At intervals along the rocky coast-line occurs, usually in pairs, the Reef Heron (*Demiegretta sacra*). Birds of both sexes may have the entire plumage of slaty-black or white, and the two forms may be found paired together. The Minute Bittern (*Ardetta pusilla*) is distributed, but in very limited numbers, over the greater portion of New South Wales. It is more frequently met with in the coastal districts, than in the dry, far inland parts of the State. Near Sydney it occurs in the swampy undergrowth from Randwick to La Perouse, and also in the Botany Water Reserve. Towering high above every other species in this Order, is the gigantic Black-necked Stork (*Xenorhynchus asiaticus*) or "Jabiru," inhabiting the large Tea-tree and other swamps of the northern coastal districts, its range extending to India, whence came the type originally described by Latham.

Seventeen out of the nineteen species of the Order *Chenomorpha* inhabiting Australia, are found in the State. The well-known Black Swan (*Chenopsis atrata*) is generally distributed from the bays, estuarine areas, particularly if the latter are overgrown with mangroves, to the reed-beds, cane-swamps, and lakes of central and western New South Wales. The Semipalmated or "Magpie" Goose (*Anseranas semipalmata*) is more abundantly distributed inland, as is also the Maned Goose (*Chenonetta jubata*), better known in New South Wales, as in other parts of Australia, as the "Wood Duck." It is from this Order that the chief supplies of edible Waterfowl sent to the metropolis is drawn, but only a passing reference to one or two of the more important can be made here. For table purposes the more popularly known Black, or more correctly named, Brown Duck (*Anas superciliosa*) takes the pride of place, followed closely, but of smaller size, by the Chestnut-breasted Teal (*Nettion castaneum*) and the more common species, the Slender or

Grey Teal (*N. gibberifrons*). The Pink-eared Duck (*Melacorhynchus membranaceus*) is noteworthy for the singularity of its typical nest, a rounded or oval-shaped structure, about a foot in diameter, of dark slaty-grey down plucked from the breast of the parent bird. The rarer and aptly-named Freckled Duck (*Stictonetta nævosa*) must not be overlooked, nor the Musk Duck (*Biziura lobata*), with a leather-like lobe depending from the centre of the under mandible, which is much larger in the male than the female. It is a solitary species, frequenting the inlets of the coast and the rivers and lakes inland, and although many be found in the same bay or lake, seldom two are seen close together. It is a poor flier, and its journeys are always performed at night. Near Sydney it may be occasionally met with, usually in summer, in Botany Bay, on the secluded waters of Hen and Chickens Bay, and Lane Cove, and farther afield at Narrabeen Lake.

The Order *Columbæ*, besides the beauty of form and plumage of many of its species, also contributes its share to the markets and poulterers' shops of the metropolis, as all are edible; but notice can only be taken of a few of them. The Wonga Pigeon (*Leucosarcia picata*) at one time, either alive or dead, might frequently be seen exposed for sale in the city shops. For years past, however, it has been a forbidden delicacy, having been absolutely protected by an enactment which remains in force till 1924. It chiefly frequents the coastal districts and contiguous mountain ranges, and the nearest place to Sydney where occasionally it may be met with, is at National Park. Scarcely less sought after for sport and table purposes is the Bronze-wing (*Phaps chalcoptera*), more plentifully distributed about thistle-beds and acacia scrubs in central and western New South Wales. Another toothsome species is the Partridge Bronze-wing (*Geophaps scripta*) or "Squatter," at one time a common inhabitant of the plains of the western district, but now rarely seen, driven away by the ever-increasing flocks of sheep and rabbits, or killed by domestic cats run wild, and foxes, or by poisoned baits. The Harlequin Bronze-wing (*Histriophaps histrionica*), a species chiefly inhabiting of late years, the northern, central, and western districts, appears now occasionally in these parts in immense flocks in an unusually wet season following a prolonged drought. When it does

visit the State, it appears in such countless numbers as to darken the air. It feeds to a large extent on the seeds of the Nardoo (*Marsilea quadrifolia*), growing in profusion in marshy localities. Chiefly in the brushes of the northern coastal districts, the beautifully plumaged Magnificent Fruit Pigeon (*Megaloprepia magnifica*) and the Little Green-winged Pigeon (*Chalcophaps chrysochlora*) are found. Here, too, occurs the Top-knot Pigeon (*Lopholæmus antarcticus*), a species much sought after by sportsmen, and better known locally as the "Flock Pigeon," which feeds chiefly on different species of palm seed and those of the Lilly-pilly (*Eugenia smithii*). About the neighbourhood of Sydney, which in the early days of settlement and for a long while after was resorted to by many species of this Order, can now only be sparingly found the Brush Bronzewing (*Phaps elegans*), chiefly in healthy and stunted vegetation about Middle Harbour, Manly, and Botany; and the Peaceful Dove (*Geopelia tranquilla*), which, although nowhere common, has increased of late years.

Of the Order *Gallinæ*, two of the three species of mound-raising birds inhabiting Australia are found in the State. The Mallee-fowl, more commonly called "Mallee-hen," frequents the dry inland scrubs, chiefly of the central and western districts; and the Brush Turkey (*Catharturus lathamii*) is found in the rich and humid brushes of most of the coastal districts, although stragglers have occurred in western central New South Wales. Both of these species, instead of forming nests and incubating their eggs in the usual manner of birds, scrape up large mounds of soil or gravel *débris*, with which is intermingled leaves, decaying vegetable matter and grasses, and deposit their eggs therein, which are hatched with the heat engendered in these hot-beds. These birds are much sought after as articles of food. In the central and western districts, Mallee-Fowls are often destroyed by the acclimatised foxes, and by eating poisoned baits laid for rabbits. The Family *Phasianidæ* largely contributes to the satisfaction of sportsmen, also to the food supply of the metropolis, for it includes in it the favourite Stubble Quail (*Coturnix pectoralis*) and the Swamp or "Brown" Quail (*Synæcus australis*). The long string of birds known as Quail, seen hanging in the poulterers' shops of Sydney, in

the open season, chiefly consist of the latter species and the Varied Turnix (*Turnix varia*), or locally known "Painted" or "Dotterel Quail," belonging to the Order *Hemipodii*. Mention, too, must be made of the Collared Plain-Wanderer (*Pedionomus torquatus*), a comparatively rare species, allied to the *Turnicidæ*, and the only representative of the Sub-order *Pedionomi*. This bird, which has the habit of crouching down, is not infrequently caught by dogs, or even with the hand.

ORNITHOLOGICAL REPORT FOR NORFOLK.

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

[Reprinted from the 'Zoologist.']

July.

15th.—An Avocet on Breydon Broad, but it only stayed two days (G. Jary).

16th.—Two young Grey Crows at Sidestrand about this date (Sir S. Hoare). Last week one was seen near Thetford.

August.

21st.—*The Food of Starlings*.—Three Starlings shot at Keswick and submitted for microscopic dissection to Mr. John Hamond were found to contain Noctuid larvæ, weevils, Carabid beetles, and a few elderberries. On September 5th four more, killed at the same place, were sent to the School of Agriculture, and the following report on their stomachs was drawn up by Mr. Hamond, which may be compared with the report on those killed in April, 1910 ('Zool.' 1911, p. 173).

Mr. F. J. Mann, of Shropham, considers that Starlings cause him a loss of three "comb" per acre on every acre of wheat. When the wheat is up, they get down to the young roots with their strong beaks, and so destroy all further germination. Whether they are seeking wireworms, or whether they are after grain, the result is the same to the wheat, which shrivels up and perishes.

25th.—Mr. E. Saunders informs me of a young Pintail Duck on Breydon Broad—a very early arrival, if not one escaped from captivity.

30th.—At the end of this month Mr. Catley saw a bevy of young Quails in a wheatfield at Cley. But very few breed in Norfolk or Suffolk now, nor is it possible that they can be anything but rare when a single ship lands 76,000 at Liverpool, all caught at the beginning of the pairing season in Egypt ('Field,' March 2nd, 1912).

September.

13th.—Pomatorhine Skua at Cley (C. Borrer), the only one reported this year;* it was following some Sandwich Terns, and was

Sex.	Injuries.		Benefits.		Neutral.
	Farmer's crops.	Insects, etc.	Weeds.	Insects, etc.	
♀	1 piece of oat-husk	11 Carabid beetles, 4 Staphylinid beetles	1 seed of <i>Rumex crispus</i> , 1 seed of (?)	3 Noctuid larvæ, 9 weevils (2 <i>Otiorynchus</i> , 6 <i>Sitones</i>)	2 spiders, 1 Lamellicorn beetle, 63 seeds of elder.
♀	—	1 Carabid beetle	—	4 Noctuid larvæ, 25 ants, 1 Halticid beetle, 2 weevils (1 <i>Sitones</i> , 1 <i>Otiorynchus</i>), 7 small gastropods (<i>Helix</i>)	About 45 whole elderberries and 88 seeds.
♀	—	1 Carabid beetle	—	1 earwig, 2 weevils (1 <i>Otiorynchus</i>), 2 small gastropods (1 <i>Helix</i> , 1 <i>Pupidon</i> ?)	About 50 whole elderberries and 214 seeds.
♂	—	1 Carabid beetle, 2 Staphylinid beetles	—	1 Noctuid larva, 8 weevils (2 <i>Otiorynchus</i> , 6 <i>Sitones</i>), 1 gastropod (<i>Helix</i>)	1 elderberry and 59 seeds

not shot. As usual, there were a good many Richardson's Skuas on this part of the coast, whither they are enticed by the Terns.

15th.—Red-necked Phalarope at Yarmouth (F. Chasen).

23rd.—Mr. N. Tracey saw a Grey Phalarope at North Wootton, where it remained a fortnight, dividing its time between two ponds at some distance from one another. It was very tame, but was unfortunately eventually caught in a trap which had not been intended for it.

30th.—A severe gale from the north-west, which in the evening attained almost to a hurricane (force 9 at Yarmouth, force 10 at

* 1911.

Spurn Head), was extraordinarily destructive to the tops of oak-trees, which it snapped off, owing, it was supposed, to brittleness after the prolonged drought, but the Rev. M. C. H. Bird attributed it to the enormous crop of acorns.

October.

1st.—The next day a Gannet came ashore alive at Lowestoft (C. B. Ticehurst), and Mr. Ramm identified three Little Gulls at Blakeney, as well as some Grey Phalaropes which had been carried out of their course by the violence of the wind. A Fork-tailed Petrel was brought to Mr. Pashley, and an Arctic Skua was picked up in the Naval Asylum grounds at Yarmouth.

3rd.—N.W., 2. To-day Mr. Bird reports the unusual number of seven Land-Rails on Ruston Common; probably this also was the effect of the gale. Another Gannet, a young male, was picked up at Horsey (E. Saunders), and the next day another found dying in Lowestoft Harbour (C. B. Ticehurst). They certainly are commoner in Norfolk than they used to be. On the 16th I saw a young one dead on Cromer Lighthouse hills, but it had been defunct a long time.

6th.—The night of October 5th was again boisterous, a strong gale blowing from the north-east, which at seven o'clock next morning was only three points less in its velocity than that of the week before (September 30th). Coming as it did at the height of the migratory season, and from the north-east, it was to be expected that it would have an immediate effect upon birds, with the movements of which wind is an all-important factor, as Norfolk naturalists know well. Accordingly, the following day the head-woodman at Hempstead, near Holt, informed me that he had seen a bird answering to the description of a Nutcracker. This it proved to be. The unfortunate bird lived to get as far as Cawston, where there is a large fir-wood, where, presumably the same individual, was shot that afternoon. On the same day, and only about two miles from where the Nutcracker was first seen, a Hoopoe turned up.

9th.—N.N.E., 4. Another Nutcracker shot at Sparham, within five miles of where the other was shot, and it is not unlikely that they came over together on the night of the 5th, with a third

which was shot in Buckinghamshire, as recorded. From what I have seen of them in Switzerland, I should judge the Nutcracker to be a bird of feeble flight, not well adapted for crossing seas, and without a wind behind them these would hardly have got over the North Sea. On looking back through the 'Zoologist,' I do not find that a Nutcracker has been accorded a place in these Norfolk Notes since 1907, and the last before that was a doubtful occurrence in May, 1899.

12th.—About 300 Rooks seen at daybreak by Mr. F. N. Chasen arriving at Yarmouth, cawing loudly as they dropped on the sand-dunes. Many Rooks were to be seen during this month busy on the recently drilled wheat-fields, in spite of all efforts to keep them off. It is to be presumed that they are not long in finding out which farmers have, and which have not, dressed their grain with "corvusine." Rooks no doubt do a certain amount of good, that no one will deny, but Mr. Walter Collinge, in his recent Report to the Council of the Land Agents' Society (1910), lays a verdict of heavy damages against them. In 830 dissections made by himself and Mr. T. Thring, the percentage of grain was 67·5, and if to this be added roots and fruit, it was 71 per cent. In Henry VIII's time Rooks were kept in check by Act of Parliament.

13th.—A flock of eleven Norfolk Plovers in a field of swede-turnips at Hempstead, where the gamekeeper had noticed them for some weeks; also the largest congregation of Starlings on one of the reed-ponds that I think I ever saw.

17th.—Greater Spotted Woodpecker at Hoveton. A marked arrival of Goldcrests at Yarmouth (B. Dye), and four Brent Geese at Cley (Pinchin).

18th.—Mr. Arthur Patterson found among the *rejectamenta* of the sea some birds at high-tide mark at Caistor—a Wood-Pigeon, a Chaffinch, and a Robin—and the next day, continuing his walk along the shore, some Starlings and Thrushes. During the two preceding days the wind had been registered at Yarmouth as due east and very high. Probably we little know how many migratory birds succumb to the violence of these autumnal gales. A Rook, afraid to venture any further until compelled by hunger, remained for three days on the "Argus" steamship.

23rd.—Mr. Dye was informed that a Great Grey Shrike was seen to-day on Gorleston Pier.

28th.—N.N.E., 4. A young Sabine's Gull identified a little below Blakeney Harbour by Mr. C. Borer. A few days before one was shot at Humber-mouth.

31st.—A young Marsh-Harrier shot at Croxton whilst feeding on a dead hare.

November.

1st.—Mr. Pinchin saw a Merlin and a Peregrine.

10th.—Two Barn-Owls hawking over the marshes at 4.25 p.m. (Bird).

11th.—Nutcracker shot near Bury, in Suffolk; it had been seen for a week or more (J. G. Tuck), and may perhaps have come over with the other three in October.

17th.—A somewhat unusual incident happened on the Sheringham golf-links to-day, a ball played by a gentleman who is well known as a golfer being twice picked up and then dropped again by a Rook. The sable bird must have been a recent and hungry arrival, which mistook it for something edible.*

24th.—Mr. Dye received a Little Gull, shot on the south beach, Yarmouth.

29th.—Two Storm Petrels taken off Lowestoft. One of these birds was kept alive for ten days by Mr. Ticehurst, who is of opinion that the food is found entirely by the sense of smell ('Avicultural Magazine,' p. 112).

VARIETIES OF PLUMAGE.

At the beginning of January a Wren, nearly three parts white, but with wings normal, was found dead at Boyland, and has since been presented to the Museum by Colonel Irby. In February a white Chaffinch occurred at Blofield, and a pied Corn-Bunting near Stalham (E. Gunn). In May a pied Robin at Belton.

September 27th.—*Perdix montana*, Briss. It is always in the same district that this red phase of the Partridge is met with.

* I have heard of a Gannet picking up a golf-ball in the sea.

Having been unconsciously introduced into Norfolk from the Continent some sixteen years ago, as is supposed, the strain continues to crop up from time to time, in spite of not being spared by shooters. To-day one of these red birds was killed at Bylaugh, and forwarded to Mr. T. E. Gunn. Another was seen in the spring at Cranmer, paired with a Partridge of the ordinary colour, where, Mr. Hamond was informed, they bred, and that the young were normal.

October 12th.—A Blackbird with a handsome white back at Northrepps, in the same lane where I remember a pied one on September 28th, 1908; if it was the same bird it had grown a good deal whiter in thirty-five months.

28th.—One of the so-called Sabine's Snipes, now known to be only a melanism, was shot out of a field of turnips at Beeston, near Cromer, by Dr. W. Sumpter, and was ascertained to be a male by Mr. Pashley.

November 25th.—A nearly white Redwing shot at Framlingham (Roberts); last autumn, it will be remembered, three varieties of this species were recorded.

HYBRID SWAN × GOOSE.

On July 26th, through the courtesy of its owner, Mrs. N. E. Reynolds, I had an opportunity of examining the hybrid Mute Swan, of which I contributed an illustration last year ('Zool.', 1911, p. 161), and which a great many people have since been to see, as it is thought a great curiosity. The beak and legs of this singular cross-bred Swan are orange-yellow, and the feet large, a point noticed by the farm-servant when she assisted in liberating it from the egg. But the most striking feature about the bird is its long, thick neck, which, with the head and tail, are now almost white, the back and body only remaining blotched with slate-colour. The call of this hybrid is said to be fairly distinct from that of its parents, but I did not hear it. It generally lives by itself on a pond at Beeston, sometimes flying half a mile or so and returning. The Swan, which is its father, strongly objects to having it on the same piece of water, and this jealousy is thought by Mrs. Reynolds to mean that her hybrid is a male.

THE BALANCE OF NATURE.

By DR. A. G. BUTLER.

Last winter, owing to its length and severity, we all had to deplore great mortality in wild birds, and in the spring adult birds appear to have been unusually scarce in some parts of the country, although I cannot say that I noticed much difference in this neighbourhood; still, it is likely enough that in the suburbs of any great city birds would be able to get more shelter and food than in open and unreclaimed land.

The question is—need we anticipate a scarcity of birds for some time to come in consequence of last winter's losses? I think not, and for several reasons. It is probable that the strongest individuals were able to survive, and to these would be added the examples which had been impelled to migrate southwards by the cold, and which, by the reduced competition for nesting-sites, would probably remain with us.

In the second place, inasmuch as cold has comparatively little effect in reducing insect life, the scarcity of birds at the season when many insects were waking from their winter sleep, or emerging from the pupa, would certainly tend to make the latter unusually abundant; many thousands which, in ordinary seasons would be devoured, would survive to lay their eggs; and thus an unusual quantity of food would be provided with which insectivorous birds could readily feed their young.

The abundance of caterpillars and white butterflies this year has been noticed by all agriculturists and gardeners, and children have been employed in some places to catch butterflies; but it is to be hoped that they have been instructed only to destroy the injurious white species, and not the beautiful insects whose caterpillars feed on noxious weeds, grasses, wild violets, or leaves of shrubs and trees. On the other hand, the caterpillars of many moths are perfect pests.

When insect-food is scarce, either few young will be reared, or those which are brought up will probably be delicate and short-lived: in captivity, when sufficient insect-food cannot be provided, the parents either throw some of their young out of the nest, or else all perish from weakness. This year there can have been

no difficulty in obtaining abundance of food, consequently an unusual number of young birds must have been reared, all of which should be vigorous.

One result of this increase in insect-life has been that abnormal numbers of apples and pears have suffered from the attacks of the codlin-moth, and windfalls have been so numerous, that one wondered whether any fruit would ripen on the trees; but then, our birds this year have hardly touched my apples (and I don't suppose I am an exception to the rule in this respect), so that I have had as good a crop as usual.

If our common birds have only pulled off two full nests this year and the majority of the young are plump and vigorous, I think last winter's losses will be fully made up; but I am rather afraid that boys who have been encouraged this year to search for and destroy sparrows' eggs, may have exceeded their instructions, and taken toll of the eggs of other species.

Of course, in the case of migratory species the number should be greater than usual; since they not only would not have suffered from the severity of the winter, but would certainly benefit by the excessive quantity of insect-food. Partly migratory birds which have suffered have probably been replaced by immigrants which in ordinary years might have wandered farther before settling down.

Early in the year I noticed an unusual number of young birds in my garden, and this state of things continued right through the summer, so that cats in this neighbourhood have had a particularly good time. (Why is there no tax on these predaceous creatures?) Although I suppose linnets only feed their young, in the earlier stages of their growth, on green fly and very small caterpillars, I never remember to have heard so many about as during the past few weeks.

If we only experienced mild winters in this country, both sickly and strong individuals would doubtless survive to propagate their species; and the chances are that our birds would deteriorate in vigour; so that, sad as it is to realise that thousands have perished through cold and hunger, it may be of ultimate service in retaining the constitutional vigour of later generations; anyhow it is better to be optimistic and hope that such is the case.

CORRESPONDENCE.

AVICULTURE IN EAST AFRICA.

Mr. W. G. PERCIVAL writes from "Nanza," Chania Bridge, B.E.A.: I will try and send some notes, but I am no good at articles. But firstly let me say that, though keen on birds, I am woefully and wonderfully ignorant about them. It is only during the last year that I have taken them up again. So far I have only had one *Cossypha* (*C. heuglini*) yellow breast with black and white eye-stripe—sounds rather like the one you ask about. I had it for a couple of months, and then let it go one day as it was a bit seedy. Don't think we get Peters' Spotted Fire-finch just here. The Crimson-ringed, Jackson's, and Pintail Whydahs are, of course, common, also Brown-shouldered Whydah. I had some Chestnut-breasted Starlings, but let them go. At present my birds consist of the four above-mentioned Whydahs, Coral-billed Weaver, and *Pyromelana xanthomelana*, two Thrushes (*T. elgonensis*), one Rock Thrush, Serins—*striolatus* and *angolensis*, a couple of Starlings, and some common Waxbills.

I had a lot of Sunbirds, but as I could not give them the attention they need I released them. I had: *N. kilimensis*—all blue, long tail; *Cinnyris acik equatorialis*—Ruby-throated; *C. kirki*—blue back, green crown and crimson breast; *C. falckensteini*—Yellow-bellied Sunbird; *N. formosa*—Malachite Sunbird. I hoped to get the other species but gave it up for above reason. Unfortunately I am not permanently here, so that if I did get a good collection of birds, I should have to let them go if I went away.

I met in Nairobi recently Major Appleby—Postal Service—from India, a member of the Avicultural Society, probably known to you. He has brought his traps, nets, etc., from India: he came out here for a few days and we did a little trapping together. I gave him a few of my birds, as he is sending one of his men back to India soon with some.

ENGLISH *v.* GERMAN DEALERS.

Mr. H. E. ROGERS writes: There cannot be a fair comparison between an English dealer packing for a four or six hours' journey and a German dealer packing for a sea and land journey of considerable duration. Investigation upon these lines would prove that at least there is not more mortality amongst British exports or imports than corresponding German exports or imports.

It does not become me to criticise the methods of another dealer, though that dealer is a German; but in some thirty years' experience I can assure you, and can prove it by figures, that in many cases the German dealer has been able to artificially raise prices, monopolise, and maintain those prices, as a direct result of the preference shown by British purchasers, and, at least in the cases I have in mind, he can well afford any extra expense he may be put to.

Many years ago the late William Cross introduced Hungarian partridges and pheasants into England. There was for a year or two considerable loss, but eventually the business was so organised as to become interesting and very profitable, the losses by mortality being less than 1 per cent. What happened? The German or Hungarian came to London, formed a combine of the catchers and dealers in his own country, monopolised, and put up prices in England.

This business he conducted without even paying any rent, rates, taxes, or

wages in England. The birds were packed in Germany or Hungary in lots as required, met in London, re-labelled at the station, and re-consigned. However, this is one instance only out of many, and it is typical of what has taken place in corporations (German cars, fire escapes) in Government offices and absolutely every department and office.

A VISIT TO THE ZOO EIGHTY YEARS AGO.

In view of Dr. Hopkinson's paper on this subject in the October number of the Magazine, the following facts may be of interest:

(1) The article in the 'Quarterly Review' was written by W. J. Broderip, a barrister, and in later years the author of two books, 'Zoological Recreations' and 'Leaves from the Note-book of a Naturalist.' He collaborated with Mr. N. A. Vigors in drawing up the first 'Guide to the Gardens,' published in 1829.

(2) The first parrot house was built in 1834, in what is now the South Garden. It was lighted from above only and had outside cages. By the autumn of 1855 it had become a small mammal house, and many will remember it, with its cages running all round the inside, its table-cases for mice and gerbils, and the doors at either end. A photograph of this building will be found on p. 163 of Mr. Aflalo's book, 'A Walk through the Zoological Gardens.' It was pulled down to make room for the more modern house for small mammals, which was opened in 1904.

(3) The aviary fronting the lawn was not the present Eastern Aviary, though occupying practically the same site. The Crowned Cranes which it contained were probably those presented to the Society by William IV. in 1830, being portion of the Royal Menagerie in Windsor Park. The present Eastern Aviary was not built till 1862. It was larger than its predecessor, better lighted and ventilated, and had a novel feature in its elevated floor.

(4) The aviary for "small and middle-sized birds" still survives near the tunnel. In later years it has served as a Civet House, a Parrakeet Aviary, and a Crow Aviary. It originally contained a collection of British birds and also some foreigners—*i. e.* a Crested Partridge, Chinese Starling, Parrot Fruit Pigeon, and American Sparrow-hawk.

(5) The Eagles' Aviary was an octagonal building with a pointed roof, situated near the site of the present bandstand. It contained in 1829 a Griffon Sociable Vultures, a White-headed Eagle, White-tailed Eagle, Osprey, and some Golden Eagles. A writer in the 'Quarterly Review' for December, 1855, notes that the Eagle's Aviary had been pulled down, and its site laid with grass and added to the lawn.

(6) The "learned and experienced medical attendant" of the Zoo was Prof. William Youatt, who retired from his duties in 1845. He contributed a volume on the horse to the 'Library of Useful Knowledge,' and also wrote a book on the dog, which passed through at least two editions.

(7) The Lion House consisted of a row of nine dens on the lawn in front of what is now the Camel House.

(8) The Monkey House was approximately on the site of the present Jackals' Enclosure.

(9) The Chimpanzee lived in the keeper's quarters, and not in the "Ape Ant-eater and Hot-water House," which was not completed until 1852.

(10) The Terrace was planned by Decimus Burton, in his day a well-known architect.

GRAHAM RENSRAW.

AVICULTURE IN AUSTRALIA.

The Editor of the 'Avicultural Magazine.'

DEAR SIR,—For some time it has been our privilege to obtain, through a library, back numbers of your magazine. We have been so impressed with the excellence of the reading matter and of the illustrations that we have come to feel quite a personal interest in its welfare.

We decided that perhaps you would not consider it too great a liberty if we forwarded a few notes on one of our birds which is, at any rate, known in England. Of course, we are not members, although one of us, being interested in aviculture, may shortly apply to become one.

As an explanation of the many defects you will notice in this attempt, we must point out that we have, as yet, the disadvantages of youth, inexperience, and a cheap photographic apparatus. Our desire to forward some little contribution was prompted partly by our interest in the Magazine, and partly by a certain amount of pride in our native birds.

With best wishes for the continued success of your good work,
 Department of Labour,
 Melbourne, Victoria,
 Australia.

We remain, yours sincerely,
 S. A. LAWRENCE and
 R. T. LITTLEJOHNS.

[We have pleasure in printing in the present issue the interesting paper which accompanied this letter, and hope to have more from our Australian friends.—G. R.]

BIRD AND INSECT LIFE IN WINTER.

DEAR SIR,—Many individuals (our excellent late Editor among them) seem to think that the cold which kills birds is equally destructive to insects, whereas the latter retain their lives in a dormant condition even when their bodies are frozen hard and their limbs temporarily are as brittle as spun glass.

Many insects hibernate in hollow trees, under eaves, in barns or outhouses, church towers or any old buildings, with no artificial heat whatever; others burrow just below the surface of the earth, where they are drenched with rain and frozen into the soil, yet with a little heat, either natural or artificial, they thaw out and become active.

The Lilies, 124, Beckenham Road,
 Beckenham, Kent; October 13th, 1917.

Believe me,
 Yours very sincerely,
 A. G. BUTLER.

A VALUABLE SUGGESTION.

DEAR DR. RENSRAW,—I have written you a short article (it will print into about four or five pages) on the "Development of Patterns in Birds." The fact is, I want to stir up some of our members to produce hybrids between birds not very closely related. The cross between the Zebra- and Diamond-Finches threw a lot of light upon the manner in which markings were evolved, and indicated relationships which can only have merged at a very remote period. I suspect that you have plenty of copy at present.

124, Beckenham Road,
 Beckenham, Kent; November 26th, 1917.

Yours very sincerely,
 A. G. BUTLER.

AN UNNAMED GALLINULE.

SIR,—I was very interested in Mr. Shore-Baily's article, "Some Rails and Gallinules." Some years ago I had the Purple and Grey-headed Gallinules, also another which I have not been able to name. It was all blue, no green on saddle, and the head was an intense blue, about the size of the Purple Gallinule. If any member can give me the name I shall be very much obliged. I had it set up when it died, and I gave it to the Leeds Museum, and it is there now unnamed.

Thornhurst, Teut Park, Harrogate; December 4th, 1917. JOHN W. MARSDEN.

[This species is *Porphyrio caerules*—the true Purple Gallinule, as originally named by Latham. It inhabits the countries bordering the Mediterranean and has doubtless often been confused with the Violet Gallinule (*Porphyrio porphyrio*), which inhabits Africa further south. The two species are very closely allied, and as their range is probably coterminous, they would be likely subjects for experiments in hybridising birds, as advocated by Dr. Butler.—G. R.]

RED-COLLARED LORIKEETS.

DEAR DR. RENSHAW,—My Red-collared Lorikeets are too new for me to be able to write an article on them. I have mated my cock with one of the hens, and they go into a nesting-box for most of the day, but I don't know if there are eggs. I took the other hen out and wish to sell her. They are very fearless, inquisitive birds, and fly to me at once for treacle and water; and when I set a mouse-trap they were almost interested—so much so that I was afraid they would get hurt, and had to take it out.

I waited a little to see if their nesting were serious, and I looked yesterday, but there are no eggs, though they both stay in the box nearly all day. The cock went into the box the moment I put it up again, and I was afraid he was going to attack me when I first took it down.

I saw a very beautiful Cockatoo at Cross's some weeks ago—white, with a faint blush of pink about the cheeks, and pale sulphur on crest and under the wings, and only about the size of a Rosella. Such a dainty little bird.*

The Citadel, Hawkstone,
Salop.

Yours faithfully,

ALFRED THOM.

ZEBRA-FINCH WITH DISEASED FOOT.

DEAR DR. BUTLER,—My little cock Zebra-Finch has a bad foot; he had it when he came (from Cross), and it gets no better. He has lost the two side-toes almost entirely, and the disease seems to be in the main joint now. He looks in perfect health, and it does not seem to be very painful, though he preens it frequently. Can anything be done? I soaked it in warm water and then oiled it with camphorated oil once, but catching him disturbs the pair so very much. The perches are always clean.

My Red-naped Lorikeets spend most of their time (both) in a nesting-box, but I have not looked in. I think of selling the odd hen; I separated her, and it's a bother attending her.

The Citadel, Hawkstone, Salop; November 12th, 1917.

Yours sincerely,

ALFRED THOM.

The following reply has been sent to Mr. Thom:

No doubt the disease was contracted, owing to dirty perches, before the bird came into your possession.

* [The Red-vented Cockatoo (*Cacatua hematuropygia*), a native of the Philippine and Sulu Islands.—G. R.]

The best remedy is to soak the foot in warm water until quite clean and then dip into a sulphate of zinc solution (5 gr. to an ounce of water), and this should be done twice daily until the cure is complete.




I cannot say I have ever tried this remedy myself, but then I never had occasion to do so. It seems a lot of trouble to take over a bird of which I used to breed dozens at one time, but then even the commonest birds are difficult to get nowadays.



A. G. BUTLER.

THE EVOLUTION OF FEATHER-PATTERNS.

DEAR DR. RENSHAW,—Herewith I enclose article, and hope it will prove satisfactory.

My idea is that originally a bird's plumage was simply ornamented with shaft-streaks more simple in pattern than in the Greenland Falcon; possibly, at an earlier stage, even these did not exist.

That the development started from a simple fusiform streak to the hastate type , then to the sagittate , next to , this form which subsequently gave rise to submarginal or marginal borders, the shaft-streak sometimes persisting, but frequently disappearing by absorption.

However, you will see what I say about  en colour is growing in the breast and throat feathers of the Grey Cardinal , starts at the shaft,



and so daily extends until the buffish feathers have become entirely crimson (or black). I watched similar growth of colour in *Pyromelana* when assuming the summer plumage (the greater part of the plumage is *not* moulted out in the spring, whatever some excellent ornithologists may believe. In the first volume of the 'Emu,' p. 71, E. M. Cornwall mentions the case of a Galah Cockatoo which injured its wings when flapping, and the whole of one side of his plumage became darker and the pink of the injured side became dark red." He remarks: "The vane of a feather is usually regarded as physiologically dead, but this occurrence, though an exceptional one, seems to strengthen the argument of those who contend that it is possible for colouring matter to pass from the basal gland throughout the whole structure." That this is so is evident in the case of *Turæus*, in which the scarlet colouring in the wings is soluble in water, gets washed out in heavy rains, but is gradually recovered when dry weather supervenes.

A very common type of pattern in birds is one in which the head, breast, collar, rump, and sometimes vent are each sharply defined in colour: then you have combinations of two or more of these characters, but the general design is far less varied than is the case with lepidopterous insects; but of course the beauty of many birds is much enhanced by secondary sexual characters.

These matters interest me far more than classification. I suppose the interesting conversations which I used to have in my youthful days with Darwin, Bates, Trimen, and others roused a spirit of questioning the cause of things in my mind, and it still sticks to me even now at the age of 73. Will it continue to the end if I attain to my father's age, 97? Believe me,

The Lilies, 124, Beckenham Road,

Yours very sincerely.

Beckenham, Kent; November 29th, 1917.

A. G. BUTLER.

[Dr. Butler's article which accompanied the letter is of great interest and value, and we hope to publish it at an early date.—G. R.]

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Mr. PHILIP SMITH, Haddon House, Ashton-on-Mersey, Sale, Manchester.

ILLUSTRATION FUND.

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ALTERATION TO RULES.

At a Meeting of the Council, which was held on Feb. 17th, 1916, the following addition to the Rules was made:—"That each Member (not a Dealer) be entitled to ONE ADVERTISEMENT, FREE CHARGE, EACH MONTH, the Editor to be sole judge as to whether such advertisement an and shall be published or not, priority shall be given to those who apply first."

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The charge for private advertisements is SIXPENCE for EIGHTEEN WORDS OR LESS, and one penny for every additional three words or less. TRADE ADVERTISEMENTS ARE NOT ALLOWED IN THIS COLUMN. Dealers who are members, wishing to advertise, should apply to the Publisher for terms. 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.

WANTS.

Wanted.—Avicultural Magazines, 1st Series, Vols. I to VIII, and Vols. VI to VIII New Series. WM. SHORE-BAILY, Boyers House, Westbury, Wilts.

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For Sale.—1917 Yorkshire Canaries, foul green cock, good strain, 10s.; marked yellow hen, 6s. 6d. F. M. BARLOW-MASSICKS, Scofton House, Worksop.

EDITORIAL.

The Editor is grateful to all his contributors for their valued encouragement. Especially does he wish to thank those correspondents overseas who have ensured the success of this Australian number, and whose writings have mirrored the bird-life of the great island continent. Our correspondence column is also a matter for congratulation.

In February space will be devoted to the birds of North and South America. By the courtesy of the Miller Photo Company a photograph of the famous Pelicans of Lake Klamath will appear in the issue.

G. R.

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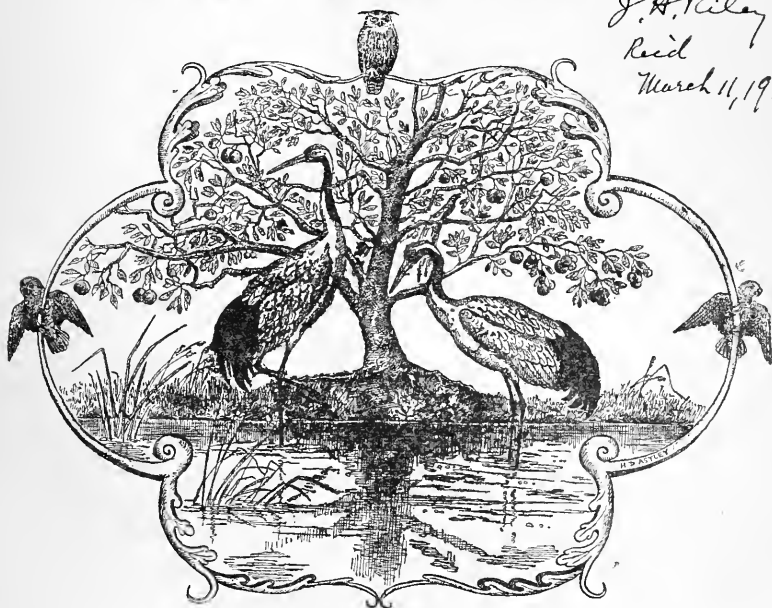
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SPECIAL AMERICAN NUMBER.

AVICULTURAL MAGAZINE.

J. H. Riley,
Recd
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SNOW AND SABLE: THE WHITE PELICANS OF OREGON.

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THE AVICULTURAL MAGAZINE,

BEING THE JOURNAL OF
THE AVICULTURAL SOCIETY.

Third Series.—Vol. IX.—No. 4.—*All rights reserved.*

FEBRUARY, 1918.

THE WHITE PELICANS OF OREGON.

By Mrs. C. E. MAUD.

On Lake Klamath we saw many thousands of the great white Pelicans, flying, swimming, and nesting. They have a stately dignity, and, when slowly moving over the waters of this beautiful mountain lake, remind one of one of our American battleships in their gleaming, snowy white. When flying the tips of their wings are black, and they tuck their heavy bald-looking heads down between their shoulders.* Ex-President Roosevelt, when he was in office, passed a law protecting them, and a heavy fine is imposed on anyone killing them.

I am told they live on chub, but have seen them snatch and eat many a good-sized trout. However, as these latter are most numerous in the lake, they can well be spared to feed these wonderful birds.

They nest on a small island at the lower end of the lake, where hot springs keep the water around them quite warm all the year round.

I know very little of their habits, or whether they migrate or not, though in the autumn and winter I have seen a few on the Bay of Monterey, in California; so I presume they go south in the

* [“The wisdom of all bird-ages seems to be centered in the hoary head of a Pelican.”—Mr. W. L. FINLEY.]

winter time, when Lake Klamath is mostly frozen and the surrounding mountains are covered with snow. The elevation of 4000 feet means naturally cold weather in winter, and Northern Oregon is also much colder than Central and Southern California, especially on the sea coast.

All kinds of Duck, Geese, Swans, etc., are plentiful to abundance. October 1st opens the Pheasant hunting here for two weeks only. The Chinese Pheasant is the only variety open to sportsmen to shoot; the other varieties being still protected by close season until they are more abundant.

Great numbers of Duck are now on the Rogue River, and the season for them also and for Quail opens October 1st. Salmon and Steelhead are running up the Rogue and spawning in the shallow reaches. I have noticed Herons, Terns, Loons, and many other wildfowl hunting the salmon eggs in the shallow places, and many of them eat the fish that have died after spawning.

Steelhead are the gamest fish for the lover of rod and reel, better even than the salmon. I have seen a twelve-pounder grab the fly and go straight down stream with a hundred yards of good Hardy line, and the fisherman dive in and swim too, until he could get a check and a chance to reel in a little.

Fishing of this kind is no easy sport; but again, I diverge from birdlore, for which, pray pardon me!

[‘Bird Lore,’ vol. xvii, No. 6, contains a most interesting paper on bird life in the Klamath district. According to the writer, Mr. W. L. Finley, the lake is about twelve miles long and some five or six miles broad. It is encumbered by islands of floating vegetation, which give asylum to great colonies of Pelicans, Gulls, Cormorants, and other birds. Mr. Finley’s party found the Pelicans sitting in rows of hundreds, their chins solemnly resting on their chests—like a huge congregation. Red-head, Pintail, Canvas-back, and Cinnamon Duck were seen, also Great Blue Heron, Coots, and Avocets. The lake is constantly policed by an Audobon patrol boat, as the Pelicans were formerly ruthlessly destroyed for millinery purposes.—G. R.]

SOME AMERICAN QUAILS.

By M. PIERRE AMÉDÉE PICHOT.

A few years before the war, several species of American Quails or Partridges, as they are called, though different from the European birds, were being newly imported by our bird-dealers, particularly at Bordeaux. Having been one of the first breeders of the Californian Partridge (*Lophortyx*) when it was introduced into France, I was very much interested in the new species, and determined to try my hand at them. In 1896 one M. Deschamps, on his return from the United States, had brought with him and sold to Gerard, a large importer of animals, whose firm was situated in the suburbs of Paris, a lot of six males and five females (Californians) for the round sum of £112, and from the young bred by Gerard I got my first birds. Fortunately the new species did not fetch such a high price, and I secured, for a moderate sum (£2 or £3), the Cuban and Texan Bob Whites (*Colinus*), the Scaled Partridge (*Callipepla squamata*), and the Montezuma, or, as we call them, Masséna Quails (*Cyrtonyx*).

These last are the most arresting to the eye on account of the very singular white and black stripes of their cheeks, which put you in mind of the fantastic colour patches with which the circus clowns bedaub their faces. Yet the Masséna Quail is far from having the elegant demeanour of its close cousins. Tucking its head in its shoulders, it looks as if it were hunch-backed, and the tail coverts falling over the rump make a ball of its body, giving it the outline of an Emu. The breast and flanks are of a rich velvety black, sprinkled with round white dots like those of the Guinea-fowl. The crown of the head is covered by a rather thick crest of elongated feathers, falling backwards on the occiput in the style of a chignon. "From its gentle disposition and unwillingness to move," says Elliot ('Game Birds of North America'), "this bird has gained the sobriquet of 'fool quail,' and in its wild state has often been killed with a stick in the hands of its pursuer."

I found the Massénas very tame indeed, and started with great expectations, but was very unlucky at first. Bird after bird died; now the male, then the female, just as I hoped to have fixed upon a paired couple. They had been located in a large aviary, and

were rather shy, hiding in a bunch under the litter of hay in the covered flight. When going into the open compartment, they were all the time most busy scratching the grass, as if they were searching for some food they were missing. The fact is, the nails of their toes and their strong arched bills are no doubt adapted to digging habits, as is the case with the Impeyan or Monaul Pheasant, and they scoop out a carrot or cabbage-stalk quite cleverly. I suspect they feed a great deal on some kind of root or tuber in their own country. Elliot says, indeed, that in certain localities their chief food seems to be small bulbous roots; but, as he does not specify of what kind, I was at a loss what to supply them with.

The last time I went to pick up a dead male Masséna in the aviary, I discovered that the female had made a rough kind of nest in a wooden box on the ground, and laid four glossy white eggs, but she herself died a few days later, having gone quite distracted from the loss of her spouse, running about to find him, and calling him all day long with a drawling, melancholy whistle, so much like the moanings of a mourner! So I put the eggs under a bantam, and, after twenty-five days of incubation, I had the pleasure to see three chicks breaking their shells all at the same time. The fourth egg was addled.

The wee chicks were hardly bigger than a Cockchafer! They proved very active at once, and were fed with the same food as Californians. But, alas! their step-mother was rather too clumsy for such little things, and she crushed one of them in the narrow breeding-box in which they were being brought up. So I let the covey loose on a lawn, where they did very well until a neighbour's cat carried one off. I had to put back the last remaining youngster with its nurse into a covered aviary, in which the poor orphan fretted a good deal, trying to find an exit, as he had acquired a taste for roaming at large. He was two months old when a very damp and chilly autumn set in, and I found my poor bird dead one morning. He was a most lovely and affectionate little pet, following me in the garden like a dog when I took him out for a walk, and keeping so close to my feet that I had to be very careful not to tread upon him. He fed from the hand, and was never so pleased as when I took him up, and then he would nestle in the palm of my hand enjoying the warmth and chirping contentment.

Thus ended my experience with the first Masséna Quails born in France, and now I cannot hope to get any others before the end of the war, when we shall be allowed to return to our peaceful hobbies.

The Texan and Cuban Bob Whites did not breed with me, neither did the Scaled or Blue Partridge, but my colleague of the Acclimatisation Society, Delacour, brought up a covey of the last, as did also M. Biquet at Montpellier. These have also been reared by a member of the Avicultural Society of England, Mr. Shore Baily, who obtained a cross with a Californian male, and he kindly presented a couple of the hybrids to our Acclimatisation Society. They were both males, and one is still living.

I imagine that some of the thirty-two species described and figured by Gould in his splendid folio on the *Odontophorinæ*, are very closely related, perhaps only local varieties, blending out into one another, if not hybrids. Most have, anyhow, very distinct and dissimilar call-notes, and their top-knots are so fanciful and various as to prove their very good taste in the way of natural selection, if natural selection had anything to do with the formation of their species. Indeed, no milliner's shop could with a greater diversity of elegant hats court the approbation of the fashionable world.

Several of the so-called American Quails or Partridges have at times found their way to Europe. I have seen at our Acclimatisation Gardens in the Bois de Boulogne the splendid Plumed Partridge (*Oreortyx*) with its two long crest feathers streaming over its back. The London Zoo has bred Scaled and Douglas Quails. The Californian has been turned out in France and bred wild, but disappeared. The Virginian Bob White has been tried also with better success, since Macgillivray and Harting have included it in their list of British birds, and I have known a place in Brittany where they did well for a time. Harting, in his 'Handbook,' has mentioned many attempts to acclimatise them in England during the course of the last century, but they seem all to have failed after a few years of breeding at large. The Californians alone have stood their ground, being very prolific, but only as inmates of aviaries, where they are now quite common.

THE BREEDING OF THE MEXICAN BLACK-BREADED QUAIL (*C. pectoralis*).

By W. SHORE BAILY.

As not very much has appeared in the Magazine of recent years with regard to any of the Quail family, I thought that the following account of the breeding of the Mexican Black-breasted Quail in my aviaries this season would be of interest. I purchased two pairs of these handsome birds from Focklemann in 1913, and on their arrival found them to very closely resemble their North American cousin, the popular "Bob White" (*C. virginianus*). The male differs in having a larger area of the breast black; to an ordinary observer the hens are indistinguishable. The same remark applies to the other females in the group, which, according to Ridgway, consists of nine species. I haven't the least doubt but that any of these would interbreed, and that fertile hybrids would result. I hope next year to try one of my young ones with a Cuban cock (*C. cubanensis*). For the first three years that I had them they were kept in rather small aviaries, and although several nests were built no eggs were laid. Last year I turned a pair into a large grass aviary. Towards the end of July the hen disappeared, and I concluded that she was incubating. Our hunt for the nest proved unsuccessful, and as she had not shown up by the end of August I naturally thought that she must have died, which subsequently was proved to be the case. The first week in September the cock also vanished. This would be quite six weeks after the hen had last been seen, and thinking that he also was dead my interest in Quails was reduced to a minimum. However, on entering the aviary one morning some three weeks later, I was astonished to see him sunning himself on a heap of brushwood. In the evening he was again missing, which pointed to the fact that he was sitting somewhere upon a clutch of eggs. The next morning I and my aviaryman had a thorough search for the nest, and just as we were giving it up in despair the bird got up at our feet from a nest containing eight eggs. I thought at the time that this was a very singular occurrence, for, although I had known Californian and Squamata males to take charge of their young ones, I had never



STARS AND STRIPES: COCK BLACK-BREASTED MEXICAN
QUAIL INCUBATING.

The bird will be found by regarding the grass-stem A-B, which roughly bisects the picture. Above it is seen the bird's head, with its round, glistening eye between two broad white stripes; below it appears the bird's shoulders, the feathers of which are edged with a star-like tracery.

known them to take over the incubation part of the business as well. This year I provided the cock with another mate, as I thought that he deserved one. Toward the end of June I missed her and guessed that she was sitting, but as the grass and undergrowth this year was particularly long I thought it useless to hunt for the nest. However, on the 26th of the month, whilst looking for a Jackson's Whydah's nest, I nearly put my foot on it. The cock fluttered off, acting as if its wing were broken, and I really thought at first that I must have injured him, but after he had lured me a few yards from the nest he winged his way to the far end of the aviary. The nest was neatly built of dead grass and roots and was very well hidden. It contained ten white eggs, some of which were slightly stained with pale grey and buff. Strange to say the nest was within 3 ft. of that of the Jackson's Whydah. I may here remark that the latter bird's nest, instead of being on the ground, as was the case last year, was suspended from the growing grass more than a foot above it. Possibly the wet season had something to do with this. On examining the Quail's nest again in the evening, I found that the cock had again returned to it. From this time he sat night and day until July 19th, only leaving the nest occasionally in the evening to feed. At such times the eggs were left quite uncovered, sometimes for an hour or more. On the 20th a little Quail's head could be seen peeping out from under the cock's wings, and the next day he led away six little ones. All this time the hen had been invisible, but I thought that now her little ones were hatched she would take some interest in her domestic duties again; but no, she would have nothing to do with them, and the fact that any of them were reared is entirely due to the wonderful care of the good old father. The young ones were a good deal darker when first born than Californians of the same age, in this respect resembling the young of the White-cheeked Crested Quail (*Eupsychortyx*). About this time I was away on holiday, so didn't see anything of them for two or three weeks, but my man told me that they kept to the thick cover and were rarely visible. The first that I saw of them was when they were about a month old. They were then the colour of baby Partridges, and were in charge of the cock as usual. At two months' old there were three survivors. These very closely resembled their mother. They were extremely

shy and took cover just like Partridges, relying for protection upon their neutral colouring, which makes them almost impossible to see when upon the bare ground. On more than one occasion I have flushed them at my feet, when they have risen with a whirring noise, almost equal to that made by a small covey of Partridges. No artificial food whatever was provided for them, and they had to subsist upon what seeds fell from the small birds' feeding tables and upon what food they could forage for themselves. Fortunately, there were plenty of ants' nests in the long grass, and the eggs they scraped out formed, I think, their principal diet in their early days. They now visit the feeding tables with their father. On September 17th I first noticed one of the young Quail showing black on the breast, ten days later he had acquired his white face-marks, and at the time of writing, October 4th, he is practically in full colour. The other two birds are hens.

THE YUCATAN JAY (*Xanthura yucatanica*): AN AVICULTURAL FAILURE.

By MAURICE AMSLER, M.B., F.Z.S.

How many of us have failures each year, and how few are virtuous enough to record them! An account of these failures might enable some other bird-lover to succeed where we had failed, and this is the very reason why we remain "mum" for two or three seasons; then the birds die, and are perhaps impossible to replace, and much valuable experience remains locked up in our note-books, and is finally forgotten. In this particular instance I claim no credit, as the birds in question are shortly leaving me, and I feel quite sure I shall never be able to afford another pair. They are a pair of Yucatan Blue and Black Jays, to which I referred in a previous note, and were on deposit at the Zoo last spring, where many of our members must have seen them. I, amongst others, admired and watched them, and came to the conclusion that they were a true pair; whereupon I persuaded their owner, Mr. Guy Falkner, to lend them to me for the breeding season; this he very kindly did.

In a note written at the time Mr. Falkner, in describing the birds and their feeding, told me that the tamer of the two birds was the hen. When they arrived here I was inclined to agree with him, but I also suspected that the other bird was likewise a hen. We both proved to be wrong, as subsequent history will show.

Before entering *in medias res* I should again like to question the wisdom of calling these birds Jays; they have the general outline of a Magpie, they have no crest, and their general behaviour and cries, both of pleasure and alarm, are identical with those of my Blue Pies which bred here in 1915.

In size this species is a little inferior to our Common Magpie. The colour distribution is fairly easily described, being blue on the back, upper surface of wings and tail; the shade of blue is a mixture of saxe-blue and verditer, according to the light in which it is viewed. The bill, head, neck, and under parts are black; the legs primrose-yellow. I am told that when these birds arrived they were in their nestling plumage, and that their heads were white. The above remark applies to some young birds imported by the late Major Horsbrugh. Mr. Frostick, on the other hand, has also imported a bird of this species—the hen of my pair—and he tells me that the head in this case was not white, but that the bill was yellow and only turned black after the moult.

The birds came to me in March of this year, and were housed in a large cage in a cold room for the first month. During this time they played at nest-building, but their efforts never went further than carrying a twig about and trying to wedge it into the wires of the cage front. A good many “scraps” went on from time to time and the tamer bird (the supposed hen) frequently took food from my hand and gave it to the cock, who after a few minutes would return the food to the “hen,” who accepted the tit-bit with much squeaking and flapping of wings.

In the middle of April the birds were turned out into a narrow aviary 18 ft. long and about 3 ft. deep, at one end of which there is a rather dark and very secluded shelter. Stick-carrying went on for the next few weeks, two nesting sites being chosen—one in a standard bay-tree; the other in a wooden box in the shelter. Nothing approaching a nest was built, but I believe that the attempt in the

bay-tree was intended to distract my attention from the actual nesting site finally chosen. I understand that our Magpie amongst others sometimes builds several nests, but, of course, only occupies one.

On June 1st I had an eye-opener, the supposed cock was sitting in the nest box, and later in the day I was able to inspect the box and found one egg laid on the bare board; I did this at the risk of my personal beauty, and especially of my eyes; both birds were furious, but I was justified in my action by what I found. Naturally it was necessary to provide a nest for the eggs.

On June 2nd the second egg had been laid (on each occasion between 10-11 a.m.), and I sallied forth in search of a Thrush's nest. Of course, for a long time I found nothing but nests with eggs or young, or else structures that were so weather-beaten that they fell to pieces when touched. Finally, having found what I wanted, I returned home in fear and trembling. I had first to face the infuriated birds, and secondly, to run the risk of making them desert altogether. It was necessary to lift the hen off her eggs before I could get to work, and I did this with my eyes shut, as the male was all over me; the noise, moreover, was deafening, and I feared an immediate visit from a neighbour or a R.S.P.C.A. inspector. The box containing the eggs and about to receive the nest was unfortunately oblong instead of square. My nest filled the breadth of the box perfectly, but there was naturally a hollow space left at the end of the box, and although I filled up the void fairly well with straw and made everything secure as I thought, future events proved that I was wrong.

Shortly after my departure the hen returned to her eggs, and that night laid her third egg and started sitting in earnest; on June 4th the last egg was deposited. Up to the present you will remember I was still uncertain whether I had a true pair or not, the exchange of food from one to another and back again had been continuing, but it did not help one in differentiating the sexes and was unlike the behaviour of any birds I had ever owned or seen.

I hoped I had a true pair, but still feared both were hens; however, my fears were soon put to rest. Shortly after the hen began her incubation I observed the cock collect some fifteen or twenty meal-worms which he swallowed and pouched for some minutes; he

then flew to the nest, quickly fed the sitting-hen, and left her immediately—there was no longer the return of food which I have described.

Later in the day any remaining doubt was dispelled by the cock covering the eggs the moment the hen left the nest.

The cock's behaviour on the nest would have been amusing if it had not ended in disaster. Even when unaware that he was being watched he was in a continuous state of fidgets—obviously painfully bored by his duties—yawning, gaping, fidgeting, and turning round and round sometimes, especially if watched; and with the object of deceiving one as to his occupation, he would preen himself violently or peck at the edge of the box holding his nest, until I sometimes feared he would tackle the nest itself. I was always relieved when I knew the hen was sitting again.

The Occipital Blue Pie incubates for sixteen days, and using this figure for my calculation, I expected the Blue and Black Pies to hatch on June 19th.

On the morning of this eventful day I was out early, and approaching the aviary quietly was surprised to see both birds off the nest. Although I approached very quietly, they both saw me instantly; instead of coming to the wires as he usually did, the cock remained sitting close to the hen. Both birds might have been stuffed specimens, perfectly motionless, not even the flicker of an eyelid, with a glassy, steady stare in my direction which still further suggested the taxidermist. I was prepared to sit through the performance, but at the end of fully five minutes I began to get tired, and in truth to feel a little uncanny, so I approached the birds; the result was an immediate transformation scene—pandemonium from both birds and a rush to the nest by the cock—but not before I had caught a glimpse of the four eggs.

To this day I have not guessed why the birds behaved thus but I suspect that the hatching of at least one chick was imminent, and that they were particularly anxious in consequence that my suspicions should not be aroused.

On the evening of that day both birds were certainly feeding young; all food was collected by the cock, who shared it with the hen on the nest. She then raised herself slightly in order to let the

male disgorge the remainder of his food to one of the young, after which she did likewise, and immediately settled down again.

Any approach on my part was much resented by the cock, who at once interposed himself between me and the nest and made ugly faces at me; if he was using bad language, which I strongly suspect, it was done entirely *sotto voce*.

Up to June 22nd I never saw the hen off her young, and it was not until the 27th that I was able to get a glimpse of the chicks. There were two, about the size of a plucked Sparrow; the hen from now on occasionally left the nest, but always perched hard by, and the arrival of the cock with food was a signal for her to return to her family; the male did most of the feeding, the hen contenting herself with picking up bits of food spilt on the edge of the nest, these she either swallowed herself or gave to the young.

On July 1st, at the age of twelve days, the chicks were about the size of a Thrush, light grey in colour, bills pinkish, quills on head, back and wings dark grey. During my examination I noticed the cock squatting in a wire basket at the other end of the shelter, evidently with the intention of making me think his family was really there and not in the nest I was inspecting.

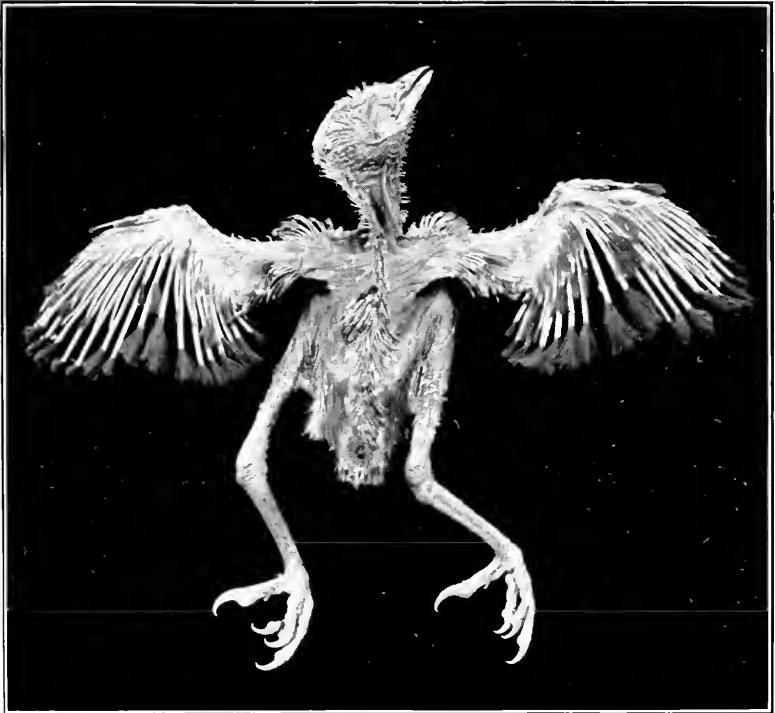
Just about this time he began to have a mania for spring-cleaning or some such nefarious habit; the nest was continually being tidied, and finally my precious lump of straw, which was keeping the nest in its place, was ruthlessly pulled out, with the result that one edge of the nest which was now unsupported began to be pressed down. I did not know it at the time, but was soon to find it out.

On July 5th the chicks had grown considerably since my last visit; their heads were bristling with greyish-white quills, the eyes were open—blue-grey feathers showing at the tips of the wing-quills:

July 6th: One chick found cold and stiff; it had crept out of the nest to the other end of the box and had consequently not been brooded during the night. This is the bird of which a photo accompanies this article, age eighteen days.

On the following day both birds were very loath to feed the remaining youngster. In the afternoon I found him on the ground

Pollex



A STUDY IN PTERYLOSIS: NESTLING YUCATAN JAY,
EIGHTEEN DAYS OLD.

Contrary to popular belief, the bodies of birds are not, as a rule, uniformly feathered. In this beautiful photograph the pterylosis, or arrangement of the feather-tracts, is well shown. We readily distinguish, for example, a median ventral feather-tract, with a bare space or apterion to either side. The pollex or thumb is recognisable tipped with its feather; then come the primary, followed by the secondary, quills. On the shoulders are seen the scapular feather-tracts, and there is a whorl of feathers about the external ear.—G. R.

and replaced him in the nest. The cock fed him once, I think; at 10 p.m. I approached the aviary and flashed a pocket torch on the scene. Both parents were, as I expected, sitting on their old sleeping-perch right away from the nest, and the chick was being allowed to die of cold and starvation. I took him in and stuffed him with a small quantity of food, but he was very weak and refused to gape. At the end of two days he had improved a little and I handed him over to my friend, Mr. Lund, of Burnham, who I knew would rear him if care, skill, and attention could do so.

Unfortunately, he never picked up his former vigour, and died three or four days later.

I have kept the two unhatched eggs which I found in the nest after my first catastrophe. When fresh they were exceptionally handsome, being of a greenish-white ground colour heavily blotched with orange-red spots—measurements respectively, 3×2.2 cm. and 3.1×2 cm.

All went quietly and uneventfully for the next few days. In the meantime I had cut a cocoa-nut husk in half and cemented it carefully into a wooden box. Here was a nest that even a Pie could not pull to bits.

For a few days prior to July 24th both birds were again carrying and pretending to build nests in various places. On that date I found the hen sitting. On the 27th there were five eggs in the cocoa-nut husk; these were due to hatch about August 12th. Shortly before this I went away for a short holiday and returned on the night of the 19th, but I asked no questions about the Pies, expecting to hear good or bad news in good time. Finally, I screwed up courage and asked the momentous question.

Well! the worst had happened—apparently all the eggs had hatched out. No one had gone near the birds except to provide food, of which they had received an ample and assorted supply. Yet all I found on the following morning was an empty nest, some half shells, and one dead chick about five days old which the old birds had deposited on a ledge in the aviary.

And—here endeth the Second Lesson.

Some wiseacres will say that I failed because I interfered too much and inspected too often; even if I did I have learned more and

certainly *written* more than I should have done if success had been given to me with less observation, but I should like to make it clear that much of my spying was done from a greenhouse which is close up to the aviary and from which point of vantage I could watch the birds quite unseen by them.

Knowing what I do, I feel certain that I could rear these birds successfully next year, but, alas! that will not be, for their owner has very generously presented them to the Zoological Society. That he did wisely I do not question, for, instead of pleasing a single selfish aviculturist, he will be giving pleasure to scores of others also interested in birds. Whether the Society will succeed where I have failed remains to be seen. I do not wish Mr. Seth-Smith anything but good luck, but at the same time I shall be nettled if he "wipes my eye."

I have to thank him for the photo of the adult Blue and Black Pie which he has kindly given me. The sexes are alike, but the hen is a larger bird than the cock. This may be the rule, as stated by Ridgway, or it may be due to the fact that the hen had the very best of care since her importation, during which time she has won more than one prize for her first owner.

Of the Corvidæ which I have kept I prefer the present species to the Occipital Blue Pie. Although the colouring is not so brilliant, the birds themselves are more tractable and less predatory in appearance. By far the most attractive of the whole genus, to my mind, however, is the much smaller Chinese Blue-winged Magpie, of which there have been very few on the market of late.

MY PET TOUCAN.

By KENNETH WOODWARD.

We all have our favorite bird, and mine is a Toucan or Toucanette (*Aracari*), called the "Gentleman," and the freshest thing I ever owned. He is now biting the pencil and my fingers as I try to compose this letter; but if the Editor wants my unscientific jottings, let us start at the beginning. Looking around a shop fifteen months ago, acquaintance was first struck up by scratching

his head thru the bars. The price was ascertained, and somebody nearly died right there, and it wasn't the bird; but yet I knew he would be mine, and he was next day. As it was a new importation, the bird remained in this store for seasoning, and I used to play with him until one time the inspector, witnessing the exhibition and the crowd which had gathered, voiced his objections to a stranger playing with the firm's property. Explanations were made and apologies accepted. The "Gentleman" changed his boarding house right there and then. The name was given by the butler, who marvelled at the variety and expense of his *menu*. One day he bit me, and made a wonderful job of it, as the nail of the first finger soon came off, and I had some sore hand with a nasty saw cut across it. Petting ceased, and remained so for some months. He had my goat, and I was afraid to touch him.

A white Java Sparrow sharing his room, 18 × 12 × 8, is not molested, and, tho' finger-tame and petted, the "Gentleman" is apparently not jealous. Not so with a Troupial in a rather large brass cage. The door was one day left open, and Troupial was rescued *minus* his scalp feathers, and considerably mussed and hurt in the leg.

He dislikes the butler, and I believe the reason follows. Eating lunch one day of Hamburger steak, bread and butter, apple from pie, etc., we were longer than the others, and the table was cleared all except the water glasses. When the first of these started to go so did the "Gentleman," and he got what he went after, the butler's hand, gripping and shaking it like a dog. The water remained and the butler departed, whereupon his highness took sundry and copious drafts, just as any regular bird should do with his meals! This is the only way I can account for the dislike, as formerly the butler stood in better than I did.

These dark nights, upon return home, I hold my hand under the electric light, which I turn on in the hall, and call the boy. Out he comes and lights on the wing for a worm or grape and a talk. The bird show is the "Gentleman's" delight. Everyone pats him, and the more the better. But home the day after, not the usual (if any) attention, and then let anyone go near him! Some savage! and is for a week or more.

Has anyone tried this with their Toucans? I know three that do it, and probably it is a common trait. Breathe on the hind quarter just under and at the tip of the wing, and watch him stand on one foot, cock his head, swell up and open and place across his back the wing you blew under. This posture is held for a long time, and only relaxed gradually to normal. Then do it again. Brother, it's fine!

Six months elapse, when out of a clear sky I see a title flashed on the screen of a lady who tames birds and then by the movies she proves it. You can imagine my excitement when her subjects were shown to be Toucans. Naturally, the "Gentleman" went boarding out. He is back now, and I am the boss. But what a hump of curiosity he possesses! Everything must be picked and pulled, and, with his powerful beak, his investigations are liable to be very complete. Diamond rings (taking the finger along too) are his specialty. Watch chains and buttons are substitutes. Girls having none are not on his list of acquaintance. They are not, and are all afraid. Furthermore, the "Gentleman" knows it and goes for them. When I am shaving he sits on the arm of the mirror; eats his breakfast at the table—oatmeal, bread in coffee, fruit and butter balls. These latter he loves, and to take them away, slippery as they are, is some job. Gum, jam and candy he will not eat. All the rest, including snakes and mice, if you give them—yes. To be scratched is wonderful, and the operation is assisted by throwing out all the feathers, that a fellow may have the full effect on his skin. Purring accompanies same. When he is harsh, voicing displeasure, watch out or get nipped! What is he now doing on the pencil? It should be his, but as I can't see it that way, my fingers get it. When scolded he departs to the far corner to sulk (for a few seconds only). Curiosity is the greatest trait. Open a draw and he must see what is therein; must also help (?) in the morning when food for the day is being prepared, when cleaning cages, changing water; must investigate your shoe-laces and eyes—in short, all and everything.

WINTER BIRDS IN MID-DORSET.

By A. R. WILLIAMS.

At the end of summer the songs were hushed and silence fell upon the birds. The migrants congregated on trees and telegraph wire, and by October the last had departed for warmer climes. We missed the persistent note of the Landrails, and the activities of the Swifts and Swallows, but in autumn and winter there was no scarcity of birds. Quite the contrary. The falling of leaves, laying bare the bushes and branches, made the birds more visible, and increasing severity of weather drove them to the residences and workplaces of man for the purpose of getting food. Additionally, in summer the birds are in pairs and scattered over wider remoter areas, whereas in autumn and winter they flock and feed in fields and meadows.

The autumn of 1916, though wet at times, was, on the whole, fine and pleasant, but it passed quickly; frost and snow occurred in November, and winter was upon us. Then the wild birds resident in this mid-Dorset valley were more noticeable and observable than in the other seasons.

The birds I name as being found in Mid-Dorset have been observed in a casual manner whilst going about a large farm at work, or described by one of the men and substantiated by at least one other witness. No doubt, could full time be given to the subject, could a man spend a whole winter devoted to searching for and examining the birds of a single area, the list, with details, might be enormously extended, but that is a counsel of perfection. Most of us have many things to do each day, of which working for a livelihood is not the least, and the study of wild life is a side issue.

Pigeons are plentiful in the woods. They were seen mostly in early autumn, feeding on the ripe corn before and during harvest. In winter they ventured near us less often, flying away in great sweeping curves at the least alarm, and disappearing into the plantations at top speed. Small parties up to about half a dozen in number spent a good deal of time in the dairy meadows, otherwise

Pigeons seldom visited us till the mild weather returned and spring sowing started.

Rooks are one of the commonest birds. They trailed across the sky in great flocks from woods to feeding grounds in the morning, returning noisily at night. They swarmed down on the ploughed fields close behind the ploughing and harrowing, abounded in sheep and cattle pastures, and showed much liking for clover fields. They were far too numerous in the wheat fields after the autumn sowing, and shooting and scarecrows deterred them but little. The extreme cold of January, 1917, cut off many of their food sources. They became silent, scattered, and spent hours perched on trees and hedges. Dung-carting provided them with much food. Unfortunately, they found a bigger supply of food than that. They started pulling the ricks, particularly wheat-stacks. Not a rick was untouched. Some in remote parts of the farms had great holes several yards across and a yard deep, from which Rooks had tugged the straws, scattering them over the fields, and eating the grain. Sparrows, Pheasants, Partridges, and the hard-billed birds followed in their train to feast on corn. Shooting, hanging up their corpses, scarecrows, netting round the ricks, and traps, were all employed, but many bushels of corn went. As fast as possible the ricks were thrashed out to prevent further depredations. Jackdaws accompanied the Rooks, as they always do.

Crows were uncommon, but early in February two Carrion Crows were seen at the lambing-yard devouring the remains of a dead lamb which had been left on the thatch of a pen.

Starlings were as numerous as Rooks. Their familiar whistle was less often heard, being replaced by a stridulous cry, often of a quarrelsome nature. They worked the fields in large flocks, and the gardens and farmyards in small groups of a dozen or so. They are marvellously quick in their movements, ranging over a wide area, yet searching every inch of ground in swift zig-zag jerks, leaving little for other birds to eat. Their winter plumage retains all its glossiness, marked by little light brown spots apparently one on each feather, giving them a spangled appearance. To the Starlings dung-carting was a feast. They worked both the crew-yard and middens whilst the carts were being loaded, and the heaps and spread

manure in the fields, devouring the innumerable dung-worms at incredible speed. Their legs are dull and beaks blackish in winter, instead of reddish-brown and bright yellow respectively.

Sparrows were most prominent in the autumn, when they crowded the hedgerows and fields in chattering rushing flocks. During winter they were quieter and more dispersed, but could be found everywhere. They made themselves the self-invited companions of Rooks, Starlings, and Finches. Whenever food was obtainable Sparrows appeared. They scattered and searched in pastures and fields, farm and dairy yards, gardens and orchards. They hopped along pathways and roads, round doors and stables, and shared food with the fowls. Sparrows are the general scavengers and the most omnivorous feeders among birds. Sunny days they perched in numbers on south-sloping roofs. The Hedge-Sparrow is a brighter bird than the House-Sparrow, though the latter is so much cleaner than his town brother that in the country the two are not easily distinguished apart. The Hedge-Sparrow keeps more to the fields, and has a much smaller, thinner beak than the House-Sparrow. On a clear, frosty day the browns of the Sparrows' plumage show up strongly, varying from chocolate to chestnut, and the greys are light.

In this part of Dorset Finches are as common as Sparrows. The Hawfinch is rarely seen, though there are a few about the woods. Goldfinches are not general, but occur fairly frequently. By the end of February the Goldfinch has assumed its brilliant colouring, the scarlet round the base of the beak and the yellow bars on the wings making it conspicuous. Linnets and Chaffinches are plentiful, whilst Greenfinches and Bullfinches are countless. Greenfinches work along the hedges and a short distance into the fields, moving in brief wavering flights. Bullfinches scatter more, and are as keen as Sparrows and Starlings on finding feeding-places and working them thoroughly. After thrashing Finches descend on the refuse in swarms. Considered altogether the Finch family add greatly to the liveliness and beauty of the country-side in winter. The Yellow-Hammer gets confused with the Finches, but is distinguishable by its lemon-yellow head, neck, and underparts.

Hedgerows and banks with loose wild growth low down seem

the favourite resorts of Blackbirds, whence they fly out or hop through at the approach of passers-by. Severe weather drives them to the dung-heaps, where they feed close to the men loading or tipping and spreading. Standing a moment to watch with bright eyes, darting on a worm, tugging it out, swallowing it with gusto, hopping a yard or two, then repeating the performance, makes the Blackbird a lively and interesting object. "Blackbird" is rather a misnomer. Some are quite black, sooty, but the plumage varies up to light brown in individuals, light enough to make countrymen hesitate before pronouncing them to be Blackbirds. The lighter colouring usually denotes females, but is not peculiar to them.

The general winter habits of Thrushes correspond closely with those of Blackbirds. The larger and more speckled Missel Thrush is a familiar resident in Dorset. It resorts less to the haunts of man than the Song Thrush, keeping more to the fields and downs. The common Thrush becomes very bold in severe weather, carefully searching dung-heaps, stable and dairy yards, excavations, any place where the earth is disturbed, for food, also finding hidden snails and cracking their shells on a stone, and paying little heed to the presence of animals and men at work.

In late autumn and early winter considerable numbers of Redwings fed in the water meadows. When the hard frosts set in after Christmas they disappeared. The name "Redwing" must have arisen from very careless observation, for it is not difficult to see that the red is on the flanks under the wings, which are themselves brown.

The black markings and large amount of grey and buff and white in the feathering easily distinguish Fieldfares from other Turdinæ. No bird suffered more from the harsh weather of January and February, 1917. Dead Fieldfares were frequently picked up near hedges. There appeared to be as many of them dead from cold or hunger as all other birds together. Wrens, smallest of birds, came safely through the great frost, and no dead ones were found. They hopped in the most lively manner about the hedges, looking in excellent condition, apparently not inconvenienced by the rigors of the weather.

Robins were ubiquitous. Not in any numbers, for it is

unusual to see two at the same time, but every conceivable place was graced by one of them, displaying its handsome blue-edged scarlet breast, avoiding the company of other birds, except occasionally to peck snappily at one and then fly away. Robins have notably slender legs, and are altogether delicate-looking birds, yet endure winter successfully. They are dainty and haphazard feeders, merely picking up bits here and there, almost perfunctorily, in contrast to other birds. Their fearlessness in the presence of man needs no emphasis. As a cart was loaded with manure a Robin would perch and peck, merely giving a quick hop as each forkful was thrown up, and snatching a scrap out of it. A stable door left open would be followed by the entrance of a Robin, darting amongst the horses' hoofs. When the fowls were fed a Robin joined them. One hopped up to the men at lunch in the fields, and finally perched on the toe of one of their heavy boots, surveying the chances of crumbs from that vantage point. A cottage bedroom window had a small pane of glass broken, and through it a Robin entered several times, once flying downstairs. Another was found in the harness-room, having got in by a swing window left open a few inches. When we were thrashing wheat one day in January a Robin flew often on to the machine as it was working, and helped itself to corn. The trusting confidence of the Redbreasts is generally respected, and they flourish in spite of their rigid individualism.

Pied Wagtails, one of the most graceful and pleasing of British birds, are well distributed throughout this district, and called locally "Polly Dishwashers." Grey Wagtails are found less, keeping away from buildings and cultivated land, preferring the streams and ponds of the moors and uplands. Pied Wagtails show little fear of human presence. They follow the ploughs and harrows picking up food, search over the dung-heaps as they are tipped and spread in the fields, and resort to the low-lying meadows in company with many other birds which make wet places a habitat.

The existence of a river and several streams and ponds down the valley, and the system of canalising and irrigating the adjacent meadows during winter, so that they are partially flooded, attracts many water-loving birds. Wagtails work these wet spots regularly, so do Gulls, Plovers, Herons, Ducks, Water-hens, and Snipe. Other

birds, as Blackbirds and Thrushes, find the same places attractive. During the early winter large numbers of Redwings came.

A few Herons visit us from southwards, from the woods towards Wimborne and the River Stour. They come during the night, feed in the watermeads and river, and return early in the morning. Sometimes one delays, and is seen by daylight. I saw one go back, flying low over the farm, at eight o'clock. Another morning, between eight and nine o'clock, I drove along one side of the water-meadow and a Heron went up very slowly, rising after the Gulls and Plovers with which it had been feeding. It turned and sailed away to the south, with the slowest wing-beats I have ever seen a bird give. The shape and lagging action of the wings, and the backward-bent neck of the Heron cannot be mistaken. One morning about ten o'clock I saw one standing motionless under a hedge over a ditch. It waited whilst I walked more than halfway across the meadow, then slipped through the hedge, and I did not see it again. Late one night I stood at the open window of my bedroom, and a big dark bird, with slowly-flapping vanes, sailed close past and gave a loud, harsh cry—almost a croak—very eerie in the stilly darkness. I thought for the moment it was a Raven, but everything points to its being a Heron.

Gulls are regular and daily visitors, following the field operations, and feeding wherever there is water. Their wings are notably longer and more powerful than those of inland birds. The Gulls are obviously visitors, as distinct from the local residents. Their snowy slightly marked plumage, long graceful wheeling flights, lengthy wings with curved tips, comparatively small boat-like bodies, and occasional mournful cries, mark them out as creatures of different environment from the land birds. They bring with them suggestions of vast open spaces of sea and sky, of stinging salt breezes, of azure expanses above and around, of white clouds and sunshine, or dashing waves and surging spray on the coast.

(To be continued.)

REVIEW.

BIRDS THROUGH THE YEAR.*

This book should be in the hands of every aviculturist. Well written and as a rule accurate, it conducts the reader through the ornithological year, from the first arrival of the spring migrants, through busy summer and changing autumn to chilly winter and the early songsters again. The reading matter is enjoyable, and graced in places with imagery that is almost poetic. The illustrations, though of unequal merit, are as a rule good, and add materially to the value of the book.

The most delightful chapter, perhaps, deals with "the lonelier hours," being a vivid and most poetical description of the glories of a summer night. We read of the "cool grey stain" of daylight, of the "dusk full of earth's perfumes, obscurely lit with flowers," of the "soft veil of the June night," of the earth on cloudy summer nights "lit with its own moon and stars," of constellations of blossom in the dusky hedges, of white heads of clover shining in the pastures like a Milky Way. Then we have a page on the pulsing activity of the ghost moths as they swing and sway over the June meadow. Next comes a disquisition on bird song, followed by an avian timetable as the singers succeed each other through dusk to dawn.

The text abounds with happy phrases. The Swift is described as "the most bird-like of birds"—though perhaps some of us would prefer to give that title to the Albatross. The Robin's nest is a Nightingale's "clipped at the edges" (p. 11); we read of the Buzzard "spinning slow rings over the cliff" (p. 23), of Plovers and Waterfowl "lightly dipped in sleep" (p. 161), of the Yellowhammer "tracing golden semicircles about his hen" (p. 169), of the "fluttering buoyancy" of the Sand-Martin (p. 148), and the sapphire Dragonflies "drifting among the sedges" (p. 188). The excellent and practical chapter on feeding birds is worthy of close study, and in discussing the diet of birds the authors pay a tribute to aviculture: "Few field observers care to be aviculturists, but they are inferior to the keeper of caged birds in this department of knowledge" (p. 310).

* 'BIRDS THROUGH THE YEAR,' by W. BEACH THOMAS and A. K. COLLETT. London: T. C. & E. C. JACK. Pp. 361. Price 7/6 net.

The illustrations are worthy of the letterpress. Many are in colour; of these we would specially mention the Swallow about to feed her young as they perch on a willow stump, mouths agape and wings aquiver. Excellent, also, is the Spotted Flycatcher and her brood—the feathering of the nearer youngster is so well done that one could almost ruffle its plumage. Good, also, are the Blue Tit and her young, the family of Wrens, and the carefully-drawn Cuckoo facing p. 272. Miss Austen's Snow Buntings at their icy repast are well set off by the chilly snowfield and its pale blue shadows.

The smaller illustrations are equally interesting. Some birds are seen in motion, others in still solitude. Of the former we note the Montagu Harrier as it floats along almost brushing the ground (p. 21); the Barn Owl, its not distant cousin, following its example (p. 246); and the soaring, circling Buzzard (p. 67). Among the hermits we find the Dipper by the streamlet and the Rock Pipit standing on its boulder like a sentinel on duty (p. 144). Then, again, the Razorbills (p. 338) give a wonderful impression of swaying movement as they float on the water, buoyant as corks. Equally successful are the Sand-Martins on p. 191, as they flutter moth-like over the water. Finally, the Weasel, on p. 171, has been portrayed in an attitude at once truthful and characteristic.

Unfortunately, the book is marred by several errors. It is incorrect to state that the eggs of Hawks or any other birds are marked with blood-stains (p. 26), such colouring being invariably derived from oorphodeine or other special pigment, such as oocyan or ooxanthine. Had the authors been acquainted with the literature of egg-pigments they would have known that such bodies are related to bile rather than to blood. On p. 213, *Archæopteryx* is claimed as "the" earliest bird, though *Laopteryx* of the Upper Jurassic was probably contemporary with it. On p. 296 three errors occur. We do not know what kind of person a "latter-day Winterton" may be; the owner of Walton Hall was named Waterton. Mr. Seton Thompson is a well-known naturalist, but with Mr. Thompson Seton we are unacquainted. Baron Hans Berlepsch is a pioneer bird-protector, but Baron Burlepsch is unknown to fame.

It seems to us a pity to attempt the illustration of eggs without the aid of colour. Thus, the Moorhen's clutch on p. 47 is

quite unrecognisable, while the Guillemot egg on p. 139 belongs to no species known to oology; those of the Sparrow Hawks facing p. 336, though reproduced in colour, are poor and indistinct. As to the birds themselves, the Wheatear on p. 2 has only one serviceable leg, the left-hand limb obviously suffering from an atrophied gastrocnemial muscle. In the plate facing p. 16 the parent Wagtails suggest the taxidermist's workroom rather than the streamlet; the Blackbird on p. 162 is too corvine, and this error is repeated on p. 180; the Robin on p. 170 is unrecognisable as such.

The authors contradict themselves. On p. 138 we are told, correctly enough, that the wings of the Great Auk underwent atrophy to the point of flightlessness. On p. 213 we read with amazement that "We usually speak of the Ostrich or the Great Auk as having 'lost' the power of flight, but it would probably be truer to say that they failed to acquire it." With the Ostrich at any rate the wings are obviously vestigial, tending to disappear unwanted owing to the well-developed legs and feet: this process can be studied under our eyes in domestic fowls. The authors, unfortunately, seem to be totally ignorant of the difference between a vestige and a rudiment, though the two conditions are poles apart.

Finally, on p. 92, we find the statement that the normal temperature of "birds" is that of high fever in man—as if all birds were alike in this respect; besides, medical opinion may well differ as to what may be termed "high fever." Let us take the House Sparrow as a typical bird. The researches of Gavarrett and Rosenthal have demonstrated that the body-heat of this small fowl is as low as 39.08° C. as against 38.01 in the normal human intestine. The free-roaming, ocean-loving Sea Gulls may well be assumed to be full of vitality and strength, yet even in these the recorded temperature is only 37.8—lower than in man; and the Ostrich is content with the same body temperature as our own.

G. R.

CORRESPONDENCE.

BIRD PROTECTION IN AMERICA.

Dr. W. T. Hornaday writes : I am tempted to send you a photograph which may well be called "An Object-Lesson in the Protection of Wild Fowl." The picture was taken by our photographer in the Wichita National Bison Range, in South-western Oklahoma, Oklahoma, U.S.A., about seven years ago, after the Range was established and the preservation of all bird life within it seriously began.

Eight years ago only an occasional pair or a very small flock of Wild Ducks could be found on the waters of the small streams shown in the photograph. Now the Ducks congregate there, to rest and feed, literally in thousands.

The last Passenger Pigeon that for twenty-one years lived in the Cincinnati Zoological Gardens, and which finally became the sole survivor of its species, died on September 1st, 1914, and its remains were sent to the National Museum at Washington.

Perhaps you will be interested in the fact that the fund which I began to raise by subscription, for the permanent protection of wild life, has now reached \$51,200. I have called it the "Permanent Wild Life Protection Fund," and its income is to be expended on the firing line for the next hundred years or more. It is my intention to finally bring the fund up to \$100,000, but for the present the war has interfered with my efforts.

It may be that you will be interested in a great fight waged in California by the Portuguese and Italian game dealers and market-gardeners, and a few hotel and re-restaurant keepers, to re-open the sale of game throughout the State of California. They sought the repeal of the law against the sale of game. That law was enacted after a great contest, and all sorts of unfair methods were resorted to to persuade voters to give the "poor working man" a chance to buy Wild Ducks at \$2 a pair! The wild life protectionists of California are waging a great battle, and I feel very sure that they will win.

IN THE PELICAN COUNTRY.

To the Editor of the 'Avicultural Magazine.'

DEAR SIR,—I am enclosing you some photos of the beautiful White Pelicans of Oregon, which may perhaps be of use to you. I wish I could write something of interest for you to use, but *hélas*, I have little talent along those lines, much as I love birds and Nature. We have spent the summer motoring in the mountains of California and Oregon, fishing and camping. I could write a lot about camping with an automobile; how one's tent slips on over the top of the car and is put up in a few moments; the perfect comfort of pneumatic mattresses pumped up with the pump of the motor, also in a very few minutes; of folding tables and armchairs, cookstoves equipped with gasoline for fuel, rubber bath tub, guns and fishing tackle, all finding their place in the roomy tonneau of a big Cadillac Eight, and of two elderly people wandering from one beautiful spot to another throughout the long dry summer months of this lovely country; but that would not be "bird articles."



THE UGLY DUCKLINGS: NESTLING PELICANS ON BIRD ISLAND.

Those who doubt the evolution of birds from reptiles will do well to study this photograph. The long, skinny necks and heads and the arm-like wings recall the extinct pteroductyl lizards, as restored by naturalists.

If any part of this letter can be of service to you, pray use it. Kindly scratch and correct as you see fit, or cast into the waste basket. All I want is to show a bit of good will, that's all.

Yours cordially,

[Mrs.] C. E. MAUD.

AUSTRALIAN BIRDS.

DEAR SIR,—I am pleased to see the accounts of Australian birds for the January number, and especially the accounts of their songs; the notion that Australian birds do not sing is still held by many to be gospel truth.

I see that in my "Foreign Finches in Captivity" I mention that the Gouldian and Chestnut-breasted Finches pair together readily; this would be an interesting hybrid to secure, and one, I think, well worthy of illustration when obtained.

124, Beckenham Road,
Beckenham, Kent;
December 12th, 1917.

Yours very sincerely,
A. G. BUTLER.

AVICULTURE IN AMERICA.

Mr K. Woodward writes: One of your far away members wonders if a letter from "over here" would be welcomed by the Editor now that so many of the older and experienced writers have sterner duties to attend. Aviculture as practised in England does not exist in this country. We have no large private aviaries, no magazines, and no shows to speak of. Some people keep a bird or two, generally a canary. Some more than that, but those having twenty or over can be numbered.

This year our show is off. War material has to be shipped, and express companies are not guaranteeing the arrival of poultry at the exhibition, so the birds, cats, and covies, which are exhibited at the same time and place, are knocked out. Nevertheless, our little display each year produced 300 birds in the shelves, many roller collections, and flight cages for exhibition. Ribbons were awarded in each class, and trophies for the best bird and other specials. Breeding, as you can imagine, is not a thriving industry; birds are not kept largely or out of doors in natural surroundings, only Zebras, Minas, Javas, Grass Parakeets, Japanese Nuns and the like are brought up in the bird room.

My own birds (sadly depleted now that the war has stopped importations) live in cages 6 by 6 by 4 and somewhat similar measurements, having twigs, nesting boxes, cocoa-nut husks, and bathing water all the time.

It was in the above cage, with forty birds therein, that a Yellow Grass Parakeet was reared by papa, the shock of its birth having killed mamma. How he did it, with Rosellas, Love Birds, Weavers, and other inquisitive species and in such a crowded "tenement," has always mystified me. The only help father received was to have all the other birds, principally Japanese Robins, brushed away from six meal-worms which were given every morning. This was the only time that father was ever tame. He can't be caught now without a net and a fight. January and February, with snow outside and cold, was the time it happened.

The little Finches in another cage lay fresh eggs all the time, but no one

sits on same, and the next party builds a nest on top until—the boxes full—house-cleaning is practised by me.

The English aviaries must be wonderful. The pictures and lists of breeding results tell the story. I hope to see them some day.

The above does not apply to the zoological parks, but even here all the cities I have visited, including Canada, never had any of the smaller birds except New York. The display at the Bronx Park is complete and tastefully shown.

AVICULTURE AND TAXIDERMY.

To the Editor of the 'Avicultural Magazine.'

DEAR SIR,—I herewith tender you an article of mine on the "Mounted Bird-Exhibit of the United States National Museum at Washington"; it has been prepared especially for the 'Avicultural Magazine,' and my hope is that you may find it available for some one of your future issues. I see the Journal at the National Museum and much admire its excellent qualities.

With best wishes,

3356 Eighteenth Street,

Washington, D.C.;

October 24th, 1917.

I am, dear sir,

Faithfully yours,

R. W. SHUFELDT.

[We welcome Dr. Shufeldt's paper as widening the scope and practical usefulness of aviculture—holding, as we do, that our science is capable of indefinite expansion, and by no means limited to the mere keeping of live birds. The study of living creatures is of the greatest service not only to the arts ancillary to zoology (such as taxidermy) but also to remoter pursuits, such as agriculture and medicine. We shall return to this subject later.—G. R.]

A CURIOUS COINCIDENCE.

M. Pichot writes: At one time, Virginian Quails were very numerous in the United States, but they have so far fallen victims to wanton shooters and the purveyors of the market ("game-hogs," as G. O. Shields so justly branded the pot-hunters in 1897), that stringent measures have had to be taken to prevent their utter destruction. On December 17th, 1911, the Executive Committee of the New York Zoological Society was assembled in the Administration Buildings discussing the plans for securing a five-year close season for the persecuted Bob Whites, when a whole covey took up its station under the very windows of the room, the birds calling loudly to each other. There were eleven of them, and they had been seen twice before in the park, but on this particular occasion it seemed as if they were a deputation bringing in a petition, and no doubt their timely appeal carried the vote!

THE PAUCITY OF WILD BIRDS.

To the Editor of the 'Avicultural Magazine.'

SIR,—Dr. Butler is fortunate in having seen so many wild birds at Beckenham; but, for all that, the serious reduction in their numbers has been, and is, most marked.

Last winter, in spite of perpetually feeding those that congregated round the house, Thrushes and Robins died amongst others, and last summer only one pair

of the former could be seen. Many people have told me the same tale from various parts of England, and I fear that it was not only the weaker birds that succumbed. In Essex, a former gamekeeper of mine, who was quartered in that county, told me that it was piteous to see the birds dead everywhere, even frozen in nooks of hay-stacks. And what about Golden-crested Wrens and Long-tailed Titmice? They were almost exterminated, so that it must take several years before their numbers are anything like normal. Where, too, are the Fieldfares and Redwings? It is good to be optimistic, but there is no doubt whatever that Song Thrushes and many others are conspicuous by their absence. I have a very large lawn here, on which Blackbirds and Thrushes used to hop about. I never see the latter species now, and only two or three males of the former.

Brinsop Court, Hereford;
January 14th, 1918.

Yours, etc.,
HUBERT D. ASTLEY.

BREEDING OF SHAMAHS.

DEAR SIR,—Will you allow me to draw upon your great experience and very kindly give me the benefit of your advice.

I have at present (in this room incidentally) a pair of Shamahs, unrelated, which reared eleven young last summer. In my little outdoor unheated aviary I have a young aviary-bred brother and sister (they experienced a frost a week ago and look very fit—"in a good hour," etc.). I thought at first of selling these, but decided to keep them over the winter in case anything happened to either of the parents. Now I can't bring myself to part with them, and contemplate mating them in addition to the parents. Is there any great objection to mating brother and sister? I have not been able to arrange an exchange of cocks with anyone. The only alternative these times would be to mate either with some British species—Robin, for instance. What would you think of this? I think the parents, with any luck, should breed again. They are both in excellent fettle *at present*.

I have had such numbers of inquiries for Shamahs. I think £10 would readily be obtained for a pair just now! I have so few birds at present that I can give both pairs compartments very nearly to themselves, which is a *great* consideration. I shall be so very much obliged if you will advise me (1) as to mating brother and sister; (2) as to mating with some British species if possible. I don't know how I shall manage live food for them all!

14, Royal Terrace, E., Kingston;
January 14th, 1918.

Yours very truly,
Geo. E. Low.

YOUNG SHAMAHS.

The following reply has been sent to Mr. Low:

Inbreeding is to be avoided if possible, as the offspring are liable to be weak; still there is no doubt that it occurs pretty frequently among wild birds; so, perhaps, would not matter much if not persisted in. I think it would be preferable to attempting to cross a Shamah with a Robin, both being very pugnacious birds; you don't want to have a Shamah killed, as it certainly might be if attacked by a Robin.

If Shamahs were cheap birds I should say try it by all means; because, if

successful, the hybrid would be most interesting; as it is, I strongly advise you not to risk it. Sell the young if you can get a good offer for them.

ARTHUR G. BUTLER.

MORE ABOUT FEATHER-PATTERNS.

DEAR DR. RENSHAW,—The photograph of an Eagle which you propose to use as an illustration to my paper has suggested another point to me. As you observe in your letter, the feathers on the breast have lost the central shaft stripe, while those lower down still retain it; which seems to indicate distinctly that the breast-markings were developed first.

Now, in the *Turdidæ*, the young in their nestling plumage all have throat and breast more or less spotted; that is to say, the shaft-streaks persist; but later in life many of the smaller forms, as, for instance, our Robin, Nightingale, and many of the Warblers, have lost this character; whereas others have retained it only on the flanks, and in the case of the Barred Warbler the later development of a crescentic border to the feathers has been reached; whilst on the coverts, wings, and rump shaft-streaks have been modified, either so as to darken a great portion of the feather or to form additional crescentic bars.

It seems probable that the habits of the different species will explain why certain of these Thrush-like birds have developed markings of this character in their adult plumage, when others have lost them; thus the Barred Warbler, being a skulking bird, frequenting tangled undergrowth in thickets and plantations, would be less conspicuous in its barred markings than if more uniformly coloured.

Then, again, if the modification of shaft-streaks commenced with the throat and breast-feathers one can understand why that portion of a bird's plumage is so frequently occupied by a dark or uniform belt of colour.

I hope other bird-students with younger and better brains will follow up this subject: it seems to me to be worth considering.

Yours very sincerely,

A. G. BUTLER.

January 17th, 1918.

THE EVOLUTION OF FEATHER-PATTERNS: CHANGE OF COLOUR WITHOUT A MOULT.

DEAR SIR,—I was much interested in reading the letter by Dr. Butler, in which he refers to the change of colour which may occur in the feathers of certain birds without a moult.

I have frequently noticed a remarkable deepening in the pink shade of Roseate Cockatoos' breasts when the birds came into breeding condition in the early summer, at a time when no feathers were dropped.

I have also noticed that the crimson head and bib of a cock Yellow-mantled Parrakeet (and presumably therefore of an ordinary Rosella) lose their brilliance and turn to a duller brickish shade quite suddenly when the moult begins in July, although there has been no perceptible fading of the plumage during the preceding nine months. Some naturalists have asserted most positively that the repigmentation of feathers is quite impossible, and they have denied its occurrence even in the Touracos, where the phenomenon was at one time considered an established fact.

My own experience with Parrots has, however, converted me to Dr. Butler's

view that the vane of a feather is not physiologically dead until it is nearly ready to be cast, and that colouring matter may sometimes pass from the basal gland throughout the whole structure.

Warblington House, Havant;

January 18th, 1918.

Yours truly,

TAVISTOCK.

[We were much impressed with the truth of the living-feather theory in May 1915, when inspecting the beautiful Owl Parrot, which under the care of Mr. Seth-Smith broke all records for this species in captivity, having lived over four years in the Zoo—*i. e.*, more than twice the span of any other individual, at home or abroad. The plumage of this bird was a bright sap green colour, shining with a fine glaze as if enamelled, and in the bloom of condition.—G. R.]

THE BALANCE OF NATURE.

DEAR DR. RENSHAW,—I have read Dr. Butler's article on "The Balance of Nature" with much interest, but as far as my observation goes I fear that in this neighbourhood at any rate, it will be long ere certain species make good their losses, some seem even to have disappeared altogether.

Possibly a few observations on the subject may be of interest and induce other members to write their experience.

Before last winter Golden-crested Wrens abounded, Long-tailed Tits were common, and Cole Tits extremely so; this year I have not seen any at all of the two first, and only one of the last-named species.

Green Woodpeckers are now comparatively seldom heard; I have only seen two individuals, but it is likely that they may be more plentiful in such of the big woods as are yet left; the Pied and Lesser Spotted Woodpeckers are never very much in evidence, but I have seen and heard them both this summer.

Two pairs of Marsh Tits formerly frequented this garden, I have not seen them at all, but possibly they went to the bogs. About half the usual number of Blue Tits and a couple of Great Tits came to the bird table, last year they swarmed.

Nuthatches have been severely thinned but certainly one brood was reared in this garden and I think remains with us.

We have not nearly as many Song Thrushes nor Hedge Sparrows.

Pied Wagtails are never very plentiful here owing to lack of water, and I think we have about the usual number of them. Robins are fairly plentiful and I have seen several Wrens.

Tree Creepers are about as usual.

Hawfinches had become comparatively common but this year our peas were untouched and I have neither seen nor heard them. Bullfinches are still plentiful, Goldfinches, Linnets, and Chaffinches all very abundant, Blackbirds and Starlings over abundant; Owls, especially the Tawny, appear to be numerous. Swifts, Swallows, and Martins not noticeably fewer, there are not many ponds to entice them.

I should like to emphasise that I am only recording my own observations made over a very limited area; still before last winter I frequently saw five or six pairs of Goldercrests working the spruces opposite our house and families of the

charming little Longtailed Tit often visited a large holm oak on the lawn ; I think I regret them most of all.

Larks seem about as usual, also Cirl Buntings.

Yours sincerely,

*Forest Bank, Lyndhurst, Hants ;
January 20th, 1918.*

ETHEL F. CHAWNER.

EDITORIAL.

The Editor thanks all who have contributed to this issue, and especially does he thank his Transatlantic correspondents. He views with pleasure the success of this American number, believing that it forms another link in the bond of Anglo-American friendship. Aviculture, like her sister sciences, joins hands across the sea.

In March space will be devoted to the birds of South Africa and the adjacent islands. By the courtesy of the New York Zoological Society, a photograph of a group of swimming Penguins will appear in the issue. The Lemurian sub-region will be represented by a valuable paper on the breeding of the Pigeon Hollandais. Dr. Butler's new and interesting theory of the origin of feather-patterns will be illustrated by reference to the Crowned Hawk Eagle of the West Coast.

G. R.

NOTICE TO CONTRIBUTORS.

1. Correspondents are requested to write on one side of the paper only. This saves the compositors' time if the article is accepted.

2. MSS. should be posted sufficiently stamped. This saves the Society's pocket.

3. MSS. should be very clearly written, and is better if type-written. This saves the Editor's time.

4. MSS. should be folded, not rolled. This saves the Editor's temper.

G. R.

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

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THE SOCIETY'S MEDAL.

An account of the breeding of the Mexican Black-breasted Quail, by Mr. W. Shore Baily, appears in this number. Anyone knowing of a previous instance is requested to communicate with the Editor.

ALTERATION TO RULES.

At a Meeting of the Council, which was held on Feb. 17th, 1916, the following addition to the Rules was made:—"That each Member (not a Dealer) be entitled to ONE ADVERTISEMENT, FREE OF CHARGE, EACH MONTH, the Editor to be sole judge as to whether such advertisement can and shall be published or not, priority shall be given to those who apply first."

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Wanted.—Dr. ICK-HEWINS, of Manaia, Taranaki, New Zealand, would be glad to hear of second-hand volumes of this Journal, or other illustrated books on birds for sale at a reasonable price.

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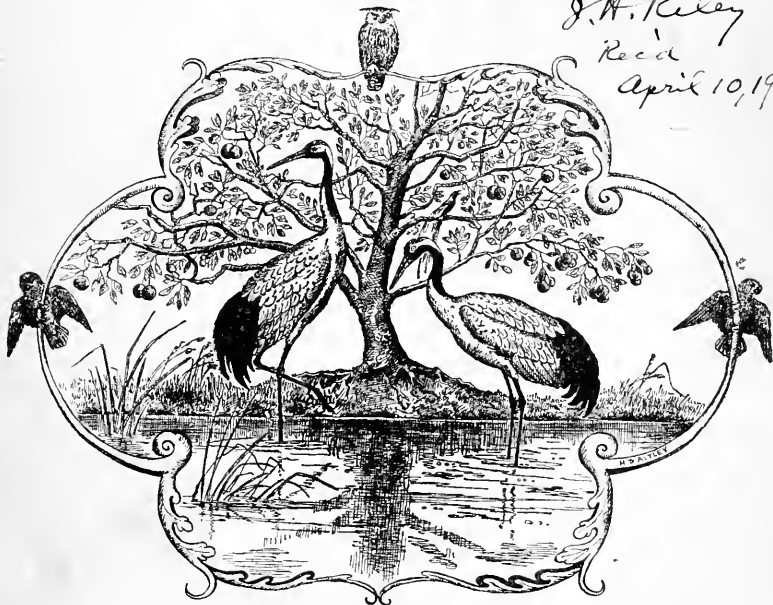
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J. H. Riley
Rec'd
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All MSS. for publication in the Magazine, Books for Review, and Private Advertisements should be addressed to the Editor, Dr. GRAHAM RENSHAW, Bridge House, Sale, Manchester. Telephone 144 Sale.

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. [Enclose stamp for reply.]

All other correspondence should be sent to the Honorary Business Secretary, Miss R. ALDERSON, Park House, Worksop. Any change of address should be at once notified to her.

Dead Birds for *post mortem* examination should be sent to Prof. G. H. WOOLDRIDGE, Zoological Society, Regent's Park, N.W.

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MOBILIS IN MOBILE: CAPE PENGUINS AFLOAT.

THE
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BEING THE JOURNAL OF
 THE AVICULTURAL SOCIETY.

Third Series.—Vol. IX.—No. 5.—All rights reserved.

MARCH, 1918.

MOBILIS IN MOBILE.

“Mobile in a mobile element. This applied exactly to this submarine machine, if you translate the preposition ‘in’ as ‘in,’ and not ‘upon.’”—JULES VERNE: *Twenty Thousand Leagues under the Sea.*

The foregoing description also applies exactly to the fine group of Penguins forming the frontispiece to this month's ‘Avicultural.’ Perfect swimmers and divers, they may well be termed the most fish-like of birds. Equally, with their smooth, shining bodies and magpie coloration, does a troop of swimming Penguin suggest a school of marvellously small cetaceans. Moreover, some of the latter (dolphins, for instance) have the muzzle prolonged into quite a bird-like beak! Penguin further resemble cetaceans in having a warm coat of blubber under the skin, and differ from nearly all other birds in the close setting of their feathers.

As we saw last month, most birds are not uniformly feathered all over, but have their plumage arranged in definite tracts, separated by bare patches or apteria. Penguins have no apteria, save a small bare patch on the under surface, to allow the sitting bird to satisfactorily incubate her egg. The feathers themselves are most remarkable, recalling the scales of reptiles, and on the forearm are even moulted in a sheet, like the skin of a snake.

A well-known locality for the Cape or Jackass Penguin is

Ichaboe Island, near Angra Pequeña. Four eggs from this locality, now before us, are rounded, slightly pointed at one end, and covered with a chalky incrustation, which if scraped away reveals the white, slightly polished surface of the true shell.

We are much indebted to the kindness of Dr. Hornaday, who not only gave permission to reproduce this beautiful study, but also sent a special photograph for the purpose. G. R.

THE JACKASS OR BLACK-FOOTED PENGUIN.*

By LEE S. CRANDALL.

As the seals are among mammals, so are the penguins among birds. Perfectly adapted for an aquatic existence, they are as much out of place on land as are their mammalian parallels. As the limbs of seals are specialised for swimming, so are the wings of Penguins modified for this mode of progression. On land, the Penguin is at a disadvantage and walks awkwardly. Usually it remains erect, moving with a curious waddling gait, but when closely pursued, it drops to the ground and, aided by its flipper-like wings, is able to travel more rapidly. When crossing rough ground it leaps from rock to rock, balancing carefully with its stumpy wings.

In its natural element, however, the Penguin is a creature transformed. It darts about with incredible rapidity, so swiftly that the eye can scarcely follow its movements. The wings are moved synchronously, not alternately, as has often been stated. The feet play no active part in swimming, except possibly as an aid in steering, and trail helplessly behind, bottoms upward.

The Penguins are an isolated group, having no near relatives. It is evident that they formed an early branch from the avian stem, and they retain many primitive characteristics. The feathers are poorly developed, and scale-like, especially those of the wings, where the primaries are hardly differentiated from their coverts. The ~~eyes~~

* [Reprinted from the Bulletin of the New York Zoological Society].

of the wing are flattened and the joints are stiff, so that the entire appendage acts from the shoulder as an inflexible paddle.

It is of interest to note that the extinct Great Auk exhibited a development parallel to that of the Penguin, to which it was not closely related. Its flightless condition was not due to any unusual structural developments as in the antipodean birds, but simply to the very diminutive size of the wing, which was perfectly formed.

Living Penguins are always difficult to obtain, and hitherto we have not been able to give our occasional specimens thoroughly adequate quarters, with salt water. Early this spring, however, a single Black-footed Penguin arrived at the Zoological Park. He was placed in the diving birds' tank in the Aquatic Bird House for a time, and then, as spring appeared, he was quartered with the Walrus as a companion, where he prospered. In July five more specimens were obtained, and were introduced at once to the single occupant of the pool. After a satisfying bath in the artificial salt water provided, they at once made themselves at home, and now form an attractive exhibit. The potential energy represented by the extensive layer of fat stored beneath their skins should enable them to withstand any degree of cold to which they are likely to be subjected at this latitude.

Intellectually, Penguins are not the most advanced of birds. Once they have become accustomed to confinement in dry quarters and to receiving food from the hand of their keeper, it is exceedingly difficult to persuade them to avail themselves of the privileges of the bath, and to secure their food in a normal manner. Thus, at first, our little flock suffered somewhat from the heat, refusing to enter the cooling water unless compelled to do so, neither could they be persuaded to feed on the killi-fishes with which the pool was supplied. After a short period of training, however, they reverted to more normal habits, and now pursue the fishes with remarkable agility. Also, they have deigned to accept the hospitality of a tarpaulin stretched over the rocks in a corner of their enclosure, affording them much-needed protection from the heat of mid-day.

BIRDS OF THE GAMBIA.*

By E. HOPKINSON, D.S.O., M.B.

(Travelling Commissioner, Gambia).

The Gambia, although the smallest of the British West African possessions, has a large and varied bird population. This is partly the result of its geographical position, and partly of its topography—a mighty river and its banks. The first means that it is the object (or on the line of march) of two double migrations, one from the north in October with its return in the following March or April, the other from the south at the beginning of the rains, June or July, of birds from the more equatorial parts, which come to breed in Senegambia, of which great territory the little Gambia may be said to form the core, at any rate from a bird's point of view. These visitors from the south leave us after the rains, their departure being spread out over several months—October to January. Our normal resident population is therefore increased at these times, though the increase due to our northern visitors is usually a matter of days or weeks only, the great majority of the migrants passing on to a more remote destination. The rainy season influx, on the other hand, lasts the whole of that season, our visitors then coming in to settle for the definite business of breeding.

Here, realising the difficulty of compressing an account of our varied avifauna within the limits of a single article, I must content myself with notes on the commoner or more conspicuous members of the different orders and families which occur within the limits of the Gambia, although the result is nothing much more than a list.

If the average man here were asked what was the typical Gambia bird, the answer would in practically every case be the "Bush-fowl" (*Francolinus bicalcaratus*), a bird widely distributed throughout N.W. and W. Africa, for in Africa most people's interest in the birds is sporting rather than ornithological, and this game bird comes easily first in most men's minds, providing as it does good sport and good "chop."

The Game Birds therefore will form a good starting-point.

* [Reprinted from the Journal of the African Society, 1917.]

Besides the "Bush-fowl," three other Francolins occur, but none of these are common. Another game bird, locally known as the "Stone Bush-fowl," which is found in parties of six to ten among the bamboos on the ironstone ridges, is *Ptilopachys fusca*, a bird about the size of and very like a hen bantam. Guineafowl are common in many parts of the country and provide good food, if not the good shooting we owe to the "Bush-fowl." In the winter months Quail (either *Coturnix coturnix* or *capensis*) visit us and are then frequently to be met with in pairs in the millet fields.

Of the Sand-Grouse we only have one species, *Pterocles quadricinctus*, a beautiful bird in which the chest of the male is banded with stripes of deep brown and white. These are common all the year round, but a great increase in their number is noticeable in June and December, when those which breed in the desert are passing through on their way to or from their nesting haunts.

Two species of Bustard are resident with us (*Otis senegalensis* and *melanogaster*), the first being about three pounds in weight, the second about seven. A few of a much larger bird, probably *Eupodotis arabs*, visit us during the winter months. All these Bustards are excellent eating, but even the smaller ones are comparatively rare and not to be obtained any day like the "Bush-fowl."

Another chief supplier of the Protectorate official's larder is the Pigeon family, which is numerous in the Gambia. First come the lovely green, yellow and mauve "Fruit Pigeons,"* which are more or less migratory, as they move about the country, according to the time of ripening of the different wild fruit trees on which they feed. Besides this brilliantly coloured fruit-eating species, at least five species of Dove are common, the largest being *Turtur semitorquatus*, popularly known here as the "Black Pigeon,"† while a larger species still is the "Rhun" or "Guinea Pigeon,"† which is only found in Rhun Palm (*Alyssus*) districts, and which is certainly diminishing in numbers with the increase in the number of trading stations, which of necessity encroach on many of its haunts.

Of the Waders, among the more noticeable are the Spurwing Plover, Whimbrel, and Curlew, Stilts, various kinds of Sandpiper and Stint, etc., while on every freshwater swamp one sees flocks of

* *Vinago*.

† *Columba Guinea*.

Jaçanas, long-toed, short-winged, chestnut-coloured birds, which in different parts of the world are sometimes known as "Lily-trotters," and by the natives here as "Water-chickens." At the commencement of the rains Painted Snipe usually visit us in fair numbers.

Some ten species of Duck are inhabitants of the Gambia. These vary in size from the large black and white Spurwing Goose down to the little "Cotton Teal," both of which are resident with us, as also is the Knob-billed Duck, while Tree-Ducks (*Dendrocygna*) invade us in huge hosts at the beginning of the rains and remain till about January, a certain number indeed remaining right up to the arrival of the next influx, though they then have to move about the country, as the swamps on which they feed dry up one after the other. Among winter visitors from the north I have seen and shot the common European Teal, which appears to be a regular migrant to this country.

The Heron family is well represented, the most numerous being the White Egrets, of which we have three species, two entirely white, the third, the "Cattle Egret," white, with a buff back. The last is commonly known here as the "Tick-bird" or "Cow-bird," from its constant association with the herds of cattle which are such a conspicuous feature of the Gambian landscape and such an important factor in the native ecology. Other species are the Black-necked Heron, a very similar bird to the Common Heron of Europe, which is also found here, the large and handsome Goliath Heron, the little Mangrove Bittern, and lastly the aberrant short-legged form, the "Hammerhead" (*Scopus*), locally known here as the "Jola King," which is to be seen on every swamp, and whose enormous nests on water-side trees are so frequent along the banks of the river and its creeks, anywhere above the mangrove area, as to remind one of lamp-posts or telegraph poles along a street at home.

Storks are represented by the everywhere abundant "Marabout," and the taller but much less common "Saddle-bill."*

Pelicans, Cormorants, and Darters are common along the river, as also are the purplish-black Hagedash Ibises, while the latter's white, black-necked relative, the Sacred Ibis, is also a well-known though rarer Gambian bird. Among the most noteworthy of

* *Ephippiorhynchus*.

our sea-birds are Terns, large and small, and the Grey-capped,* the Lesser Black-backed, and other Gulls.

Vultures are everywhere abundant and perform the still much-needed and useful work of scavengers. The commonest species is the black *Necrosyrtes monachus*, but the much larger brown African Griffon (*Gyps*) is also almost as plentiful in many places up river.

Hawks and Eagles are numerous. Of the latter the most striking is the very handsome, white-headed, brown-backed Fish-Eagle,† which is to be seen anywhere along the river. The largest is probably the Crowned Hawk-Eagle,‡ a crested grey and white (or in juvenile plumage brown and white) bird of a particularly noble mien. Other Eagles are the Bateleur,§ black with red beak and talons, the black and white Vulturine Sea-Eagle,|| and the smaller but distinguished-looking Black-crested Eagle.¶

Of the Hawks, many species of Goshawk, Harrier, Kite, Kestrel, etc., down to the small Cuckoo-Falcons are common.

Owls, too, are numerous, and are all held by the natives as birds of ill-omen. The largest is the Grey Eagle Owl, the smallest a *Scops*. We also have a Barn Owl, which appears to be identical with the English species.

Three species of Parrot are found in the Gambia: (1) a "Ringneck" (*Palæornis docilis*); (2) the "Senegal Parrot,"*** a grey-headed, green-backed, yellow-breasted bird, rather larger than the "Ringneck," but with a short tail; and (3) the Brown-necked Parrot,†† a much larger bird with an enormous beak. The first two are common everywhere, and frequently kept caged or with clipped wings, the "Senegal" making a particularly attractive pet. The third, on the other hand, is only found in that part of the river where the mangroves, among which they breed, are at their best. It is only rarely caught, and is not at all easily reared.

Cuckoos are numerous. The European species is with us during the winter, while its African †† relation comes to us in April and at once begins his well-known and eventually exasperating note.

* *Larus cirrhocephalus*.

† *Spizaetus coronatus*.

|| *Gypohierax angolensis*.

** *Pœocephalus senegalus*.

† *Haliaeetus vocifer*.

§ *Helotarsus ecaudatus*.

¶ *Lophoaetus occipitalis*.

†† *Pœocephalus fuscicollis*.

‡‡ *Cuculus gularis*.

Others are the Pied Crested Cuckoo* and other species of the genus *Coccytes*. The Golden Cuckoo† is found in the more wooded parts during the rains, but is a very rare bird, which used to be much sought after by the native skin hunters, as they could get a large price for a stuffed specimen. Recently, however, this species has been put on the list of protected birds, and this perhaps may lead to an increase in its numbers, but I do not think it likely, for we have but little country really suited to a bird of its habits, and, anyhow, protection in this little strip of territory, to which it is only a visitor, can have but little effect on a species which ranges so widely in adjacent parts of Africa. Since 1914, too, the war has stopped the demand for skins, and, as a consequence, all skin-hunting, so that if our protection (aided as it has been in this unexpected way) has been of any use to this bird, we ought to shortly notice a distinct increase in its numbers.

The last Cuckoo needing mention is the "Coucal," ‡ a large, clumsy-looking, brown and buff bird, which is absolutely devoid of fear, and is seen everywhere hopping or flying heavily from bush to bush.

Barbets and Woodpeckers, of which several species are common, will lead us to the Kingfishers. Of these the black and white Pied Kingfisher§ is the most numerous, and can be seen everywhere from the sea-coast right up the river and on every patch or pool of water of any size elsewhere. Two large blue and black red-billed Kingfishers are also conspicuous birds of the river banks, while a small, blue-winged, grey-breasted bird of the same genus,|| the striped Kingfisher, takes their place in drier localities.

Lastly comes that lovely little gem, the Tiny Kingfisher,¶ a crested bird only about half the size of the English species, whose chief colours are cobalt, rufous, and black.

The Hornbills are represented by three residents: the large Ground Hornbill** and two much smaller arboreal species, one black and white, the other brown.

* *Coccytes jacobinus*.

† *Centropus senegalensis*.

|| *Halcyon*.

† *Chrysococcyx*.

§ *Ceryle rudis*.

¶ *Ispidina picta*.

** *Bucorax*.

Of the Turacos two species are common, the Grey* (the "Kowkow") and the "Blue"† (the "Kowkow King"), while a third, the Green Turaco,‡ a rather smaller bird, is much rarer and very local.

During the winter we are visited by the common Hoopoe, while the Wood Hoopoe,§ a black, long-tailed bird with white-spotted wings, is a resident.

Bee-eaters, too, are very numerous. Of these the Dwarf|| and the Red¶ appear to be permanent residents, although they move about the country a good deal, while two or three other species of green Bee-eater are only visitors, usually in large flocks and during the rains.

Rollers: The "Blue Jay," or Senegal Roller,** is the commonest representative of this family in the Gambia, but three other species are also numerous: the Blue-bodied, the White-naped, and the Broad-billed Rollers.†† The latter is a crimson, blue, and buff bird, built somewhat on the lines of a Swallow, which spends the greater part of the day resting on the tree-tops, sallying forth towards evening to hawk in flocks of flies and other insects till long after the sun has set.

Of the Nightjars, the Pennant-winged‡‡ is the most noteworthy. This bird has one feather-shaft in each wing prolonged to end in a racket-shaped enlargement, and these, bobbing about behind it as it flies, make it look like an Owl or other large bird being mobbed by a couple of Sparrows. It is quite common in the Gambia.

Our common Swift is a dull black, white-rumped bird (*Cypselus affinis*), and is a resident here—at any rate, some appear to be always with us. The European Swift is a regular winter visitor, but I think usually only makes a short stay on his way to and from a more southerly destination.

The various European Swallows are winter visitors in large numbers, while the Senegal Swallow, a large bird with bright rufous

* *Schizorhis*.

† *Musophaga*.

‡ *Turacus*.

§ *Irrisor*.

|| *Melittophagus pusillus*.

¶ *Merops Nubicus*.

** *Coracias senegalensis*.

†† *Coracias cyanogaster*, *C. nectus*, *Eurystomus afer*.

‡‡ *Macrodipteryx macrodipterus*.

belly and a very deeply-forked tail, comes to us in April or May to remain to breed here during the rains.

Of the other Passerine birds, Flycatchers are numerous (as they ought to be in this country where insect life is so abundant), and all sorts of Warblers, from the resident Grass Warblers to the Nightingale and other visitors from the north, Wagtails (the majority winter visitors), Babblers, and Bulbuls, both as residents and migrants, Shrikes of many kinds, Golden Orioles, and Sunbirds are all represented.

The remaining families to be dealt with are the Starlings, Finches, and Weaver-birds. Of the first, the most noticeable from their numbers, their tameness, and their noise, are the Glossy Starlings,* of which three species are very common, one long-tailed and two short, while a third, the Amethyst Starling,† mainly a rainy season visitor only, is one of the most beautiful birds of the Gambia.

The chief representatives of the Finches are two Sparrows (the Senegal Sparrow ‡ and the Rock Sparrow §), and two Serins (the Grey ¶ and the Green Singing Finches ¶), the last-named being the only commonly kept cage bird in this country, though large numbers of the next family (the Weavers) are caught for sale and export to Europe.

The Weaver family in the Gambia include Whydahs, true Weavers, Waxbills, and Mannikins. Of the first the Paradise and Pin-tailed Whydahs are common, while the Yellow-backed is much more local in its haunts. Among the Weavers are various sorts of Yellow Weavers,** commonly called "Palm-birds," the Black Textors, which make huge community-nests in cotton or other large trees in the native villages, and the Bishops,†† so noticeable during the rains from the brilliant red and black or yellow and black of the males in their breeding plumage, and their dancing, hovering flight above the long grass, as they show off to their plainly-clad mates sitting or building below. Our Mannikins are the ubiquitous "Bronze Mannikin" and its much larger relation the "Magpie Mannikin,"

* *Lamprotornis* and *Lamprocolius*.

† *Passer griseus*.

¶ *Polioptila leucopygia*.

** *Hyphantornis*, etc.

† *Cinnyricinclus*.

§ *Petronia dentata*.

¶ *Serinus hartlaubi*.

†† *Pyromelana*.

both pied birds, which are found in large flocks, with which the two Gambian Sparrows are fond of associating.

Our commonest Waxbills are Firefinches, Cordonbleus, Zebra, and Orange-cheeked Waxbills, which form the larger part of the collections in the bird-catchers' cages, which are exported in such large numbers from the neighbouring French port of Dakar in Senegal. Rarer members of this family are the "Aurora Finches," the Vinaceous Waxbill, the Quail Finch, and the Spotted Firefinch, all most desirable cage-birds, but, fortunately from their point of view, either not numerous anywhere or very local in the habitat; at any rate, not so easy to catch as their better-known relations.

Although the Gambia has been so long a British colony, no book on its birds has yet appeared, if we except Swainson's * 'Birds of Western Africa' (1843), which dealt with birds (skins) received (one gathers from the introduction) mainly from the Gambia, as the chief outlet of Senegal produce. More recently a list of Gambian birds was given in the Appendix to Moloney's 'Forestry of West Africa' † (1887), and in the 'Ibis' two papers on this subject have appeared (Rendall, 1892, p. 218, and Budgett, 1901, p. 481), while the writer of this article contributed (1909 onwards) to 'Bird Notes,' the Journal of the Foreign Bird Club, a series of notes on Gambia's birds, of which the material above-mentioned formed the basis, reinforced by his own observations during a number of years' service in the Protectorate and the information provided by other works dealing with the Ornithology of Africa generally. The same hand was also responsible for the chapter on birds in Reeve's book on the Gambia (1912).‡

* 'Birds of Western Africa.' By W. Swainson, Esq. Two vols. Jardine's Naturalist's Library. Edinburgh, 1843.

† 'Sketch of the Forestry of West Africa.' By Alfred Moloney, C.M.G. London, 1887. 'List of the Birds of the Gambia.' By Captain G. E. Shelley. Pp. 464-483.

‡ 'The Gambia.' By Henry Fenwick Reeve, C.M.G. London, 1912, Chapter on Birds, Part III, pp. 216-233.

THE GREAT TOURACO (*Corythæola* vel *Schizorhis cristata*).

By J. DELACOUR.

(Translated by the Editor from the 'Bulletin de la Société Nationale d'Acclimatation de France.')

The war and the submarine campaign have hindered the importation of exotic animals into France, but they have not entirely stopped it. Thus it was that I was able to receive at the beginning of the year a very interesting package from the Gaboon, in which was found a superb bird—the Great Touraco.

The family of the Musophagidæ is particularly attractive; the species which compose it have not only an elegant form, united to brilliant colours, but their character and habits also constitute them the most agreeable of birds to keep in captivity.

The different Touracos are always rare enough in collections, in spite of their hardy temperament and their readiness to breed in aviaries. I even believe that people had never hitherto seen a live specimen of the Great Touraco.

This bird, much bigger than its congeners, measures about 75 cm. in length; it has the outlines of a Pheasant, or rather of a Crested Guan, whose general appearance it somewhat recalls.

The Great Touraco is entirely arboreal; like the other members of its family, it scampers over the branches, which made many visitors to my Buffon Touracos exclaim "Talk about squirrels . . . !"

One feeds it on bananas, apples and other fresh fruit, on dried figs and raisins, and meat cut small. It refused meal-worms, *Caurasius*, and other insects. Its behaviour is distinct enough from that of other Touracos, its prominent and brilliant beak and its unique crest confer on it a distinctive physiognomy, while the great development of its wings and tail give it marked individuality.

If other individuals were imported, it would be interesting to try to breed them, it ought not to be more difficult than breeding Buffon's Touraco.

(An excellent coloured figure one-quarter the natural size accompanied this account. We hope that some day the Great Touraco may be seen in our aviaries on this side of the Channel.

In her charming book, 'By the Waters of Africa,' reviewed in this issue, Miss Lorimer says of an allied species, "When we have our lunch on the verandah, the brilliant-plumaged plantain-eater comes out of his cage and sits on the Governor's shoulder, and takes pieces of bread out of his hand. It is a gorgeously beautiful bird, and quite common in this country. It is long and sleek, and has smooth feathers of the most dazzling blue; there is not a mark upon it of any other colour. When it stands quite still on its perch it looks as if it were made of blue enamel." On p. 251, she adds, "One day we saw two glorious plantain-eaters. They flew across the road in front of us, with their wings outstretched in the full sunlight. They were the bluest and most radiant visions imaginable, far more like the illustrations of birds you see in fairy stories than the real thing."—G. R.)

SUNBIRDS IN CAPTIVITY: PAST, PRESENT AND FUTURE.

By E. HOPKINSON, D.S.O., M.B.

The Sunbirds are such a recent addition to the ranks of cage-birds, among which they are now firmly established, that for their past history as such, there is no need for search in far-back and often forgotten records. As a matter of fact most of these are to be found within the covers of the 'Avicultural Magazine,' and that, too, since this century began. Years before Sunbirds were dreamt of as cage-birds, or at any rate when they were no more than a dream, the Avicultural Society and its Magazine was flourishing; it saw their *début*, it saw their establishment. May both long continue to increase and multiply in their respective spheres.

Until we come to about the end of last century, although no doubt people had been tempted to try to keep these birds in captivity in their native countries, there is but little recorded of them. The family is not even mentioned in Dr. Russ' great work. The earliest, and indeed the only, mention of any early attempt to keep Sunbirds in captivity I find, is in the introduction to the Sunbird volume (16) of Jardine's 'Naturalists' Library,' which was published in 1843. Here

the editor, quoting "Barrow, Travels in South Africa," says that there one species was often kept in cages for its song. They were fed (but only maintained with difficulty) on sugar and water, which, as the writer says, could not be sufficient to afford them proper support.

The first attempt to import them into England was, I believe, that made in 1897 by Mr. Finn with some Indian species. These he tells us in the 'Avicultural Magazine' for 1899, p. 42, were all Amethyst-rumped Sunbirds (*A. zeylonica*) with a single Purple (*A. asiatica*) among them. Only one lived to reach the Zoo, and that was the single Purple Sunbird, which, however, did not survive there longer than a fortnight. Its arrival nevertheless constituted the first exhibition there of any Sunbird, and I do not know that any had been previously seen elsewhere abroad. Regarding this particular bird, Mr. Finn tells us that it was in half-colour when obtained in the middle of July, but by the first week in August had changed to the brown and yellow non-breeding plumage. None of the Amethyst-rumps, he says, showed any sign of change of colour. In Oates and Blanford's 'Birds of India' it is stated that there is no seasonal change in the male plumage of an Indian Sunbird. Is this the case or not, or is the Purple Sunbird an exception to the general rule? This question can no doubt nowadays be answered by some of those who have kept and are keeping these birds, and I hope that we may see in these pages the answer to this and the other questions I shall ask. In most African species a special nuptial plumage, is, I believe, the rule.

From this date till 1906 the Magazine never mentions Sunbirds. In that year a Sunbird made its first appearance on the English show bench, Mr. Hawkins showing at the Crystal Palace in February a dying Malachite, an inauspicious beginning indeed, which one would never have believed would be the prelude to the changed condition of affairs, which now holds after such a few years' interval. On p. 209 of the 1906 volume the owner of this bird tells us its history. It was one of the few survivors of these brought from South Africa by Mr. Hamlyn. Mr. Hawkins writes as follows:

"Some birds are difficult to adapt to conditions of travel and captivity, and I think the Sunbirds may be fairly classed with these. Mr. Hamlyn lost about 85 per cent. of those he

attempted to bring over on his last return journey, although he attended to them himself. Of the few that arrived I received four on January 15th last."

Two of them were Malachites, the other probably Double-collared. All were dead within a month, the one shown being the longest lived. It appears that they were fed on honey, on which the then editor remarks that he is by no means convinced that this is the correct or best food for these birds. Present day knowledge shows he was right, while another note he makes, "with care it should not be at all impossible for a skilled aviculturist to bring home several specimens" may be called prophetic of what Mr. Frost and other importers were so soon to do.

In December of the same year (1907) another Sunbird appeared on the bench. This was Mr. Maxwell's "Indian Sunbird," an Amethyst-rumped, I believe, and the same exhibitor showed a Purple Sunbird at the L.C.B.A. Show in November, 1910. Of this bird Mr. Seth-Smith wrote in his notes on the Show ('Avicultural Magazine,' 1911, p. 76), "a Sunbird of any species is a unique cage-bird." It is interesting to compare this remark, so true at the time, with another more recent one, also in our pages (1915, p. 392), by another expert, the present editor, "as easy to keep as Sunbirds." In 1910 "unique," "easy to keep" in 1915. That shows how great is the gulf between the past and present of Sunbird treatment, though so narrow in point of time.

On p. 201 of the same volume (1911) Mr. Maxwell gives a short account of his bird, in the editorial note to which his well-known success in keeping these delicate birds is referred to. From this we may presume that between his first in 1907 and the 1910 Purple he had others of which our pages contain no record. I think, too, that I remember to have seen at least one other on the show-bench about this time. Of one thing we can be quite certain; others were imported, but in most cases in those days of ignorance not to have a dog's chance of more than a short and miserable existence in their new homes. Mr. Maxwell tells us the food he used consisted of Mellin's, Nestle's milk, and fruit, especially Tangerine oranges.

Another query. When was Mellin's first used and by whom?

The year 1911 may be said to close the past and commence the present history of caged Sunbirds, for the latter era under the new *régime* introduced by Mr. Ezra, commenced with the appearance of that enthusiast's first Amethyst-rumped Sunbird at the L.C.B.A. Show in December, 1911. This bird appeared again in absolutely perfect condition at the Crystal Palace in February of the following year (see 'Avicultural Magazine,' 1912, p. 140) and is still alive and flourishing to-day, a regular veteran among Sunbirds and a perfect witness to the success of its treatment.

By 1912 "the present" was in full swing, as is shown by our 1913 volume, to which Mr. Ezra contributed his notes on those in his possession; in fact, the whole volume is full of Sunbirds, the index containing the names of a dozen or more, African as well as Indian.

Of this "present," so recent and so accessible in our pages, I will say no more, and as for "the future," that is in the lap of the gods and therefore needs no words except those of hope.

The failures of the past were the result of want of knowledge; the successes of the present are due to the discovery of the treatment needed. This Mr. Ezra defines as:

Proper treatment on arrival, cleaning, washing, etc.

Proper food, properly mixed and given.

Absolute cleanliness.

Moderate warmth.

Given these, Sunbirds he considers hardy. At any rate they thrive and live out their lives in happiness and beauty. Let us hope that when we once again can return to the pursuits of peace, we may soon hear of aviary-bred Sunbirds. There has already been promise in that direction, for Purple Sunbirds have nested at least once in an aviary, and this year a pair of Amethysts in the Zoo got as far as hatching a young bird.



Photo. by Graham Renshaw, M.D. Courtesy of W. Engle Clarke.

The extinct true Pigeon Hollandais (*Aethenas affinisium*) in the Royal Scottish Museum, Edinburgh. This is the historic specimen from the Dufresne Collection, and the only one in the United Kingdom.



Photo by Lieut. Delacour.

New Pigeon Hollandais (*Aethenas pulcherrima*), young bird in juvenal plumage, bred at Villers-Bretonneux, August, 1917. Shadow of the wire-netting on the head and shoulders. Adult examples are figured in the 'Avic. Mag.', Dec., 1914, and March, 1917.

“THE OLD ORDER CHANGETH”: THE EXTINCT PIGEON HOLLANDAIS AND ITS LIVING UNDERSTUDY.



BREEDING OF THE NEW PIGEON HOLLANDAIS (*Alectroenas pulcherrima*).

By J. DELACOUR.

I have already laid before the members of the Avicultural Society an account of this beautiful Fruit Pigeon, and have long desired to breed it in an aviary; but I did not expect to succeed, on account of the difficult habits of this bird, and also on account of the complete inaptitude for nesting in captivity hitherto shown by all the Fruit Pigeons.

I am, therefore, particularly happy to be able to announce that a young "Pigeon *Hollandais*" has been born and reared at Villers-Bretonneux this year.

The parents have lived in my collection since the spring of 1914, separated in neighbouring compartments, and have always shown a profound aversion for one another, as I have previously related.

This year, at the end of May, it was noticed that the hen was carrying pieces of straw in her beak, and manifested a good deal of agitation; and so I had the idea of opening the door between the compartments. The two birds straightway approached each other and were soon united.

Two days afterwards one egg was laid under a shelter in a basket, where the pigeons had already placed a little dry grass. This egg was rather large compared with the size of the bird, and longer than those of doves in general; it was white, with a very delicate shell. The parents sat most assiduously, after replacing one another on the nest, but at the end of ten days the egg proved unfertile.

On June 15th, 1917, the hen laid another egg in a nest placed in a young fir-tree; but this was situated in a corner of the aviary nearest the park, and the constant passing of visitors disturbed the birds, who abandoned the nest after a few days. I tried to keep the egg for a more favourable opportunity of incubation, but it very soon decomposed.

To avoid such another failure, I put the pigeons in a large

aviary (6 m. by 4 m.) planted with thick bushes, in which I placed several nests. In the early days of August an egg was again laid in a very small basket, placed higher than all the others, in a witch-elm.

This nest was left alone for fear of disturbing the birds who were sitting, and towards August 25th, it was seen that it contained a young one a few days old, rather similar to those of many granivorous doves.

For want of sufficient careful observation, I am unable to state exactly the period of incubation; but I believe it to have been about eighteen days.

The young one grew rapidly; by September 12th it was completely covered with feathers and able to fly; it left the nest, spending the day on the branches of the tree, and slept between both the parents at night.

The parents fed it on their own customary diet—crushed potatoes, hemp-seed, and boiled rice, with sweetened milk and bananas. The latter fruit was unobtainable from September 10th, and was replaced by pears, but the young pigeon did not suffer from the effects of them, as I was afraid it might.

During the period of incubation and growth, the weather was constantly rainy and cool, but a square of “fibro-cement” placed on the aviary above the nest kept it dry.

Some authors declare that the “Pigeon Hollandais” lays two eggs per clutch. This may be the case in their own country (Seychelles Islands); but it is to be remarked that in this case these birds each time produced only one egg.

The first plumage of the young one is quite different from that of the parents. It resembles, generally speaking, that of certain granivorous young doves, which the young “Pigeon Hollandais” resembles also in general build, with the exception that the beak is a little shorter, the feet larger and stronger, and the body stouter.

The head is grey, with a dark-grey crown in the place of the red crown of the adult bird. There are no caruncles, but there is a bare place, whose colour is rosy-grey, between the beak and the eye. Beak rosy-grey, eye brown. Collar grey; under parts light grey; neck dull grey, each feather being bordered with light grey; the

feathers of the wings and tail are dark-blue grey, almost black, with a thin border of very light grey; feet blue-grey.

I will report later when the young pigeon assumes its parents' plumage.

THE TRUE PIGEON HOLLANDAIS.

By GRAHAM RENSCHAW, M.D., F.R.S.E.

In view of Lieut. Delacour's interesting account of the breeding of the new Pigeon Hollandais (*Alectrenas pulcherrima*), it seems opportune to publish a photograph of its namesake, the true Pigeon Hollandais (*A. nitidissima*), now unfortunately extinct. Only one of the three existing specimens is in the United Kingdom, for the bird supposed to be in the British Museum cannot now be found. The sole specimen in these islands is in the Royal Scottish Museum at Edinburgh.

This individual was first recognised by the late Prof. Newton, on September 26th, 1879, when inspecting the bird collection at the Museum. It had been acquired by the Museum in 1816 as part of the collection of Dufresne, a dealer in natural history objects, who afterwards became Aide-Naturaliste at the Paris Museum. By the kindness of Mr. Eagle Clarke, the writer was enabled on June 4th, 1915, to examine and photograph this rarity. It was still in excellent condition, and retained well the Dutch colours to which it owed its name.

Some years previously the writer also examined in the Museum of the Jardin des Plantes one of the two specimens brought home by their discoverer, Pierre Sonnerat, in 1781. One of them seems to have been lost, though Coenraad Temminck, the first director of the Leyden Museum, saw both of them in the last century. They are known, however, to have been at one time exposed to the fumes of sulphuric acid, and one may have been thought not worth keeping, and carelessly thrown away, like the Dodo in the Museum at Oxford. The surviving specimen is carefully preserved under a separate glass shade, but the photograph taken by the writer was not good enough to reproduce here. It was

more than a century old, and looked it, and had been a victim of early aviculture, for the wings were slightly injured and the tail badly broken, as if through confinement in too small a cage. The colours, however, were still recognisable. The bare skin round the eye was red; the beak dull yellow; neck and shoulders dirty white; breast, back, and wings, blue-black; tail, dull crimson; feet red. The label read: "*Funingus nitidissimus* (Scop). M. Sonnerat. I. Maurice."

DEVELOPMENT OF PATTERN IN BIRDS.

By ARTHUR G. BUTLER, PH.D.

The order in which the patterns and colours of bird plumage were evolved is a question which has long interested me, and is, I think, worth considering. It probably explains some of the resemblances between allied forms which have been assumed to be mimetic upon insufficient evidence. Nature works in a very orderly manner as a rule; and therefore there is every reason to expect related species to inherit from their common ancestor a tendency to throw out similar varieties. Should these become fixed by the action of natural selection, the result would be close resemblance between two forms (possibly inhabiting widely separated localities), and which, had they occurred together, would in all likelihood be assumed to be mimetically assimilated.

I hinted at this point in a short article on the Red-breasted Starlings which I published in our Magazine in March, 1908, where I demonstrated that although *Leistes superciliaris* and *Trupialis defilippii*, which closely resemble each other in pattern, colouring, and habits, both occur in the Argentine Republic; *L. guianensis* and *T. bellicosa*, which also are equally alike, do not inhabit the same regions.

Similar patterns in birds occur in widely different groups. One of the most frequent divides the colouring of the body into well-defined areas—head, collar, back, rump, breast, abdomen—the wings and tail being smoky, with the outer webs coloured like the back or rump; or occasionally crossed or terminated by pale bands. The Gouldian Finch and Chestnut-breasted Finch may be cited as examples of the first type, the European Chaffinch a slightly modi-

fied form of the second. The Red-collared and Forsten's Lorikeets nearly approach the first of these types, but have an additional differently coloured belt across the front of the abdomen. The colouring of the head is very frequently sharply defined and distinctly separated from the remaining body pattern; and, as I shall explain later, I think this may have been brought about through the reduced size of the feathers on that part of the body. A sharply defined breast-belt is another extremely common feature, as also a distinctive colour on the rump.

As distinct from the above types, which probably owe their present more or less bright colouring to the agency of sexual selection, there are very many groups of birds which are somewhat conspicuously coloured on the under parts, but uniformly brown, with dark shaft-streaks to the feathers on the upper surface. Now it is evident that if even the Warblers were coloured above as they are below, they would run the risk of speedy extermination by predacious enemies, so that the colouring of their upper parts has clearly been acquired, or, more likely, retained, for protective purposes.

The simplest and most prevalent marking in birds is the shaft-streak, and therefore I think it probable that it was the parent of all other bird-markings. In its simple form it is fusiform (spindle-shaped) or hastate (spear-headed), from the latter by an elongation of the posterior angles it becomes sagittate (arrow-headed); then it may curve round, forming a sub-marginal or marginal band or border to the feather; and sometimes when a crescentic border is formed the shaft-streak vanishes, as though the dark pigment had been used up in the later development. Take, for instance, White's Thrush as an example. The fork of a sagittate shaft-streak, if continued to the outer margin of the wing, would leave a triangular spot of the original colour in the centre of the border, and this probably developed the pale terminal spots commonly found on birds' wings.

Now, by modifying the shaft-streak and the crescentic border, I think almost any pattern to be found on birds may have been developed. Of course, I am not speaking of secondary sexual characters affecting the form of the feathers, but only of the markings in more normal plumage. There is no doubt that the narrow parallel

bands across the breast of the Zebra-finch have originated from the crescentic borders of an ancestral form, for when crossed with Bichenó's Finch you recover the crescentic character in the hybrid. Once more, if the border is continued round the margin of the feather, the spots characteristic of the Spice-birds and the genera *Amadina*, *Bathilda*, *Steganopleura*, and many others are produced.

Expansion either of the shaft-streak or the border would eventually result in a uniformly coloured feather, and it is likely enough that small and overlapping feathers might attain to this condition more quickly than larger ones, which may, I think, to some extent explain why the heads of birds are so frequently different in colouring from the rest of their bodies. Still, as other parts, such as the breast, throat, chin, and rump, are also frequently each of a uniform tint, and we have no evidence that their present condition took longer to produce than that of the head, we can only guess at the reason.

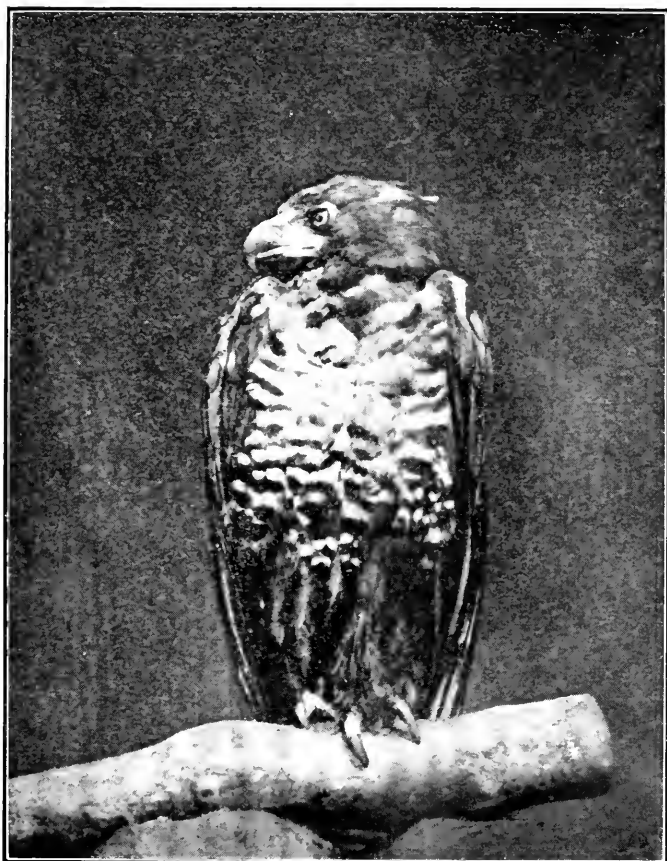
(To be continued.)

WINTER BIRDS IN MID-DORSET.

By A. R. WILLIAMS.

(Continued from p. 130.)

The Green Plover or Lapwing might be called the characteristic bird of this district. The word "pee-wit" is totally inadequate as an imitation of its cry, which has a shrill, penetrating, piercing, yet melancholy and drawn-out half-whistling quality, difficult to describe and almost impossible to imitate. When Plovers sleep is a problem, for their cries may be heard at all times of the day and night. They are not at all shy birds here; one can get quite close to them, near enough to examine the details of form and colouring. They give beauty and liveliness to the countryside which would be much missed were they to depart. As regards habitat they are almost everywhere. The water-meadows are never without Lapwings. They resort to the ploughed fields, to sheep-walks, to pastures, to manured land, to the deeply rutted cart-tracks, and to the banks of pools and streams. They never enter gardens or farmyards, and keep away from the copses. They are most fascinating



THE EVOLUTION OF FEATHER-PATTERNS :

Crowned Hawk-Eagle (*Spizatus coronatus*), showing loss of the central stripe in the upper breast-feathers, this being retained lower down.

birds to watch. In winter the back loses its lustre, dulls, and goes olive-brown. During February the gradual burnishing and enriching of the plumage is very noticeable. The mantle daily gets greener and glossier. At the same time a red tinge develops under the tail.

Water-hens live in and about the river, where trees and a hedge overhang the water, quite close to the farm and some cottages. They may be seen at any time of the day walking about the meadows, and if alarmed will run swiftly to the water and swim to cover. Their movements are remarkably quick. There is a scurry of dark bodies across the turf, converging lines of ripples ending in black patches, a flick of white from the under-feathers of the jerked-up tail, then silence, and no signs of life anywhere along the river.

Wild Ducks are occasional winter visitors to the river, usually at night, but do not stay for any period, generally gone by next morning. Apparently they make it a resting-place on a journey.

Immediately below the dairy a stream debouches swiftly into the river under a low-arched footbridge. Nearly every day during winter a Jack-snipe flew out from under the bridge when anyone passed over. The flight is rapid, only a general brown coloration is distinguishable, but the erratic zig-zag rolling mode of progression is unmistakable. Snipe are scarce about this valley.

On November 9th, 1916, a Swan flew over, travelling steadily towards the south-west.

In the end of autumn and during early winter flocks of Wild Geese went over, going in southerly and westerly directions. In February flocks were seen going the opposite way. The groups varied in number from six to twenty. It would seem as if they left their breeding haunts in Eastern England and spent the winter in the south and west of the country, returning at the coming of mild weather. The symmetry of a wedge-shaped flock was admirable. The leader kept steadily on, and the V-formed following never broke up. The wedge varied in the space between the two lines, and in length. The tail inclined to right or left as they swept round in a great curve, one side rose higher than the other, and for a moment we caught sight of snow-white under wings, then they resumed a straight course. At their nearest we could hear the rush of powerful pinions through the air, a deep drumming note produced by the

passage of stiff quills impelled at great speed by strong muscles. The speed, vigour, and energy of such great heavy birds are alike extraordinary. There was considerable individual freedom of movement in the flock, but never enough to spoil the wedge, which formation was preserved all the time they were under observation.

The presence of Hawks was reported on three occasions through the winter. Each was a Kestrel or Wind-hover. One was seen flying over a forty-acre field of young rye, not above a yard from the ground, wings stretched and taut, gliding along as if on an invisible wire. One was observed at close quarters to swoop and rise carrying a mouse from the corner of a field near a rick. The third was being pursued by a noisy mob of various small birds. The Hawk drew itself up through some high elm trees, where the majority of assailants stopped and perched and chattered clamorously, whilst the Kestrel soared away beyond and above the trees, followed by a few stragglers that were rapidly outdistanced and abandoned the chase.

Pheasants abounded in the autumn, but were less conspicuous later, though little shooting took place. The Pheasant is a beautiful addition to the landscape. Its bright colouring, especially in the cock bird, blends well with English scenery, being particularly in harmony with the changing ripening tints of the fall. Its speedy and easy running, its vigorous bursts of flying, its many habits peculiar to itself, as "rocketing," add to the interest one feels in the Pheasant as a purely wild bird apart from its "sporting" connections, for it is one of the largest and most distinctive of British birds.

Coveys of Partridges roost in the stubbles on mild nights, run quickly when disturbed, and fly with rapid pulsing flight near the ground, reminding one curiously of Sparrows. They seek more shelter as the weather gets harder.

The stridulous screech of the Barn or White Owl was heard most nights, and the hooting "too-hoo" of the Tawny or Wood Owl less often. Owls should be valuable birds in Mid-Dorset, for it is a considerable corn-growing country, and rats and mice abound, as well as Sparrows and other small birds, besides beetles and a great variety of insects.

Larks apparently make little change in their habits with the seasons, for at all times, even winter, they start up from the ground, both in grass and stubble, and fly away to drop in some other open space. A genial sunny day in February will send them soaring skywards and singing as if it were spring or early summer.

Tits, though not conspicuously numerous, are generally distributed. The Blue Tit, commonly called Tomtit, is the most often seen; Long-tailed and Great Tits also occur.

The approach of spring foreshadows itself upon the birds. By the end of February Larks, Thrushes, and Robins sing; a brighter green glosses the mantle of the Plover, and the Goldfinch promises to be gorgeous. All plumage brightens, "the little brothers of St. Francis" show markedly increased liveliness and activity. Rooks begin foraging for sticks, gathering round the old nesting trees and cawing loudly. The period of nidification will soon be upon them, and the birds undergo striking alterations of plumage and behaviour, outward changes indicating physiological ones.

REVIEW.

BY THE WATERS OF AFRICA.*

"He who has drunk of Africa's fountains will drink again," says the Arab proverb; and assuredly those who read this delightful book will wish for more from Miss Lorimer's pen. The book is well written and liberally illustrated, and a map at the end of the volume enables the reader to accurately follow the authoress's wanderings. In these pages one finds the thrilling romance of Africa in a gorgeous setting. The writer has well said that the Dark Continent is really a blaze of amazing light (p. 7). We pass from the bright-hued fishes of the coral reefs to the wonderful life of East Africa—Mombasa, Nairobi, Port Florence, all linked by the Uganda railway; the game-haunted wildernesses, crawling with tall giraffe and sturdy buffalo, painted zebra and grotesque wildebeest; the great Victoria Nyanza Lake, with its archipelago of islands; the flowery groves of

* 'BY THE WATERS OF AFRICA,' by NORMA LORIMER. LONDON: ROBERT SCOTT. Pp. 342. Price 10/6 net.

Uganda, smothered in showers of butterflies; the crater lakes of Toro and the fantastic nightmare flora of the Giant's Garden.

Many of the illustrations are so good that one wishes they could have been reproduced in colour. For instance, we note the pretty camp scene facing p. 40 [one can readily call up the vivid enamel blue sky, the brilliant crude green vegetation, and the heavy scent of the parasol-topped acacias]; Lake Victoria and its tiny fishing fleet, swimming in a heat-haze; the native potter with his wares and the background of tall, frayed banana trees; caravan porters crossing a swamp, each with his load stepping through the papyrus, a typical African scene; the still, burnished crater lake, asleep in the sunshine; and the grim gigantic flora overlooking a blue valley in the Mountains of the Moon.

To the aviculturist the various bird paragraphs will appeal strongly. Thus on p. 49 the writer says:

“From the points of the palm-leaves myriads of weaver-birds' nests hung, like beautiful pendulous fruit. I wish you could have seen them; I think there is nothing so picturesque or fascinating in nature as bird-life. There were hundreds of them. Brown and round, with tiny openings for front doors, they hung suspended in the lightest fashion from every conceivable tip and point of the jagged leaves of a swaying palm-tree, whose leaves did not only grow in the mop-broom fashion at the top of the tree, but spread out from it all the way down. Moving lightly in the breeze, they looked like unlit Chinese lanterns on a tree decorated for one of the fêtes which Arabs love. The birds themselves, in the sunlight, looked as bright as yellow canaries, and they darted in and out of their nests like bees seeking honey.”

On p. 50:

“There is a brilliantly-coloured bird called the bee-eater, which has amusing habits. I saw hundreds of them in the Rift Valley when I was on the railway. They sit on the branches of trees, and pounce down upon wasps, bees, flies, and all sorts of insects, when they are flying through the air. It is a pretty sight to watch them. Their tails are very long and pointed, because the three central feathers stick out far beyond the others. One of their favourite occupations is riding on the back of a bustard, and very

funny they look in their brilliant plumage seated on the backs of their dignified steeds, which never shake them off or bother themselves about them. From the back of the bustard they keep a sharp look-out for insects and flies, and when they spy one they dart after it, and having devoured it, fly back again to the bustard's back. I have often seen them riding on the backs of goats and antelopes as well as of bustards."*

On p. 51 she says of the Sun-birds :

"I used to see hundreds of these brilliant creatures darting about in the dazzling light, or hanging on to the bright yellow trumpet flowers which grow in clusters on a shrub in most of the gardens in Parkland. They are very like humming birds, and amazingly metallic in colouring. They never stay still, because, unlike the humming birds, they can't poise themselves in the air. I used to watch them pecking with their long, black pointed bills at the ends of the flowers, quite close to the stems, to tap their honey, as the trumpets were too long for them to get their beaks down to the treasure trove."

The book contains some zoological errors. Aviculturally, we may note that there are no Humming-birds in Africa, though on p. 94 such is asserted; in general zoology, Haartbeest should be spelt "Hartebeest" (p. 44); *i. e.* "Stag-Ox," from the Dutch "Hart" = Stag, not "Haart" = Hard. The Springbok is unknown in East Africa; the animal mentioned on p. 146 was probably a Gazelle. On p. 113 the authoress states that no one has ever heard of African elephants being tamed. This is unfortunate, as we have before us a photograph of the troop of tame African elephants at the Belgian post of Api. The photograph of the King of Uganda is not a good likeness of His Highness as we remember him.

These errors will no doubt be corrected in some future edition. This is everybody's book. G. R.

* [This paragraph supplies the information asked for in the paper on African Vultures—'Avic. Mag.,' December, 1917, p. 53.—G. R.]

OUR ILLUSTRATIONS.

On taking office the present Editor found the Society in possession of an extensive series of bird photographs, which had been acquired under the able management of Mr. Astley. This collection has since received several important accessions, and is still growing; in fact, as we write we have news of yet more photographs on their way. Nearly all are up to Avicultural standard, and we have been enabled to publish several of high educational value. Our Magazine, in fact, is second to none in the excellence of its illustrations and the value of its letterpress. Our many contributors the world over have seen to this.

The Editor therefore asks for more warmth to hatch the Avicultural egg—for further donations, in fact, for the Illustration Fund. He is grateful for the support he has received in conducting the Magazine; now he would ask for power to extend its scope and usefulness. The increased cost of reproduction holds up the issue of many an excellent bird study. We have the pictures, but no gallery in which to display them.

Donations should be sent direct to the Publishers and NOT to the Editor.

CORRESPONDENCE.

AVICULTURE IN SOUTH AUSTRALIA.

(Kindly communicated by Mr. Astley.)

Mr. C. H. LIENAU writes: With our small population scattered over such a vast area of country we cannot form the societies and clubs which bird-lovers in the old country and on the Continent are able to, and consequently when one has to work along practically alone, that incentive to higher things is not so keen as when there is a feeling of friendly rivalry.

From my earliest days I have been a very keen lover of all animal and bird life, and I cannot remember the time when we did not have a varied assortment of pets of all kinds.

About two years ago I saw the 'Avicultural Magazine' mentioned in a book on birds that I was reading. Feeling sure that it would be of interest to me I asked my bookseller to order it for me, and about three months later my first copy came to hand. I was simply charmed with it, and have read with the greatest interest all the articles which have appeared in it and the subsequent numbers which I have received.

Unfortunately, owing to the war the mail service to Australia has been very irregular and uncertain of late, especially in the matter of papers and magazines. Letters and posted matter have come through with much more certainty.

Although we are nearly in November it was only this week that I received the May number of the 'Avicultural Magazine,' so you will see how things are.

MELANISM IN AGED NAPOLEON WEAVER.

DEAR DR. RENSRAW,—My melanistic Napoleon Weaver ♀ (*Pyromelana afra*) was dead on the floor of its aviary this morning. It had been growing blacker with each moult for the last three or four years; the underparts alone now remain unevenly white. I purchased this bird in 1900, so that it has been in my possession for over seventeen years. I attribute melanism to a vigorous constitution and albinism to delicacy. I have sent the specimen to the Natural History Museum at South Kensington.

A. G. BUTLER.

124, Beckenham Road,
Beckenham, Kent;
December 13th, 1917.

VARIATION IN STARLINGS.

DEAR SIR,—I have a stuffed Starling which was shot during that very hot summer a few years back. There was a nest near where I lived in this neighbourhood, and the noise of the birds was supposed to disturb a child living in the house where they had built. So both the old birds were shot, and I secured the male. I presume his mate was purported to be spoilt for stuffing. I am coming to my point. The bird I have appears, judging to-night by lamp-light, to be practically a solid glossy green on the head and neck, and very little in the way of spots at all on him. I reared, I presume, the whole of the nestlings. They had practically no down, nor hardly a sign of feathers. There was another young bird added to them, which was said to have been taken away from the nest—whether fallen out or not I will not say. That bird gave me some trouble, and by the way the others acted I think it was the one that escaped. The other four I reared to fend for themselves. Two died before changing the nest feathers completely, one escaped from a neighbour, the other I kept for some years until it died.

What I am leading up to is this: I have both birds—the male parent, I presume, and the offspring I reared (which the stuffer told me was a male). I see no reason to doubt his veracity. The younger bird is very unlike his father; he is profusely spotted, and has been twice to a show, and I did not hear that he was described as unusual. He was never at any time like his presumed father. He looks in splendid condition and very glossy.

J. WEIR.

Douglas Cottage,
Upper Ashley,
New Milton, Hants;
January 15th, 1918.

[The common Starling in autumn becomes profusely spotted, many of these spots disappearing with the return of spring. Mr. Weir's younger bird is therefore remarkable in not undergoing the seasonal change of plumage.—G. R.]

SCARCITY OF WILD BIRDS.

(Kindly communicated by Mr. Astley.)

DEAR SIR,—There is not a *single* Goldcrest alive here, and hardly such a thing as a Long-tailed Tit. It is very rarely that I see any Long-tailed Tits, and if I do it is just two or three odd birds, probably all cocks or all hens; the ordinary flocks of ten or more are a thing of the past. No Fieldfares or Redwings; even Greenfinches were killed off last winter. The only birds in this neighbourhood that one can say are fairly often met with are Bullfinches, Sparrows, and Starlings, a few Missel-Thrushes, Blackbirds, and Song-Thrushes. The common Meadow Pipit is seldom seen now. The summer migrants will be more plentiful when the season arrives than our non-migratory or resident species. Since this awful war started there seems to be, as it were, a force at work which slaughters nearly everything: human beings are being killed, animals are being killed down more than usual to supply food, the elements have been at work, intense cold has killed off bird life to a terrible extent, trees have been slaughtered with the axe, the pretty woods having been cleared and thinned unmercifully. What times we are living in!

Yours truly,

P. F. M. GALLOWAY.

Caversham, Berks.

VARIATION IN BLACKBIRDS.

Mr. J. WEIR writes: At the present time I have two hen (?) Blackbirds. They are the same season's birds, and I have had them some years. They differ somewhat: one is a big bird—might pass for a fair-sized cock of a different colouring; the other is slimmer. The bigger bird is almost a chocolate-brown, and slightly grey on the throat; the other is a lighter colour, and rather prettily mottled in the same place; the darker bird also has a slight suggestion of an eye-mark like a thrush. I had two other hen Blackbirds, one slightly pied, which resembled the lighter bird on the throat, one (not the pied one) rather pretty. I think it is a pity hen Blackbirds, Sparrows, etc., are not shown at the big shows.

I trust you will forgive this rather feminine and discursive letter!

SKYLARK AND HAWK.

DEAR SIR,—Last week a friend of mine was on the Downs near Pewsey, Wilts., talking to some of his motor tractor ploughmen, when a Lark flew to his feet. He picked it up and apparently there was nothing wrong, but its heart showed it was very frightened. On looking up my friend saw a Hawk hovering overhead. He carried the Lark some way up the Down. It lay perfectly still in his hand, then suddenly flew away. It struck me as curious that the bird should have flown to the feet of my friend, for surely they are very shy birds?

Yours very truly,

(Mrs.) E. K. GODDARD.

*The Lawn, Swindon;**January 29th, 1918.*

ANCESTRAL CHARACTERS IN NESTLINGS.

DEAR DR. RENSRAW.—*Re* my article on the feather-patterns of birds, I have now gone a little further and put together a few notes on “Ancestral Characters in Nestlings.” Whilst writing these out, it occurred to me to wonder whether the idea had crossed Darwin’s mind when writing his ‘Descent of Man,’ and I was pleased to discover that it had done so.

Herewith I enclose my article on “ancestral characters.” I don’t know whether any of the views expressed therein are new, but, as I have not myself met with them in print, I concluded that they might at least be new to some of our members. Nature generally leaves “footprints in the sands of time” by which one may follow out her methods; and, with a little study, it is fairly easy to trace the development of the patterns found both in birds and many Lepidopterous insects.

The photograph of the Wood Swallows is very attractive, and all illustrations render an article more pleasing. With the material which you possess I think you have already done wonders in the way of illustration.

Yours very sincerely,

The Lilies,

124, Beckenham Road,
Beckenham, Kent;

January 20th, 1918.

ARTHUR G. BUTLER.

[We hope to shortly publish Dr. Butler’s paper in illustrated form. The photograph above referred to represents a pair of Wood Swallows and their young, and is the careful work of our contributors, Messrs. R. T. Littlejohns and S. A. Lawrence. It will be remembered that their beautiful study of a sitting Wood Swallow appeared in our Anzac number.—G. R.]

ABNORMAL RACQUETS IN A MOTMOT.

DEAR DR. RENSRAW,—It is curious that my Motmot, which is in *splendid* condition and health, has not acquired his racquets this year: that is to say, the barbs have not fallen off the shaft of the two central tail-feathers.

They are like this—



instead of this—



Tail feathers of the Motmot.

I wonder why the tail is longer, if anything, than last year, 1916.

There are *two* of these feathers in the tail. Usually the racquets appeared a month after the moult was fully completed—in November.

The January Magazine was very interesting I thought.

Believe me,

Yours very truly,

Brinsop Court, Hereford;
February 1st, 1918.

HUBERT D. ASTLEY.

SHORTAGE OF CANARY SEED IN AUSTRALIA.

A member's correspondent writes from Sydney: The trouble is, we are going to run out of canary seed; there is only a few months' supply here. The trouble will be, no one will buy birds. Already the bird shops are besieged with folks trying to sell their stocks of common birds on account of the high price of seed. There is a little seed grown in Queensland, but that will not be ready for harvesting before Christmas. All our canary seed comes from England, and as it cannot be imported into England it cannot come out here.

THE PIGEON HOLLANDAIS AS PIGEON FRANÇAIS.

Lieut. DELACOUR, in the 'Bulletin of the Société d'Acclimatation de France' for November last, remarks of the new Pigeon Hollandais (*Alectrænas pulcherrima*), "If it had not already too many names, I should be tempted to call it the 'Pigeon Français,' for it also reproduces, in darker hue, our national colours."

The true Pigeon Hollandais (*A. nitidissima*) now extinct, appears to have similarly impressed the old-time naturalists; for the late Prof. Newton has stated that the specimen in the Edinburgh Museum, figured in this issue, was labelled "The Hackled Pigeon (*Ptilinopus nitidissimus*), Scop. Sp. locality, Isle of France, *Columba Franciæ Dufresne*." On the bottom of the stand was written, "R -d Hackled Pigeon, 219, *Columba Franciæ*, Linn." The name may, however, refer to its habitat.

GRAHAM RENSHAW.

February 16th, 1918.

EDITORIAL.

"That's my dream—all British!" said Cecil Rhodes on a memorable occasion; and the present South African issue may indeed be termed an Imperial number—thanks to our contributors, who have voiced anew the thrilling romance of Africa, and demonstrated the richness of her wonderful bird-life.

In April space will be devoted to practical applied Aviculture, with especial reference to zoological garden work and bird acclimatization. Aviculture in relation to taxidermy will be illustrated by Dr. Shufeldt's paper on the Mounted Bird Exhibit in the United States National Museum.

G. R.

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

PROPOSED CANDIDATES FOR ELECTION.

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Proposed by Dr. BUTLER.

GEO. JENNISON, M.A., Zoological Gardens, Belle Vue, Manchester.

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Monsieur G. SÉCALLIER.

Proposed by THE MARQUIS OF TAVISTOCK.

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In November Magazine Mr. C. H. A. LIEMAN should have been printed Mr. C. H. A.

LIENAU, "Newbury," 23, Victoria Avenue, Unley Park, South Australia.

Sergt. D. H. SPRANGE's home address is Terranora, Chinderah, Tweed River, N.S.W.

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At a Meeting of the Council, which was held on Feb. 17th, 1916, the following addition to the Rules was made:—"That each Member (not a Dealer) be entitled to ONE ADVERTISEMENT, FREE OF CHARGE, EACH MONTH, the Editor to be sole judge as to whether such advertisement can and shall be published or not, priority shall be given to those who apply first."

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G. R.

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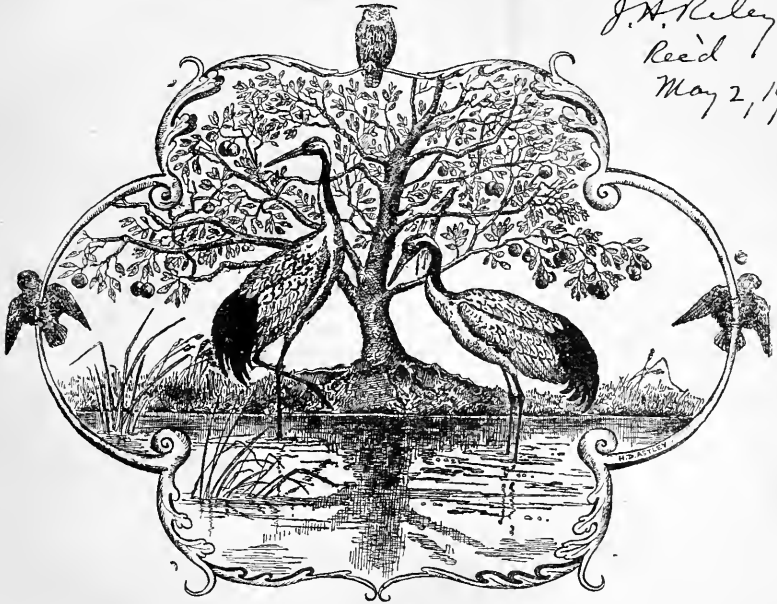
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BIRDS IN THE HAND:
 ZOOLOGICAL GARDENS NUMBER.

AVICULTURAL MAGAZINE.

J. A. Riley
Recd
May 2, 1918



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THIRD SERIES. The Price of this APRIL,
 VOL. IX. No. 6. Number is 1/3. — 1918. —

In view of the shortage caused by the war members are urged to breed birds whenever possible. All surplus stock could be offered to any of our zoological gardens, thus delighting thousands who are unable to travel.

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All MSS. for publication in the Magazine, Books for Review, and Private Advertisements should be addressed to the Editor, Dr. GRAHAM RENSCHAW, Bridge House, Sale, Manchester. Telephone 144 Sale.

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. [*Enclose stamp for reply.*]

All other correspondence should be sent to the Honorary Business Secretary, Miss R. ALDERSON, Park House, Worksop. Any change of address should be at once notified to her.

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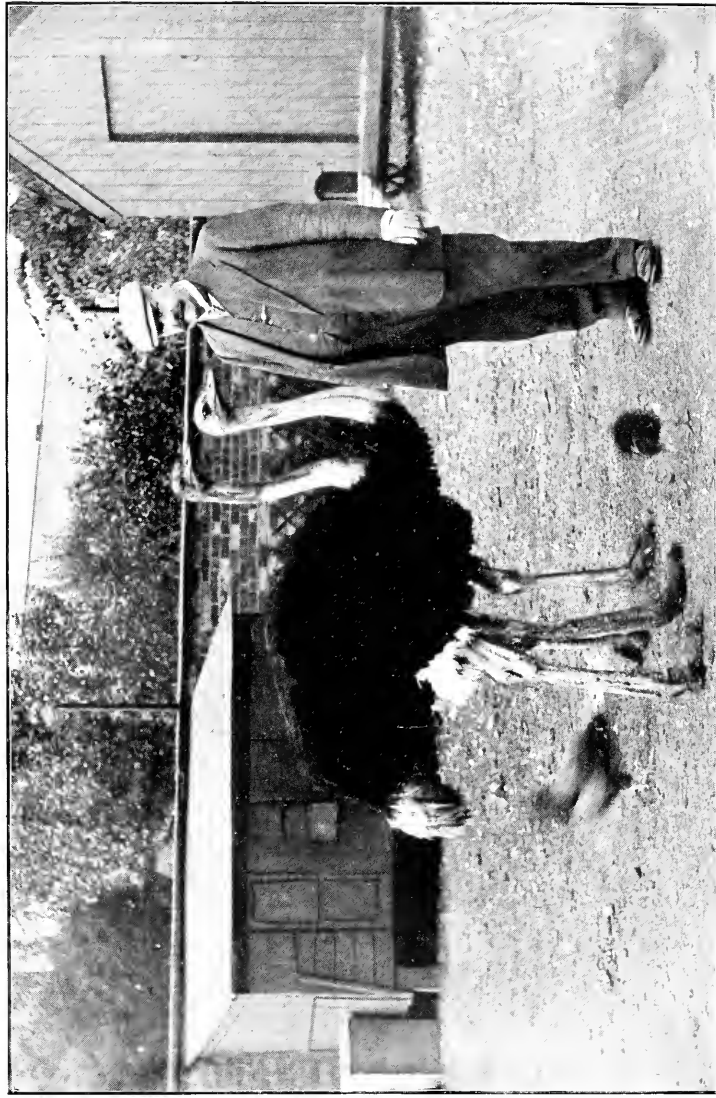
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AVICULTURE AND ACCLIMATISATION:
Dr. J. Kerr Butter and his Domesticated Ostriches.

THE
AVICULTURAL MAGAZINE,

BEING THE JOURNAL OF
 THE AVICULTURAL SOCIETY.

Third Series.—Vol. IX.—No. 6.—*All rights reserved.*

APRIL, 1918.

OSTRICHES.

By J. K. BUTTER, M.D.

The Ostrich is by far the largest and most powerful of all living fowl, Northern, Central, and Southern Africa being the home of this most striking and handsome bird. There are at least two species of Ostrich generally found in the African Continent, the Sudanese and the Somali Ostrich. The latter bird has a bluish hue on the neck and reddish legs, in the former the neck and legs are of a whitish-grey colour. The Ostrich has its toes reduced to two; the outer one is much the smaller. The cock bird is much taller than the hen, standing well over 8 ft. high, and when running at speed covering 25 ft. at a stride. You get another form in South America, the Rhea, and the Emu in Australia. I have had the pleasure of keeping all the three kinds together. You also get the Cassowary in Ceram and New Guinea, a most striking bird, with a horny helmet and a brilliantly coloured neck. The Ostrich, Rhea, Emu, and Cassowary are all flightless birds. My Ostriches were all Sudanese. The adult cock that I possessed had black feathers covering his body, except the upper parts of the thighs, which were almost devoid of any covering. His neck and legs were of a whitish-grey colour and almost naked, including the thighs. His wing and tail feathers were large and beautiful, and all of them were white. His name was Napoleon; he was mated to an adult hen of the name of Minnehaha. She was not so tall as her consort, and she had feathers of a beautiful

greyish-brown, her tail and wing feathers being white, but not so large or full as in the cock. They were very quiet and well behaved, and could be approached and handled with impunity. (Always approach these birds from behind or sideways, as they kick forwards and downwards.) They would allow strangers to walk about them, their pet aversion being dogs, although they got used to mine, an Airedale. If a dog got into the field where they were they would go after him at once, and try to run him down and strike at him. An ostrich is a very dangerous bird when he likes, they can kick forwards with terrible effect, enough to break a man's thigh and make a nasty wound with their powerful and strongly-made nails. It is said the thump will break a rib or back-bone of any ordinary animal. Essentially inhabitants of open sandy country, mine did wonderfully well on the grassfield at Cannock, with a large and dry shed, and plenty of bedding to lie on. I had the adult cock and hen and four smaller hens half-grown. They drank enormous quantities of water at times, and I fed them on dog biscuits broken up, and plenty of maize or Indian corn. They grazed in the field all day long, and children fed them with bread very often when passing the field to school. I could bring them from any part of the field whenever they saw Indian corn, of which they were extremely fond, as I mentioned before. When first let out in the morning they would run round the field several times, and then start a sort of waltzing or pirouetting round and round, often for many minutes together.* They were very inquisitive birds, exploring any new thing that they saw, and always attempting to swallow the object. One of my hens died, and at the *post-mortem* examination I found a crockery hen's nest egg, a 3 in. bolt with nut on, several nails, and pieces of glass, which had been swallowed and had caused her death. If one was doing anything in the field with nails or bolts and screws, one always had to keep them out of sight or they would swallow the lot. I well remember a patient of mine who had consulted me that same morning about a very large boil on the back of his neck! I advised him to let me open it, but he decided to wait for a day or two. As

* In Paul J. Rainey's film, "The African Hunt," exhibited in this country in 1913, there was an amusing picture of a whole troop of Ostriches waltzing round and round as described by Dr. Butter.—G. R.

I was going to feed the *Ostriches* he accompanied me into the field. The adult hen spotted his boil, as the poultice had slipped off it. She had one good snap at it. I heard a terrible yell, and on investigation I found that the boil had disappeared, saving me the trouble of using the knife when he came again to consult me. The adult *Ostriches* are capable of making a loud, booming sound, but the young birds are mute. They are polygamous, several hens laying in the one nest. In their native land the cock and hen birds brood alternately. In this country they are easily hatched in a Hearson's incubator. The eggs, weight 3 to 3½ lb., are creamy-white and deeply pitted. My birds laid every other day, anywhere in the field, and as soon as the egg was laid went away and left it. My hen laid eighteen to twenty in a season. They generally hatch in from five to six weeks. *Ostriches* are extremely fond of a grass that is called "lucerne," and which I had my field planted or sown with. I hatched four young birds out of nine eggs, although there were chicks in all the eggs. I fed my chicks on coarse chicken meal (scalded), ground meat crissel (scalded), cardiac powder (Spratt's), about two teaspoonfuls to twelve chicks, increasing the quantity as they grew older. Mix well together, and dry out to a crumbly state with barley-meal, chopped lettuce, and any insect food, such as clean gentles, dried flies, or ants' eggs.

Ostriches suffer from parasites and intestinal worms. I used to give them the following mixture :

Sulphur, 1¼ lb.

Salt, ½ lb.

Sulphate of iron, ½ lb.

Arsenic, ¼ oz.

Grind all to a powder, and mix well ; keep in a box perfectly dry. If wire-worm is present add ½ oz. of copper sulphate.

Dose.

Adult birds, one tablespoonful for each bird.

Young birds, six to twelve months old, ½ tablespoonful daily for each bird.

Chicks less than six months old ¼ tablespoonful daily for each chick. If birds will not take this powder put it into an orange. I

used to put it in a thin paper bag and force it gently down the gullet, taking care to avoid injuring the windpipe.

I gave this treatment daily for six days—one dose daily or half dose night and morning. The treatment may be repeated after an interval of two weeks. A good way to give the birds this powder is to take an orange, and scoop some of the inside of the orange out, putting the powder in the cavity, and taking care that each bird gets only one orange. The powder acts as a tonic and stimulant to the feather growth, and also helps to get rid of tape-worm, wire-worm, and mites.

(To be continued.)

PRINCIPAL ZOOLOGICAL GARDENS OF THE WORLD,

WITH DATES OF THEIR FOUNDATION.

(Compiled from Capt. Flower's List.)

EUROPE.

London (1828).—Dr. P. Chalmers Mitchell, Secretary. Mr. R. I. Pocock, Curator of Mammals. Mr. D. Seth-Smith, Curator of Birds.

Manchester, Belle Vue Gardens (1836).—Messrs. Jennison, Proprietors.

Clifton, Bristol (1835).—Mr. H. R. Woodward, Superintendent.
Woburn, Beds.—The Duke of Bedford's private collection.

Otterspool, Liverpool (1914). Commercial.—Mr. H. E. Rogers, Superintendent.

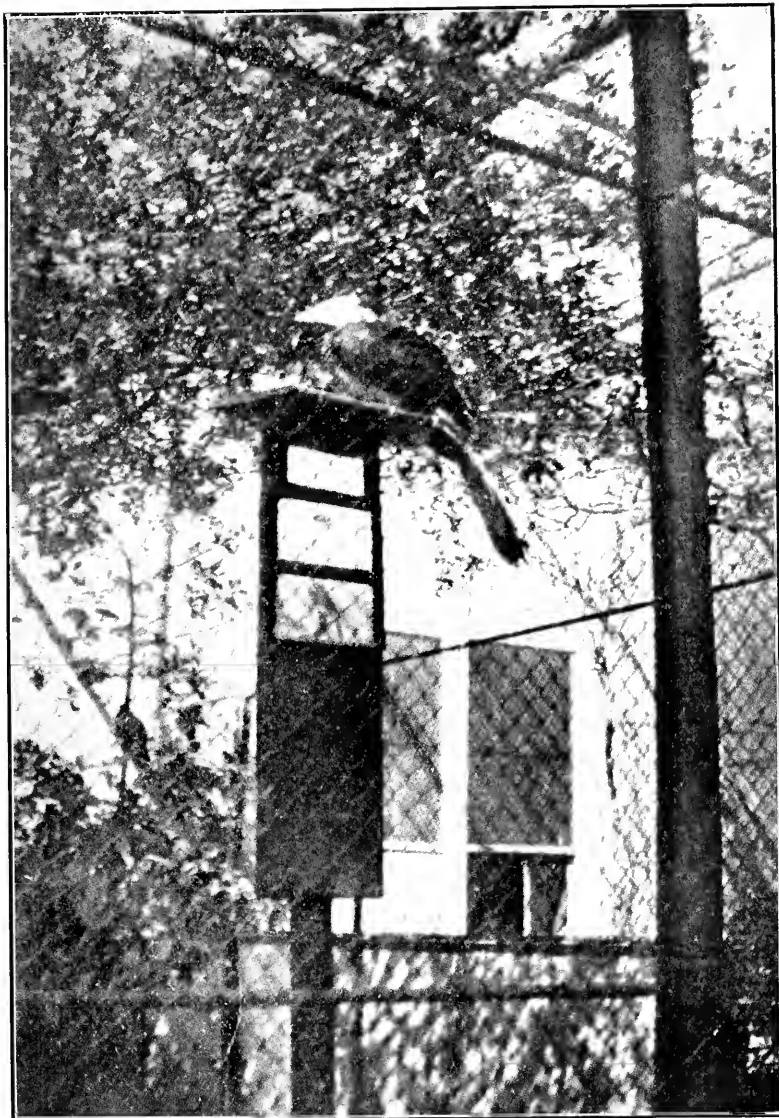
Edinburgh (1913).—Mr. T. H. Gillespie, Secretary. [Noticed elsewhere in this issue.]

Dublin, Phoenix Park (1830).—Prof. G. H. Carpenter, Hon. Sec. Dr. B. B. Ferrar, Superintendent.

Schönbrunn, Vienna (1752).—Imperial Menagerie. Herr A. Kraus, Inspector.

Antwerp (1843).—M. M. L'Hoest, Director. [Annual sales of birds take place here in normal years.]

Copenhagen (1859).—Dr. W. Dreyer, Director.



Roof netting.

Branches of hawthorn.

Head and beak.

Body.

Tip of wing.

Slanting tail.

End of tail.

Exhibition board on picture pillar, with three oblong picture-labels.

Shelter-house with door and windows.

Boards to prevent fighting through wires.

Photo by Graham Renshaw, M.D.

Courtesy of Dr. Kerbert.

AVICULTURE AND EDUCATION:

Exhibition Methods at the Amsterdam Zoological Gardens.

The bird shown is a Temminck Pied Hornbill (*Eolophus corcorus*). Conspicuous with its large white pick-axe beak, it is seen perched on the flat top of the picture pillar. On this pillar are seen figures of the various birds in the Aviary. Printed paper labels are used, in well-glazed frames, protected from the weather by a projecting roof. The figures of the birds are coloured to assist the public in identifying them. An account of the Temminck Pied Hornbill appeared in the 'Avic. Mag.' for March, 1903, p. 177.



Paris, Jardin des Plantes (1793), Government.—Prof. E. Perrier, Director.

Paris, Jardin Zoologique d'Acclimatation (1858).—M. A. Porte, Director. [Many of the exhibits in this Garden are for sale.]

Berlin (1844).—Prof. Dr. L. Heck, Director. [Many of the buildings are costly and ornate. The Ostrich-house is built like an Egyptian temple; some of the small birds are shown in glass cases instead of wire cages.]

Breslau (1865).—Herr F. J. Grabowsky, Director.

Cologne (1860).—Dr. L. Wunderlich, Director. [The bird-house—next to the restaurant the largest building in the Gardens—is built in the Russian style, with four steepled towers.]

Frankfort-on-Main (1858).—Dr. K. Priemel, Director.

Hamburg (1863).—Prof. Dr. J. Vosseler, Director.

Stellingen, Hamburg (1902-7), Commercial.—Hagenbeck Bros., Proprietors.

Hanover (1863).—Prof. Dr. A. Fritze, Director.

Amsterdam (1838).—Society "Natura artis magistra," Dr. C. Kerbert, Director. [There are many artistic bird installations in this justly famous garden; a river runs right through it, and has been adapted to the exhibition of Water-fowl. The fine new bird-house, built on the American plan, was noticed, with a photograph, in the 'Avicultural Magazine' for March, 1914.]

Rotterdam (1857).—Dr. J. Büttikofer, Director. [The first large open-air flying cage was built here. There is a large wild heronry in the Gardens.]

Hilversum.—Mr. F. E. Blaauw's private collection.

Ascania Nova.—Mr. F. Falz Fein's private zoological park.

Bale (1874).—Herr G. Hagmann, Director.

ASIA.

Calcutta (1875), Government.—Lieut.-Col. E. H. Brown, Hon. Sec. Mr. B. K. Basu, Superintendent.

AFRICA.

Giza, Cairo (1891), Government.—Capt. S. S. Flower, Director. [Has a branch collecting station at Singa, on the Blue Nile.]

Pretoria (1898).—Dr. J. W. B. Gunning, Director.

AMERICA.

New York, Central Park (1865), Municipal.—Mr. J. W. Smith, Director.

New York, Bronx Park (1898).—Dr. W. T. Hornaday, Director.
[Noticed elsewhere in this issue.]

Washington, National Zoological Park (1890), Smithsonian.—
Dr. F. Baker, Superintendent.

Buenos Ayres (1874), Municipal.—Senor Clementi Onelli, Director.

AUSTRALIA.

Adelaide (1879).—Mr. A. C. Minchin, Director.

Melbourne (1857).—Mr. W. H. D. Le Souef, Director.

Sydney (1879).—Mr. A. S. Le Souef, Director.

THE SCOTTISH ZOOLOGICAL PARK.

By GRAHAM RENSHAW, M.D., F.R.S.E.

“If you draw your beast in an emblem, show also a landscape of the country natural to the beast.”—*Peacham*.

These quaint words, written so long ago, have been translated into fact by the Zoological Society of Scotland, if instead of “draw” we write “exhibit,” and instead of “emblem” we write “Zoo.” Not only has this work been done, but it has been well done, and it was with the greatest pleasure that we noted on our visit some time ago that the fine collection which has been got together at Corstorphine is at least half-way “back to Nature.” The magnificent old timber, the furze-topped ridges and sheltered valleys constitute the Park an ideal place for the proper exhibition of birds; there are ample ponds and enclosures and excellent flight aviaries and paddocks.

At the time of our visit by far the most interesting bird exhibit was the group of three King Penguins, which has been brought from South Georgia. These were shown in a specially constructed enclosure, formed of shelving rock and planted with clumps of coarse grass, and provided with a deep pool for diving.

The Penguins stood solemnly bolt upright, like so many tall jars; suddenly a desire for exercise overcame their dignity, and they slowly waddled one after the other for a few yards before settling to rest again. In the pool they were very active, swimming almost abreast as if to drive landwards a shoal of fish.

The Water-fowl pond contained some interesting foreign Ducks and Geese—Mandarin and Summer Ducks, Cereopsis, Chinese, and Egyptian Geese, and so on. The pool was prettily planted with irises and well backed with bushes. The Cranes' enclosure contained the Crowned and Demoiselle Cranes, also European and South American Flamingoes, an Australian Pelican, and several Gannets.

The garden near the manor-house contains a fine Parrot aviary 80 ft. long, inhabited by various showy and large species—Macaws and Cockatoos; here also is a lesser aviary for smaller Psittacines, such as Budgerigars and Love-birds. Then there is a mixed series of foreign Finches, which are kept all the year round without artificial heat. North of the mansion-house is the Plovers' aviary, a pretty installation with a pool fringed with heather; in this part of the park the shore birds are kept—Terns, Oystercatchers, Dunlin, and the like. The Pheasants are housed in roomy shrubberies, and the series includes the Amherst, Golden, and Reeve's species; there is also a paddock devoted to Rheas, two of these latter being quite white. We also noticed an Emu, said to belong to the spotted "species." We must confess, however, that we could detect nothing in the bird to justify separation from the common form.

We strongly recommend all aviculturists to visit the Scottish Zoological Park. Though only opened in July, 1913, this Cinderella of Zoos is an institution of the very first rank, and a highly valuable asset to the people of Edinburgh. On all three sides—educational, spectacular, and scientific—it compels the highest praise; and it will probably remain without a rival among the zoological activities of the North.

THE GREAT AVIARY AT THE DUBLIN ZOOLOGICAL GARDENS.

By H. B. RATHBORNE.

It is now many years since the large Flying Aviary was completed at the Dublin Zoological Gardens. It was my privilege just at that time to have been elected a member of the Council: we all assembled after the breakfast that fine morning to consult what the feathered inhabitants should be. There was much diversity of opinion—some suggested Hawks, others Doves, some Waders, and others said why not have all together? It was a lovely spring morning, and we were all filled with enthusiasm, which is only to be felt in the very soul of an ornithologist. Lists of bird dealers were searched and orders were issued, thus: so many Virginian Cardinals, so many Pope Cardinals, so many hundred Saffron Finches; it was a large place and required a great many birds to make a big show, two were generally visible at a time out of many dozens. Well, between purchases and presents in a short time a very fine collection was formed, there were some really good specimens, including many *rare aves*. I think a pair of Hunting Cissas are a memory never to be forgotten, with their graceful flight and wanton ways; but I fear they took toll of many of the smaller inhabitants. There were also two Peruvian Jays, beautiful birds, but very delicate, which were cut off by the first frosts; it was truly the struggle for life and survival of the fittest in this large open-air structure. Two quiet Fruit Pigeons, black with red heads, survived a much longer time; I think they hailed from the Pacific Islands. Glossy Starlings lived well and kept in the pink of perfection. There were a glorious pair of the wedge-tailed Glossy Starlings, birds that are good company to all, even to the smallest, very unlike their cousin the vicious long-tailed Glossy Starling, which, with the exception of the Indian Koel, is the most pugnacious of birds. I know I had two Male Koels at one time, which I had purchased from a dealer for a mere song. I expect he was glad to get rid of them, so was I, as the banana bill was too high. I (like many others of my fellow-aviculturists, I fear) when properly fed up with birds, give them to the Zoo! I remember speaking to one of the keepers in

the London Garden on the ferocity of a superb Himalayan Ground Thrush. "Oh, he is a devil, sir. (I suppose that's the reason we got 'im)." Personally, when I kept birds, I found Zoos useful establishments; it lessened my liabilities—battle, murder, and sudden death. Such is the weakness of human nature.

Waders were a great success in this big aviary. It was a glorious sight to see a couple of dozen Ruffs all in full breeding plumage, dancing and sparring and fighting just like a Donnybrook fair, here and there a stately Curlew and an Oyster Catcher looking so trim and so sleek. Dozens of Weavers' nests hung from a large thorn-tree, whilst one bird was building the other was pulling he structure to pieces to make its own nest with; they were chiefly the Red-billed, with a few Napoleons and Orange Bishops. Saffron finches were the only birds that bred freely; there were some gorgeous old cocks, and a few extra lovely specimens such as you find in the wild Yellow-Hammer.

Singers there were none, but a Canadian Fox Sparrow had a few sweet notes that could be heard from one side of the Gardens to the other. The Fox Sparrow had a chum, a Canadian Butcher Bird, which resembles the smallest of our Grey Shrikes; these were captured at sea by an enthusiastic ornithological doctor on one of the Allan Line steamers in the Gulf of St. Lawrence; they both lived to be very old inhabitants. There was also a Canadian Red-pole caught in the same manner. It was much the same as our own birds, and is a plentiful winter migrant to British North America; it became a chum of the Irish crowd, although it never wore a shamrock on St. Patrick's Day. Two large Bustards were a great acquisition; these were presented by a wealthy wine merchant, who had large estates in Oporto; they flourished as long as live insects were to be got, but failed when the store was exhausted. It is strange that a grain-feeding bird like the Bustard requires live food, which it is accustomed to pick up on the Spanish plains—locusts, and possibly beetles, and the cockroach tribe. The male bird is quite half as big again as the female, and struts around like a Turkey Cock; these birds require a good dry climate. Another nice meek bird was the Tinamou, I think the Lesser Tinamou; he, poor bird! did nothing and interfered with nobody, which was about his chief

recommendation. At times a homely brown Corncrake peeped out, but was a bit inclined to be a recluse; he seemed to think it was the best policy to stick in the bushes. At first the whole aviary was in one structure down a sloping hill, terminating at the lake, which was taken in to the extent of a few feet; this was a very nice idea, but, alas! proved disastrous, as the birds when alarmed flew down with great violence, struck the wire netting, and perished in the water. Each morning the keeper had to go round and fish out the corpses; after that the structure was altered and divided, and the lake portion cut off. In this section a dozen Greater Black-backed Gulls were placed—"foul vultures of the deep"; these were got from a famous breeding-ground on an island on the Mayo Coast, and what's more, were Sinn Feiners (translated means "all for ourselves"). Ducks and Teal were placed in the same compartment, but disappeared one by one as they swallowed them.

The quiet Heron feeds along this part of the lake in a wild state, and catches eels by stealth. In spring Wild Pochards and Tufted Ducks assemble on the lake in large flocks, and the Canadian Brent Geese assemble sometimes in fifties; they are fully acclimatised, and breed on the Viceregal pond, as well as on other lakes in the Phœnix Park. A keeper tells a curious story of a Wild Swan (a Bewick) which lit on the lake, and was set upon by some of the other tame water fowl so vigorously that it became exhausted; he captured and pinioned it, and I think it is there still.

Now darkness is coming on, and my memory is fading like the light, so I must close with a line from our national poet:

"Fond memory brings the light of other days around me."

DEVELOPMENT OF PATTERN IN BIRDS.

By ARTHUR G. BUTLER, PH.D.

(Concluded from p. 162.)

If we accept the view that shaft-streaks represent the earliest type of avian marking, the Larks and typical Thrushes would appear to have changed their character less than most other birds, their colouring being protective, the hens also having probably chosen their mates for valour rather than for superior beauty of form or colouring.

My suggestion that the development of shaft-streaks accounts for diversified pattern is not based upon unsupported evidence, since I noted it in observations on the change of colour in *Pyromelana franciscana* (see 'Ibis,' 1897, p. 361), carefully keeping watch on particular groups of feathers day by day. I also saw the same form of expansion in the colouring slowly developed in the assumption of the adult colouring by *Paroaria capitata*, an account of which was published in the 'Proc. Zool. Soc.' for 1904, pp. 350-351. I believe that I have also recorded elsewhere similar facts respecting the spring growth of colour in the throat-patch of the Grey Wagtail which I kept caged at the time.

When a dark shaft-streak is divided by a light feather-shaft it may give rise to the twin-spots which occur in some bird-plumages, as in *Polyplectron* (see Darwin's 'Descent of Man,' second edition, p. 659). Still, on all these points we want more evidence, and that can best be obtained by interbreeding and close observation.

I have mentioned the Zebra-finch \times Bicheno hybrid as indicating the development of a transversely banded breast from the crescentic outer borders of the feathers in a common ancestor; and in my article on hybrid *Ploceidæ* ('Avic. Mag.,' new series, vol. iv., pp. 345-354) I have pointed out the interesting facts which may be discovered by crossing two species not nearly related. Recently, while again reading Darwin's 'Descent of Man,' I came across a passage which favours the same view. He says: "The constitutional disturbance in the offspring, caused by a cross between two distinct species or races, often leads to the reappearance of long-lost characters." Well, among other things I concluded that, as neither the Zebra-finch nor the Diamond-finch had the remarkable crimson breast shown by the hybrid depicted on my plate, the ancestor of these birds must have had crimson on the breast, which had even been retained in the Painted-finch (*Emblema picta*), a relative of the Diamond-finch; and I was agreeably surprised later by the discovery, in an example of the latter which died in one of my aviaries, of rose-red fringes to several of the breast-feathers, indicating a partial reversion to this ancestral colouring.

This brings me to the practical object of the present article:

I want some of our younger and more enthusiastic members to put up pairs of species which are not nearly related, and to try to produce hybrids from them. I feel sure that the results obtained will be of considerable interest. Closely related species, as a rule, produce merely intermediate plumage, without any reversion to ancestral characters. When hybrids from closely related species prove fertile, they sometimes revert in their offspring to the characters of one of the parents. Of course, personal experience led me to the conclusion that this kind of breeding was not easy, but then my aviaries were certainly unsuitable for work of the kind; and now that my rather unsatisfactory outdoor aviaries have ceased to exist, and advancing age and limited means render it impossible for me to attempt work of the kind, I hope those who are younger, and who possess spacious outdoor aviaries planted with bushes and creepers, will not neglect this fascinating branch of research.

Of course, in recommending the mating of unrelated birds, I do not suggest intercrossing distinct families; and, as regards sub-families, common-sense should decide. Greenfinches were placed by the late Dr. Sharpe in the sub-family *Coccothraustinæ*; the Canaries, Goldfinches, and others in the sub-family *Fringillinæ*; but the ease with which Greenfinches can be crossed with various Fringilline birds, and the perfectly intermediate character of the hybrids, throw considerable doubt upon the importance of the distinctions upon which these sub-families are separated.

As regards the development of colours in birds, assuming that originally they were either black or brown and white, I should say (judging from my many years' study of Lepidopterous insects) that the passage from one bright colour to another follows very much the order observable in the rainbow. Without question the first development from white is yellow, and from black usually, if not invariably, blue; from brown probably purple. From yellow arise orange, then vermilion, crimson, purple, blue, green; from blue the order is, I think, generally reversed, and from purple either blue or crimson may emerge.

Blue often appears at first as a gloss on a black surface, but one sometimes notices, in close proximity to this shot colouring, patches of pigmented blue, as also where dark brown is shot with purple,

violet or lilac markings frequently appear in contiguity therewith. In birds crimson is commonly found in juxtaposition to black, or even (as in the Gouldian-finch) taking the place of black; but, as black represents a combination of all colours, there seems no reason why it should be restricted in its development, as white must needs be.

White is the absence of all colour, and the first step it takes towards colour-development is to yellow.* In at least one moth which passed through my hands in my old Museum days, there were both pure white and bright yellow individuals; and in some of the butterflies of the genus *Terias* the males are yellow but the females pure white, indicating that the brighter hue was due to sexual selection, or, less probably, to superior vigour in the male sex; since white, unless acquired for protective purpose, is generally an indication of constitutional weakness.

Well, in all these matters we are profoundly ignorant; we need ever more and more evidence. As dear old Darwin used to say, when some useful new fact was brought to his notice: "God bless my soul, how little we know!" That must continue true of mortal man, but we ought always to be growing in knowledge; it is the chief object of all study; therefore I hope some of our members will do their best to let in the light upon the origin of bird patterns.

[In connection with Dr. Butler's remarks on colour patterns, we may mention the pœcilomeres, or colour areas, which have been mapped out by Messrs. Dewar and Finn. These occur on the chin, malar area, upper jaw, a small patch above and slightly in front of the eye, and another below and slightly behind the orbit. Other pœcilomeres are the ear, crown of the head, and occiput; on the body they are found on the fore-end of the sternum, vent, and rump; they also occur above and below the shoulders, and on the wrist and thighs.

Colour mutations, when present, are found on these areas. White feathers originate from pœcilomeres; so does excessive

* [Similarly in the human race yellow has been shown to be the next stage to pure albinism: the eyes of these human lutinos are blue. See Prof. Karl Pearson's monograph on "Albinism in Man."—G. R.]

plumage development, or even loss of plumage. Students will find a valuable account of these patches in 'The Making of Species' by the above-named authors.—G. R.]

BIRDS IN THE MELBOURNE ZOOLOGICAL GARDENS.*

By D. LE SOUËF, C.M.Z.S., THE DIRECTOR.

Australian Honey-eaters are comparatively easy to keep in captivity provided that they have suitable food, and we find them quite hardy in our large flight aviary (50 ft. × 25 ft. × 30 ft. high). Despite the number of birds in it (about 100), both the White-naped Honey-eater (*Melithreptus lunulatus*) and White-plumed Honey-eater (*Ptilotis penicillata*) bred last year and reared their young. As is well known, many birds, especially Finches, have, when in aviaries, a habit of pulling other birds' nests to pieces and building their own with the material stolen, but with Honey-eaters this does not seem to occur often. In the same aviary the Pied Grallina (*Grallina picata*) also builds its mud nest, and successfully rears its young.

In the young White-naped Honey-eater the top of the head is green, and it is some months before it gradually becomes black, but the young White-plumed Honey-eaters are practically like their parents when fully feathered. It is interesting to note how much longer some birds take than others to assume the fully adult plumage. We know little about this matter, mostly on account of not making the best of our opportunities when we have them, and lack of observation. The beautiful dark blue plumage of the male Satin Bowerbird (*Ptilonorhynchus holosericeus*) is a case in point; the facts were first ascertained from observation of birds in the Melbourne Zoological Gardens. Then, again, there is the Pacific Gull (*Gabianus pacificus*), which takes about four years (at present I am not certain as to the exact time—it may be a little longer) to attain the fully adult plumage. It is curious to note that in the young birds the feet and eyes are brown, like the plumage, and the beak whitish, and

* Reprinted from 'The Emu.'

dark at the end; but the adults have the beak and eyes bright yellow and the legs whitish-yellow. These birds are not content with changing the colour of their feathers only. Again, in many of the Albatrosses the beak is almost black in the young birds, but changes to whitish later. The Straw-necked Ibis (*Carphibis spinicollis*), when young, has the top of his head covered with small blackish feathers, but in about three or four years these are all moulted, and the bare black skin shows instead; light-coloured lines appear later across the top of the head, and give the appearance of cracks in the skin.

In the flight aviary a pair of Yellow-breasted Shrike-Robins (*Eopsaltria australis*) live in company with the Honey-eaters, but woe betide any other bird of the former species that may be put in; the male Robin dashes at it at once, and the newcomer is usually soon killed. The Yellow-breasted Shrike-Robin is far more pugnacious than the Honey-eaters, frequently driving them away from their feeding dishes. The Honey-eaters do not seem to treat newcomers so harshly, but they are bad enough. Wood-Swallows (*Artamus sordidus*), Blue Wren-Warblers (*Malurus*), and White-browed Scrub-Wrens (*Sericornis frontalis*) live peaceably, possibly because they have plenty of room and cover. Most of these birds object to strong wind, and are usually to be found on the sheltered side of the aviary. In hot weather they are all very fond of bathing, and fly to and fro through the fine spray of the fountain, or else sit on a branch where the water can fall on them, and become nearly drenched.

When the Gardens were first formed, more than fifty years ago, Nankeen Night-Herons (*Nycticorax caledonicus*) used to camp during the day in the large eucalyptus trees (*E. rubra*), and they and their descendants have continued to do so ever since. The birds probably breed in the tall trees on the Murray swamps in New South Wales, therefore during the nesting season only the young birds of the last season are here, and the young males have not got their adult plumage. Directly the Garden bell rings, and the visitors depart, these birds fly down to the Gull and Water-fowl enclosures, and hunt round for scraps of meat that may be left; they are very tame. In the Cairo Zoological Gardens I noticed the

same thing; there the Nankeen Herons (*N. griseus*) roost all day on the trees in the Gardens, and at night go to the Nile swamps to feed. Our birds usually go to the low-lying grounds and shallow water near West Melbourne; they leave the Zoo just at dusk.

The graceful Pied Grallinas, which assemble in flocks during the winter, come from the districts around Melbourne into the Zoological Gardens in the evening to roost, about an hour before the Herons leave. Two pairs of wild Grallinas have for years nested in the Zoo, but each pair has its own restricted area. The same applies to two pairs of White-backed Magpies (*Gymnorhina leucnota*), except that these birds have a battle royal should one pair seek to poach on the other's ground. On several occasions pinioned Magpies were liberated in the Gardens, but they were all attacked by wild birds sooner or later, as they unwittingly trespassed on their area. They seemed to be frequently getting on the prohibited ground of one pair or the other, and found it a difficult matter when they were attacked by the wild birds. As they could not fly away, they simply lay on their backs and fought with beak and claws, often effectively.

Three pairs of Black-and-White Fantails (*Rhipidura motacilloides*) nest in the Gardens, also many pairs of White-plumed Honey-eaters, and these, also, each have their separate parts. All these birds drive away their young as soon as they are able to look after themselves; therefore our wild breeding stock never increases.

In the Gardens there is a Queensland Cassowary (*Casuarius australis*), which, when about seven years old, laid two eggs. Before that it had always been regarded as a male bird, but the male and female are practically identical in appearance. The same applies to the Emu, but the male Emu drums and the female makes a grunting noise, whereas Cassowaries are very silent birds, and one cannot, therefore, easily identify the sexes by the sounds uttered.

ACCLIMATISATION IN NEW SOUTH WALES.*

By THE LATE A. J. NORTH, C.M.Z.S.

When the British visitor arrives at Circular Quay, Sydney, provided he has not landed at any other Australian port, the question he will probably be asking himself, if he is an ornithologist or bird-lover, is: "Am I really twelve thousand miles away from home?" One of the first, if not the first bird to arrest his attention will be the House Sparrow (*Passer domesticus*), for it may be seen and heard in numbers about the goods sheds on the Quay before he leaves the steamer's side, although it is less common in the breeding season, which usually commences in August. In the city, however, and the public parks and gardens it is ubiquitous.

Another common acclimatised species is the Starling (*Sturnus vulgaris*), which may be seen about the larger public buildings of the city and the grass lawns of Hyde Park and the Botanic Gardens; farther afield in the outlying suburbs it occurs in autumn and winter in immense flocks.

Yet another introduced species may be seen in the parks and gardens of the metropolis, and occasionally resorting to the larger buildings in the city—the Spotted-naped Dove (*Turtur suratensis*), of South-Eastern Asia; it is common in the suburbs. About the mansions of Double Bay, Rose Bay, and Vaucluse, may be seen another acclimatised species from the latter Continent, the Indian Myna (*Acridotheres tristis*). It is remarkable that this species, although it has frequented the localities named for many years past, has kept in the comparatively near neighbourhood and not spread over the surrounding country as it has in Victoria. The same, too, may be said of the introduced Skylark (*Alauda arvensis*), which is chiefly confined to the vicinity of Centennial Park, Randwick, Botany, and the lowlands about the mouths of Cook and George Rivers. Frequenting mostly the introduced pine (*Pinus insignis*) about Randwick, Botany, and the western and northern suburbs, may be more often heard than seen, the by no means common acclimatised Greenfinch (*Fringilla chloris*). Far more numerous, in many of the

* Reprinted from the 'New South Wales Handbook,' British Association Visit.

outlying suburbs, especially about thistle-beds, is the Goldfinch (*Carduelis elegans*). Australia is paying dearly for the introduction of foreign mammals, for many birds are destroyed by poisonous baits laid for rabbits, or by the introduced fox, which is rapidly spreading over Eastern Australia. Large numbers of birds, too, perish during periods of drought, especially in Western New South Wales.

MOUNTED BIRD-EXHIBITS OF THE UNITED STATES NATIONAL MUSEUM AT WASHINGTON.

By R. W. SHUFELDT, M.D., C.M.Z.S., etc.

Probably without exception, the ornithologists of the United States possess but one opinion with respect to whom they consider the best and most accomplished taxidermist of birds in this country. Indeed, there is really no doubt on that point; for Mr. Nelson R. Wood, taxidermist of the United States National Museum, is the person in question. Mr. Wood has worked away in his rather dismal and contracted little shop at the aforesaid institution for a great many years. His patience, untiring industry, and studious habits with respect to his profession—for he is truly an artist taxidermist—are simply marvellous. He is now safely past the sixty mark, with an accumulated experience in his art that carries a long way toward making him a most valuable man and a great acquisition to the working staff of the Museum. His studies, indoors as well as in the open, have been largely given to the habits of birds in Nature, their notes, and their attitudes under every conceivable condition.

It is most remarkable to observe the perfection to which Mr. Wood has brought his power to imitate the various notes of a great many species of birds. In the woods and fields the wild birds of all kinds respond immediately to his wonderful note and call-imitation; even a flock of Crows in flight, far, far overhead, will descend to alight all about him in response to his faithful mimicry.

Whilst he is a past master in the art of mounting birds in

normal, easy, and attractive attitudes, he is, at the same time, more successful with some groups than with others. Probably he is not surpassed by anyone, or even equalled, in his extraordinary achievements as exemplified in his taxidermy of both wild and domesticated gallinaceous birds, Ducks, and Pigeons. Sometimes the hardest taxidermical nuts are handed over to him to crack. These consist of old, dried skins of birds, all out of shape, flat and twisted—with bulging eyelids and crooked legs. He is expected to mount them in such poses as will elicit the admiration of all beholders. Nine times out of ten he does this very thing; and out they come from his old shop—perfect wonders of his art. His years of untiring labour in all of these various lines—and for several years past with but one eye with which to work—have gradually filled the great bird cases in the New National Museum, and a few people in the world at last begin, really begin, to realise what a marvellous collection those grand cases contain. Some of the groups are simply superb, and special reference is made to the domestic Fowls, the Wild Pigeons, Carolina Parroquets, the Hoatzins, Grouse—in fact, dozens of others, to say not a word as to what we find in the great main cases of the hall. I have recently made a number of photographs of Mr. Wood's single studies—or pieces, as they say in other art lines—more particularly of the birds of Australia and the Eastern Archipelago. Some of my photographic work in these has recently gone down to Melbourne for publication, and other examples of it may be placed elsewhere later on. This is done not only to stimulate and further the objects and aims of artistic taxidermy, but to let people in general know what expert work in that art really is.

To illustrate my subject here, four of Mr. Wood's pieces have been selected, and reproductions of my photographs of them constitute the plates to the present article. In Fig. 1 we have an old male of the famous Cattle Egret or Heron (*Bubulcus coromandus*), a species that ranges through India and Ceylon, extending far into the Burmese countries, China, Siberia, and southward to the Moluccas. It has gained its name from the habit it has of alighting on the backs of wild and domestic cattle, evidently to feed upon such insects or other invertebrata as it

may discover in such places. In the group of wild African buffalo, collected by Col. Roosevelt and his party in that country, and exhibited in one of the immense cases in the Mammal Hall of the National Museum, several of these Egrets or Herons have been introduced. The plumes on the back of this bird are of a rather deep yellowish-buff, which is also the case with some of the plumage of the head and neck. All the rest is of a chalky white, which is difficult to faithfully reproduce photographically when one comes to consider the place in which the picture was obtained. Hundreds of people, visitors at the Museum, have admired this truly elegant piece of work—the pity is that my photograph fails to show it as well as it should; the reduction and the light are chiefly responsible for this. On the other hand, the original is absolutely true to life, and to the last feather of the specimen we have the pose assumed by a small Heron as it attempts to preserve its line of gravity or balance when pacing down some old stick, to reach the water of the marsh wherein it has its home.

(To be continued.)

[We shall shortly consider taxidermy in relation to book illustration, and the volume concerned will be reviewed by Mr. J. J. Cash.—G. R.]

DISEASES OF BIRDS, AND THEIR TREATMENT AND CURE—I.

By P. F. M. GALLOWAY.

Birds, both large and small, whether kept in cage or aviary, are liable to be attacked by diseases the same as any other animal, human being, or even insect or plant.

There are pests or diseases which attack all forms of life, if conditions are favourable; but if the bird (and it is birds that I am dealing with) should be, as it were, below par, then it stands the chance of being attacked.

In the case of a bird it is impossible to tell if it is below par; hence the reason why birds, as a rule, suddenly show signs of some-



Photo. by R. W. Shufeldt, M. D.

Mounted by Nelson R. Wood.

AVICULTURE AND TAXIDERMY:

The Cattle Egret (*Bubulcus coromandus* Boddaert) in the U. S. National Museum.

thing wrong; this is because the disease is upon them before we know anything of it.

It must not be imagined that because birds are kept in cages or aviaries that that is the cause of disease attacking them at times. Oh dear, no! Birds in their wild state are also attacked. I have picked up occasionally birds suffering from "going light," too weak to fly off the ground, with their breastbone nearly protruding through their skins, and this in the months of May and June, when their natural food was abundant. These birds, ill in the wild state, would be certain to die, as they would be unable to find anything medicinal which would remove the cause, whilst those in captivity can receive medicinal treatment that will remove the cause; and as soon as the cause is removed, the bird naturally begins to recover at once.

I do not profess to be a doctor. I am not, and have never had a medical education; but common-sense, keen observation, and living among birds all my life has taught me much.

A sick bird should be taken in hand at once. It is no use saying, "Well, he may be better to-morrow"; he won't, he will be worse; the longer the disease is allowed to play upon the bird, the longer the cure will take. This is easily understood.

Birds are not subject to many kinds of diseases. The most often met with is—

GOING LIGHT.—This disease will attack young birds in the nest as well as adults; many nests of young canaries are often lost through it, and it is caused, I believe, by birds picking up something that has become stale and sour.

In young canaries I am convinced it is often the hard-boiled eggs used for feeding purposes. This is a fine food if eaten up cleanly by the birds as soon as cooked; but it is thrown out of the feeding-vessel and soon becomes sour and contaminated by microbes in the air, it is picked up and eaten, and then follows the trouble.

Symptoms.—Going light is easily detected. The attack is often quite sudden. A bird to-day is looking beautifully sleek in feather and bold in eye; to-morrow he is slightly puffed out, his feathers do not lie so close to his body, his eye is not so bold and bright—in fact, although he feeds and hops about, he is not the bird of yesterday.

Take the bird in the hand and you will find the round, plump, healthy breast is assuming a **V**-shaped appearance; the bird is losing weight, and if not doctored at once, will rapidly lose flesh until the breastbone is like a knife-blade and the eye is dull and sunken. Sometimes the attack is so severe that the bird is found looking like a round ball, and if it persists in keeping on the floor of cage instead of the perch I consider it is beyond recovery; it is a hopeless case, and it would be better to kill it and put it out of suffering. Some people used to think this disease was consumption. It is not; it is absolutely a particular form of bowel trouble, which, rightly or wrongly, I term "gastro-enteritis," and, I am happy to say, I have a medicine that quickly cures, by removing the cause and going to the seat of the trouble at once. If given this particular medicine (which is absolutely harmless) in the early stages of the disease, the bird recovers rapidly, even in the short space of two or three hours. I have cured nearly every bird of mine in the early stage of the disease.

The moment the cause is removed it is astonishing how the bird brightens in eye and assumes its sleek tightness of feather, and puts on flesh as rapidly as it had previously lost it.

Treatment.—If the bird is very bad, take it gently in the hand, open the beak, and dip a knitting-needle or anything about that size into the bottle of medicine which I call "Pinko" (which can be had from me), drop 5 separate drops, allowing the bird to swallow each drop before giving the next, or, of course, it might choke, then return the bird to cage and put 20 drops into a tablespoonful of water for the bird to drink, giving this as the only drink for two days, then miss a day and give it again the next, it is more than likely the bird will not require the medicine after the second day.

For Parrots, Parrakeets, and large birds a good teaspoonful of "Pinko" in $1\frac{1}{2}$ tablespoonfuls of water for the bird to drink, given as above mentioned. It is not necessary to alter the food the bird has been having, but in the case of Parrots, etc., give a little biscuit or bread sop sweetened, and to insectivorous birds a little extra live food, such as meal-worms, live ant-eggs or wasp-grubs in season.

(To be continued.)

GAPES.

By ARTHUR F. MOODY.

I would like, for the benefit of the readers of the 'Avicultural Magazine,' to record that here (E. Yorks), and as far as my experience is concerned, this malady has of late years become very prevalent and a serious menace to the rearing, or, in fact, the keeping, with the usual degree of pleasure, of some of the more delicate gallinaceous birds in captivity.

By this I do not of course infer that an attack is invariably fatal. On the contrary, if taken in time, it is usually, in the more robust species at least, curable; but from the fact of its rather frequent or annual occurrence and the consequent loss of condition, involved by repeated handling, dressing, etc., not to mention damage to plumage and the natural ill-effects of the parasites, a bird becomes worn, anæmic, and in no condition to develop, moult breed, or meet the winter. This reappearance I attribute in some measure to certain species being naturally subject to the disease and possibly carrying with them, or never really throwing off, the worms, but largely to the fact of living in what I may term to be a gape-infected area, where young poultry and game-birds almost annually suffer severely, and where numerous wild and affected Rooks, Jackdaws, and even Blackbirds and Thrushes, are at certain seasons of the year repeatedly visiting the enclosures.

However, be the cause and effect what they may, it is noticeable that young stock is more susceptible to the disease than mature examples, also that some species, notably the Grouse family* and the true Pheasants, appear very much more liable to be affected than others; also that, although the disease is most prevalent in the summer, it is by no means unknown during the colder months.

As examples of this, I may state that we have received at least one batch of Nut-Crackers badly affected in mid-winter, and I have seen a whole brood of domestic Chickens suffering severely in January, while Jackdaws have been caught here in early spring—of

* Apparently the Red Grouse is very rarely subject to the gape-worm in the wild state. The report of the Committee on Grouse Disease (p. 213) says that only two examples were noted while the inquiry was in progress.

course, adults — with the gape-worms in the windpipe. In the latter cases the worms were not paired, and apparently were not breeding.

(To be continued.)

THE AMATEUR MENAGERIE CLUB.*

This useful and progressive Society was founded several years ago. Its objects are to encourage the keeping of birds and other animals in captivity, and to facilitate the importation of them. It issues an Annual Year-Book, and, in normal times, a Bulletin and list of specimens wanted or offered for sale. On the publication of the second Year-Book in 1913 it was noted that the membership had much more than doubled in the short space of twelve months, and the book itself was for the second time very much enlarged and some new features were added. Medals for breeding and acclimatisation are awarded on the same lines as in our own Society.

We have received the Year-Book for 1917, which would have been noticed before but for the great pressure on our space. In the very act of reviewing it we observed a notice of the Club in our esteemed contemporary, 'Le Chenil,' from which we translate as follows :

"Many amateurs, on account of the times in which we live, have to discontinue or at least diminish their collections of animals, and it has been a pleasant surprise to receive from England the sixth Year-Book of the Amateur Menagerie Club. This Association, which consisted of sixty-four members in 1916, has even been increased in 1917," and goes on to remark, "in spite of the absence of most of his colleagues at the front or engaged on war-work, the Secretary, Mr. Tyrwhitt Drake, has found means to collect some papers so as not to impair the series of practical articles of which the Year-Book gives an annual account. . . . To sum up, Mr. Tyrwhitt Drake may be congratulated on having issued, under such present circumstances, such a pleasing volume."

* 'The Amateur Menagerie Club Year-Book, 1917.'

In addition to papers on Giraffes, Chimpanzees, and Ocelots, the Year-Book contains some articles of avicultural interest, namely, a valuable paper by Mr. Astley, on his Flamingoes and Egrets, illustrated by photographs and marginal sketches; and notes on the Spectacled Owl, by Miss Chawner, similarly illustrated, and of much interest now that this species has become so rare in captivity.

We would cordially recommend the Menagerie Club to our readers; the Secretary is Mr. G. Tyrwhitt Drake, Cobtree Manor, Maidstone.

G. R.

REPORT OF COUNCIL MEETING.

The half-yearly Council Meeting was held on February 27th at the Zoological Gardens, by kind permission of the Zoological Society.

The following were present: Mr. E. G. B. Meade-Waldo (Chairman), Mr. A. Ezra (Treasurer), Miss Chawner, the Hon. Mrs. Bourke, Mr. R. I. Pocock, Mr. D. Seth-Smith. In the unavoidable absence of Miss Alderson, Mr. Pocock kindly acted as Secretary. The Chairman announced that letters of apology for absence had been received from numerous members, including Miss Alderson and Dr. Graham Renshaw.

The minutes of the last meeting were read and confirmed.

The audited balance-sheet for the year ending October 31st, 1917, was submitted by the Treasurer, who announced that the sum of £16 was carried forward to the current year.

The Secretary reported that Mr. Shore Baily had applied for the Society's medal for successfully breeding and rearing the Mexican Black-breasted Quail (*Colinus pectoralis*) in the summer of 1917. After discussion the Council decided (1) to extend the time for applying for the medal from four weeks to eight weeks; (2) to grant the medal to Mr. Shore Baily. The Council also considered that attention should be drawn to the rule that the first account of the breeding and rearing of the young birds must be published in the Magazine if the owner wished to claim the medal.

Officers of the Society were authorised to purchase, at the

Society's expense, the stationery necessary for conducting the Society's business.

At the suggestion of the Editor it was decided that the name of the Society's Pathologist be added to the list of officers of the Society published at the beginning of each volume of the Magazine, and that the address of the present Pathologist (Prof. G. H. Wooldridge), as given in the Magazine, be altered to the Royal Veterinary College, Camden Town.

A report from the Hon. Business Secretary as to the disposal of surplus copies of the Magazine was read and considered.

Friday, June 28th, was settled as the date for the Summer Meeting of the Council, to be followed by a tea party for members in the Fellows' Pavilion at the Zoological Gardens, the hour of the tea to be announced in the June issue of the Magazine.

The meeting closed with a vote of thanks to the Zoological Society for the use of the room for the meeting.

REVIEWS.

BRITISH BIRDS.*

The handsome supplement before us completes Mr. Thorburn's great work on British birds. Well illustrated in the author's exquisite style, well written, and well printed, these extra sheets are worthy to rank with their predecessors in their beauty of bird portraiture and the interest of their letterpress. Dr. Eagle Clarke's notes on bird migration are also quoted in these pages.

Fourteen races or species of birds are portrayed in the work, mostly with wonderful fidelity. We would single out for special mention the Hebridean Song Thrush and the St. Kilda Wren on Plate 80a; it is difficult to say which one prefers—the handsome, dark, richly-spotted Thrush or the alert, singing Wren, with tip-tilted tail and crisp, raised wing. The Marsh Titmouse is seen briskly searching for insects, almost in the very act of whisking right

* 'British Birds.' By ARCHIBALD THORBURN. Supplementary Part. London: Longmans, Green & Co.

out of the plate; Rüppell's Warbler in its pretty grey suit sings happily, perched on a twig. Then we have the rare Olivaceous Warbler of South-Eastern Europe hunting for insects, and the Moustached Warbler slipping into a reed-brake like the Sedge Warbler which it so much resembles.

We cannot, however, discover any reason for figuring two forms so completely alike as the Marsh and the Willow Titmouse. In the coloured plate they are indistinguishable from each other, so that we learn without surprise that the latter bird so closely resembles the Marsh Titmouse that it was not separated till 1897; personally, we think 1918 all too early for this weighty operation. The graduation of the tail feathers, supposed to be of diagnostic value, is not shown in the plate. In spite of the opinion of the latest "authorities," to us this seems specialisation run mad.

The Greater Redpoll figured is unsatisfactory, in spite of the beautifully rendered plumage; its unpleasant, one-eyed appearance detracts markedly from the careful detail of the head. The hen of the Scottish Crossbills is not only too Parrot-like but even resembles a definite species—the Owl Parrot of New Zealand; this likeness being unfortunately accentuated by the diving attitude of the cock bird, the Owl Parrot having a similar habit of dropping to cover with closed wings. Although the pose of the Yellowshank leaves nothing to be desired, the tibial muscles of the left leg are barely discernible without the aid of a lens.

G. R.

AVICULTURE AT THE NEW YORK ZOOLOGICAL PARK.*

By the kindness of Mr. Astley we have received a copy of the book of photographic engravings issued by the New York Zoological Society to illustrate their magnificent Park on Bronx River. The book contains twenty-four pages of illustrations and is capitally got up; the clearness and beauty of the reproductions constitute it a veritable album. The views have been taken by the Society's official photographer, Mr. Sanborn, and he has been most successful

* 'New York Zoological Park.' Book of Views. Series 2. Published by the New York Zoological Society. 50 cents.

in this effort, zoologically speaking, to "bring the world before you." Bears and Bison, Deer and Antelope, are here; we note the noble façade of the Lion-house, the Deer in their natural landscape, and the architectural merit of the palace devoted to reptiles. To the aviculturist the latter part of the book will be of interest, for here he finds space assigned to birds and ponds and cages.

The great flying-cage is 55 ft. high, 72 ft. wide, and 152 ft. in length, and is constructed of wire netting stretched over huge steel pipe arches; it encloses three forest trees and a pool 100 ft. long. Under this mammoth Gothic arch the Society houses its Flamingoes, Ibises, Storks, and Herons; they form a large and showy flock of birds, displayed in a manner novel to America and but little practised in Europe. Only in London, Paris, and Rotterdam does the travelled naturalist behold any flying cage at all approaching the mammoth of New York.

In winter the tenants of the great cage are housed in the building for aquatic birds; they inhabit the small flying cage in the centre of the house or the wall cages running along the inside. The backs of these latter are painted with scenes representing the homes of the species exhibited, a scene in the Florida everglades being depicted on the western wall, while the eastern is decorated with a presentation of a marsh scene in the North.

Among the smaller bird illustrations in this book we may mention the Whooping Crane at the pool side, silent and stately as if limned on a Japanese screen; his burly cousin the Jabiru, with powerful bill and long, stilted legs; and the quaint young Spectacled Owl, his motorist mask showing black against the downy whiteness of his face.

G. R.

THE SOCIETY'S PRIZE.

Members of the Society resident abroad are reminded of the annual Prize offered for "the best article or series of articles or notes on foreign birds, wild or captive, submitted by members living abroad, and accepted for publication in the Magazine, the prize to consist of a bound and inscribed copy of 'Practical Bird-keeping' or some other suitable book on aviculture or ornithology, the award of

the prize (which is offered for the current and following years) to rest with the Editor of the Magazine" (Minutes of Council Meeting, February 6th, 1914).

The Prize is open for competition by foreign members only, as they are not eligible for the Medal.

CORRESPONDENCE.

NOTES FROM THE AVIARIES AT VILLERS BRETONNEUX.

DEAR SIR,—My bird notes for 1917 are not interesting enough for an article. On account of the length of the war, I parted with a good many of my birds, keeping only a few rare birds and pets, about four hundred.

After the war, I intend to move my collection into a warmer country than Northern France. Very few young birds were reared, of which the most interesting is a Fruit Pigeon (*Alectranas pulcherrima*). My three pairs of Buffon's Touracos laid, and hatched several young ones, but did not rear any. Very bad luck! Two of the hens were bred at Villers-Bretonneux. I hope I shall be more successful this year.

During last year I again received some good birds: a fine cock Crested Guinea Fowl (*Guttera cristata*); a cock Stone Curassow (*Pauxi galeata*) and a cock Sclater's Curassow (*Crax sclateri*); some Parrots (*Tanygnathus luconensis*, *Pionus violaceus* and *corallinus*), and a lovely Parrakeet (*Palcornis schisticeps*); a great Gaboon Hornbill (*Buceros atratus*) and a lot of Toucans—mainly *Rhamphastos*, *Ariel*, and *Andigena bailloni*.

In the spring I got a very fine Giant Touraco (*Corythæola cristata*), but alas! he has long been dead. I have an Albino Jay, white with pearl-grey "moustaches" and light blue wings, quite a nice bird. My Sun-birds grow very old, and I lost one Amethyst (*C. amethystinus*); one Malachite (*N. famosa*); one double-collared (*C. chalcibæus*), and the lovely *Anthobaphes violacea*; I still keep, in perfect condition, the *Ethopyga saturata* (Black-breasted Yellow-backed Sun-bird).

It is always possible in France to get all kinds of common birds from Africa and America, but they are much more expensive than before the war. It is now impossible to find Australian and Asiatic birds.

Péronne;

January 23rd, 1918.

Yours very sincerely,

DELACOUR (Lieut.).

BIRD-CATCHING IN AUSTRALIA.

A member's correspondent writes: "[One dealer] goes into the back country of West Australia, catches the birds himself, and takes them to America, making one trip every year. To-day he arrived in Sydney on his way to 'Frisco, and had 100 dozen mixed Finches and a few Parrots, the Finches consist of Goulds, Pictorellas, Longtails, Masked, Ring Finches, and two pairs of Painted Finches. The Parrots consist of six pairs of Crimson Wings, some Port Lincolns, and one cock Pileated Parrot. About two years back he took to 'Frisco a pair of Princess Alexandra Parrakeets. [Another dealer] has a lot to take away, but nothing out of the way as regards variety. He has some fine Emus, Swans, Opossums, Snakes, etc. He leaves for 'Frisco by the 'Sonoma' next week."

THE PAUCITY OF WILD BIRDS.

To the Editor of the 'Avicultural Magazine.'

SIR,—I entirely agree with Mr. Hubert Astley *re* the great scarcity of many birds after the disastrous winter of last season.

I have not seen a single Golden-crested Wren since last winter! and they used to nest regularly in my garden and friend's gardens. In 1916 I found ten Long-tailed Tits' nests, but from last winter till October, 1917, I never saw a bird and feared they were extinct in this county, then one day in October I saw a "party" of them to my great delight, so one pair survived and brought up a family at any rate. I calculate that *at least* 80 per cent. of the Thrushes and 60 per cent. of the Blackbirds were killed by starvation and cold in this neighbourhood. Tree Creepers are nearly extinct, though none of the Tits except Long-tailed seem to have suffered at all (I am not including Bearded Tits which are never found just here).

Curiously enough I have seen more Nut-hatches (always common here) than ever since last winter!

Green Plover, Redwings, and Fieldfares died in hundreds—even wild rabbits became practically skeletons and quantities perished. Towns and villages were full of starving Black-headed Gulls, hunting for scraps and refuse.

I only saw one common Wren during the whole of last spring and summer, though several have turned up again now.

Woodpeckers are not affected, all these varieties being about as usual.

Heathfield,
East Dereham, Norfolk;
February 8th, 1918.

HUGH WORMALD.

"THE BALANCE OF NATURE" AND "THE PAUCITY OF
WILD BIRDS."

To the Editor of the 'Avicultural Magazine.'

DEAR SIR,—I have been a good deal interested in the correspondence under these headings in the last issue, and perhaps a few notes from Cheshire may interest your readers. It is sad to hear about the Golden-crested Wren and the Long-tailed Tit in Hants and Hereford. It is the same in Cheshire. Both these little birds are usually familiar, but during the whole of 1917 I saw none. Other observers of my acquaintance had the same bad luck, though at Christmas one friend came across a very small party of Gold-crests in Delamere Forest. The terrible winter of 1916–17 left a marked shortage of Song Thrushes, and Fieldfares and Redwings suffered greatly. The two latter birds are very scarce this time. I met with few Kingfishers last year, but their numbers are now more promising. We have Cole and Marsh Tits, Blue and Great, all in evidence, and the Robin, Wren, and Hedge Sparrow are plentiful. The Tree Creeper survived the hard winter, and has been fairly numerous since, also the lesser Redpoll. There have been fewer Bullfinches than usual. It is interesting to note that the Mistle Thrush was particularly abundant and vigorous last year, singing with great heartiness to an unusually late date in spring. Bramblings came very sparingly in autumn, 1916, but on the present occasion they are abundant. Lapwings are with us in great flocks, and Golden Plovers (in certain districts always favoured in winter), abound. The latter half of January has been mild and spring-like, and early songsters are already in good voice. It is to be hoped that the remainder of the winter will prove kindly, and that in the coming days of spring we may once more find the Long-tailed Tit and Gold-crest in our midst.

Foxley Mount,
Lymm, Cheshire;
February 4th, 1918.

Yours, etc,
JAMES J. CASH.

IN-BREEDING OF SHAMAS AND CRANES.

DEAR DR. GRAHAM RENSHAW,—I do not think Mr. Low need be at all afraid of breeding from his young Shammas. The dangers of in-breeding have been enormously exaggerated, and where the stock is healthy and well reared it can often be continued for three or four generations without ill-effects. If, however, there is a weakness in the present birds in-breeding tends to bring it out very markedly in the young.



Photo. by Lieut. J. Delacour.

AVICULTURE AND ARCHITECTURE:
The Aviaries at Villers Bretonneux.

It is interesting to note that in-breeding appears to be the natural habit with Cranes. These birds normally produce two young of opposite sexes every season, and the latter, according to my experience, remain together all their lives, and do not pair with unrelated birds, except an accident happens to one of them.

Warblington House, Havant, Hants ;
February 9th, 1918.

Yours sincerely,
TAVISTOCK.

METALLIC MARKINGS IN BIRDS.

DEAR DR. RENSCHAW,—Herewith I send you my further notes on the evolution of patterns and growth of colour in birds. I wanted to work out points relating to the development of metallic colouring, but unfortunately, I do not possess a microscope; and that belonging to a medical friend appears not to be powerful enough to discover the ridges or papillæ which produce the metallic effects.

The fact that (in the African Bronze-wing Doves) the colouring changes greatly according to the angle at which the light falls upon the metallic markings, the purplish-blue spots of *Chalcopelia afra* becoming partly black (so approaching those of *Tympanistris*), the green spots of *C. chalcospila* considerably more blue, and the crimson spots of *Calopelia puella* var. *brehmeri* green, when held level with the eye, seems to me rather to indicate ridges than papillæ as the agents in producing the effects.

If I only had the splendid microscope available in the Insect-room at South Kensington, I might clear up the point. Years back I wished to discover how the silver spots on the Fritillary butterflies were produced, and I discovered that the scales on those spots were crystalline and curved over towards their distal extremities, so that they caught the light like a congeries of small mirrors. I wonder what happens in the case of those beautiful aberrations in which the silver covers about half the under-surface of the wings?

124, Beckenham Road,
Beckenham, Kent ;
February 4th, 1918.

Yours very sincerely,
A. G. BUTLER.

SEPTIC ENTERITIS.

MONSIEUR,—Je vous serais très reconnaissant si vous pouviez m'indiquer un remède efficace contre la gastro-entérite des oiseaux. Je possède en ce moment deux jeunes *Poephila gouldiæ* atteinte de cette maladie; l'un d'eux a le ventre considérablement enflé, . . . l'autre ne se perche plus.

J'ai perdu souvent des oiseaux de cette maladie, et tous les remèdes que j'ai essayés n'ont jamais donné aucun résultat.

Avec mes remerciements, veuillez agréer, Monsieur, l'expression de ma considération distinguée.

Géry, février 4, 1918.

A. DECAUX, Membre de l'Av. Society.

[TRANSLATION.]

SIR,—I should be much obliged if you could tell me an efficacious remedy for gastro-enteritis in birds. I have at this moment two young *Poephila gouldiæ* affected with this disease; one of them has the abdomen considerably distended, . . . the other no longer perches.

I have often lost birds from this malady, and all the remedies which I have tried have given no result.

With my thanks,

A. DECAUX, Member of the Avicultural Society.

Géry, February 4th, 1918.

The following reply has been sent to M. Decaux :

Septic enteritis is one of the most difficult diseases to cure to which birds are liable. In treating it I have found warmth the most important thing; the bird should be placed by itself in a dry, clean cage (open only in front) and kept in a warm, but properly ventilated, room.

It is well to commence the treatment by administering a drop or two of olive oil, and, when the abdomen is inflamed, it should be painted with warm turpentine. In the drinking-water put ten drops of tincture of opium and the same quantity of tincture of belladonna, with two or three drops of dissolved gum arabic and glycerine.

If the health of the bird improves under this treatment, it is best to complete the cure by a mild tonic—a rusty nail in the drinking-water will do.

A. G. BUTLER.

THE SCOTTISH ZOOLOGICAL PARK.

DEAR DR. RENSHAW,—The birds in the Park are at present in very good condition. The King Penguins are particularly healthy and are not suffering from any disease. The trouble with mycosis is in the newly imported birds, which usually arrive in comparatively poor condition owing to the strain upon them of the long voyage. Few people probably realise how much difficulty is met with in bringing the birds from the far south. A sufficient stock of dried fish has to be taken out to provide food for them, and it was only by the generosity of Messrs. Salvesen & Co., who incurred great expense in the matter, and by great care and trouble on the part of the captain and crew, that two lots of birds were brought over successfully. In each consignment one or two birds were infected with mycosis, and as unfortunately no means as yet have been found of treating it successfully, they died shortly after their arrival. The others were apparently free from infection, and have had remarkably good health ever since they came, which in the case of the first consignment was over four years ago.

I have not noticed any marked change of colour in the Spotted Emu, and doubt very much whether there is any specific difference between the three Emus in the Park. The Emus have lately laid a number of eggs, but none of them shows any sign of sitting, and so I fear that they are all females. We have the reverse difficulty with our Rheas, all of which I fear are males; we had the misfortune to lose one or two females which we formerly had. The cause of death was apparently in each case a stoppage of the intestines by masses of undigested grass, and I should be very glad to know whether anyone who keeps Rheas has experienced this difficulty with them. The deaths have always occurred in winter, when the grass is lacking in sap.

We are hoping for good breeding results this season among our Waterfowl, and a pair of *Cereopsis* Geese are already nesting. We shall probably have some interesting hybrids among the Ducks. We bred last year some hybrids between the British Widgeon and Gadwall; they turned out almost exactly like Chiloe Widgeon. You probably know that we have three hybrids between the Australian Black Swan and the Canadian Goose.

I shall look forward to seeing you this summer.

With kind regards, I am, yours sincerely,

T. H. GILLESPIE,
Director-Secretary.

Corstorphine Hill House,
Murrayfield, Edinburgh, W.;
March 25th, 1918.

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

PROPOSED CANDIDATE FOR ELECTION.

Mrs. A. M. CASE, Holmbury, Silverdale Road, Eastbourne.

Proposed by Miss R. ALDERSON.

NEW MEMBERS.

J. K. BUTTER, M.D., Highfield House, Cannock, Staffs.

A. G. GOODALL, 2nd Lieut., R.F.A., 64, Park Road, West Dulwich, S.E.

GEO. JENNISON, M.A., Zoological Gardens, Belle Vue, Manchester.

Madame LÉCALLIER, 109, Rue de la République, Caudebec-lès-Elbeuf.

CORRECTION.

In List of Members.—Edvard William Harper, Post Box No. 86, Calcutta, India, should read Edmund William Harper.

ILLUSTRATION FUND.

A GOOD PHOTOGRAPH IS WORTH PAGES OF DESCRIPTION: CONTRIBUTIONS TO THE ILLUSTRATION FUND ARE MUCH NEEDED AND ARE OF HIGH VALUE IN FURTHERING THE WORK OF THE SOCIETY, AS THEIR EDUCATIONAL RESULTS CANNOT BE ATTAINED BY ANY OTHER METHOD.

	£	s.	d.
Dr. Shore Bailly	1	0	0

MEMBERS' PRIVATE SALE AND EXCHANGE COLUMN.

At a Meeting of the Council, which was held on Feb. 17th, 1916, the following addition to the Rules was made:—"That each Member (not a Dealer) be entitled to ONE ADVERTISEMENT, FREE OF CHARGE, EACH MONTH, the Editor to be sole judge as to whether such advertisement can and shall be published or not, priority shall be given to those who apply first."

The charge for private advertisements is SIXPENCE FOR EIGHTEEN WORDS OR LESS, and one penny for every additional three words or less. TRADE ADVERTISEMENTS ARE NOT ALLOWED IN THIS COLUMN. Dealers who are members, wishing to advertise, should apply to the Publisher for terms. 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.

WANTS.

The charge for members' advertisements under this heading is FOUR PENCE FOR TWELVE WORDS or under, and one penny for every additional three words or less.

Wanted.—To buy cock Gouldian Black-headed Finch; also pairs of Zebra Doves and Diamond Doves.

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NOTICE TO CONTRIBUTORS.

Authors desiring reprints of their papers are requested to inform the publishers on returning corrected proofs.

1. Correspondents are requested to write on one side of the paper only. This saves the compositors' time if the article is accepted.

2. MSS. should be posted sufficiently stamped. This saves the Society's pocket.

3. MSS. should be very clearly written, and are better if type-written. This saves the Editor's time.

4. MSS. should be folded, not rolled. This saves the Editor's temper.

G. R.

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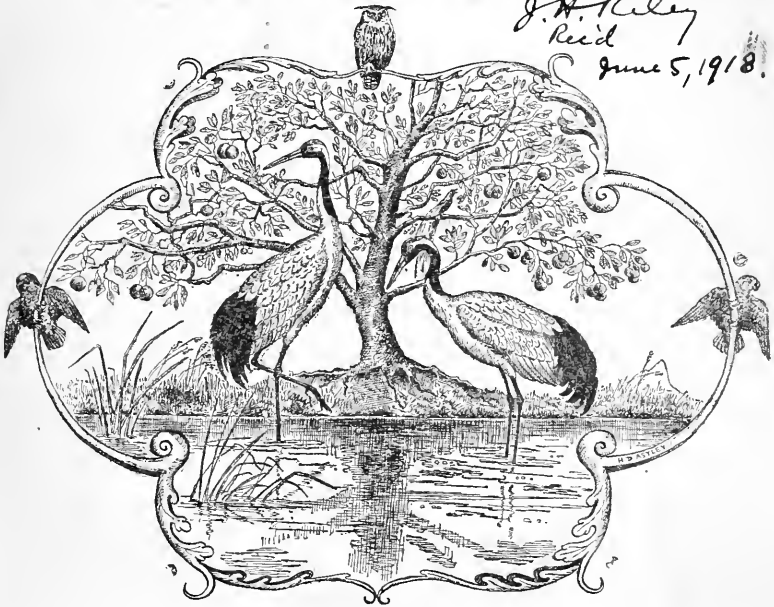
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AVICULTURAL MAGAZINE.

J. W. Riley
Reid
 June 5, 1918.



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THIRD SERIES.
 VOL. IX. No. 7.

The Price of this
 Number is 1/3.

MAY,
 — 1918. —

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STAGES IN THE GROWTH OF A NESTLING HEN HARRIER.

THE
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BEING THE JOURNAL OF
 THE AVICULTURAL SOCIETY.

Third Series.—Vol. IX.—No. 7.—*All rights reserved.*

MAY, 1918.

THE NESTING OF THE HEN HARRIER
 IN NORTHERN SCOTLAND.

By FLEET-SURGEON K. H. JONES, R.N.

We climbed out of our dinghey on to the rough stone pier and made our way past a well-built fisherman's house, ornamented with pieces of skate and other dried fishy fragments, into the yard littered with old nets, lobster pots, and the various impedimenta of the piscatorial art characteristic of the craft and the vicinity.

Turning our faces inland we traversed several fields laid down in hay grass by a narrow footpath, crossed a good road, and began the gentle slope which led up to the nearest heather-clad hill. After a gentle climb of a few hundred yards we came out on a rough country road skirting the bases of the hills, and proceeded to follow it.

We followed this rough road for several miles, having for the most part rough heather-clad hills on our left, and treeless hedgeless fields, dotted with small neat houses, on our right.

Presently the road turned inland, and, crossing a little brook, we began to ascend a wide shallow valley towards the crest of the hills.

We gradually ascended a winding track used to bring down the cart-loads of peat from the hilltops, and a Blackbird, who had

his nest in a mossy bank, flew clacking and chattering away from the roadside as we passed by.

Common Gulls, which were nesting in some numbers in the heather of the hilltops, made a vast and unpleasant clamour.

We ascended the track until the last little patch of cultivation and the last little thatched cottage had been left behind; and, jumping the little ditch which bordered the rough road, we made our way over the tussocks and tall rough heather. At this particular spot the heather was much larger than is usual in this part of the world, and reached well above the waist.

As we approached the largest and thickest patch of heather a big brown bird with a ring at the base of its tail rose almost from under our feet, and flapped silently away, and in a few feet more we were looking down on the nest and nestling of the Hen Harrier.

The pale-grey male bird had meanwhile put in an appearance, chattering noisily and flying uneasily to and fro at some distance. He presently alighted in the heather, perhaps 100 yards away.

Originally the nest when found had contained two addled eggs and one nestling, and the latter alone now occupied it.

The nest itself was a large flattened structure made of the stems of the larger heather plants, and of coarse bents and rushes apparently well trodden down, and was about 18 in. in diameter.

Placed a few inches only above the ground, it had kept remarkably dry, considering the damp nature of its surroundings.

The nest was well hidden in the middle of a clump of tall thick heather plants, not more than 30 yards from the rough road aforesaid, nor more than 150 from the nearest crofter's cottage and its surrounding patches of cultivation.

The nestling, now some four weeks old, is about the size of a Pigeon—rather a wild fluffy-looking youngster which snaps feebly on handling. The only food-remains to be seen are portions of a large vole.

The cock bird continues to circle round about but never comes very near to us.

Continually he gives out his chuckling ringing cry, and from time to time he settles down in the heather and watches us suspiciously.

The hen, after one circular flight, has disappeared.

The nest probably would not have been found had she not got up under a searcher's feet and betrayed its situation.

A couple of Common Gulls, who have probably a young one hidden in the heather, now commenced to mob the male Hen Harrier, stooping at him continually with much unnecessary clamour, until at last he cleared off. We, having photographed the young bird, also turned back to the road and retraced our steps to the boat.

A week later we made the same journey once more, and saw a great change in the nestling, which appeared much better feathered and almost doubled in size, besides being far bolder and almost truculent, throwing itself backwards and snapping its bill violently.

The old birds pursued the same tactics as before, and whether their offspring eventually joined them we do not know, for in another week circumstances over which we had no control had carried us far, far away, where Hen Harriers were not.

NESTLING GOULDIAN FINCHES.*

By C. H. A. LIENAU.

Have you ever wondered why young Gouldian Finches have those beautiful phosphorescent turquoise studs on either side of their mouths? I have not noticed similar markings on any other young birds. They are really wonderful: the four points shine in a dull light like small electric sparks, and do not fade away till the young ones have been out of the nest for a few weeks. Is it to guide the old birds to the mouths of the young ones when feeding them? It lasts for some days even after the young ones die, and seems quite like a living light. If they were in the habit of nesting in dark places it would be more easily understood, but, building as they do out in the open, there scarcely seems any reason for it other than that Nature wishes to beautify the young.

We have had a very long and trying winter this year. The

[* Kindly communicated by Mr. Astley.]

last month or so we have had nice warm weather, but the winter was very wet and cold. Although not cold enough for frost—the thermometer never reached freezing point the whole winter—we had abnormal rainfalls. Sometimes it rained continuously for a whole day or more, and some weeks we did not see the sun for more than two or three days. This, of course, was very trying for the poor little birds, and many of the young in the early broods perished from the damp. The last round, though, have done much better, and this month I have on the wing 5 Gouldians, 9 Long-tailed Grass Finches, 5 Mask Finches, 7 Star Finches, 2 Napoleon Weavers, 3 Crimson Finches, 2 Firetails, 3 Fire Finches, 9 Bicheno Finches, 5 Madagascar Weavers, 4 Diamond Sparrows, and numerous Waxbills, etc.

I devote myself entirely to the smaller birds, a pair of Diamond Doves being the largest birds I have in my aviaries.

THE COURTSHIP OF JACKSON'S WHYDAH.*

By NORMA LORIMER.

I saw specimens of the Weaver Birds known as the Jackson Whydah Bird or the Dancing Bird. In ordinary times these birds look quite uninteresting, and very much like our common or garden Sparrows; but in the courting season a great change takes place, for the cock bird suddenly develops the most enormous tail, and all his feathers, except the strongest of his wing feathers, turn jet black. You can't imagine how absurd a court train of black *moiré* looks on a little bird shaped like a Sparrow and about the same size. Perched on a stump of maize or a stem of millet, it makes a fine and fanciful picture, and one in which a Japanese artist would delight. I wonder if it has adopted this peculiar form of plumage to attract the female, because most of the birds in Africa have splendid tail feathers! It is one of their most noticeable features. This wise bird may have thought its courting would be more favourably received by the object of its adoration if it could, for the time being, turn itself into

[* The foregoing is reprinted from Miss Lorimer's book, 'By the Waters of Africa,' reviewed in the March 'Avicultural Magazine.' We advise all our readers to get this book.—G. R.]

one of the superbly-tailed male birds. But why its greyish-brown colouring should change to black I have no idea; its funereal appearance does not suggest courtship.

It has been called the Dancing Bird, because in the courting seasons, which happen twice a year, it dances in the early mornings and evenings to attract and please the female. This little form of flirtation is very pretty. First of all, the male bird cuts down the long thick grass as closely as if it had been mown, in a beautiful circle, leaving a round patch in the middle of it. This little patch resembles the crossed swords of a Highlander, over which he dances. With infinite lightness and joy the male bird, with his head thrown back and his big tail upraised till head and tail nearly touch, and with feet hanging down, bobs up and down and crosses over and round the little tuft of grass in a way which obviously pleases both the wooer and the wooed. I have seen more than a dozen of these Whydah birds, each with its own dancing ground, all performing their dance of love at one time.

NESTING OF THE LONG-EARED OWL ON THE GROUND AT HICKLING.*

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

On April 6th, 1915, Mr. James Vincent found a nest of the Long-eared Owl (*Asio otus*) in the vicinity of Hickling Broad, and situated on the ground—a very unusual position for the nest of this species, which generally breeds in fir trees. On April 15th, accompanied by Dr. S. H. Long, I was taken to see this nest, which then contained five eggs. The “nest” was placed in the middle of a small plantation about a quarter of a mile from the Broad, and was nothing more elaborate than a slight depression on the oak-leaf-covered ground, beneath a growth of brambles. These served admirably to conceal the Owl when sitting, though they impeded her in her exit from the nest when suddenly

* Reprinted from the ‘Transactions of the Norfolk and Norwich Naturalists’ Society.’

disturbed. As we approached the nest we passed the male bird standing in his diurnal retreat, the junction of bough and bole of an adjacent fir tree, whilst the female was on her eggs, sitting with "horns" erect. This habit of sitting with erect horns, if the erectile ear-tufts may be so termed, is apparently protective, and the same habit has been observed with the Great Crested Grebe (*cf.* 'Field,' February 19th, 1910), although the latter bird does not always assume this attitude when incubating (*cf.* O. J. Pike in 'Adventures in Bird Land,' p. 62). The raising of the ear-tufts by the Great Crested Grebe undoubtedly increases its resemblance to the reeds; in the same way the Owl's horns tend to merge the bird's head into the surrounding foliage.

The subsequent history of this Owl's nest has been admirably described in 'British Birds,' vol. ix, p. 58, by Miss E. L. Turner, who was able to secure some beautiful photographs of the incubating Owl, showing the half-closed eyes and erect ear-tufts. From time to time food was found in the nest by Miss Turner, namely, short-tailed field mice, some very young water voles, chaffinches, a blackbird, and the tail of a swallow. Thrush's feathers were also observed lying about.

According to my limited experience these Owls are beneficial rather than harmful. A couple of nests, which hatched out some years ago near Cromer, were found to contain a missel thrush, a song thrush, three young rats and a mouse, and, when inspected on another occasion, four young thrushes, a rat and a small rabbit; no game. On another occasion a well-used roosting-place was visited, where as many as six Long-eared Owls could be seen dozing in the day-time, and, after due search, thirty-eight pellets were collected. This was in January, in a wood near the sea, at Trimmingham, where all Owls are protected. Nearly all these pellets contained mouse-remains, in addition to the fragments of two beetles, probably the large dung-beetle, and four skulls or beaks of finches.

Gamekeepers vilify these beautiful birds on insufficient evidence, and thus make an excuse to destroy them. Only this year it came to the writer's notice that a Long-eared Owl had been shot (on June 11th, 1915), after being accused of molesting chickens.

The bird was taken to the taxidermist, Mr. Roberts, of Norwich, but not the trace of a chicken could we find. Personally, I have only once known a Long-eared Owl to take a pheasant, though they are said to be fond of very young leverets; but, considering the outcry against ground-game by farmers in this country, who will blame them for this?

In most counties, or County Council areas, an all-the-year protection is given to Owls; but it is merely a nominal protection, which the police are at no pains to enforce. By giving directions to their keepers, landlords and other game-preservers might do much in preventing the destruction of these useful birds.

ANCESTRAL CHARACTERS IN NESTLINGS.

By ARTHUR G. BUTLER, Ph.D.

That wise old philosopher, King Solomon, was evidently aware that the child is the father of the man (Prov. xxii, 6); but, though he was assuredly a bit of a Darwinian in his views (Ecc. iii, 18-20), he does not seem to have known that this was physiologically true.

The distinctions between the embryonic forms of some species which become widely differentiated when adult are very slight; and, as Prof. Huxley pointed out, it is quite in the later stages of development that the young human being presents marked differences from the young ape. Birds are so closely related to reptiles that, as Frank Finn observes ('The World's Birds,' Introduction, p. xi), "if birds did not possess feathers, it would be doubtful if they could be separated from the reptilian class"; therefore, it would seem as if those birds which are hatched in a naked condition are more nearly related to the reptiles than those which are clothed with down; but this does not necessarily follow, since the presence or absence of down on the young may be an adaptation to varied conditions.

When nestling birds differ greatly from their parents in colouring, I think we may conclude that their plumage represents fairly closely that of a considerably earlier age in the history of

their species:* the colouring generally is more uniform and less brilliant; thus if we take as an example the distinctions noted in the British Museum Catalogue of the Parrots we find *Chrysotis augusta*, young, "Has the occiput and hind part of the head green; also the posterior parts of the cheeks are tinged with green." *C. mercenaria*, "No red wing-speculum." *C. æstiva*, "Has no yellow on the head and no blue band on the forehead, the whole head being green." *C. ochrocephala*, "Yellow colour of the crown more restricted or entirely wanting, and less red on the bend of the wing, where sometimes it is entirely absent" (probably immature and nestling plumages). *C. auropalliata*, "Wants the yellow collar on the hind neck." *C. agilis*, "Has no red on the primary-coverts, which are green, and no bluish tinge on the pileum." I have omitted several descriptions of young said to have a red wing-speculum, because I strongly doubt this being a nestling character; I think the examples should have been described as "immature," being in a transitional stage from the nestling to the adult plumage.

It is only what one would expect in birds like the Parrots, the prevailing colour of which is green, that blue or yellow varying through orange to scarlet should be developed in their plumage: lutinos (answering to albinos in other groups) are not particularly rare among them, and are probably the result of constitutional delicacy. In the Budgerigar we also get a blue form, which I regard as practically a melanistic type due to unusual constitutional vigour. The late Mr. Joseph Abrahams assured me that the yellow form resulted from close inbreeding, so that the blue form may, perhaps, be produced by a directly opposite treatment.

By the way, if, as Pycraft tells us in his 'Story of Bird-Life,' p. 25, "Blue colouring matter has never yet been found in birds. The blue colour of certain feathers is due solely to structural characters," how is it that the elimination of yellow from green feathers leaves them blue and the elimination of blue leaves them

* After writing the above, it occurred to me to wonder whether this idea had also struck Darwin; so little escaped that marvellous man that it seemed impossible that he could have overlooked it: sure enough ('Descent of Man,' second edition, p. 742), I found—"We may admit as probable that the young have retained an ancient state of plumage."

yellow? If the blue is an optical effect produced by minute surface striation, as in many metallic-blue or blue-glossed butterflies, it cannot be eliminated without a structural modification of the surface of the feathers or of the pigment which they contain, which is inconceivable to my mind.*

As I remarked in a letter to our Editor, of November 29th, 1917 (see the February No., p. 108), it is quite possible that at an early stage in bird-life, no pattern existed in the plumage: the nestling coloration of many species certainly favours this view, although that of the numerous protectively ornamented youngsters would seem to refute it; but, if the colouring of the latter was gradually acquired for purposes of concealment, there must have been a time at which such colouring first became needful, previous to which period the plumage may have been unmarked. If, then, all danger were to be removed for a considerable period, one might anticipate occasional reversion to a monochromatic character in the newly-hatched young, and I have an idea that this occurs in certain long-domesticated forms of fowls and ducks.

Some of the most gorgeously coloured birds, such as the Gouldian Finch, are extremely soberly dressed in their infancy, in that species the slight wash of green on the upper parts is the only indication of its lovely adult colouring. To watch day by day the change from one plumage to the other is very interesting, the new feathers growing over the old before the latter drop out; at any rate that was what happened to the birds imported in nestling plumage, in those which I bred I could not get near enough to see whether the same process was carried out.

(To be continued.)

* Strictly speaking, I suppose all colour is the result of a structural arrangement of infinitesimal atoms reflecting certain light-rays; but I don't see how green, which is a combination of blue and yellow, can be so altered as to lose a feature not due to pigment.

OSTRICHES.

By J. K. BUTTER, M.D.

(Concluded from p. 176.)

My Ostriches very often suffered from excoriations on the inside of the mouth and throat, which soon spread, and were evidently very painful, as they were unable to swallow food, and when they picked up food would fling it out of their mouth again. One should at once be on the look-out for these aphthæ. I used the liniment of iodine and tincture of iodine mixed in equal parts, and painted it on night and morning. This soon had the desired effect. When they wanted an aperient I dissolved six or eight ounces of Epsom salts in a quart of water and poured it down their throats.

Food for African Ostriches.

1 cwt. cut lucerne or chaff.

$\frac{1}{2}$ bushel maize.

$\frac{1}{2}$ bushel bran.

$\frac{1}{2}$ bushel oats.

Mix well together and damp down when feeding birds.

Give this mixture for feed in the morning and cut grass or chopped cabbage for evening feed—Monday; on Tuesday reverse the feeds, and so on every day alternately. Stale bread or meat cut up is very good for them during the day, keep them well supplied with crushed bone, crushed oyster shell, and crushed flint. These can be had from Spratt's Patent Food, Ltd., 24, Fenchurch Street, London. Keep pens well cleaned out, also keep plenty of clean sand and gravel down for them to dust in. If weather is very wet put them in the shed, although mine just went in and out when it pleased them. When weather is very cold or wet an extra feed of maize helps to keep them warm. Always have plenty of clean water for them to drink.

The finest feathers are grown by the male birds, although the hens grow nice white feathers as well. After six months you can gather the crop of feathers, and afterwards every nine months. The feathers are cut, not plucked, so that it causes the birds no pain. Ostriches are easily handled when blindfolded, and I always

kept a black bag made like a long stocking which was pulled over the bird's head and neck, after the bird had been pushed into a corner of the shed. The corner must be V-shaped, and they will stand perfectly quiet whilst you cut all the full-grown feathers with a strong pair of scissors from the wings and tail, leaving the stumps 2 in. long. The ends ripen in about three months' time, and gradually fall out, or the bird pulls them out; or if necessary you can pluck them, always keeping the two kinds of feathers separate, as the male birds have the finest. Both my adult birds would allow me to mount their backs, and carry me. They can also be harnessed to a cart as well as ridden bare back. They are very fond of rolling and dusting themselves where they find sand and gravel plentiful, and for that purpose I kept about twelve cartloads in the field in a heap. We used the eggs in the house, and they made a splendid omelette when fried, and taste very rich. The egg equals in bulk thirty to thirty-three hens' eggs. The flesh of the ostrich, especially off the thighs, is dried and eaten as biltong in South Africa. It is tough and coarse in fibre, and keeps well in this country, as I had some sent me once from that region. Adult birds, as a rule, seek safety in flight, but the chicks if suddenly alarmed fall to the ground in a state of collapse like death feigning, and adult birds have been known to do the same thing on the sudden appearance of an enemy, squatting down with outstretched head and neck, and in a state of collapse. The birds are then very difficult to distinguish among the surrounding ant-hills. They have a way when running of flapping and jerking their wings, which are alternately raised and depressed. I have seen mine do this, evidently in play, when chasing one another in the field. Ostriches as a rule are fairly good livers, barring accidents, to which they are very prone, being such inquisitive birds, about fourteen or fifteen years is their term of life in my opinion. To show how easily a flock of twelve or fifteen birds is managed, I well remember the late Mr. George Sanger having a dozen birds with his travelling circus, and they were carried in a large open-looking brake, when travelling from town to town, and on the arrival of the circus at its pitch, the ostriches were let out by coming down a special step-ladder made for the purpose into the field to graze, and were driven by some

of the attendants to a brook to get water. This went on daily all the tenting season. A large piece of canvas was the only protection round the carriage they travelled in.

GAPES.

By ARTHUR F. MOODY.

(Concluded from p. 196.)

PREVENTION.

Regarding precautionary measures, which, with early treatment are greatly to be recommended, we usually each spring and autumn liberally dust powdered quicklime or common salt (the latter in the proportion of 3 to 4 cwt. per acre appears the most effective, but owing to its corrosive qualities it is advisable not to allow it to come into direct contact with wire-netting) over all pens and enclosures thought to be tainted. We are most careful to thoroughly cleanse, and at intervals scald, all food and drinking vessels, and to give during the hottest months of the year to such birds as have not access to natural water only boiled or fresh spring water. Also, we have thought it advisable to dress all young Pheasants, etc., over a fortnight old once a week until out of danger, and occasionally mix with the food of such species likely to contract the disease a small quantity of bruised garlic or onion. The former is better, and although we look upon it as having no curative properties, it is used with the idea that a bird whose breath and respiratory organs are thoroughly impregnated with the fumes is less likely to develop the parasites or prove an attractive breeding-ground.

CURE.

As to cure and actual treatment of birds affected with gapes, I may perhaps be allowed, after again emphasising the importance of early treatment, to shorten a long story by stating that after having tried various recognised and advertised remedies I have found none safer or more efficient (this, of course, without saying it is the best) than the preparation sold under the name of "Camlin," and manufactured by Messrs. Gilbertson & Page, Ltd.

This is one of the powders to be blown from specially designed

bellows and inhaled by the bird, which is confined in an almost air-tight box or coop (we use a box fitted with a glazed top, which is kept darkened with a sack until it is desired to see how matters are progressing).

It is but fair to add, however, that, according to my experience, there is in all severe cases an element of risk in the use of any powder, vapour, or spirit powerful enough to kill or dislodge the parasite worms, for, putting aside the narrow margin between parasite and bird or animal life, it occasionally happens that a bird will suffocate through being unable to cough up or clear the trachea (windpipe) of a ball of dead or unattached worms.

DISEASES OF BIRDS, AND THEIR TREATMENT AND CURE—I.

By P. F. M. GALLOWAY.

(Concluded from p. 194.)

DIARRHŒA.—Birds are not often attacked by this complaint if suitably fed; but occasionally a bird will void a chalky excrement, and, if not attended to, it will collect little by little on the vent feathers, harden, and seal the vent, and cause a sort of stoppage. Directly this chalky excrement is observed, give a small pinch of saline in its tin of drinking-water—about as much as will cover a threepenny-piece—let it fizz by stirring, and then give it to the bird. This will cool the blood and clear the bowels. I have found Andrews' liver salts the best for the purpose. Next day put a good pinch of prepared chalk in the water, making it quite milky. Let the bird have this for a day or so until the condition of the excrement is normal.

COLDS OR CHILLS.—Birds should always be kept out of a direct draught, it would be better to put the bird out in the roughest wind than have him in a place where a cool draught (no matter how gentle the draught of air) was moving over him. Sometimes birds with the best of care will get a chill, and this generally at moulting time, it depends upon the weather conditions a great deal; for instance, a warm day, followed suddenly by a more or

less sudden change to a low temperature and damp, may often cause it. Especially in the latter part of September and early October, the days, often warm and sunny, may be followed by a heavy downpour of rain late in the afternoon, a damp atmosphere at night often being accompanied by frost before morning; this type of weather will give birds a chill sooner than any other, and especially those that have not completed the moult.

Symptoms.—A bird having contracted a cold will, at the commencement, simply shake the head a few times, making a slight noise as if trying to sneeze. This goes on for a short time; then it will be seen that the bird when sitting still opens and shuts its beak slightly; when at rest with its head tucked in its feathers a squeaking noise will be heard, exactly like a canary with asthma (which, by the way, is not always asthma, but a cold, that if not checked at once will turn to asthma). As the disease progresses and the bird sneezes, a watery discharge will be observed on the nostrils, which after a time hardens and forms a scale over the nostril, compelling the bird to breathe through the mouth, as indicated by the beak constantly opening and shutting. Now whilst the cold can be confined to the head it can be cured, but if neglected it will gradually work its way down to the lungs and then it is hopeless; the bird is soon dead, probably from pneumonia.

Treatment.—Directly a bird is found sneezing, place in its drinking-water, which should be given warm, a few drops as directed of any of the advertised medicines for colds. I think Ditchfield's lung tonic is as good as any if the bird is put into a dry and very warm atmosphere; this will help to cure the bird in a much shorter space of time. It is not necessary to alter the diet, but after the bird is cured give a little tonic in its water. Parrish's chemical food is useful, this will tone up the system and put the bird on its legs again.

DISEASE OF THE FEET.—Soft-billed birds seem more disposed to sore feet or toes than hard-billed birds, the feet of the former being more delicate and tender.

Symptoms.—The bird frequently holds up its foot and tucks it under its breast feathers. After a day or two it will hardly bring the foot into use at all; if the bird's foot is examined it will be seen

that the foot, or maybe only one of the toe joints, is very slightly swollen. On the sole of the foot, under the swollen joint, will be seen just a very tiny brownish mark. If the bird is left to take its chance it will be noticed that when it gets any dirt on its foot it will be certain to be collected on this very spot, and if the foot is not washed, the dirt will become as hard as cement and the toe joint becomes more inflamed and swollen; the toe, up to the inflamed joint, will wither up and drop off like a dead branch of a tree, and, of course, the bird is disfigured for all time.

Treatment.—As soon as a bird is seen holding up its foot rather often it should be caught up, examined, and if there is any excrement and dirt on the foot, thoroughly wash clean with warm water which has had a pinch of boracic acid dissolved in it; if it is found that a little brownish mark has formed on the under part of the foot (and the mark may only be the size of a dot made by a pencil), rub the joint with boracic ointment. Rub it well in, then return the bird to the cage, keeping nothing on the drawer board but moss or cut grass. Repeat the treatment for a few days, and, as soon as the bird has ceased holding the foot up and the inflammatory condition has subsided, with a small brush paint the foot all over with a little iodine; this will act as an antiseptic and also case-harden the feet as it were, and causes no inconvenience to the bird.

FITS.—At times birds may become attacked by fits.

Symptoms.—A bird suddenly attacked will drop from its perch and flutter all over the bottom of the cage, it will then come to and hop on to its perch, shake its plumage, and go on feeding as if nothing had happened; later on another fit will occur, and the bird flutter as before, with sometimes its head drawn over its back; this fit may take a little longer to get over; after the bird is out of the fit he will make for the perch and there sit in an uncertain manner, more or less rocking backwards and forwards, and have a dazed appearance. The fits will attack him at very frequent intervals; the bird will have lost flesh and the flesh that remains will have turned to a dark or purplish tint, as if the blood had become stagnated, the bird's constitution becomes thoroughly undermined and a severe fit ends the bird's life, by its rupturing

a small bloodvessel, maybe on the brain or in the region of the heart.

Treatment.—On the very first sign of giddiness take the bird gently in the hand and wet the top of its head with cold water, as soon as the bird has recovered mix a little bromide in water until it is quite milky in appearance and let the bird drink it, let it have it for a whole day. If it refuses to drink, hold the bird, open the beak and drop 4 or 5 separate drops into the beak. Keep the bird on a low diet and in a quiet place undisturbed; the second day give a little Andrew's liver saline in the water, this will cool and thin the blood somewhat.

REVIEWS.

BIRD-LIFE THROUGHOUT THE YEAR.*

This is in every way an attractive book, and it has an attractive title. It is compact, well printed, and well illustrated. The story of bird-life is told month by month, and it is a bright and pleasant story, full of personal field observations: the volume will be found of real interest and usefulness by students of bird-life. If it has a fault, there is almost too much matter for the size of the book—birds' names come and go too quickly, often, and we should like to hear more about them. But now and again the author makes amends with a short word-picture, such as this:

“While in early April we had all the promise of early spring before us, early June carries that season to its completed perfection and rounded fulness. When, as sometimes, though, alas, not always, happens, its third week brings those ‘perfect days in June,’ when the garden is full of roses and when the first strawberries ripen, we feel that the coming months can have nothing quite so fair to offer. For all too soon the longest day is reached; the flowery wealth of the hay-meadows falls before the scythe; there is the blaze of charlock and the flaunting scarlet of poppies amongst the corn, and one feels that summer is here.”

* ‘BIRD-LIFE THROUGHOUT THE YEAR,’ by J. H. SALTER, D.Sc. London: HEADLEY Bros. Illustrated. Price 5/- net.

In the preface something is said as to the variety of bird-life to be met with in and about large towns and cities. We read that in some well-wooded private grounds within two miles of the centre of Birmingham eighty-six species of birds have been noted, and that thirty-six have bred. This recalls to our mind a similar careful record near Manchester, where, a few miles out on the north side (which is by no means the city's "rural" side), practically the same number of species have been recently observed.

In June, "the leafy month," very pleasing reference is made to bird-life. There is the real flavour of the woodlands in this chapter, something very stately and captivating, as for example:

"The 'Woodwele' is, of course, the Green Woodpecker. A forester born, he wears the Lincoln green, and his jocund shout rings full and mellow on the ear in every well-timbered district, whether it be amongst the great hedge-row elms of Warwickshire, the noble beeches of Buckinghamshire, or the sturdy oaks which love so well the clay soil of the Weald. Such oaks, which may well have had their prime in Shakespeare's day, still cast their shade upon the windings of the placid Avon."

Of November we feel that the picture of "its dark and dismal days" is overdrawn. November in the country is often far from being a bad month; and the author himself pays grateful tribute to the time of St. Martin's summer, which "never fails to bring us a day or two, sometimes a whole fortnight, when it is summer again for the few sunlit hours on either side of mid-day, when the flies still bask against a sunny wall and hive-bees visit the ivy-blossom for their last scanty potations of the year." These, indeed, are "halcyon days of kindly skies and placid sea," and very remote from being dark and dismal. The November bird news strikes us as particularly varied and interesting.

Is the author quite right in saying that the Hedge Sparrow's song always seems the same, either spring or autumn? It is easy, we think, to recognise in February, a marked increase of warmth and fervour in its pleasant lay. We are told that Turtle Doves cease to coo before the end of July; but, as a matter of fact, the note is often to be heard in early August, even, within our own observation, as late as the 19th. It is not correct to say that at

the end of July the Chiffchaff and Willow Wren commence to sing again. As a matter of fact, these two birds sing throughout the summer, though the songs are very feeble for a time, becoming stronger again towards summer's end. In our own experience, we find the Willow Wren's song uttered very faintly from about the 8th to the 24th July, yet it is a daily sound. We are well aware that dates vary in different districts, hence, though the author tells us that it is exceptional to hear the Thrush sing in August, such is not the case in wooded suburbs of Manchester.

Bird notes strike the ears of listeners differently, but it is hard to understand "gluck" as the call-note of the Redwing. Many observers liken the note to a frightened cheep—"zeep" or "seep." Again, we cannot recognise in "kek, kek," the note of the Brambling.

The monthly calendar strikes us as a weak spot in the book, as Nature calendars are often apt to be. While it is useful to note the approximate date when a bird begins to sing, we fear that it is only likely to cause confusion to note again the singing of the same bird indiscriminately. Thus, in several places we are told that the Tree Creeper sings; and, in early January, that the Robin, Hedge Sparrow, and Wren sing, though these three birds do so all through the winter. Under November 20th we read: "Bramblings at beech-mast"; these winter Finches find the beech-mast long before that date. The singing of the Hedge Sparrow is also noted in September, October, and November. However, criticisms are few, and the volume remains thoroughly useful, interesting, and entertaining.

JAMES J. CASH.

[Several of the illustrations of the work reviewed by Mr. Cash are from photographs of stuffed birds in the Natural History Museum at South Kensington. We see the pair of Kingfishers perched outside their nest burrow, still and life-like, yet hardly stiller than they would have been alive; the Kentish Plovers on the beach, their tiny young squatting and all but invisible among the rough yellow pebbles; the Stockdoves on their sandhill, their burnished necks aglow with a "livelier iris"; and the charming, altogether delightful Pied Wagtails creeping about the rough grass. These groups are absolutely life-like. It is successful taxidermy like this, *based on faithful avicultural study of living models*, that recalls the dictum of the

late Sir William Flower, that "an animal can be converted after death, by a proper application of taxidermy, into a real life-like representation of the original, perfect in form, proportions, and attitude, and almost, if not quite, as valuable for conveying information on these points as the living creature itself."—G. R.]

FOSSIL BIRDS.*

Dr. Shufeldt has favoured us with a reprint of his paper on the extinct avifauna of Vero in Florida. The fossils are of Pleistocene age, and were obtained by Dr. Sellards in November, 1916; as described by Dr. Shufeldt, they are very interesting, and the bones are illustrated by two plates comprising twenty-five figures. The series comprises relics of the Turkey Buzzard (*Cathartes aura*), the extinct Floridan Teal (*Querquedula floridana*), a Heron of unknown species, a Barn Owl (*Tyto pratincola*), and various Waders. One of the prizes of the collection is a type bone (carpo-metacarpus) of a new, but unfortunately extinct, Gull (*Larus vero*). The majority of the specimens are beautifully and distinctly figured in the plates bound up with the reprint.

G. R.

THE SOCIETY'S PRIZE.

After consultation with our late Editor, Mr. Astley, the Society's Prize in Literature for 1917 has been awarded to Lieut. Delacour.

The prize is offered annually by the Society for the best contribution to avicultural literature sent to the Magazine by members resident abroad. The papers sent in have maintained a high level of excellence, both as regards scientific accuracy and literary style. During the present year we have again received several contributions of considerable interest and merit, which will be published as opportunity arises. The Council has been well advised in stimulating aviculture by instituting this prize.

* 'Fossil Birds Found at Vero, Florida, with Descriptions of New Species.'
By R. W. SHUFELDT, M.D. From the Ninth Annual Report of the Florida State Geological Survey.

THE SOCIETY'S CERTIFICATE.

At the beginning of the breeding season members are reminded of the Society's Certificate. At the Council Meeting, held on June 19th, 1914, "it was decided to give a certificate for priority in breeding birds in cages, the dimensions of which must not exceed one cubic yard, the conditions of the award to be the same as those for the Society's Medal."

We would again draw members' attention to the desirability of disposing of surplus stock to our various zoological gardens, thus benefiting everybody in these days of few recreations. Such aviculture is indeed war-work.

ECLIPSE PLUMAGE.

The 'Avicultural Magazine,' consistently with its ornithic nature, is about to assume eclipse plumage. In other words, like so many other leading magazines, it will have to be temporarily reduced in size. This is entirely owing to the enormously increased cost of printing, which, for economy's sake, must be reduced in order for us to go on.

There is no lack of vitality in the Magazine; far from it. The Editor is able to report a much increased membership in spite of the war. He has a drawer full of copy, and fresh papers of great interest are continually being received. The number of new contributors is steadily increasing. The beautiful collection of photographs has again been enlarged. The correspondence column is well patronised; medals, prizes, and certificates are offered by the Council; in short, everything points to renewed vigour as soon as matters return to normal.

For the present, amongst papers awaiting publication are (1) an account of the capture of Birds of Paradise; (2) a reprint on the development and hatching of the embryo Ostrich; (3) an account of the Frigate Bird post of the Pacific.

The principal features of the Magazine will be continued as usual, and the Editor, with the continued support of his contributors, looks with confidence to the days that are to come.

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Lieut. HAMILTON SCOTT's home address is Hamildean, Ipswich.

DEATH OF MEMBER.

We greatly regret to announce that the MARQUIS DE SÉGAR has died. (Kindly communicated by Mr. Astley.)

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G. R.

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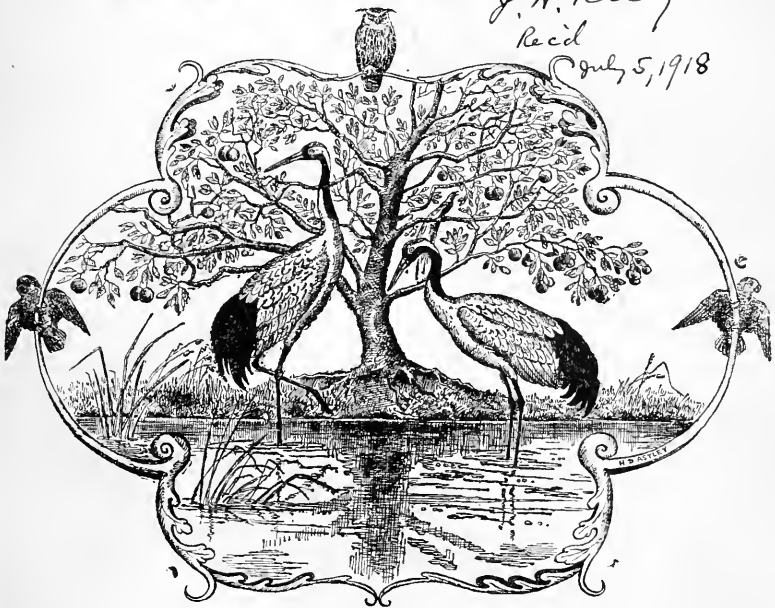
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AVICULTURAL MAGAZINE.

J. N. Riley

Rec'd

July 5, 1918



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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. [*Enclose stamp for reply.*]

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Dead Birds for *post mortem* examination should be sent to the Society's Pathologist, Prof. G. H. WOOLDRIDGE, Royal Veterinary College, Camden Town, London, N.W.

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Photo. by Commander S. F. Rotch.

TWILIGHT SLEEP.

AFRICAN BARN OWLS DOZING. THESE BIRDS ARE DARKER THAN THE EUROPEAN FORM.

THE
AVICULTURAL MAGAZINE,

BEING THE JOURNAL OF
 THE AVICULTURAL SOCIETY.

Third Series.—Vol. IX.—No. 8.—*All rights reserved.*

JUNE, 1918.

OWLS' NESTS AND THEIR CONTENTS.*

By J. H. GURNEY.

The Barn Owl is a quaint and useful bird, and, happily for agriculturists, it is generally distributed, so that there are few parishes of any extent in Norfolk where its weird shriek cannot be heard. A measure of protection is accorded to them, yet their numbers hardly seem to increase, which certainly is not for lack of field mice, of which we have plenty. As far as my experience goes in this county, the idea that they sometimes eat the young of tame Pigeons in dove-cots, though still prevalent, is absolutely without foundation. To-day, although the wind was not high, a large pollard oak near my house blew down, which I regretted the more because it had long been a haunt of the Barn Owl. As was to be expected, there were plenty of pellets in the cavity of its trunk, some of which were so dried that they may have been cast up twelve months or more. With some assistance I collected 114, and had them soaked in water. The result was the skulls, or portions of skulls, of 19 young rats, 126 long- and short-tailed field mice, 69 shrew mice, and 3 small birds, apparently Greenfinches—a pretty good testimony this to the utility of the Barn Owl! I have never seen a full-sized rat in a

* Reprinted from the 'Zoologist.'

Barn Owl's nest; generally they are about a quarter grown or less, and I can hardly believe they would tackle a large one. About June 9th Mr. Q. E. Gurney found the remains of two moles in a Barn Owl's nest, and this I regard as most unusual food, but it was in the same parish where a mole was found before ('Zool.,' 1910, p. 136)—a parish where these little burrowers are very plentiful. On revisiting the nest with my nephew on the 19th two Barn Owls flew out, but there were no more moles, only some mice pellets and one egg. On July 3rd there were five eggs, and on the 15th six. On the 27th three of them were hatched, and on August 4th the other two were hatched.

A Tawny Owl's nest with young in a pigeon-locker at Intwood, and about the same time another nest, also with young, was seen by Mr. B. B. Riviere at Colton. In the same locker a pair of Jackdaws were nesting, but the tame Pigeons had apparently forsaken it, perhaps from suspicion of such predatory neighbours. The Tawny Owl is apt to be very aggressive when it has young, and it is dangerous to approach the nest without a stick.

Three young Tawny Owls were observed by the gardener near an "owl-tub" at Northrepps, doubtless a family party. I believe there has always been one pair in this wood, except when the vindictiveness of game-preserving, or an accident—such as getting down a chimney—has spoilt it. Wherever they are they soon make their presence known; noticeable also is the constancy with which they cling to a suitable locality. In May Mr. C. B. Ticehurst saw a party of six young Barn Owls at Ellingham. I have never seen a nest with more than four nestling Tawny Owls. I omitted to state last year that from a Tawny Owl, shot near Norwich, Mr. Roberts took four large beetles, identified by Mr. H. Thouless as *Geotrupes spiniger* and *G. stercorarius*.

During July Mr. T. E. Gunn pointed out a Barn Owl heavily spotted on the flanks, belly, and lower chest, which had been sent in from North Walsham, remarking that in a long experience he had invariably found that the spotted ones were females. I have heard this before, and am surprised not to see it alluded to in any of our standard works as a sexual distinction.

A Barn Owl's nest in a hollow elm at Ellingham contained, in

addition to the usual mice pellets, the skin of a mole and a freshly-killed frog. An instance of their feeding upon frogs is given in 'British Birds,' vol. v, p. 113, but it must be very uncommon. Neither Altum nor Fernard Lataste include the frog in their lists. For a Tawny Owl to offer its young a toad ('Zoologist,' 1913, p. 231) is still more remarkable, for the toad is a most unpalatable creature. On this occasion, besides the young Barn Owls, both the old ones were present in the elm-tree, which again is not customary when the young have attained a large size.

Little Owls which had escaped the enemy were seen in 1914 at Honingham by Dr. Deacon, near Swaffham by Mr. Buxton, and at Surlingham. This species, which was first introduced into Norfolk by the late Earl of Kimberley, would undoubtedly breed in the country if it were not so persecuted.

The Rev. E. T. Daubeney finds that this Owl is partial to centipedes, and in the gizzard of one which was unintentionally trapped at Costessey, Mr. B. B. Riviere discovered only beetles' wing-cases. A motion before the County Council to except this species from the Norfolk schedule of protected birds was not carried, which shows that it is not altogether without friends among our land-owners, the majority of whom know that the good it does outbalances the killing of a few Pheasants. Indeed, an excellent plea in its defence may be made out by the admirers of this comical little Owl.

WHAT DID WE DO IN THE GREAT WAR? THE AVICULTURAL SOCIETY AND NATIONAL SERVICE.

It has well been said that the domain of Nature is, like a net, everywhere connected: each portion acts and reacts upon all the others. To take one instance only, the study of two-winged flies only a few years ago was a neglected science, and the total number of dipterists but small; to-day the dipterist is a very important person, since the rôle of mosquitoes and other two-winged flies has been recognised in the dissemination of disease.

A great Society like the Avicultural has in this world-war a part to play peculiarly its own. Formed for the express purpose of studying British and foreign birds in freedom and captivity, both material and opportunity are close to hand. The food question is a pre-eminent and vital problem of any bird study. How often in the past has one asked oneself, "What does it eat?" and how often in back numbers of this Magazine does one meet with inquiries on the diet of birds! The eminent specialists who answered such inquiries have accumulated in these columns a valuable record of the best food for practically any kind of bird, from Hummers to Ostriches. The Society's pathologists, again, in their *post-mortem* reports have done yeoman service to applied ornithology.

The Editor, therefore, asks for more papers, letters, or notes on the food of birds, *with especial reference to agriculture*: whether they waste or safeguard the food of the nation; whether they destroy pests or are pests themselves; whether they should be encouraged or discouraged; their methods and times of feeding; periodical migration, whether this is complete or partial; whether they are simple or mixed feeders—*i. e.* whether wholly, partly, or not at all insectivorous. This inquiry practically covers the field of a regular ornithological bureau, and the results published in the Magazine—a convenient permanent record ready to hand—should be of great value.

Already the Editor has received some good papers on the subject. Theses on bird food are, of course, no new feature of the Magazine; for instance, one may mention Dr. Butler's model paper on living food for insectivorous birds, published in the Magazine some years ago, and reprinted in 'Practical Bird Keeping,' the book chosen by the Council to form the Society's annual prize in literature. In this species of war-work the Editor asks for more and yet more papers on the food of wild birds in relation to the crops; it is a national department which is essentially the domain of this Society, peculiar to aviculturists and to aviculturists alone.

"As the nation moved the king moved, leading it but not outrunning it," wrote Froude of Henry VIII; and similarly we aviculturists have a unique opportunity of guiding and influencing the practical application of our favourite study.

G. R.

THE FOOD OF BIRDS.*

By J. H. GURNEY.

In a "Nature Study" exhibited at the Castle Museum, arranged by Mr. F. Leney, the results of planting the contents of a Partridge's crop were shown. Nothing had come up except harmful weeds, including bindweed (*Convolvulus*), *Persicaria*, white goosefoot, and annual *Poa*. The bird was sent up by Mr. Colman, and had been killed near Norwich. A Partridge dissected in Scotland, also in May, by Miss L. Florence, contained many seeds of the sorrel, sheep's sorrel, and spurrey (*Spergula*). These facts are commended to the attention of farmers.

The following plants have been identified by the School of Agriculture at Cambridge from the crops of Norfolk-killed Pheasants: *Ranunculus ficaria*, *R. acris*, *Taraxacum officinale*, *Plantago lanceolata*, *Galium aparine*, *Galeopsis*, *Chenopodium album*, *Brachypodium*, *Silene*, and *Polygonum*. That both Partridges and wild Pheasants do more good than harm can hardly be questioned, but when great quantities of tame Pheasants are reared, nature is altered and they become destructive.

Norfolk farmers have long had a grudge against the Starling for grubbing up the autumn-sown wheat, which it begins to do as soon as the blade is 2 in. high, sometimes for the sake of the germinating grain, sometimes for the wireworm or other grub to be found at its roots; but in either case the young corn shrivels and turns yellow. Their diggings are from 3 to 12 in. long, or even to 24 in., and are always where the drills run. Besides these iniquities, Starlings also take a great deal of hard corn which is put down for tame Pheasants, both at the coops and afterwards. At the same time we must not paint the Starling blacker than he really is, for he eats insects, as numerous dissections have proved. The researches of Mr. J. Hammond, Mr. W. E. Collinge, Mr. R. Newstead, Mr. J. E. Kelso, and Miss L. Florence have established beyond question that insects may be considered as the Starling's staple food for more than half the year.

* Reprinted from the 'Zoologist.'

The Food of Rooks and Wood-Pigeons.—My bailiff has again dressed his wheat with “corvusine” (see ‘Report,’ 1911), and I hope it has protected it from Wood-Pigeons and Rooks, for wheat at thirty shillings a comb is worth taking care of. Steeping the grain in brine is held of no use, and some farmers still have an objection to “corvusine,” which, in any case, is not often employed for barley or oats. The Rook is in little better favour than the Wood-Pigeon. Mr. B. B. Sapwell, who generally speaks on behalf of the farmers, writes: “Rooks do much harm to swedes during the winter: they search the rings for any partially exposed roots, and with their powerful beaks peck great holes in them; rain-water settles in these holes and rots the roots, and the frost gets hold of these exposed places.” It has been truly said that the Rook does an immense amount of harm, but some amount of good, which must not be forgotten. Whatever redeeming qualities there may be in the Rook and the Starling, there are no two opinions as to the destructive character of the Wood-Pigeon. In January the Wood-Pigeon is generally content with acorns, but it is almost the only month in the year in which some crime cannot be laid to its charge. In February they pick out the heads of the red clover, which is coming for hay on the new leys, while in March their presence on the newly-sown barley is much too frequent to be acceptable. They are not accused, however, of picking out the grain like Rooks, but are considered to content themselves, as a rule, with what the drill scatters upon the surface. In July they are very fond of oats, besides attacking the young swede crop, which is soon ruined, while in September ripe elderberries are to their taste, and, later, beech-nuts become the favourite food. Of acorns I have often found so many and of such a size as to be astonished that their crops did not burst with them. The rapidity with which they can digest such hard food is equally incredible, and it is a saying that a Wood-Pigeon will eat its own weight in a day! As far as the eastern counties are concerned, any increase in this species is not so much due to the killing down of birds of prey as to the great amount of land which is planted with green crops, which are greatly to their liking.

As a set-off to the destructiveness of the Sparrow and the Wood-Pigeon—and, I am afraid, we must add the Rook—the

ornithologist can point to the benefits conferred on man by the Barn-Owl, or White Owl, as it is termed. The Owl is one of the seven birds which receive throughout the administrative county of Norfolk a so-called protection by order of our County Council during the whole of the year, but if the word "Owl" is to be understood in a generic sense, I fear the law here is little better than a dead letter. There is one engine of destruction, the pole-trap, which

Contents other than Fish found in Black-headed, Common, and Herring Gulls.

	Black-headed Gull.	Common Gull.	Herring Gull.
	Per cent.	Per cent.	Per cent.
FISH of all varieties present in	28.0	24.5	18.2
„ useful as human food present in	13.5	17.5	10.4
„ useless as human food present in	14.5	7.0	7.8
MARINE FOOD OTHER THAN FISH :			
Shrimps (<i>Pandalus</i> and <i>C. vulgaris</i>)	27.0	14.6	5.2
Lugworms (<i>Arenicola marina</i>)	7.6	2.4	—
Ragworms (various <i>Polychæta</i>)	6.7	3.7	—
Molluscs	4.8	3.7	7.8
Small Crustacea	8.5	2.4	2.6
Crabs (various shore Crabs)	7.7	7.3	16.9
Echinoderms—			
Starfish, Brittle Stars, Sea Urchins	—	—	18.2
Whelk-spawn (<i>Buccinum undatum</i>)	—	—	10.4
LAND FOOD :			
Earthworms	18.3	18.5	6.5
Wireworms	3.8	.0	.0
Beetles	9.6	1.2	1.3
Craneflies	5.7	11.0	1.3
Other insects	3.8	8.5	1.3
Cereals	2.9	11.0	19.5
Garbage	3.8	13.4	11.7

used to kill all comers—Owls, Hawks, Cuckoos, Woodpeckers, etc.—but this, having become illegal in 1904, is much less used than formerly, although there are still several gamekeepers who employ it, being unaware that they are thereby rendering themselves liable to a fine of forty shillings.

In October and November the farmers round Norwich are fond of manuring their fields with what are sold as "gyps," *i. e.* the gills and insides of Herrings. As eight hundred and twenty-four million (824,000,000) Herrings were brought into Great Yarmouth this autumn, "gyps" were cheap. Unless this unsavoury garbage

is ploughed in quickly it becomes a great attraction not only to the Black-headed Gulls, but to the larger species too, which somehow find it out, and come inland in large numbers, so that it is not unusual to see two hundred Gulls on a single field, and that even in mild weather, when there ought to be no shortness of other food. Whether these Gulls are to be regarded as migrants or as partial residents is hard to say.

In this connection reference may be made to the Report recently issued by the Suffolk and Essex Fishery Board on the food of Gulls, and since brought before the Norwich Museum Association, in which the foregoing analysis (p. 231) of a number of dissections is given.

THE PROTECTION OF BIRD LIFE.*

By SIR JOSEPH CARRUTHERS.

Some five years ago I had a conversation with Mr. Holman and interested him in the matter of legislating to protect our bird life. He promised me that he would introduce a Bill to Parliament for that purpose, and on three occasions the matter was mentioned in the Governor's Speech on the opening of a Session. The great war intervened, and no doubt has caused the matter to be relegated to the background.

I would not now revive the question at this time if it were not that I regard it as even more necessary now, than ever before, to legislate to protect our birds. After the war food will be required for man and beast in greater quantities than the world may be able to produce. Also every country will be in need of increasing its production not only to feed its people, but to make money to pay its war charges. Moreover, cattle and sheep will be in more demand than ever, and anything that will increase the numbers will be an immense help to any country.

I propose to show that we can increase production of crops

* Communicated by Mr. R. Colton, from the 'Sydney Daily Telegraph' of October 12th, 1917. Sir Joseph Carruthers was formerly Premier of New South Wales.

and add to our flocks and herds by protecting our birds. I also propose to cite authorities to show that the loss from the destruction of birds in a reckless way entails indirect loss of immense returns that would be garnered if birds were in normal numbers.

In the United States of America it was estimated by the Government experts at Washington that the ravages of insects and rodents, which would have been kept in check by birds in normal numbers, caused an annual loss of £200,000,000—a colossal sum.

The list of losses is given in detail with the birds that formerly kept the pests in check. In one year in Indiana and Ohio insects destroyed 2,577,000 acres of wheat, due to an irruption of insects following upon the almost total obliteration of their natural bird enemies. The result not only was a shortage in the wheat production of over 40,000,000 bushels, but an increase in the price of flour.

In Pennsylvania an Act was passed giving a bounty on every Owl or Hawk shot. This was in 1885. After a few years the Hawks and Owls were almost exterminated, bounty being paid on 180,000. What was then the result? In a few years rats and mice so increased that in one irruption or plague the farmers of Pennsylvania lost £962,000 worth of damage to their grain. Needless to say, the Legislature repealed this Act.

Without desiring to unjustly intrude the subject of bulk-handling of wheat I venture to say that the farmers of Australia have suffered in this year more from the destruction of bird life, which has allowed plagues to breed, than from any old-fashioned system of handling wheat.

In Australia Hawks are shot at sight where other birds are spared, being regarded as not only a useless bird but as vermin. I have seen at Jindabyne for the past ten years great numbers of small Hawks on the ground, especially in one or two paddocks. I have puzzled myself as to what attracted them there, until I found that they were mainly killing and feeding on field mice. I have shot two or three Hawks which were attacking the poultry, and I did so with great reluctance because I am sure that for one chicken taken there were hundreds of mice destroyed. It is, perhaps, but little known that mice are fairly plentiful in most

pastures and fields in Australia, and unless their bird enemies are protected they must periodically assume plague numbers.

The cotton crops of the Southern States of America have recently been threatened with serious damage (in fact, damage to the extent of £30,000,000 was done in one year) from the cotton boll weevil. It was proved that the absence of bird life was causing the weevil plague, and now from bird protective measures the plague is being eliminated.

The Quail, strange to say, has been found in the Southern American States to be one of the checks upon cotton boll weevil.

In Jamaica, bird life was being, and, I am afraid, still is being, ruthlessly diminished. Whether it be from the mongoose or from the gun the result is the same. One consequence has been that ticks increased to such an extent that the keeping of most breeds of cattle has become impossible. In 1909 a deputation of residents brought this fact before the notice of the Secretary of State for the Colonies.

(To be concluded.)

ANCESTRAL CHARACTERS IN NESTLINGS.

By ARTHUR G. BUTLER, Ph.D.

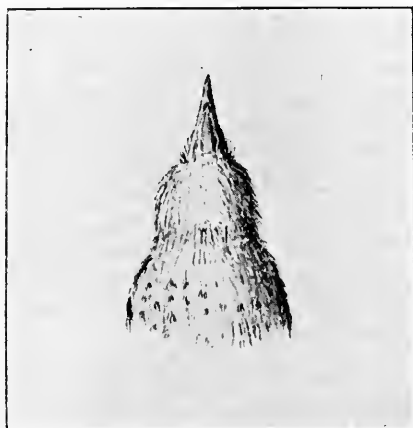
(Concluded from p. 213.)

It is, of course, well known to all of us that many young birds much more nearly resemble their mothers than their fathers, and that this is necessary in order to render them inconspicuous when in the nest or when skulking among undergrowth or on the ground: as they become adult and vigorous the males cast off this protective camouflage and appear in full dress, but the young females change considerably less. On the other hand, when the parents are nearly alike and the young alone are protectively coloured, as in some of the Pigeons, the change is necessarily similar in all the young.

Now, if we accept the view that the colouring of the nestling is of an early ancestral character I think we must also admit that, where the female nearly resembles her young, or where both parents approximate in general colour and pattern to that of their young,

the character of plumage which they still retain is of far greater antiquity than that of birds of more specialised and striking appearance. Of course, in the first case, the male has been differentiated by sexual selection, and in the second the colouring has been retained for protective purposes; whereas in the Pigeons referred to the female has inherited her colouring through her male ancestry.

Now, if we admit this, would not the result of hybridising birds in which the sexes resembled each other with those in which



A spot-breasted nestling Sedge-Warbler.

they differed greatly, tend to produce females with partly developed male characteristics? If so (and it ought to in my opinion), would it not throw light upon the process by which the female colouring was modified so as to resemble that of the male? It would be an interesting experiment.

As recorded in 'British Birds with their Nests and Eggs,' I caught a bird in my garden which I concluded was a Thrush and Blackbird hybrid, the upper parts being deep smoky brown, the chin and throat white streaked with dull black; the breast in certain lights showing traces of the true Song-Thrush spotting; the bill, which was formed like that of a cock Blackbird, was deep orange with the basal half of the culmen black; the feet were yellowish horn-brown.

I held this bird in my hand while Mr. Frohawk made a careful drawing of the head and breast, and this was produced as a cut in the letterpress of the book (vol. i, p. 22). Eventually I liberated this specimen, and later I heard a bird singing a quaint medley of the songs of both species in my son's garden next door. Of course, a wild hybrid constantly hearing the songs of both of the parent species would be likely to muddle them up.

The above hybrid should be easy to breed in captivity, and an examination of undoubted authentic examples would, doubtless, be more satisfactory. All the typical Thrushes seem easy to hybridise, since I not only crossed the Grey-winged Ouzel with a hen Blackbird, two years running, in a garden aviary; but some years ago, as noted in 'British Birds,' a Ring-Ouzel paired up with a Blackbird and nested in a hawthorn hedge in my garden, the young remaining about the place for some weeks afterwards; indeed, I saw them after the autumn moult.

Although the males of both *M. merula* and *M. bouboul* differ greatly from their females, the hybrids were interesting, the males being less black than either species, and having a red-brown patch on the wing similar in character to the whitish-bordered grey patch on the wing of *M. bouboul*; the females differed a good deal, one being much paler than the other, and nearly resembling the ordinary female of *M. bouboul*.

In the case of the young Ring-Ouzel \times Blackbird hybrids, the band across the throat varied somewhat both in form and width; in colour it resembled that of *M. torquata* in both sexes. I was told that I ought to have taken these birds and kept them, but I never interfere with nests built in my garden, nor should I think of doing so with the mere object of convincing sceptics that I could recognise so well-marked a species as our Ring-Ouzel: its characters are very well defined, as every British ornithologist is aware.

My conclusion, therefore, is that the plumage of nestlings generally is much more antiquated than that of their parents; that those nestlings which exhibit the dullest and most uniform colouring are exponents of the most ancient type of plumage; that those adult birds which most nearly resemble their young represent an earlier type of colouring and pattern than those in which the parents have

been differentiated; and that where the females alone, or in a few cases the males alone, have retained a general resemblance to the young, their plumage obviously points to an earlier date than when both sexes have assumed a well-marked and more striking dress.

These ideas may have occurred to other bird-students, but I have not seen them definitely expressed in print. Of course, they have no value in the eyes of the systematist, because colour and pattern may be modified without any great change in structural characters; but I think they are of interest as an indication of the continual improvement in the world's inhabitants. Our prehistoric ancestors probably had little appreciation of beauty in Nature, and, therefore, it would have been wasted upon them; but to us who can fully enjoy it, the glorious colouring of many birds, butterflies, and blooms is a constant pleasure: so it is a cause for gratitude that man is not the only living creature who delights in beauty, for had that been the case sombre colouring might have prevailed in Nature.

LYNMOUTH BIRDS AND THE WINTER OF 1916-17.

By T. H. BRIGGS.

The effect of the winter of 1916-17 on bird-life here was disastrous. Thrushes especially suffered; excepting one Mistle Thrush (*Turdus viscivorus*), singing on March 5th, not one of the genus was seen or heard until November 19th, when a Song Thrush (*T. philomelus*) was heard, and a Blackbird (*T. merula*), on the 22nd and 23rd. During December, however, a few Song Thrushes were heard and seen, all of which, when I could get near enough to identify them, were *T. philomelus clarkei*.

None bred here, although for the last twenty years Thrushes and Blackbirds have always built in our garden, and reared their young. Of those found dead in the spring, all died of starvation, and it was no use feeding them, as our house is close to the sea, and the Herring Gulls on the water got the food first.

Robins, Hedge Sparrows, and Chaffinches almost entirely

disappeared, although a few of these birds returned at the end of the year, but in nothing like their old numbers. The genus *Parus* also was decimated, as the Blue Tit (*P. cæruleus obscurus*) was the only one of the genus whose young we saw. The Great Tit (*P. major newtoni*), the Cole Tit (*P. ater britannicus*), and the Marsh Tit (*P. palustris dresseri*), also nested here. Wrens alone did not seem to have suffered from the winter. The migratory birds do not seem to have been influenced by the weather, excepting in the case of the genus *Phylloscopus*, very few Chiffchaff (*P. collybita*) being seen or heard, and not one Willow Wren (*P. trochilus*), or Wood Wren (*P. sibilatrix*).

Some migrants were more abundant, Flycatchers (*Muscicapa striata*), for instance, several pairs of which built, bred, and reared their young broods here. I am also glad to say that last year I saw more Swallows and House Martins than I have seen for some years past.

I do hope that in the coming spring it will be found that some songsters may have survived, and will return and breed here again, as last spring all the woods round here were absolutely silent of bird song.

AVICULTURE AND AGRICULTURE: OUR DUTY TO BELGIUM.

The Editor 'Agricultural Magazine,'

54, Hatton Garden, E.C.

DEAR SIR,—With a view to making a thorough investigation of the possibilities regarding the industrial reconstruction of Belgium, we solicit the regular service of your periodical.

We consider that a leading technical paper such as the 'Agricultural Magazine' ought to be consulted by the numerous Belgian manufacturers and business men who are attending the meetings of our industrial relief committees. We feel sure that our countrymen will be interested in the various technical topics and economics raised in your paper. They will possibly consult your

advertisers as regards the purchase of machinery, technical equipment, and products necessary for the rebuilding of their mills and plants.

The most important American periodicals have promised to put our name on their free lists, and we think we are right in assuming that you will probably grant the same favour to our committee.

Thanking you in anticipation, we are, dear Sir,

Yours faithfully,

CONSEIL ÉCONOMIQUE DU

GOUVERNEMENT BELGE.

Cannon Street House,

110, Cannon Street,

London, E.C. 4.

[A reply was sent to the above letter, suggesting that a mistake had been made, and that aviculture had been confused with agriculture. We then received the following]:

The Editor, the 'Avicultural Magazine,'

Bridge House, Sale, Manchester.

DEAR SIR,—Referring to your letter of the 9th inst., allow me to point out to you that a special agricultural and avicultural section has been formed among the Belgians temporarily living in England, for the sake of investigating the problems relating to the relief of these industries.

Under the circumstances, I would very much appreciate the services of your magazine, it being understood that the members of our committees will no doubt be very much interested as regards the topics raised in your paper, and they will surely consult your advertisers in due course as regards the re-equipment of their poultry and avicultural plant, birds' food, etc.

I am, dear Sir, with thanks,

Yours faithfully,

CONSEIL ÉCONOMIQUE DU

GOUVERNEMENT BELGE.

Cannon Street House,

110, Cannon Street,

London, E.C. 4.

[Poultry, pigeons, and canaries being outside the scope of the Society, the assistance we can render the Belgian committees will

obviously lie in the study of the food of birds, in relation to their harmfulness or otherwise to crops. We have already received a valuable paper on this subject, and we ask as many of our members as possible to contribute further similar material to the Magazine. In this way, as aviculturists, we shall be able to "do our bit."—G. R.]

A MONOGRAPH OF THE PHEASANTS.

We have received from Messrs. Witherby & Co. the prospectus of Mr. Beebee's monograph of Pheasants. The work is to be issued in four volumes, with numerous coloured plates, maps, and photographs. It deals with the Pheasants of the world, their nests and eggs. Seventeen months' work was expended in the field; twenty countries were visited; nearly one hundred species are included and described. The coloured plate sent is a fine delineation of the Western Tragopan. The price of each volume is £12 10s.

THE SOCIETY'S GARDEN PARTY.

As announced in our April issue, this pleasant annual function will be held on Friday, June 28th, at the Zoological Gardens. After the Council Meeting afternoon tea will be provided for members of the Society in the Fellows' Pavilion at 4.15.

The bird collection now in the Gardens is of considerable interest. Mr. Seth Smith writes to say that the Summer Aviary is stocked with Weavers and Doves, and there is a pair of Southern Triangular Spotted Pigeons just out of the nest. A Silkie Bantam is in charge of two newly hatched Red Grouse, the eggs having been sent from Scotland. There is a White-necked Crane incubating a single egg.

In view of the manifold activities of the Avicultural Society it is expected that this gathering will be as successful and enjoyable as that of last year.

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

PROPOSED CANDIDATES FOR ELECTION.

Mr. J. K. MOIR, "Normanton," Young Street, Albury, N.S.W.

Proposed by Mr. C. H. A. LIENAU.

Mr. J. WEIR, Douglas Cottage, Upper Ashley, New Milton, Hants.

Proposed by Dr. GRAHAM RENSHAW.

NEW MEMBERS.

Mr. T. H. BRIGGS, Rock House, Lynmouth, N. Devon.

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Major GEO. M. NELSON, Boraston Knowe, Blackhall, Midlothian, N.B.

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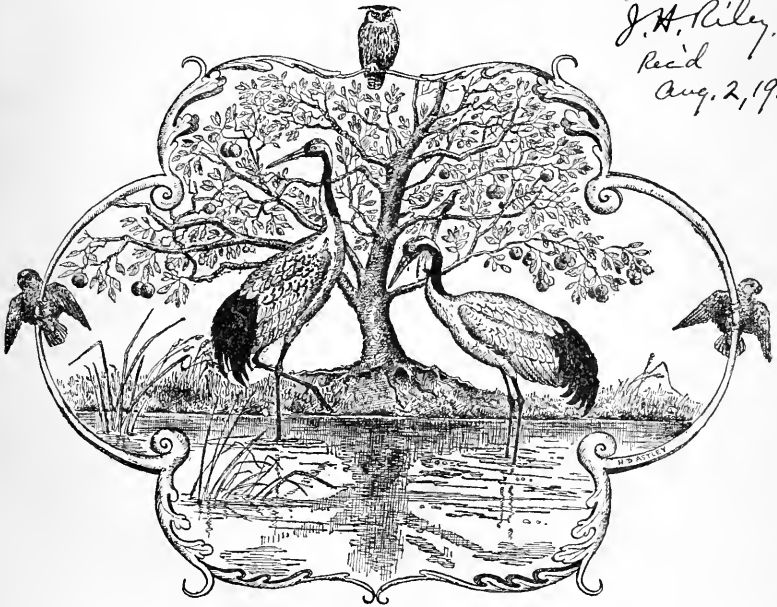
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AVICULTURAL MAGAZINE.

*J. H. Riley,
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JULY,
— 1918. —

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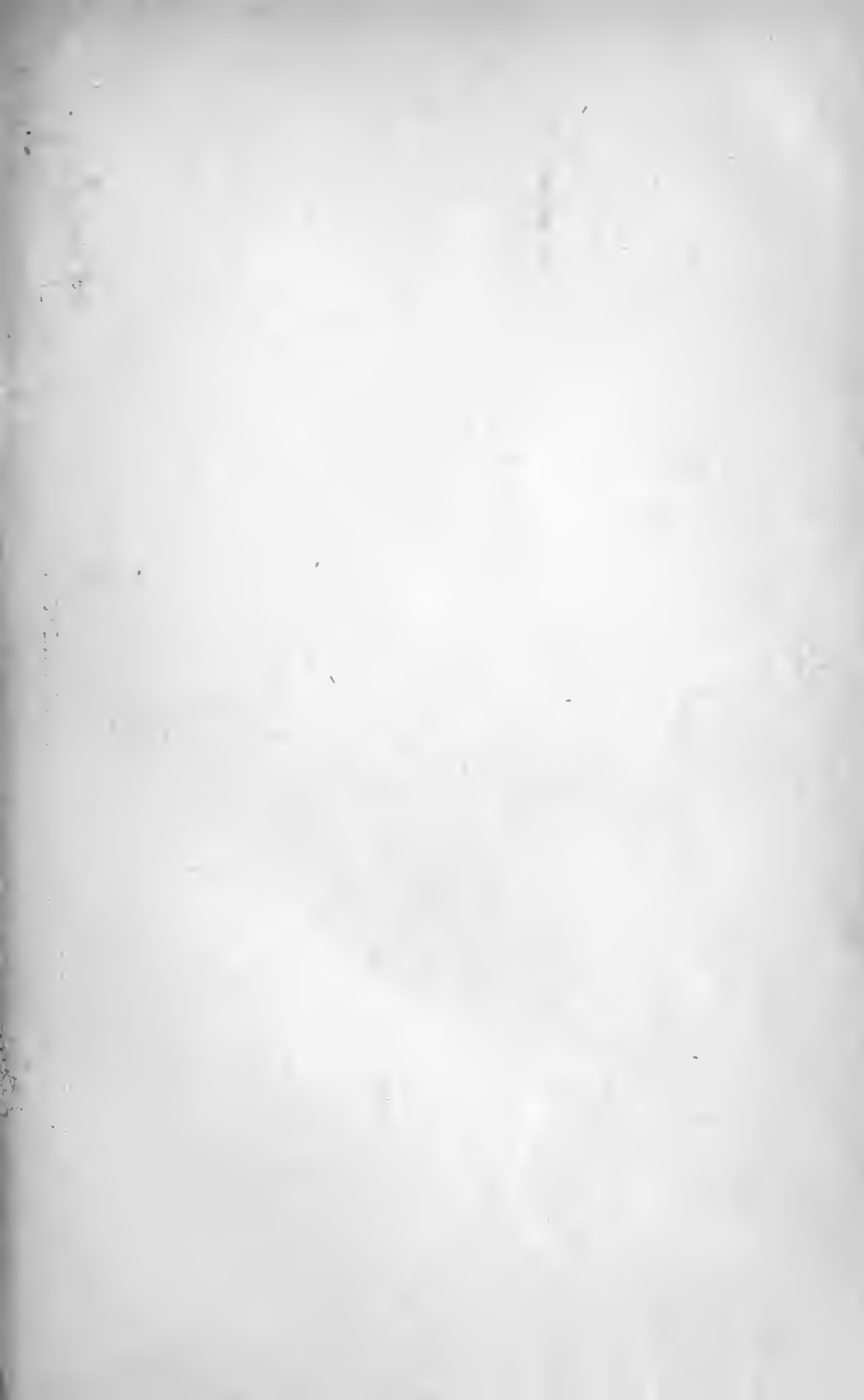
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THE BIRTH OF A NATION: PUFFINS BREEDING ON THE SALTÉE ISLANDS.

Photo. by G. E. Low.

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JULY, 1918.

PUFFINS ON THE SALTEE ISLANDS.

By G. E. Low.

These islands, which lie off the coast of Wexford to the south-east of Ireland, are distant from the mainland just over three miles, but are connected with it by a bar or ridge, which is partially submerged and partly tidal, the latter portion being called St. Patrick's Bridge.

These bars, between the mainland and Little Saltee and between the two islands, are evidently attributable to the accumulation of shingle and stones at the meeting points of opposing currents on the west and east of the islands.

The islands are mainly composed of gneissose or foliated granite, traversed by numerous faults and breaks, which are responsible for the indented character of the coast line. In the large island the rocks are slightly more varied, and some basic dark green hornblende rock occurs, as well as a true granite, near the landing place.

This paradise for sea birds can be reached by rail from Dublin to Wexford, thence by car to Kilmore Quay, the remainder of the journey being accomplished by boat.

I visited the Greater Saltee, where the photos which accompany this article were taken, some years ago.

The surface of the ground is gently undulating, frequently covered with large boulders of local and other rocks. Not much soil occurs, except in localities favourable for its accumulation and preservation. What does occur is rather of a gravelly nature and less clayey than on the mainland. In places on the southern cliff slopes it is distinctly loamy or sandy, and is much burrowed into by the numerous colonies of Puffins which congregate there.

I should think these birds outnumber all the other marine species which breed on the islands combined. So numerous are the burrows that, in moving along the breeding slopes, one constantly sinks ankle-deep in the sandy loam of subterranean tunnels.

As we pause to rest on the upper slopes, we get some impression of the vast number of this species inhabiting the island.

A constant stream of birds descends from the various burrows to the sea with clumsy flight, their little orange webbed feet extended behind and appearing to assist in directing them.

At the same time the air is full of Puffin life flying in a wide circle out to sea and back over the headlands. As the birds pass over the land the tired ones fall out and drop to earth, eventually forming large companies. The direction of their flight, so far as I recollect, was invariably with the hands of the clock, looking from above, but I imagine this must be largely governed by the direction of the wind, as presumably they would land with greater facility against it.

Their demeanour, as they sit in large battalions, is most amusing; with gaze full of curiosity fixed on the intruder, the more daring ones occasionally move a little closer with quaint waddling gait, on their feet and heels, in order to get a better view.

As it is possible to approach to quite close quarters, "Tommy Norie" can easily be caught with a fishing-rod, to the end of which a fine copper noose is attached. By the exercise of some skill and a little patience this is slipped over his head, and the astonished and very much annoyed bird soon finds himself suspended in mid-air.

We amused ourselves for a while at this game, subsequently releasing our captives.

On the Island of St. Kilda, west of the Hebrides, Puffins are captured for food in large numbers by rows of horse-hair nooses

attached to a central string, weighted at each end. This is laid on a rock frequented by the birds, and, as they alight, their feet become entangled.

I made no inspection of nests. I have had some experience of dealing with Parrots, and have learnt that it is wise to approach any bird with some degree of care, even if it is quite light; and the prospect of meeting a Sea Parrot's beak in a lonely dark burrow, without warning, did not greatly appeal to me.

Evidences of the presence of plenty of young birds were not wanting, as parents constantly returned from the sea with small fish, three or four deep, held in their beaks, and one's pity was excited for the poor wee fish in the back row, as each new arrival in front must have meant an additional squeeze for him!

Puffins, as is generally known, are migratory, arriving (in a fog, according to the legend) early in April and departing with their young by the end of August. They only lay one egg.

Many other species, including the following, breed on the Saltees, some in very large numbers: Greater and Lesser Black-backed, Herring, and Kittiwake Gulls, Razorbills, Guillemots, Cormorants, Oyster-catchers, Manx Shearwaters, etc.

As an evidence of tameness, I might mention that, when engaged in photography, I climbed down to a point of rock on which several Guillemots were sitting. All but one, which was covering young, flew away. She refused to budge, and allowed me to stroke her and even close my hand round her neck.

From this point I could almost touch young Kittiwakes in nests above my head, and a Cormorant sat on her nest lower down making very unpleasant faces at me from time to time.

One could very pleasantly devote a week, in the breeding season, to studying the bird life in this large unwired aviary $1\frac{1}{4} \times \frac{1}{2}$ mile in extent. My brief visit was limited to a few hours, most of this time being spent with the Puffins. I must therefore offer an apology for a very incomplete and indifferent impression from memory, and I should mention that I am indebted to a friend—a geological expert—for any references as to the geological formation of the islands.

BIRD AND NATURE NOTES IN IRELAND.

By CHARLES J. RENSCHAW, M.D.

Our first sojourn was at Dublin, a city well worth a visit. It was an extraordinary sight to observe the Sea-gulls in the midst of a city; but amongst other water-fowl we saw no less than three kinds. There is an excellent Zoological Garden close to that of Botany, in which time may instructively be passed.

Our journey led us from Dublin to Galway, and on to Recess, a station on the line to Clifden. It is close to Lough Glendalough, in which large pike may be found, trout, and other fish. At Cashel, the walk over the hill to the Holy Well is like passing over a bed of moss, soft in heather and purple in August. A boat can be hired here for fishing or for a visit to the kelp burners; the burning of the kelp or thick seaweed for the making of iodine and bromine pays well, and, in addition, lobsters can be caught and sold. Near Ballinabinch grow many beautiful ferns, amongst them the holly fern: the beautiful so-called Mediterranean heath of two colours was also luxuriant.

As we drove along the coast road to Leenane the cry of the sea-bird as it flew in close to the billows gave variety: here was a brilliant hedge of red fuchsia, there a field of beautiful red weed. Our course took us into a valley surrounded by high mountains: hills of sapphire blended with the green of the grass and the purple of the heather. Life, too, was there: several species of butterfly flew past us: a large Hawk soared gracefully above. A Kingfisher flashed past in rapid flight: the shrill whistle of the Curlew was heard on the mountain as we disturbed him on his feed. The waterfall at the head of Killery Bay had a pretty effect as it bounded from rock to rock, making a salmon ladder to a rivulet beyond.

On Achill Island the rocks are sublime. The marine fern was out in its beautiful green, but most difficult and dangerous to approach: the children, however, scrambled like goats for it. We passed the ruins of Mr. Boycott's house. At the sale of his effects his goats fell to a farmer, but there was no contract to deliver, so the unlucky purchaser was told to catch the goats. He being unable

to do so, they escaped to the mountains, and increased much in number—anyone can have a shot at them, and a head of one, if he be successful, for a sovereign.

THE PROTECTION OF BIRD LIFE.

By SIR JOSEPH CARRUTHERS.

(*Concluded from p. 234.*)

In the zone of the Panama Canal there are so many venomous insects that the President of the United States (Mr. Wilson), has issued an order under expert advice prohibiting the destruction of any wild bird there.

Lord Kitchener, when administering the affairs of Egypt, issued a Khedival decree forbidding the catching or killing or taking of the eggs of any insectivorous birds. The Egret, may it be mentioned, is a heavy feeder on the cotton worm; yet it was being destroyed in Egypt for its plumes.

In India it was found that dams for irrigation works were being destroyed by crustaceans boring into the earthworks. There, too, it was found that the Egret was of enormous value in keeping these crustaceans in check.

The Egrets in Riverina may yet be wanted for the benefit of the irrigationist and the farmer rather than for the feather dealer. The Ibis and other Long-bills or Spoon-bills are voracious feeders on the grasshopper. On Monaro grasshoppers are a chronic curse with summer, and the Ibis are now comparatively rare for some reason. I always regard a flock of Ibis on my place as worth a fair sum of money to me. The misfortune is that the man with the gun or with the pea-rifle will not only trespass, but will drive away these birds, after potting one or two for sport (so-called).

I could go on giving instance after instance, and fact upon fact, to show that the wild or native birds of every country are there to benefit the farmers, the fruit-growers, and the stock-breeders but unfortunately, they are destroyed because at times hunger compels them to steal a chicken or some fruit or because the man or boy with a gun wants to destroy life.

Mr. Froggatt, our able naturalist, has given many valuable

addresses on this subject, and he can give evidence that would show the necessity, on grounds of national economy, to protect our wild birds.

The sheep-fly is becoming the curse of our great pastoral industry. Its appearance synchronises with the disappearance of many of the birds that would keep the fly in check.

I personally have comparatively little loss from sheep-fly, but all the same I have much trouble in combating it. The Starlings seem to help to check this plague, yet I know that in other parts the Starlings are abundant and seem to produce no mitigation.

Investigation on this subject is needed before one can give any opinion of value. This I do know—that on the Snowy River the insect life that abounds in the air is of the wasp and gnat species, and these, or some of them, attack blowflies. It may be said that bird life would destroy these gnats and wasps. So it happens; yet there seems to be so far no disturbance of Nature's balance. I am satisfied, too, that the birds prefer the bigger fly to the swift flying and small gnat.

Rabbit-poisoning is blamed for the destruction of our native birds. It may be a well-founded blame, yet I am bound to say that I have seen no dead birds after the poison-cart has been used at Jindabyne, but care has always been taken so as to bury the baits well—using a deep furrow and a heavy covering chain. Dead rabbits undoubtedly breed the flies, but the offal from rabbits trapped for market or for skins does the same. Personally, I think that whilst the rabbits dead and alive have materially contributed to the fly increase, yet if the bird life of the country were thoroughly protected we should overcome that increase.

The foxes undoubtedly destroy many birds and have increased the factors that tend to the extinction of bird life. Still foxes can be kept down fairly easily if a landowner tries, and the destruction of foxes should be carried on as part of the day's work.

No effort ever has been made to do the main thing, viz. to protect the bird life of Australia, and unless it is done this continent will become a land of plagues that will force attention to the necessity for obedience to Nature's law preserving the balance of life in order to permit agriculture and other industries on the

land to be profitably and economically carried on. I need not stress the subject much further. The immense losses of sheep last year from blowflies must have cost Australia some millions sterling. Without doubt the natural enemies of the flies—the insectivorous birds of Australia—must be looked to as a means to mitigate the plague. Unless these birds are protected they will continue to diminish and the plague increase. So with mice destroying grain. Their natural enemy must be protected or the damage will always be imminent. The orchardist has many bird friends working for him, and some bird enemies working against him. The friends should be known and protected, and even the bird enemies should be judged charitably before being exterminated.

The legislature could well give time to consider a Bill to protect our wild bird life.

(Reprinted from the 'Sydney Daily Telegraph.')

BIRDS IN AND AROUND THE FIRING LINE.

By LIEUT. R. HAMILTON SCOTT.

Altogether, up to the present, I have seen seventy-four different species which I have recognised, besides several others of which I was not certain. My first period out here, from September, 1915, to May, 1916, was spent chiefly in the Ypres salient. In this locality I saw about fifty-nine different birds. I was wounded and came to England before the Somme battle, and have never had the chance of seeing that country. I believe that it is a more interesting bird country than either the salient or where I am now, which is roughly midway between. I have never had the good fortune to see either Hoopoes or Golden Orioles, which I believe were to be seen in numbers down there. No bird of particular rarity stands out amongst those I have seen. I hoped that I might meet some European birds other than British, but have seen none save the Crested Lark and one or two doubtful species of Lark or Pipit. Speaking of European birds, is there a handy book on them? I mean such a one as might be brought out here, not a "priceless copy."

This part of the country is most uninteresting from a bird

point of view. Sparrows (House and Tree), Starlings and Crested Larks are quite common, Yellow and Corn Buntings are fairly plentiful, but the commoner British Finches are conspicuous by their absence. It is months now since I have seen a Robin or Hedge Accentor, and one rarely sees a Song Thrush or Blackbird. Some way back, where the country is more wooded, parties of Magpies are frequent, though not so numerous as at "Wipers," where they "swarmed" in the autumn of 1915. A solitary Green Woodpecker, and perhaps a pair of Jays, may be met with. Kestrels seem to flourish in the trench area, and Little Owls are not uncommon. Partridges, too, frequent No Man's Land. A pair of Swallows built a nest on the wood supporting the roof over my horse standings, and successfully reared a brood of four. Their nest was not more than 2 ft. above the heads of the horses, but the birds ignored both men and horses, feeding the youngsters all the while "stables" were going on.

Here is a note I made at the time of a bird of whose identity I was not certain: "May 16th.—The song and call-note of a strange bird heard in the rushes in the swampy ground at V——." No bird, however, was seen, though there seemed a number in different parts of the marsh.

"May 24th.—Saw one for the first time. A fine bird of a rich snuff-brown, with lighter breast. Colour not unlike Nightingale, but appeared a somewhat larger bird. Has persistent and varied notes. Seems to spend most of its time in the lowest part of the reeds. May 29th.—Again visited the marsh at V——. There seemed to be a large number of the Warblers mentioned in previous note. To-day I was able to observe them more closely. The colour in the sunshine is a rich snuff-brown, *i. e.* the back, wings, and tail, the breast is pale fawn, nearly white at the throat. The birds seen were perched on the tall dead flower-stems of last year's blooms of the reeds, and, whilst uttering their short song or calling, they raised the feathers on the head forming a slight crest. The feathers on the throat were also raised."

There were a great variety of notes proceeding from the marsh, and doubtless there were other species there as well. I once saw a very similar coloured bird, but somewhat smaller, which I

considered was the Common Reed Warbler. The flight of the larger bird was very straight and gliding, rather like that of the Spotted Flycatcher. Would this bird be the Greater Reed Warbler?*

Here is a note on the Crested Lark.

“June 13th.—Closer observation of this species reveals a black crest and the outer edges of the tail feathers black. There is also, running across the top portion of the wing, a curved row of black dots. The breast is also spotted—the centre portion more thickly—giving the impression of a stripe. The birds which have been seen closely have either been sitting on the road itself or on the heaps beside it, and all appeared of a very “dusty” tint. I cannot say positively, but some similar shaped birds seen flying over some corn appeared much more ruddy. Whether they are another species I am unable to say at present.”

The following is the list of birds seen up to the present (October, 1917):

Swallow.	Spotted Flycatcher.
House Martin.	Greenfinch.
Sand Martin.	Bullfinch.
Swift.	Bramblefinch.
Nightingale.	Siskin.
Greater Whitethroat.	Chaffinch.
Blackcap.	Goldfinch.
Robin.	Brown Linnet.
Redstart.	House Sparrow.
Stonechat.	Tree Sparrow.
Whinchat.	Yellow Bunting.
Common Wren.	Reed Bunting.
Willow Warbler.	Corn Bunting.
Wheatear.	Girl Bunting.
Hedge Accentor.	Blue Titmouse.
Pied Wagtail.	Marsh Titmouse.
Yellow Wagtail.	Great Titmouse.
Grey Wagtail.	Cole Titmouse.
Sedge Warbler.	Long-tailed Titmouse.
Reed Warbler.	Tree Creeper.

* [Yes.—G. R.]

Greater Spotted Woodpecker.	Wood-pigeon.
Green Woodpecker.	Turtle Dove.
Skylark.	Kingfisher.
Crested Lark.	Nightjar.
Meadow Pipit.	Cuckoo.
Song Thrush.	Quail.
Blackbird.	English Partridge.
Missel Thrush.	Red-Legged Partridge.
Fieldfare.	Pheasant.
Redwing.	Wild Duck.
Starling.	Green Plover.
Jay.	Moorhen.
Magpie.	Heron.
Jackdaw.	Kestrel.
Carrion Crow.	Hen Harrier.
Hooded Crow.	Little Owl.
Rook.	Barn Owl.

November 5.—Saw a pair of Buntings in low-lying country at T——. They were fairly tame. Cock bird not unlike male Yellow Bunting. The breast was yellowish-green, with a tinge of red in the centre, and there were black markings on cheeks and throat. Would this be the Meadow Bunting? [No; the Meadow Bunting has the throat white and the breast is bluish-grey—G. R.]

AVICULTURAL NOTES FROM THE P.Z.S.

By E. HOPKINSON, D.S.O., M.B.

When last at home on leave I had occasion to look through the volumes of the 'Proceedings' of the Zoological Society, and in the course of so doing came across, as was to be expected, many papers and notes of great avicultural interest. These seem worth recalling.

The reference to which I will give the first place has special interest for me as it has to do with the Gambia, though perhaps it may not have the avicultural claims of some of the others. On p. 97 of the 1835 volume we read of a valuable collection of mammals

and birds brought home by Rendall, a brother of the then Lieutenant-Governor of Fort St. Mary and other British possessions in the neighbourhood. These were described by Ogilby at a meeting of the Society in July, 1835. Among the birds were *Numida rendalli* (described on p. 104), a smaller race of *N. cristata*, and the Secretary Bird. The latter is now but a very occasional visitor to the Gambia, but is, I believe, not uncommon in the neighbouring parts of Senegal, where the country is more desert-like and more suited to its requirements.

The volumes contain numberless breeding records. Of these an early one is that of Chinese Cranes on p. 369, 1861. Another still earlier record is that of the successful breeding of Sandwich Island Geese at Knowsley in 1834.

In the previous year we are told of the breeding of the now extinct Passenger Pigeon. A pair began to build on April 25th, 1832, in a tree in their enclosure. The hen was the builder, the cock collected the materials—sticks and straw. When he brought these he “alighted on the back of the female with each fresh supply, so as not to disarrange any part of the nest which she had formed.” The nest was finished in one day, one egg was laid on the 26th, and the hen commenced sitting at once. The young were hatched in sixteen days. The male relieved the female during the incubation period. Another instance of the breeding of this species is mentioned as having occurred at about the same time in the menagerie of the President, *i. e.* Lord Stanley, Earl of Derby, at Knowsley.

The last living Passenger Pigeons in the Zoo collection were three presented in 1883. The last of these died in 1889. See note in the ‘Ibis,’ 1912, p. 218. The very last survivor of the race died, after a long life in captivity, only a few years ago in America, I believe at Cincinnati, but have not the record to refer to at the time of writing.*

Two examples of hybrid Passenger Pigeon \times *Turtur risorius* are mentioned (1849, p. 172) as being then in the collection. In the same place is a note on a hybrid *Goura coronata* \times *victoriae*, which was hatched on September 24th and lived four days.

Other mentions of hybrids which I noted down were: 1861,

* See Dr. Hornaday's letter in our February issue.—G. R.

p. 44, hybrid Ducks, and 1901, p. 2, the presence in the Zoo of four hybrid Macaws (*macao* × *militaris*), which were bred at Milan and were described as the only known Macaw hybrids in captivity.

A note on p. 33 of vol. ii, 1834, gives an early instance of Humming-birds in captivity. It says that a Mrs. Barnes brought up from the nest two of the smallest species of Jamaican Humming-birds. Their food was sugar-water, and they were so tame that they would fly to and perch on her finger. During the passage to England one was killed by the cage being thrown down in a storm, and the other drooped immediately and died shortly afterwards.

In the 1854 volume (p. 24) John Gould described the Turaco (*Musophaga rossæ*), and showed a drawing and a feather shed by a bird, at that time alive in St. Helena, in the possession of Lady Ross, the widow of the late Governor of that island. Another living and at that time rare bird exhibited by this world-famed bird painter and writer was a Red-billed Toucan (*Rhamphastos erythrorhynchus*), which came into his hands in 1835. (See 1835, vol iii, p. 21.)

In this volume we also find (p. 79) an account of a Great Auk, which was taken alive in 1834 off the coast of Waterford, and which lived in confinement for some months, to be eventually preserved in the collection of Dr. Buskill, of Waterford. This bird was the subject of a note by Dr. Thompson, of Belfast, at the Zoological meeting of June 9th, 1835. According to the 'British Bird List' of the B.O.U. (1915), the Great Auk became extinct, as regards the British Islands, about 1840, this Waterford bird being the last but one to be obtained, there being evidence to show that a later (and last) British example was captured on St. Kilda in 1840. Outside the United Kingdom the last pair were taken alive off Iceland in June, 1844. Eighty skins and seventy-three eggs are recorded as known to be in existence at the time of the publication of the List.

Notes of interesting first arrivals are those of (1) the Shoe-bill (*Balaniceps*), on p. 195 of the 1860 volume. This was presented by Mr. J. Petherick, then Consul for the Soudan, on March 27th of that year. (2) The Kagu, presented by Dr. G. Bennett in April, 1862 (1862, pp. 84, 107, and a plate, p. 218). (3) The Openbill, first received in 1901 (1901, vol. i, p. 35).

NIGHT DUTY.

By A NIGHT BIRD.

A strange title, perhaps, for an article in an avicultural magazine! But I wonder if those who have never done it realise the wonders of the night. They know the beauties of moonlight, perhaps, may have even seen the mysterious figure of an Owl flitting across their path, but what do they know of the dawn and the wonders that precede it?

I was on night duty at a V.A.D. Hospital "somewhere in Kent" last May, and never shall I forget the joy and beauties of the early morning. There was a wide verandah running round the house, and I would slip out every morning to watch the waking world. Is it a known fact, I wonder, but I noticed the birds always woke in the same order? The first to sound the alarum was a Lark, who, some time before it was light, would sing a short song, and then apparently doze off again; then a Cuckoo in a small copse near by; after that a pause; then another Cuckoo would wake further away—I knew it for another owing to a peculiarity in its note—followed by a Blackcap; and then a burst of music, as every bird within hearing broke into his song of praise, as the light slowly spread, and gradually the wonders of the mist-shrowded valley came into view. How those birds sang! Apparently the choir was not without its leader, for of a sudden it would stop and the choristers disperse for breakfast, after which every bird was free to sing or not as he chose. Breakfast never lasted more than half an hour, but the music was never so intense as before. And so I found one of the few reasons to be grateful to the authors of this war for showing me a fresh beauty in Nature. If this meets the eye of any other night bird, she or he need never be dull if duty ordains a spell of night work in the month of May.

REVIEW.

THE BIRDS OF BEDS.

We have received a series of photographs of the birds of Bedfordshire, taken by Messrs. Symonds, of Potton, in that county. This album is yet another contribution to advanced aviculture, and a study of its pages is in itself an education.

Turning to the photographs, we note two exquisite Kingfishers perched on a branch over a stream, above whose rapid waters dangles a leafy canopy. In another picture we see a single bird basking and watching in the sunshine. Another study shows a March rookery, with abundant untidy nests in the branches, and the great birds "blown about the windy skies." We see a Nightingale perched on a bramble spray near her nest; a Robin on the ground, alert and awake, his rounded eye beaming with intelligence; a portly Wood Pigeon in an oak; and a Woodpecker high up on a tree trunk. In these delightful pages the life of covert and woodland is brought before us. The shy Reed Warblers cling to the rushes as they inspect their cup-like nest; the Jay stands for an instant on a broken stump, tense and still as if stuffed; and the Great Spotted Woodpecker pauses on a birch trunk with a writhing caterpillar in his beak. All the pictures are interesting, and many reach a high level of excellence.

We would name specially the remarkable study of a Kingfisher rising from the water, jewelled wings aquiver like a giant Humming-bird; the pair of Stonechats perched aloft on a bramble, like sentinels on a watch-tower; the Woodpecker on the look-out, his queer head thrust through a hole in a tree-trunk, the very spirit of the forest; and the placid, beautiful Turtle Dove brooding on her nest. Then there are three fluffy, solemn-looking young Kestrels all in a row, feathered police of the future; the Moorhen swimming on the mere; Moorhens "changing duty" at their nest; and last but not least the sombre, sleepy Night-jar squatting among the bracken.

Some of Messrs. Symonds' work has appeared in the Magazine, and all members of the Avicultural Society will readily endorse its value.

G. R.

CORRESPONDENCE.

DR. SHUFELDT'S FORTHCOMING MONOGRAPH.

DEAR DR. RENSHAW,—As to my memoir on the *Megapodiidae*, I am just now expressing it down to Mr. Dudley Le Souëf, Director of the Melbourne Zoological Gardens, who has, with great kindness, offered to make the attempt to have it published somewhere for me in Australia. If you would like to say that much in your magazine, you are quite at liberty to do so. The monograph will print about fifty octavo pages, and is illustrated by 44 figures on 21 plates. It describes the habits, eggs, incubation, osteology, external characters, etc., of all the known mound birds of the world, including the rare *Maleo*; four of the plates are in colour. I have but slender hopes that this expensive piece of work will be out in print for at least a year or two.

Practically I am at the head centre of ornithological activity here in America, and in touch with all the museums in Washington. Should I be able to obtain any news notes along such lines, pray command me to that end; it will afford me pleasure to do what I can for you.

3356 Eighteenth Street,
Washington, D.C.;
February 18th, 1918.

Yours very faithfully,
R. W. SHUFELDT.

BIRDS AND THE WINTER.

Mr. Allen Silver writes: The letters of my friends, Dr. Butler and Mr. Astley (the latter, to whom I am, at present, indebted for a sight of the Magazine), and also that by Miss Chawner, interest me with reference to the scarcity or otherwise of birds. Since leaving hospital I find they are as numerous as usual in Suburbia (not a great way from Dr. Butler's). The garden has its three species of Tits, two Thrushes (Song and Mistle), Blackbirds, Starlings, Hedge Accentors, Robins, Wrens, Greenfinches, Chaffinches, Redpolls, Wood Pigeons, Carrion Crows, Rooks, Jackdaws, Skylarks, Wagtails, Pipits (Meadow), and Linnets pass over. On Christmas morning I saw a Lesser-spotted Woodpecker on my largest pear-tree, which remained some minutes so that I could tell its sex (it being a male), and a hen Bullfinch, a day or so afterwards, came through. During the last cold snap, a flock of Wild Geese passed over very low down, apparently making for the coast waters. This summer in Monmouthshire I saw plenty of birds, and during a brief stay in Suffolk recently I saw a pair of Lesser-spotted Woodpeckers, Nut-hatches, a Hawfinch, a Siskin, any amount of Tits, and several Creepers. Finches seemed about as usual, but Song Thrushes were distinctly less, as also were Fieldfares and Redwings. Mistle Thrushes were in full song, and I came across several Pied and Grey Wagtails, one white, and two or three Kingfishers. Tawny Owls seemed numerous, and a pair or two of Long-eared were in a plantation near the cottage in which I stayed. Little Owls seem to have increased almost abnormally the last few years, and are by no means rare there. Sparrow and Kestrel Hawks were seen, and several Coot- and Moor- or Waterhen. My friend, Mr. Chas. Row, who lives in the vicinity, said that he saw the biggest flock of Longtailed Tits he had ever seen in his life whilst shooting in the woods, and a beater and others told me they seldom "brush" without a "cock" (Woodcock) or two. Snipe are about as usual. Last

winter (1917) from all accounts, killed birds wholesale in that district, and even Linnets felt it, so that the breeding pairs were less conspicuous; but, taking it on the whole, nothing has apparently occurred that one could consider disastrous. Being limited at present to an occasional ride in a vehicle and a short stroll on crutches, I have been unable to go to the "correct" spots, but quite in or near the village the birds previously mentioned were generally of frequent occurrence. I saw and heard Green Woodpeckers repeatedly, and a "rush" of Water Rails were mentioned to me.

A SPOT-BREADED WARBLER NESTLING.

DEAR DR. RENSRAW,—In my letter published at p. 138 of the Magazine, mention, amongst other birds which have lost the spotted character in their adult stage, "many of the Warblers"; but these birds are everywhere stated as differing from the true Thrushes in not having the throat and breast spotted in their nestling plumage (I noted this as the chief distinctive character in my own book on 'British Birds'); well, I have only succeeded in hand-rearing one of our Warblers—the Sedge-warbler. One example died in its nestling plumage, and one I moulted in captivity: I preserved the skins of both, and the nestling has dusky spots right across the front of the breast. I think, therefore, that the statement that the young of Warblers are devoid of breast-spots requires some modification. It would be interesting to examine nestlings of other Warblers to see whether the Sedge-warbler is an exception to the rule. I thought I would make a sketch to show the spotting on the breast of my nestling Sedge-warbler; the irregularity of the spots may be an indication of reversion; but if so it is none the less interesting. (See p. 235, June, 1918.)

I have three nestling Reed-warblers and their breasts are unspotted.

124, Beckenham Road,

Beckenham, Kent;

March 12th, 1918.

Yours very sincerely,

A. G. BUTLER.

CURIOUS BUDGERIGAR HYBRIDS.

Mr. C. H. A. Lienau writes: Your Blue Budgerigars must be very beautiful. I have never seen them nor even heard of there being any in Australia. I have seen a mention of them in books, but scarcely thought that they really existed. A few years ago a yellow cock mated up with a green hen, and among other young ones there were two, one yellow and one green, that only had the markings on the wings. The rest of their plumage was clear plain yellow and green. These looked very pretty—at least, I thought so.

In addition to the above I bred early in the season a Zebra-finch Silver-bill hybrid. This has turned out quite a pretty bird. It more closely resembles the Zebra-finch in markings, but is devoid of any orange colouring.

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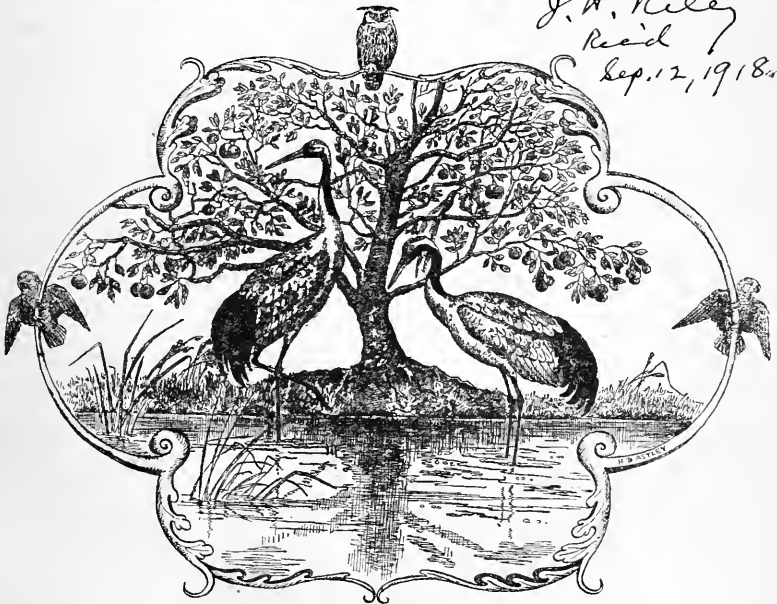
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AVICULTURAL MAGAZINE.

*J. H. Riley
Recd
Sep. 12, 1918.*



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AUGUST,
— 1918. —

OUR WAR AIMS. (See p. 258.)

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White-browed Wood-Swallows and their parents.

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AUGUST, 1918.

WOOD-SWALLOWS.

Our readers will remember the photograph of a White-browed Wood-Swallow on her nest, the work of Messrs. Lawrence and Littlejohns, which was issued in our first Anzac number (January, 1918). We now have pleasure in publishing another of this beautiful series, showing not only both parents, but also both nestlings. Visitors to the Western Aviary at the Zoo, in former days, often saw Wood-Swallows in the collection; their graceful proportions and pleasing coloration make them very desirable possessions. Concerning another species Mr. Allen Silver has written to us:

“The delightful photo in the January issue, of *Artamus superciliosus*, gave me considerable pleasure, reminding me of a lovely specimen of *A. personatus* I once had, whose skin is as perfect in plumage as in the case of the bird illustrated. It is surprising how splendid the plumage of this species keeps, even when confined to comparatively small enclosures. My bird was a great bather, very tame and cheerful, and cast up pellets of torpedo shape and fairly large. Somewhere I heard that this was not the case with the ‘Blue-birds,’ or ‘Summer Martins,’ as the Australian lads call them.”

OUR WAR AIMS.

“There’s no reason why we should not have the most popular Magazine extant, on aviculture in all its branches.”—*Extract from Letter to the Editor.*

At the Council Meeting held on June 28th the Editor was able to report to the Council a considerable increase in the popularity and usefulness of the Magazine. Owing to many able helpers, the Society flourishes, in spite of the war. Twenty-seven new members have joined us since November; both the Society’s Medal and the Society’s Prize in Literature have been won during the present year. Abroad, the status of the ‘Avicultural’ is everywhere recognised, and our Magazine is regularly exchanged with leading British and foreign bird journals; in a list of the great ornithological societies, recently published by a Transatlantic contemporary, we hold an honoured place. With all these facts to hand, we may well reflect on our aims and the best methods of accomplishing them, even in these abnormal times.

First in importance comes our war work—the study of the food of birds in relation to the crops. This has already been partly considered, and at a conference to be held later on, the Avicultural Society will be represented. Here the papers we have already published are of considerable value; aviculture joins hands with economic ornithology, and journalism with both. Then comes the routine scientific and popular presentation of bird-study, set forth in the budget of papers and photographs which month by month find their way from the Editor’s drawer to the letter-boxes of our members. All these activities require money, and much more of it than formerly, for their continued progress and well-being.

In order to maintain the high level to which we have attained, it is necessary to strengthen the financial position of the Society. This object will be gained if each member will contribute to our Deficit Fund a small donation—say half a crown, though the Council is naturally pleased to accept larger sums. **All Donations to be sent direct to the Publishers, Messrs. Adlard & Son & West Newman, Ltd., 23, Bartholomew Close, London, E.C.1, and not to the Editor.** It will be a pleasure, we feel, to all our members to help thus in the wide

activities of the Society and the great schemes to which we have set our hand. So shall the Avicultural Magazine speedily moult its eclipse plumage and soar aloft on the strong pinions which are already sprouting.

G. R.

AUSTRALIAN BLUE WRENS.

By C. H. A. LIENAU.

I was greatly interested in the article in the May number in reference to the little Blue Wren.* They are lovely little birds, and whistle so prettily. We have quite a number here, and several pairs nest regularly in our garden every season. They are such cheeky little birds, and hop about on the aviaries, and after whistling awhile fly off with a shrill chirp, as much as to say "How would you like to be able to follow me?"

When I say pairs nest, I feel sure that there are at least double the number of hens that there are cocks. In one case there were three nests in the one hedge, and I have watched the one little cock-bird go from one nest to the other and give each little sitting hen a tit-bit in turn. The young all hatched at about the same time, and it was amusing, when the young ones left the nest, to see the little father hopping across the lawn pursued by no less than eleven hungry youngsters, all clamouring for a morsel.

Much more uncommon and much more beautiful a bird is, in my opinion, the *Malurus cyanotus*, or White-winged Superb Warbler. They are equally perky, and with the exception of the shoulders, are a brilliant sapphire blue.

CUCKOOS AND PARROTS OF NEW SOUTH WALES.†

By THE LATE A. J. NORTH, C.M.Z.S.

The representatives of the Sub-order *Coccyges* includes in it the Pallid Cuckoo (*Cuculus inornatus*), the Fan-tailed Cuckoo (*Cacomantis flabelliformis*), the Square-tailed or Brush Cuckoo (*C. vario-*

* "The Display of the Blue Wren (*Malurus cyaneus*)," by H. D. Astley. 'Avicultural Magazine,' May, 1917.

† Reprinted from the 'New South Wales Handbook,' British Association Visit.

losus), the Bronze Cuckoo (*Lamprococcyx plagosus*), and the Rufous-tailed Bronze Cuckoo (*L. basalis*). All of these species are more common in the eastern and central districts, during spring and summer, and occur in the neighbourhood of Sydney, *Cuculus inornatus* being the nearest approach to a strict migrant, while in very mild winters a few remain throughout the year, or are absent only for a short period. Flinder's Cuckoo (*Eudynamis cyanocephala*) and Channel-billed Cuckoo (*Scythrops nova-hollandiæ*) occur principally in north-eastern New South Wales, but in late summers and in autumn examples sometimes wander over the contiguous portions of the State. To this Order also belongs the Pheasant-Coucal (*Centropus phasianus*), locally known as the "Swamp Pheasant," "Swamp Cuckoo," and the "Lark-heeled Cuckoo." It differs from the true Cuckoos in constructing a round nest of grass and *débris* on the ground, usually lined with eucalyptus leaves, with an aperture on either side for ingress and egress. The swampy scrubs and brushes of the northern coastal district are its favourite haunts; it is, however, sometimes obtained in the neighbourhood of Sydney, and at Port Hacking and in the Illawarra district.

The Order *Psittaci* is fairly well represented in New South Wales, for out of the sixty species inhabiting Australia and Tasmania thirty-six are found within its boundaries. In this Order hybrids often occur, and instances of albinism, partial or total, xanthochroism, erythrisms, and melanism are frequently met with. Those most worthy of notice are the different species of the genera *Trichoglossus* and *Glossopsittacus* in the Lories; *Cacatua* and *Calyptorhynchus* in the Cockatoos; and *Platycercus*, *Psephotus*, and *Neophema* in the Parrakeets. Like the Honey-eaters, the hairy-tongued Lorikeets constituting the Australian members of the Family Loridae aid in the pollination of plants and trees, as they feed to a large extent on the nectar extracted from the blossom of eucalypti and other trees. The Blue-bellied Lorikeet (*Trichoglossus nova-hollandiæ*), the Scaly-breasted Lorikeet (*Psitteuteles chlorolepidotus*), the Musk Lorikeet (*Glossopsittacus concinnus*), and the Little Lorikeet (*G. pusillus*) inhabit the coastal and central districts; all but the Scaly-breasted Lorikeet, which frequents chiefly the north-eastern part of the State, are generally distributed over these parts. They are at times very

destructive in orchards, especially the Musk Lorikeet. In January and February, 1896, these birds amounted to a plague in country districts, and numbers were killed in fruit-trees with sticks and stones. The Sulphur-crested Cockatoo (*Cacatua galerita*) is familiar to most bird-lovers in Europe and Britain, as well as in Australia and Tasmania, for it is in great request as a cage-bird or pet. It is a remarkably good talker, but is noisy, and, when semi-domesticated, very destructive to all kinds of woodwork when allowed its freedom; in a wild state, in common with the Rose-breasted Cockatoo (*C. roseicapilla*) and many other species of the Order, it commits great havoc in grain crops. Except in the extreme portions of the western and coastal districts, it is generally distributed over the State, as it is at all times wary and difficult to approach. Precisely the reverse is the Yellow-tailed Black Cockatoo (*Calyptrorhynchus funereus*), somewhat sparingly distributed in pairs over eastern and central New South Wales. At Middle Harbour, near Sydney, I have known this species to be shot in low *Banksias*. Banks's Black Cockatoo (*C. banksi*) is found in the coastal districts, but not anywhere in the neighbourhood of the Metropolis; also along the course of the Darling River in north-western New South Wales. Solander's Black Cockatoo (*C. viridis*) used at one time to frequent the neighbourhood of Botany, but, of recent years, Port Hacking is the nearest locality to the Metropolis in which I have known this species to be procured. It is distributed throughout the greater portion of the coastal districts and central New South Wales. Black Cockatoos feed largely upon seeds and kernels extracted from *Banksia* and *Casuarina* cones, also upon the wood-boring larvæ of insects. The Red-crested Gang-gang Cockatoo (*Callocephalon galeatum*), an inhabitant of the coastal districts and contiguous mountain ranges, is one of the rarest of cage-birds usually seen in this Order. The Crimson-shouldered Parrot (*Aprosmictus erythropterus*), inhabiting northern New South Wales, and the King Parrot (*A. cyanopygius*), distributed throughout the greater part of eastern New South Wales, are also worthy of notice.

BLUE BUDGERIGARS.

By JOHN W. MARSDEN, F.Z.S.

I am always interested in Dr. Butler's articles, and this month he refers to Blue Budgerigars. I should like to state a few of my ideas on their origin, etc., if permitted, in our Magazine. Lately I have been reading back numbers, and I find in 1900 correspondence *re* admitting Canaries into the Magazine (which I should not like), and I fear *Blue* Budgerigars are in the same category.

In an article I sent to June 'Bird Notes' last year, I said I bred, after three seasons of selection, from a green hen ($\frac{3}{8}$ blue, $\frac{3}{8}$ green, $\frac{1}{4}$ yellow) two very fine blues. Now, it seems to me that what we should do is to get rid of the yellow in the common green. If we take the yellow away from the yellow parts we get white, and by taking the yellow from the green part we get blue, because blue \times yellow = green, therefore, green — yellow = blue; so in using yellow to produce blue I should only use the very palest and washed-out ones I could possibly get.

As far as I know, the origin of the blue is unknown, but I think the breeder may have bred an albino, and, in trying to perpetuate the whites by inbreeding, produced the blues. I may be wrong, but in any case it seems to me the great thing is to eliminate the yellow. I cannot help thinking that generations ago the original colour of the Budgerigar was blue, and the yellow has been developed as a more protective colour from the sun. Mr. Millsum and the Rev. J. M. Patterson both agree that blues must be bred and kept in the shade. In the common greens the nest plumage is more or less blue, and we know that in all Nature the colour of the young indicates the original colour of the bird or beast. Then, again, blue or grey-blue appears to be a primary colour of Nature. Therefore, it seems quite possible that if Budgerigars were originally blue, the yellow (a protective colour) came in and produced the green, according to the rule of the survival of the fittest.

When breeding birds, Mendel's law does not appear to work out unless the birds are equally prepotent. I should very much like to know if a pure blue has been bred from a blue and a pure-bred green: I have not heard of one. I remember many years ago

Mr. Abrahams showing me the skin of a yellow which he said was produced by inbreeding, and I think there is no doubt that yellow was bred this way, but I cannot see that blues are the result of constitutional vigour. I think people who have had blues will agree with this, and it is much more likely that they are a throw-back to the original colour, and can only be produced by inbreeding.

SEA AND SHORE BIRDS OF AUSTRALIA.*

By THE LATE A. J. NORTH, C.M.Z.S.

Belonging to the Order *Limicolæ*, many species will be found frequenting the sandy beaches and shallow inlets of the coast, also estuarine areas and contiguous lakes. Among them may be mentioned the White-breasted Oyster-catcher (*Hæmatopus longirostris*), the Golden Plover (*Charadrius dominicus*), the rarer Hooded Dotterel (*Ægialites cucullata*), and the Red-capped Dotterell (*Æ. ruficapilla*). Near Sydney, about the mud-flats at the mouths of Cook and George Rivers, and at other parts of Botany Bay, at one season or another, may be seen the Australian Curlew (*Numenius cyanopus*), the Eastern Bar-tailed Godwit (*Limosa novæ-zealandiæ*), the Marsh Tringa (*Heteropygia acuminata*), and the Grey-rumped Sandpiper (*Totanus brevipes*). Further inland are more abundantly distributed, the Spur-winged Plover (*Lobivanellus lobatus*), the Stone Plover (*Edicnemus grallarius*), the Black-breasted Plover (*Sarciophorus pectoralis*), the White-headed Stilt (*Himantopus leucocephalus*), and the Red-necked Avocet (*Recurvirostra novæ-hollandiæ*). In central and western New South Wales are found the Red-kneed Dotterel (*Erythrogonys cinctus*), the Australian Dotterel (*Peltohyas australis*), the Pratincole (*Stiltia isabella*), and the Rhynchæa or "Painted Snipe" (*Rhynchæa australis*). Latham's Snipe (*Gallinago australis*), locally known to most sportsmen by the name of "Jack-Snipe," a migrant from Japan, is a visitor at the latter end of August or early in September, chiefly to the eastern and central districts of the State.

The Order *Gaviæ* is chiefly represented by the Marsh Tern (*Hydrochelidon hybrida*), the Long-legged Tern (*Gelochelidon macro-*

* Reprinted from the 'New South Wales Handbook,' British Association Visit.

tarsa), more common inland in the central and western districts, where they breed; the Crested Tern (*Sterna cristata*), common in all the bays and inlets of the coast, and breeding on Cook Island in the north to Montague Island, which is getting towards the southern boundary of the State; and the White-shafted Tern (*Sternula sinensis*), found in the same situations, but more sparingly distributed, breeding in colonies on sand-pits and margins of brackish coastal lagoons. Fairly common along the coast is the Pacific Gull (*Gabianus pacificus*), while the Silver Gull (*Larus novæ-hollandiæ*) is in evidence in all the bays and inlets, large colonies of them breeding on Montague Island. In stormy weather great flocks assemble in grass paddocks contiguous to the coast, and both species have been observed hundreds of miles inland. The Pacific Gull is occasionally seen in Port Jackson and on the Parramatta, and the Silver Gull frequents the shipping in Farm Cove, on the look-out for scraps thrown overboard. It is the most familiar of all species to ferry passengers in Sydney Harbour. Between Sydney Heads and Bradley's Head, Richardson's Skua (*Stercorarius crepidatus*) is in some years remarkably common.

The Order *Tubinares* is principally represented by the White-faced Storm Petrel (*Pelagodroma marina*), the Wedge-tailed Petrel (*Puffinus sphenurus*), and the Short-tailed Petrel (*P. tenuirostris*), the last being the rarer of the three species, except in some years, when it appears in countless numbers. The White-winged Petrel (*Æstrelata leucoptera*), frequenting and breeding on Cabbage-tree Island, near the entrance to Port Stephens, is of circumscribed range, while the Giant Petrel (*Ossifraga gigantea*) is occasionally seen.

Although Albatrosses occasionally venture inside Sydney Heads, and I have observed them as far up as the entrance to the Parramatta River, New South Wales seas are not by any means a stronghold of the genus *Diomedea*, and several of the substantiated records of the occurrence of certain species on the coast are founded on a few or single examples. They include the Black-eye-browed Albatross (*Diomedea melanophrys*), the wandering Albatross (*D. exulans*), the Shy Albatross (*D. cauta*), the Culminated Albatross (*D. culminata*), and the Yellow-nosed Albatross (*Thalassogeron chlororhynchus*).

Three species of the Order *Pygopodes* are generally distributed

over the State, the Crested Grebe (*Podiceps cristatus*) being comparatively very rare, the Hoary-headed Grebe (*P. nestor*), extremely common in Western New South Wales, as the Black-throated Grebe (*P. novæ-hollandiæ*) is in the eastern parts of the State.

A single representative of the Order *Impennes* inhabits the seas of the State—the Little Penguin (*Eudyptula minor*). It breeds on some of the larger islands contiguous to the coast, and may be occasionally seen in Port Jackson, about Manly, the entrance to Middle Harbour, and Bradley's Head.

RED-NAPED LORIKEETS.

Mr. Alfred Thom writes: "Herewith I send further notes on my Red-naped Lorikeets.

"We were sure we heard young ones in the nest, and at last I looked in and found one dead, only a day or so old, and no others. There were no remains of other eggs, though the hen had laid one in a small cage one day when she looked seedy, and was oiled and put in a very warm place.

"The cock bites, and one has to be careful in feeding them, as he goes for you without any fear. They bathed even in the frostiest weather, generally in the evening, and my aviary gets no sun, so is very cold. The single hen looks rather unhappy, although she is in a mixed aviary where she gets plenty of sun, and sees people who pass in and out of the side door, which interests her.

"I bathed the foot of the Zebra Finch and put a drop of camphorated oil on twice, and it seems to have quite cured him."

MORE AUSTRALIAN BIRD TYPES.*

By THE LATE A. J. NORTH, C.M.Z.S.

The Family Ptilonorhynchidæ is represented by the Satin Bower-bird (*Ptilonorhynchus violaceus*) of the coastal scrubs and undergrowth of the contiguous mountain ranges, the Regent Bower-bird (*Sericulus melinus*) of the sub-tropical brushes of the north-

* Reprinted from the 'British Association Handbook to New South Wales.' See also our First Anzac Number, *Avic Mag.*, January, 1918, p. 91.

coast district, and the Spotted Bower-bird (*Chlamydodera maculata*) of the drier scrubs and belts of timber and bushes which are dotted about or intersect the plains of the central and western districts of the State. The love of the beautiful is always displayed by these birds in the formation and manner of adornment of their playing-places, from the primitive bower made by the Regent Bower-bird to the larger and more compactly built structure of the Spotted Bower-bird, which is profusely decorated with bones, pebbles, pieces of glass, fresh-water shells, and seeds; also, preferably, any bright, metallic articles, such as nails, capsules, ends of wire, empty metal cartridge cases, etc., picked up about its haunts or pilfered from some tent, hut, or dwelling. A single representative of the allied family, Paradiseidæ, in the Rifle-bird (*Ptilorhis paradisea*) inhabits the northern coastal districts. Its egg is one of the most beautiful of all the eggs of Australian birds. Equally remarkable, too, is the Family Menuridæ, all the three species of which are found in New South Wales. Prince Albert's Lyre-bird (*Menura alberti*) occurs in the extreme north-eastern portion of the State, Queen Victoria's Lyre-bird (*M. victoriae*) inhabiting the south-eastern corner, and the common Lyre-bird (*M. superba*) New South Wales.

The numerous Family Meliphagidæ, or Honey-eaters, over thirty species of which occur in the State, frequenting chiefly the forests of *Eucalypti*, *Acaciæ*, *Banksiæ*, and *Melaleuca*, and so well adapted with their brush-like tongues to secure their food, play an important part in the pollination of these and other trees and shrubs. No more beautiful sight could be witnessed by a bird-lover than to stand in winter beneath some giant "feeding-tree," preferably one of the *Eucalypti*, its foliage almost hidden by its large trusses of snowy-white flowers, and watch the different birds coming and going. Within a few miles of Sydney one may often see eight to ten species of Honey-eater feeding on the same tree. At Middle Harbour I have observed at one time the Fulvous-fronted, White-cheeked, Yellow-faced, and Short-billed Honey-eaters busily engaged in extracting the nectar and small insects from a single flowering stalk of a Grass-tree (*Xanthorrhœa hastata*).

Over twenty species are found at one season or another in the neighbourhood of Sydney. Although they are called Honey-eaters,

insects form a large portion of their food, while not a few are incorrigible fruit-stealers. Among the latter the chief offenders are the Yellow-faced Honey-eater (*Ptilotis chrysops*), the White-eared Honey-eater (*P. leucotis*), the Garrulous Honey-eater, or "Soldier-bird" (*Myzantha garrula*), and the well-known Friar-bird, or "Leatherhead" (*Tropidorhynchus corniculatus*), which is very destructive.

The clear, confident, swish-like note terminating in a vigorous crack of the Whip-bird (*Psophodes crepitans*) is more often heard in the low, dense undergrowth than this wary bird is seen. It inhabits the coastal districts and contiguous mountain ranges of eastern New South Wales, and occurs in favourable situations in the outlying suburbs of Sydney.

To the Family Certhiidae belong the White-throated Tree-creeper (*Climacteris scandens*), the Brown Tree-creeper (*C. leucophaea*), inhabiting the open forest-lands and mountain ranges of eastern and central New South Wales, the Red Eye-browed Tree-creeper (*C. erythroptera*), and the White Eye-browed Tree-creeper (*C. superciliosa*), of western New South Wales. The food of these species, which consists of insects, is obtained chiefly on or underneath the bark of trees.

The Family Dicaeidae, with a single representative in Australia, has an important action on its flora. The Mistletoe-bird (*Dicaeum hirundinaceum*), generally distributed over New South Wales, feeds largely on the viscid berries of the *Loranthus*, which it passes entire, and thus assists in the distribution of this parasite.

The Order Alectorides only contains two species. The Australian Crane (*Grus australasiana*), widely known all over the continent as the "Native Companion," at times commits great havoc, eating the seed on newly-planted grain-fields. The other, the Australian Bustard (*Eupodotis australis*), locally called the "Plain Turkey," is an inhabitant of the great plains of central and western New South Wales. It is a most useful bird, feeding largely upon insects procured on the ground about grass paddocks: extremely wary, and much sought after for the table.

Of the Sub-class Ratitæ, one of the two species representing the Order Casuarii in Australia, and inhabiting New South Wales, is

the Emu (*Dromæus novæ-hollandiæ*), well known everywhere throughout the continent, and emblazoned on the Australian coat-of-arms. This species was first figured in Phillip's 'Voyage to Botany Bay' in 1789 as the "New Holland Cassowary," and was characterised the following year by Latham in his 'Index Ornithologicus' as *Casuarinus novæ-hollandiæ*, Captain Tench, in his 'Settlement at Port Jackson,' in 1793, first making us acquainted with its nest, eggs, and young. Unfortunately its numbers are rapidly decreasing, for does it not consume grass, thereby endangering the staple product of the State, break wire fences, and disturb breeding ewes?—all unpardonable offences in the eyes of the pastoralist. Consequently, both birds and eggs are destroyed in a ruthless manner by men employed for these purposes; besides, the young birds have other enemies to contend with in the shape of dingoes.

AUSTRALIAN AVICULTURE.

Mr. C. H. A. Lienau writes :

"The Regent Birds are not very plentiful here now; they are most interesting, and those that they have in the Zoological Gardens here have constructed some wonderful playgrounds. I really think that the *Petilotis penicillata*, or Green Ringneck as it is commonly known, is by far our most beautiful native songster among the smaller birds. Of course, the Magpie is easily the best of the lot. His wonderful flute-like notes ring through the forests, and can be heard a mile away in calm weather, and yet are not at all shrill or piercing even when heard at only a few yards' distance. The Green Ringneck gives us his best song just at sunset. The notes are wonderfully clear and dulcet, and on a moonlight night we have heard his song continuously till after midnight, and he resumes it again at daybreak. As near as it can be syllaballed it commences 'Won't you drink, pretty creature, won't you drink?' He is altogether a charming bird, and wonderfully graceful in his movements."

A member's correspondent writes from Sydney :

"I am sending you a marked catalogue of our Improvement

Society Show, so you will see for yourself. The show is now over; I am pleased to say it was a most complete success in every way. We had 609 entries, which is an easy record. The exhibits, on the whole, were of a high quality. I got a first and special for the best Parrot; I won this with a New Guinea White-rumped Lory, and of all the striking birds he was easily the talk of the show. I got tired of telling the people what he was and where he came from. Besides the Lory I showed a Mitchell Lorikeet; he is very nice, but not up to the Lory; unfortunately he managed to break off the end of his tail, which put him out of the running. The Masked Parrot is a very fine tame bird, it ran second at the show; of course, its not a patch on the Lory.

The Lory is about half as big again as a Blue Mountain Lorikeet, and has such a wonderful blending of various shapes and colours; he lives chiefly on hemp, sunflower, and fruit. The Mitchell Lorikeet is a little smaller than a Blue Mountain. I have got in touch with a man in Hobart, and he sent me a nice little cock Blue-wing and four pairs of Firetails, all of which are doing nicely."

THE COLLECTION AT VILLERS-BRETONNEUX.

We deeply regret to report that the incomparable collection of birds at Villers-Bretonneux has been utterly destroyed in the recent fighting.

Lieut. Delacour writes: "It was absolutely impossible to get any bird away. I only know that when the last persons left Villers-Bretonneux the park was full of artillery and machine guns, and being shelled very badly. A British Staff Major, who visited the property later, found nearly all the aviaries blown up and the birds killed; some were still alive, but very few—only some big birds such as Cranes and Ostriches, and some Ducks on the pond. The majority were killed by shell fire or by starvation. A cock Ostrich before it died broke the leg of a sergeant."

In a later issue the Editor hopes to publish a list of the birds in the collection, kindly sent by Mr. Astley; it will be illustrated, if

space allows, by photographs sent by Lieut. Delacour. At the meeting on June 28th the Council passed a vote of condolence with Lieut. Delacour, and we feel that bird lovers the world over will extend to him their ready sympathy.

REVIEW.

TROPICAL WILD LIFE IN BRITISH GUIANA.*

Amongst the books which come into the hands of the reviewer there appear, at rare intervals, works of superexcellent merit, inaugurating a new era of research, epoch-making volumes of zoology. Mr. Beebee and his assistants have given us such a book.

Introduced by a foreword from Col. Roosevelt, this masterpiece chronicles the doings of the Tropical Research Station established by the New York Zoological Society at Kalacoon in British Guiana. Installed in a large two-storied house at the junction of three great rivers, with a wild hinterland of jungle, the naturalists set to work to explore this zoological El Dorado, and have chronicled their results in a volume which rivals the vivid pages of Bates and Wallace and Waterton. The book is illustrated with a profusion of good photographs that bring the jungle to one's very fireside, till one almost hears the shrilling of the tree-frogs and the cries of the Macaws in the tall mora-trees. Toucan and Trogon, Trumpeter and Tinamou, Motmot and Macaw fill these pages, together with Doves, Flycatchers, Humming-birds, and so forth, till the aviculturist reading the record sighs in vain for the vanished population of his aviaries.

Two outstanding contributions to science are made by the writers. First comes an account of the quaint, almost reptilian, chick of the Hoatzin—perhaps the most interesting of all birds, with its quadrupedal gait and its uncanny climbing performances, aided by its fingers and toes. We see the infant Hoatzin crawling on all fours about the nest; climbing a branch, more like a lizard than a bird; helplessly struggling along the ground; or swimming with wings extended in a basin of water. Then in a section devoted to Toucans

* 'Tropical Wild Life in British Guiana,' by William Beebee, G. Inness Hartley, and Paul G. Howes, with an Introduction by Col. Theodore Roosevelt. London: Witherby and Co., 326, High Holborn. Pp. 504. 4 coloured plates and 140 other illustrations. Price 12s. 6d. net.

we have an account of the finding of the first recorded egg of the red-billed species, with a good figure of the egg, and photographs of the first Toucan chicks ever seen by any naturalist. Very interesting are these pictures of the hideous little creatures—bald, naked, ungainly, helplessly squatted on their heel-pads instead of on the soles of their feet. Next comes an account of various ornithological discoveries, with details of the nests and eggs of Crake and Ground Dove, Tyrantlet and Quadrille Bird, Antcatcher and Bush-bird, Manakin and Honey-creeper, till one seems to have personally undertaken a bird-nesting foray in the tropical jungle.

Turning to errors, we are surprised to find, on p. 96, the Giant Cacique ranked as a giant Oriole; had it been styled a giant Hang-nest it would have been correctly classed—the error being the more unfortunate, as the species is rightly placed among the *Icteridæ* in the list on p. 137. We regret to see *Icterus chrysocephalus* and *I. xanthornus xanthornus* also ranked as “Orioles”—a term which should be restricted to the Old World members of the genera *Oriolus* and *Sphecotheses*.* The dead tree in Fig. 48 does not show the nesting-hole of the Green Aracari or any other Toucan, for it is on too small a scale for the aperture to be recognised, even with the aid of a lens. The same applies to Fig. 54, for the blackened knot-hole mentioned in the text is quite invisible in the photograph. The account of the nestling Hoatzins includes no reference to the presence or absence of the pelvic wing, though in so archaic a form one would have thought that this would have been one of the first characters to be looked for.

In spite of these drawbacks, the book is a fine piece of work it represents American zoology at its best, and that is very good indeed.

G. R.

TO ALL BIRD-OWNERS.

The Council suggests that all bird-owners having surplus stock should offer it for sale in the Magazine, the money thus realised to be presented to the Deficit Fund. The Editor will be pleased to

* Thus we strongly disapprove of the habit now prevalent of speaking of the Baltimore “ Oriole,” which is as true an *Icterus* as the common Yellow Hangnest.

insert as many advertisements of such stock as possible. **All money thus received for the Fund to be sent to our Publishers, Messrs. Adlard & Son & West Newman, Ltd., and not to the Editor.** Birds thus offered for sale will be advertised in a special column set apart for them.

The Council will be grateful to all who thus not only benefit general ornithology, but also render yeoman service to aviculture, which has become a national asset.

CONGRATULATORY BROODS.

By HUBERT D. ASTLEY.

If no one else congratulates me, at any rate I pat myself on the back at having a brood of five Queen Alexandra Parrakeets (*Spathopterus alexandræ*), which have left the nest. There were six, but the baby of the lot died owing to being too small to reach up to the aperture of the nesting-box, when the mother no longer went in, but perched outside to feed them, and so the larger ones evidently trampled the poor little bird down. I had begun to fear that my stock of these rare and beautiful Parrakeets would die out, for since I left Benham Valence five years ago, they had not nested; in fact, there have been no young for certainly six years from the same old birds. I notice—I forget whether I did so on previous occasions—that the pink throat of the nestlings extends slightly on the breast in the form of edgings to the grey-green feathers, which scalloping does not appear in the adult plumage. The males can be distinguished by a patch of dull mauve on the forehead, and by a larger area of pink on the throat, which is also of a brighter colour than in the females. The five young are exceedingly vigorous, and the mother feeds them when I am standing close to them, so close that their tails brush against my coat. It is astonishing how quickly she can fill their crops, for so little food seems to be regurgitated at each feeding.

(*To be continued.*)

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

PROPOSED CANDIDATES FOR ELECTION.

Miss S. BOWER, 77, Park Mansions, Knightsbridge, S.W. 1.

Proposed by Capt. P. REGINALD WAUD.

Capt. M. S. H. GOODLIFFE, 17th Lancers, Cavalry Club, Piccadilly, S.W. 1.

Proposed by Capt. P. REGINALD WAUD.

Lieut. GERARD H. GURNEY, Keswick Hall, Norwich.

Proposed by Mr. E. G. B. MEADE-WALDO.

NEW MEMBERS.

Mr. J. J. CASH, Foxley Mount, Lymm, near Warrington.

Mr. H. P. MELLOR, Trenance, Eagle Brow, Lymm, near Warrington.

Mr. J. K. MOIR, "Normanton," Young Street, Albury, N.S.W.

Mr. J. WEIR, Douglas Cottage, Upper Ashley, New Milton, Hants.

DEFICIT FUND.

	£	s.	d.
Mr. D. Ezra (Calcutta)	5	0 0

ILLUSTRATION FUND.

A GOOD PHOTOGRAPH IS WORTH PAGES OF DESCRIPTION: CONTRIBUTIONS TO THE ILLUSTRATION FUND ARE MUCH NEEDED AND ARE OF HIGH VALUE IN FURTHERING THE WORK OF THE SOCIETY, AS THEIR EDUCATIONAL RESULTS CANNOT BE ATTAINED BY ANY OTHER METHOD.

	£	s.	d.
Lieut. R. P. Bufton, R.F.C.	0	10 0
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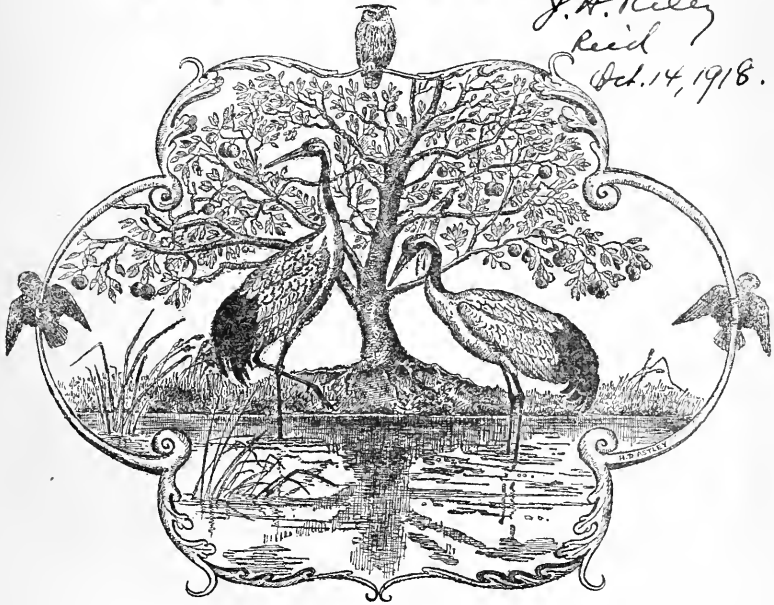
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THE EAST INDIES AND PACIFIC.

AVICULTURAL MAGAZINE.

*J. A. Riley
Recd
Oct. 14, 1918.*



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MOUNTED BIRD EXHIBITS OF THE UNITED
 STATES NATIONAL MUSEUM AT
 WASHINGTON.

By R. W. SHUFELDT, M.D., C.M.Z.S.

(Concluded from p. 192.)

One of the largest Cuckoos in the world's avifauna is the Giant Cuckoo, also known as the Channel-bill, Storm Bird, Hornbill, and Toucan. Dr. Leach, of Melbourne, in his 'Australian Bird Book,' says of it that "it is a northern bird, which very rarely reaches the southern part of the Continent. Its large bill is characteristic. Its tail is large and often spread out fan-wise, thus giving a majestic appearance to the bird. Its call is not pleasing, as it is described by Gould as a 'frightful scream,' and again as consisting of 'awful notes.' It lays its eggs sometimes in the nest of a Sparrow Hawk (not Kestrel), or in the nest of a Magpie, Bell-Magpie (*Strepera*), or even a Crow. It appears with the first flood-waters, and follows the rivers from the Gulf of Carpentaria water-shed down to Cooper's Creek and Lake Eyre" (pp. 111, 112).

Mr. Wood's mounted specimen of this bird, for animation and naturalness, is quite perfect. The label on the specimen gives its range as "Australia, New Guinea, to Flores, and Celebes." If a second specimen is ever mounted for this Museum, it should be done with the tail spread in its characteristic manner, as described by Dr. Leach.*

* [Similarly a figure of the Road-Runner Cuckoo, with tail spread out fanwise, will be found in 'Bird Lore,' Vol. xvii, No. 1, p. 59.—G. R.]

A couple of Mr. Wood's Pigeons are here introduced; they are by no means the best he has done, though they are excellent of their kind. I shall publish others elsewhere—perhaps in Australia. The beautiful species to the left of the picture is a male of the White Nutmeg Pigeon of Australia, New Guinea, Papuan, and Aru Islands. It is here represented in an extremely life-like pose, and it is by no means difficult to imagine its being alive. This also applies to the superb specimen of the Papuan Imperial Pigeon, to be seen on its perch to the right. That is a New Guinea species—a large form, with a build much like the extinct American Passenger Pigeon.

[We have much pleasure in publishing the photograph annexed to this paper, demonstrating, as it does, the high level attained by the American taxidermists. Equally with painting and sculpture, taxidermy should rank as a fine art, as far removed from mere “stuffing” as a Penguin is from a Humming Bird. The wonderful life-like pose of both birds leaves nothing to be desired, and it is here that the knowledge of living birds promoted by aviculture is invaluable. Had so-called “illustrators” always worked from live models there would never have existed those grotesque figures which still disgrace the pages of too many books.—G. R.]

HOW BIRDS OF PARADISE ARE CAUGHT.

By AN OLD AUSTRALIAN BIRD-LOVER.

Recently, Mr. J. E. Ward arrived from New Guinea with a large and varied collection of this wonderful country's birds, each of them a treasure in itself. To see them makes one long to have them all in one's aviaries. There were not only a large number of Birds of Paradise, such as the Great, the King, the Six-wired, the Magnificent, the Superb, and the Long-tailed, but also six specimens of the “Blue Bird” species (*Paradisornis rudolphi*)—the largest number ever brought alive out of New Guinea by any collector. There were also beautiful Parrots of all colours, Pigmy Parrakeets in blue, yellow, black, and white; different species of Rails (some looking like Sparrows on stilts); gorgeously coloured fruit-eating and some seed-eating Pigeons not much bigger than Starlings. Further,

some lovely Wrens and other soft-billed birds, New Guinea Finches of the Nun type, and a new species of Chestnut Finch. The Golden-crested Bower Birds were worth special mention, and the gems of the collection were the Long-tailed Kingfishers and wonderfully-coloured Pittas. Of minor importance, though attractive enough were the Red-eyed Glossy Starlings, Quails, and Minahs, and various others I cannot just now remember. Besides birds, Mr. Ward brought a new species of Wallaby and a collection of reptiles, which, by their wonderfully vivid colours aroused the admiration of even those who are less friendly inclined towards snakes and lizards. I asked Mr. Ward to tell me how he procures his birds, and he was good enough to do so and give me permission to relate some of his observations and experiences in the 'Avic. Mag.' This is what he told me :

Port Moresby is generally the place where the outfit for an expedition into the interior of New Guinea is procured. A collector's licence has to be obtained, as well as a special licence for the taking of Birds of Paradise, dead or alive. The fees for both are about £25, and the number of Birds of Paradise permitted to be taken are stated on the licence. As one cannot leave British New Guinea except *viâ* Port Moresby the conditions of the permit are strictly enforced, and an official counts the birds before they are allowed to leave the country. Around Port Moresby, in fact within days of it, nothing of value in birds could be caught. The collecting grounds are far away, along the Agabung River, the Fly—or St. Joseph's—River, which are reached *viâ* Yule Island. As one travels inland there are localities met with, as in Australia, devoid of natives and birds, simply because there is nothing to eat for either—it is desolation. To cross these districts with a transport of birds, the food for which has to be gathered on the way, is a very trying matter.

The King Bird of Paradise and the Great Bird of Paradise are the first to be met with in the sultry river flats, and to obtain them is comparatively easy. Mr. Ward says the catching of the Great Bird of Paradise is quite a religious ceremony with the natives, and although he tried hard during his several visits to be allowed to be present he never succeeded in seeing one caught. The men whose job it is to catch them must not eat meat for days prior, besides con-

forming to minor regulations. After having absented themselves from the village the women will carry their food (taro and bananas), leaving it on the track unseen by the men. The birds are caught in their dancing-tree with snares, the most favourable method being a double slipknot placed around a limb of the branch of the tree in such a way that when the bird gets his foot into the noose the cord tightens on to it, and releasing itself from the branch leaves the bird dangling. Another way is to spread a fine meshed net a little below the dancing birds, which, when frightened, will fly downward towards the under scrub and thus become entangled in the net. The Six-wired also dances, and like the Magnificent performs on a ledge on the ground. The Long-tailed Bird of Paradise dances on vines which spread from tree to tree, using them in the same way as children would a swing. The natives, knowing the bird's dancing-vine, build a little hut or shelter close by, and when the bird dances and is unconscious of its surroundings they grab it by the tail, the feathers of which are so tightly wedged into the body that they withstand the struggles which follow.

Mr. Ward got his Blue Birds of Paradise 6000 ft. high in very hostile country, and says the natives there are the most superstitious he ever met with in New Guinea. Whilst he was able to make himself understood amongst the tribes lower down in the Motu language, a sort of Esperanto in New Guinea, he found here the greatest difficulties, and even his interpreter left much to be desired. To make the natives understand the kind of bird he wanted he drew and painted the Blue Bird, noting the exclamations of the natives when they saw it. In this wise he learned the native name for it, being "Manika." He stayed in this village for several weeks, but neither presents of tobacco, knives, tomahawks, nor the much-valued of all, "salt," could induce the natives to catch the much longed-for Blue Bird for him. Eventually, he decided to make use of their superstition, and coiling a large snake around his neck, walked through the village. He tells me that the effect of this trick upon the natives was most comical. The street emptied itself as if by magic, no native being visible. He then instructed his interpreter to tell them that the snake was his brother, and that he had decided to depart but leave his brother behind, and as he had many cousins he

would call them all, and the village would be alive with them because his brother was very angry that they had taken his presents and not caught him any Blue Birds! He evidently succeeded beyond expectations, for a day or two after the first pair of Blue Birds arrived, being followed within a few days by another *eleven*! Unfortunately, the natives are very cruel in carrying the birds they bring in, tying them tightly by the thick part of the leg to poles with head downward; when resting they are just pitched anywhere, so that a number are half or quite dead on arrival. Mr. Ward considers that the Blue Birds are not at all rare, but being a kind of sacred bird it is hard to induce the natives to catch them. Other birds, especially those of bright plumage, the feathers of which they use themselves in their dancing costumes, they will readily bring in in any number. In this altitude Mr. Ward also obtained his "Superbs" and "Long-tails" without trouble. As far as he could observe, the King Bird is the only one which does not dance or perform in some way. Parrots and Pigeons are very plentiful, and form the main item on the menu. The natives catch them with snares and bring as many as required for small remuneration.

One of the most interesting birds is the Golden-crested Bower Bird, which is taken in the net. The bower of this bird by description must be most remarkable. A straight little sapling perhaps 2 ft. high is selected, and in some way the bird kills it and strips it of its leaves. Then he will plant in a circle around this little flagpole, in the shape of a little mound, moss, which in this ever moist and steamy atmosphere grows very quickly. He will then place a dead stick from the outer rim of the mound against the upright, and build a network of little sticks up the upright and the lean-to stick, leaving an opening on the mossy mound through which he plays.

One of the most common birds of New Guinea is a gorgeously plumed, long-tailed Kingfisher. Little boys catch them any time they want to, taking the half-curved bark of a banana tree, and fastening a grasshopper into the centre. Two or three inches each side of it they fix a snare with the noose upright inside the bark. Having located the bird, they put their trap on the ground close by, and clapping their hands so as to attract the attention of the bird, they walk backward away. The bird invariably swoops

down in a half-circle, and if he is not caught on his way to the grasshopper, he generally finds himself in the noose getting away from it. To catch these birds, which get their food on the wing, is one thing, to keep them is another. Mr. Ward, after losing scores of them for want of live food, conceived the idea of bleaching the flesh of pigeons—the only meat available—and getting the natives to hunt up some white grubs, such as are found in decayed wood. He commenced by tying small pieces of this bleached meat on to the white grubs. Each day the grub became smaller, the piece of meat bigger; eventually there was only the still-moving head and the meat attached. In the end even the head went, and Mr. Ward was repaid for his infinite trouble and perseverance by bringing a number of these lovely birds, living on meat, to Sydney—probably the first seen alive out of New Guinea.

Altogether, the food question for birds during transport must have been very trying; in many districts Mr. Ward could only get green bananas, and the artificial food brought along would go sour an hour after opening the air-tight tins. Also the trouble he had with his carriers, especially in hostile country, needs remembering, and would dishearten anyone less enthusiastic or energetic. On account of their quarrelsomeness, many of his birds had to be transported in separate cages; others would fight through the bars of their cages and destroy or maim each other, and as the native track through this endless jungle is but the width of a man, the cages would bump against any obstacle—little would it trouble the natives if these valuable birds suffered or not. From a height of 6000 ft., up mountains and down paths almost perpendicular, over ridges sharp as razors with a consignment of rare and valuable birds, eventually landing them in wonderful condition—one might say almost ready for showing—is an achievement of which anyone might be proud. It is only the few of us—like the writer of this article—who have traversed an inhospitable country similar to New Guinea, suffering the terrors of the tropical jungles, and that scourge of all tropical countries—malaria—who realise what it means to collect live birds in the virgin forests. Sick or well, the birds have to be fed and watered, yet how many of us—the lucky possessors of tropical bird treasures—realise what hardship and bodily misery it may have cost the collector to obtain the specimens we now admire in our aviaries?

BIRDS OF PARADISE IN LITTLE TOBAGO, WEST INDIES.

(Caretaker's diary, communicated by Sir WM. INGRAM.)

October 22nd, 1917.—As usual I went out this morning, and I saw a good many birds on my way. I am watching carefully, but up to now I have not seen any sign of nest-building.

24th.—In making my rounds to-day I saw many birds, cocks as well as hens. They are flying in pairs; I take it as a sign that they are mating.

November 7th.—I made a round of all the roads to-day. I had the pleasure of seeing many birds wherever I passed. I again noticed that they are in couples, flying very low; up to now I have not seen anything of nest-building.

8th.—I saw a bit of stick in one of the hen bird's beak. It flew away with it. I failed to see just where it went. I shall, however, keep a sharp look-out about the locality in the hope of seeing something of nest-building.

19th.—I made a general round to-day. I met many birds all where I passed, but they are in couples. I again saw another bird with a bit of straw in its beak; it flew with it to a tall tree, and I lost sight of it. I have also noticed there is a difference in their cry now.

20th.—In making my rounds to-day I noticed that very few hen birds are about; in fact, I only saw two for the day. The cocks are all about, but particularly in their old stand—the Parrot apple-tree.

[*Note by Sir William Ingram.*—This is the tree where the male birds assemble to go through their dancing performances. In New Guinea the *Apodas* also have one special tree in each district, where they go through their display.]

21st.—From early morning I have been out trying to see if I can locate a nest, but with no success; the hen birds that could guide me are not about as usual. I take it that they must be sitting.

22nd.—I made a general round to-day to see if I can come

across any hens, but I again failed. I saw many cocks wherever I passed.

23rd.—I saw a few cocks to-day, and one hen; she had a bit of grass in her beak, with which she flew away to a tree. I saw no more.

29th.—In making my rounds to-day I met as many as nine cocks, but not one hen.

30th.—Again to-day I have not seen a hen bird. I met a few cocks; even the cocks I notice are not as common as they were before.

[*Note by Sir William Ingram.*—After this he reports having seen no hen until on December 18th he notes having seen one hen in the act of mating with a cock bird.]

December 19th.—I saw three hen birds for a very short time.

20th.—I saw three hen birds to-day but just for a few minutes, and they were off. The cocks are everywhere.

21st.—I saw another hen mating, the only hen I have seen to-day.

29th.—Have been away from the island during Christmas week.

[*Note by Sir William Ingram.*—In New Guinea, judging from travellers' accounts, Birds of Paradise breed during November and December, so it seems my *Apodas* have not altered their habits in this respect. I think there is little doubt that they are increasing; as the *Apoda* only lays one or two eggs in a sitting it is not to be expected that their number will be added to very rapidly. It seems strange that up to the present not one of their nests have been discovered. From what I have heard, in New Guinea they nest in trees about 15 ft. from the ground, so it is likely they choose high trees in Little Tobago for this purpose. My caretaker further reports that he saw several young ones from January 5th to the end of February. This is the time one would expect young Paradise Birds in New Guinea.]

THE TWELVE-WIRED BIRD OF PARADISE.

By GRAHAM RENSHAW, M.D., F.R.S.E.

“Le manucode à douze filets.”—*Audebert and Veillot on the Twelve-wired Bird of Paradise.*

The colour changes which occur in birds as the result of captivity are very puzzling; one might rather call them colour degenerations, for the new hue seems, as a rule, a poor substitute for the old. Thus one finds that the Nonpareil loses its rich red colour, this being replaced after the first moult in captivity by orange, or even yellow. The gorgeous scarlet Ibis gradually pales in captivity; Linnets lose the crimson patches on head and breast. Such is also the case—in this country—with that ornithological gem, the Twelve-wired Bird of Paradise.

The Twelve-wired Bird of Paradise (*Seleucides nigricans*) is remarkable for its amazing beauty. Even in a dried skin the glorious metallic hues delight the eye of the naturalist, but to appreciate them fully one must see the living bird. In the adult male the head is bronze purple, with the throat and mantle bronze green; the wings and tail are lovely purplish violet. In addition, there are three sets of the accessory plumes so usual with this group of birds—namely, (1) a large, pectoral shield of bronze-black feathers; (2) long, rich golden yellow flank-plumes; (3) a series of twelve curved, wire-like filaments, from which the species takes its name. The female, in contrast to so much splendour, is soberly garbed in brown.

Unfortunately, this brilliant coloration is liable to become impaired in captivity; the golden yellow flank-plumes, which in the wild bird contrast so handsomely with the violet wings, are liable to bleach to a dull yellowish white. One would at first be disposed to attribute this remarkable phenomenon to exposure to light, as a similar bleaching is seen in museum specimens which have not been stored in cabinets. It appears, however, that those kept alive by Heer van Bruijn Morris retained their normal hue; these were at Ternate in the East Indies, and practically in their native air, so probably the bleaching seen in Europe is due to lower vitality caused by change of climate.

Another interesting fact is not generally known: *the lovely violet colour of the wings appears by a gradual change in the feather and not by a moult.* Thus the colour change is strictly comparable to that of Bishop Birds and Whydahs, where one can trace the gradual darkening of an individual feather from day to day. The feather is, indeed, a living entity, an organism to itself—unlike a claw, which is merely so much horn. A microscopical examination of a bleached plume of this Paradise Bird would probably show that the loss of colour is due to the formation of small air cavities, the air, so to speak, replacing the imperfectly formed pigment in the finer structure of the feather. At any rate, such changes are known to take place in the human subject, and thus produce the silvery appearance of white hair.

Perhaps the first aviculturist to keep the Twelve-wired Bird of Paradise was Mr. A. A. Bruijn; writing to Dr. Sclater in 1874 he stated that in his aviary he had four species of Paradise Birds, including the present one. This was in the East Indies; next came Mr. van Bruijn Morris, who in 1883 had a large collection of Papuan birds, including two full-plumaged males of the Twelve-wired species. These did very well in confinement, and their brilliant coloration has already been alluded to.

In Europe the Twelve-wired Bird of Paradise has always been very rare—in fact, practically unknown to aviculture. The first one seen in Europe was probably Signor G. E. Serruti's bird; this the owner presented to the King of Italy, who kept it alive for several months. On March 19th, 1881, Mr. Wm. Jamrach deposited in the Zoo three Paradise Birds—all species of great interest—namely, one Twelve-wired and one Red, together with a Green Manucode. All were healthy, but in rough condition; the Twelve-wired lived till February 8th, 1882, when he died of congestion of the lungs.

Lastly, a fine male example from Salwatti, purchased by the Zoological Society on June 8th, 1907, adorned the small bird house in the Gardens till his death in the spring of 1918. The writer frequently studied this exquisite creature, and it was the greatest possible pleasure to note his fine condition, amply testifying to the care lavished upon him. A veteran among *Paradiseidæ*, to the writer at any rate he showed no signs of age; his demeanour was alert and

inquisitive, and well supported the dictum of those ornithologists who place the Paradise Birds between the Crows and the Starlings. In psychical as in physical characters the bird seemed midway between the two; in diet—oranges, figs, dates, meal-worms—he inclined to the Starling's side; one wonders if, like a Starling, a Bird of Paradise could be taught to talk.

Colours of bare areas during life: eye, bright red; lores, dull leaden; legs, pale red; feet, very pale flesh colour; claws, greyish; inside of mouth and dorsum of tongue bright emerald green—perhaps the most amazing tint of all.

UVÆAN PARRAKEETS.

A member's correspondent, writing on Uvæan Parrakeets, says: I cannot allow that hemp destroys their digestive organs; surely seed of any sort would not harm the digestive organs of hard-billed Parrots; a too liberal supply of hemp or sunflower may overfatten them, and thus prove fatal. While with me they had daily a liberal supply of canary seed and a little hemp, also whole maize and fruit, green food, etc.; but before I got them they had been fed entirely on maize. There is an abundance of wild fruits all the year round in New Caledonia, so I conclude they need a liberal daily supply of it and green food, which I always gave them.

THE FRIGATE-BIRD POST OF THE PACIFIC.

By E. HOPKINSON, M.B., D.S.O.

In a note to a paper by Bowdler Sharpe on a few birds from the Ellice Islands ['Proceedings of the Zoological Society,' 1878, p. 274], the Rev. S. J. Whitmee, a missionary in the Pacific, writes on one of the very last birds one would expect to hear of in captivity as follows:

“The *Frigate-bird* . . . is domesticated by the natives (of the Ellice Islands), and when I was there in 1870 I saw

scores of them about the villages sitting on long perches erected for them near the beach. The natives procure the young birds and tie them by the leg and feed them till they are tame. Afterwards they let them loose and they go out to sea together to get their food and return to their perches in the villages at intervals."

Some little time back, before I had come across the above, I had heard a slightly different version of the same from a friend of mine, much of whose life had been passed in the Solomons, Gilberts, and other little-known Pacific Islands. In many places he had often seen captive Frigate-birds, but in one particularly isolated island or group the natives had got as far as using these birds as postmen! These islanders were dependent for the little outside trade they had on very occasional (sometimes at intervals of two or three years) arrival of trading schooners. These never made the islands under ordinary circumstances, as they were so remote from the usual routes and also so poorly furnished with the usual matters of trade, but would no doubt do so "if sufficient inducement offered," as the steamer announcements put it. One of the places which the traders regularly visited happened to include a nesting-site of the Frigate-birds. It was by means of this that our islanders (I believe they were part of the Ellice group, but am not sure) communicated with the outside world. Just before the nesting-season they caught a certain number of birds to whose legs they tied bladders; after which they let them go. The bladders contained pieces of stone, stick, shell, etc., which constituted the message. This always referred to the amount of "trade" (copra, pearl-shell, or whatever it was) ready for removal. As far as my informant knew, no more personal news was sent, at any rate nothing written, for that was an art beyond them. In due course the birds repaired to their breeding-place. Here any would-be visitor caught any bladder-bearing bird he saw, and no doubt decided from the news thus brought whether it was worth his while making the journey to their place of origin. That it would be easy to catch the nesting-birds is obvious, but how the first captures were managed is by no means so clear. If they were caught just before the breeding-season, they must then have been full-winged. This point never struck me till I read the

missionary's note; his were caught young, and this may have been the case with the others also, but even so, where were they caught? It could not have been at the breeding-place, for then there would have been no need for the employment of the birds as messengers, for the message itself could have been left by the catchers, and had a more certain chance of meeting the eye of the proper recipient. The whole point of the need for the birds was the remoteness of the islanders in question and the single breeding-place which was used by every bird for hundreds of miles round.

Like these Frigate-birds I have wandered far afield. With them, as I have come to the end of my notes, I will end, and like them, may I leave a message of the unbounded store of interesting matter these 'Proceedings of the Zoological Society' contain? My jottings are merely scraps picked up here and there, and there is plenty of room for further search and a goodly supply of avicultural titbits, as well as more substantial provender, left for others on some future occasion, when I am once more within touch of libraries and books. This is written in the Gambia, far away from all such things, and to that and to the fact that it is based on rough pencil notes made at home and brought out with me, any errors in the references given must be attributed. My writing is never very clear at the best of times, and it was by no means at its best in these notes, nor has the packing improved their legibility, or, as I should rather say, diminished their illegibility.

COLOUR CHANGE WITHOUT A MOULT.

By ARTHUR G. BUTLER, Ph.D.

I must revert to a matter which has long interested me, and respecting which ornithologists disagree. In Darwin's 'Descent of Man,' second edition, p. 599, the author makes the following statement: "Some male birds . . . become more brightly coloured in the spring, not by vernal moult, but either by an actual change of colour in the feathers, or by their obscurely-coloured deciduary margins being shed."

In the 'Ibis' for July, 1916, pp. 476-478, I described the

assumption of summer plumage in *Pyromelana oryx*, in confirmation of the late Dr. Arthur C. Stark's and my own published declaration that in the genus *Pyromelana* all plumage which does not require alteration in form and size for purposes of ornamentation gradually assumes the nuptial colouring without a moult, and I pointed out that in the example which I was describing, and which died during the change, a considerable part of the plumage was in a transitional condition between winter and summer colouring, in many of the feathers the brown winter colouring, with heavy blackish shaft-streaks being washed over with the more or less reddish orange of the summer hue. If feathers are moulted out and replaced by new ones of a different colour, the change must necessarily be abrupt; and, as I have argued years ago, when describing the development of the adult colouring in the Yellow-billed Cardinal ('Proc. Zool. Soc., 1903, vol. ii, pp. 350, 351), it would require not one but a constant succession of moults to represent all the changes through which these tropic feathers pass.

At the end of my paper the Editor inserts the following note: "The example of *Pyromelana oryx*, referred to by Dr. Butler, is now in the British Museum, and does not, in our opinion, or that of others who have examined it, warrant the conclusion that the colour-change is brought about by the absorption of fresh colour by the old feathers. Both it and other examples, especially one collected by Mr. Swynnerton, in Rhodesia, in November (reg. no. 1911, 5. 30. 394), show undoubted signs of moult."

Now, nobody has yet called in question the fact stated by Stark that "the feathers of the lower back, rump, and flanks are entirely changed by a moult"; what they, many of them, refuse to believe is his further statement, "the remaining plumage and bill becoming darker, owing to a gradual absorption of colouring matter." ('The Fauna of South Africa,' Birds, vol. i, p. 131); yet Stark is by no means the only careful observer of birds in their native haunts who has expressed his faith in colour-change without a moult.

(*To be continued.*)

THE FEATHER AS A LIVING UNIT.

By ALLEN SILVER.

Concerning the much debated point of feathers being "stop-cocked" when once complete, one is hardly in a position to make assertions on the point without having living birds under close examination. Eliminating colour appearances, variable according to the aspect in which the bird is viewed or caused by feather arrangement, how is it that a freshly moulted bird is nearly always paler than it was before the moult? Allowing time for the full growth of feather and the slight abrasion which takes place in some cases; by the breeding season the colouring is always (if the bird is in health) appreciably different in tone, including birds which have not a special breeding dress. How is it that one of the first signs of real illness and also of prospective moult is dulness, a dulness similar to that assumed by human hair, which in some cases is peculiarly noticeable when certain individuals are "off colour"? The birds may wash and preen, but there is no polish, no tone; and this is probably due to the fact that at such times mentioned there is a permanent "cut off." Again, too, I have noticed, apart from feather arrangement, prismatic, structural, or metallic colouring, that dead feathers have not quite the tone of those attached to the living bird, even before one can bring in the argument of rapid decomposition. My observations on most newly acquired plumages causes me to describe them as "mealy" in tone, and those about to be shed, or on sickly birds as dull and toneless, as compared with the richest period of their growth.

REPORT OF COUNCIL MEETING.

A meeting of the Council was held on Friday, June 28th, at the offices of the Zoological Society. There were present: Mr. Meade-Waldo (Chairman), Miss Alderson (Hon. Secretary), Mr. Ezra (Hon. Treasurer), Dr. Graham Renshaw (Editor), Dr. Amsler, the Hon. Mrs. Bourke, Miss Chawner, Mr. Pocock, Mr. Seth-Smith.

The minutes of the last meeting (February 27th) were read and confirmed.

Letters of regret for non-attendance from Mr. Astley, Dr. Butler, Mr. Shore-Baily, Mr. St. Quintin, and Mr. Willford were read. A letter of thanks from the British Museum, for numbers of the Magazine presented, was read.

It was decided to subscribe 7s. 6d. to have a notice of the Avicultural Society inserted in the Official Year-Book of Scientific Societies.

It was decided that members might bring friends who were non-members to the annual tea and garden party.

The Hon. Secretary reported that since the beginning of the current year twenty-six new members had joined, and only one had resigned.

To meet the increased cost of producing the Magazine it was decided to ask every member to give 2s. 6d., or more if possible, to strengthen the financial position of the Society.

The Editor reported that a very satisfactory amount of copy was being sent in; unfortunately, owing to temporary reduction of the size of the Magazine, publication of some of it would be delayed.

The Hon. Secretary was instructed to write and convey to Lieut. Delacour a vote of condolence on the destruction of his birds and aviaries during the war.

Dr. J. K. Butter (proposed by Dr. Renshaw) and Lieut. G. Gurney (proposed by Mr. Meade-Waldo), were elected to fill vacancies on the Council. Mr. Ogilvie Grant retired from the Council, and was appointed scrutineer, Mr. St. Quintin being elected auditor.

The proceedings closed with a vote of thanks to the Zoological Society for the kind loan of the room.

After the meeting the annual tea and garden party was held, tea being provided in the Fellows' Pavilion. According to time-honoured custom, the afternoon terminated with a tour of the aviaries in the Gardens. The Small Bird House, with its Birds of Paradise, was inspected, and there was a fine show of Weavers in the Summer Aviary.

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Proposed by Miss R. ALDERSON.

DORA, COUNTESS OF GLASGOW, The Craig, Fairlie, Ayrshire.

Proposed by Mr. W. L. SCLATER.

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G. R.

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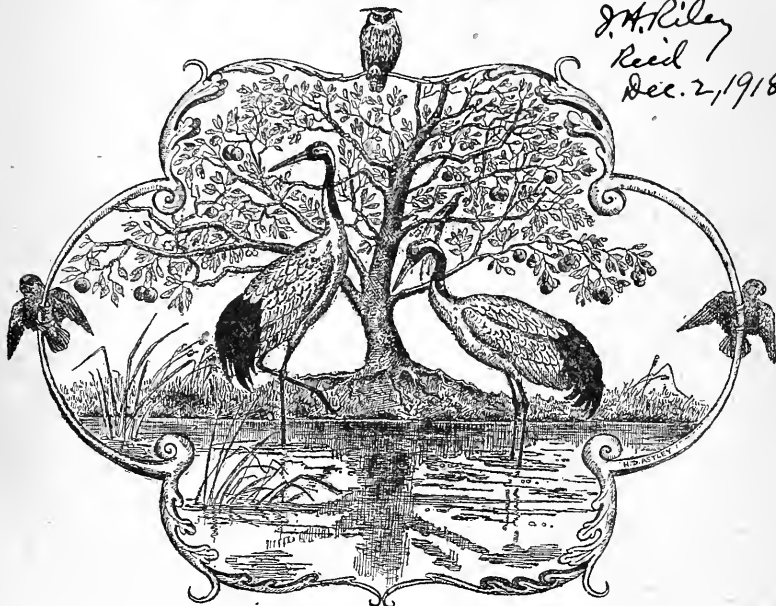
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OCTOBER, 1918.

THE TURNING TIDE.

“Prospice, aspice, respice,” ran the old Roman saying—“Look at the future, look at the present, look at the past.” In this spirit, on the conclusion of the present volume with the present number, the Society may well pause—and rejoice—to take stock of the situation. The Council is to be congratulated, for at the meeting last week “eclipse plumage” was laid aside. Once more we go forward. The size of the Magazine is increased with this number, and a further addition of pages will be made in due course. “The worst is over.”

Reverting to our proverb, the past is already recorded in these pages. As for the present, the Editor warmly thanks his contributors for their most valuable assistance, both with papers and photographs. The scope of the Magazine has widened, the influence of the Society has increased, its policy is known the world over; still truly avicultural in the widest and best sense, it is not limited to the mere study of cage-birds, but has taken its rightful place among the zoological activities of the world.

It is very gratifying to note the latest phase in which the generosity of our contributors is impelling them to defray the cost of illustrating their articles. In this way they greatly benefit the Illustration Fund, so that we can increase not only the amount of letterpress, but even the number of plates in each issue.

The annual subscription to the Magazine will in future be £1 (one pound).

The Council request that all subscriptions for the coming year, now due, be sent in not later than November 1st. The subscriptions should be sent direct to the Treasurer, Mr. A. Ezra, 110, Mount Street, London, W. 1—not in any case to the Publishers. The old rule is now abolished.

The Council and Editor do not receive any salary, and are busy with their usual occupations. It will therefore much gratify them and be a real appreciation of their labours if the subscriptions are sent in promptly. To seize the magnificent opportunities at last within our grasp early action is imperative.

The future is full of hope—nay, expectation—and crowded with grand possibilities. On the threshold of a new volume the Magazine doffs its eclipse plumage—

“As those
Dull-coated things, that making slide apart
Their dusk wing-cases, all beneath there burns
A jewell'd harness, ere they pass and fly.”

G. R.

THE EARED PHEASANT OF MANCHURIA (*Crossoptilon*).

By M. PIERRE AMÉDÉE PICHOT.

Most wild animals can readily be tamed, but very few have become reliable domestic auxiliaries, so that one is led to believe that if our actual domestic stock is derived from the wild fauna of the globe, the gradual transformation must have begun in very remote ages, when man was not diverted from the creatures he reclaimed by social business and necessities. Adaptation to new surroundings cannot be obtained without perseverance through many generations, otherwise the experiments die out with the originators of the scheme, and all the work has to be undertaken anew.

Thus it happens that many animals and birds, naturally disposed to accept our control and to avail themselves of the benefits of domestication, have retained their wild character and are still totally unfit to realise our expectations.

The fact is particularly noticeable in the class of gallinaceous birds, which seem better disposed than any to join the human community and profit by civilisation. It is now several centuries since



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THE EAR-LIKE FEATHERS CURIOUSLY RECALL THE WHISKERS OF
CERTAIN LEMURS.

the Common Pheasant was introduced into England and France, and though it has been reared in close contact with man. Waterton's saying still holds good: "That notwithstanding the proximity of the Pheasant to the nature of barn-door fowl, it has that within it which baffles every attempt on our part to render its domestication complete."

The character of the Eared Pheasants of Manchuria is still more puzzling. They seem to prefer human society to that of their congeners. They will find, as soon as hatched, the door of the kitchen or the servants' hall, and there they will linger the whole day long, hardly moving out of the way of a passer-by. They never think of straying far, and keep on the best terms with the poultry; but, all of a sudden, they are apt to start from their placid composure, and, without any explanatory cause, assault one of the inmates of the house, rush after somebody they see passing in the distance, or fall upon a fowl, which is soon put to death if timely help is not forthcoming. These fits of mad rage have prevented me from keeping the Eared Pheasants loose, as I did at first, and I have been obliged to confine them in a closed aviary by themselves. But more than a pair cannot be kept together, and even then their courting is so brutal that the deluded spouse may find that she has caught a Tartar and have to be removed in a pitiful plight, often beyond recovery. No wonder that the ancient Chinese warriors decorated their helmets with the plumes of the Eared Pheasant as a token of their own pugnacity. The courage of the bird is such that I have seen one driving away a cat that was trying to stalk it in the grass.

The Eared Pheasant was introduced into Europe in the sixties. In 1864 Mr. Berthemy, the French Minister in China, sent two males and one female to the Acclimatization Society. In 1866. Mr. Dudley E. Saurin presented some specimens to the Zoological Society of London, and the same year Mademoiselle de Bellonet succeeded in raising eighteen birds from a pair which had been sent to her by her brother, the Secretary of the French Legation at Pekin. The bird is now well known, as it has spread in zoological gardens and private collections, and I daresay that it is not necessary to observe that its so-called ears are no ears at all, but two tufts of white feathers, which, upturned in the way of a moustache, encircle the

head. But one cannot too much admire the beautiful tail-coverts, which flow over the back like a mantle, in striking contrast, by their white colour, with the dark brown plumage of the bird. These feathers, whose barbs are separate, might easily supplant the so-called osprey feathers for millinery purposes, and this should be an incentive for pursuing the domestication of the Eared Pheasant and "taming the shrew."

CHINESE CAGE BIRDS.

By Fleet-Surgeon K. H. JONES, M.B., R.N.

No one can take a stroll in the native quarter of Hong Kong or in any of the large native cities of China, and not be struck both by the number of bird-fanciers' shops, and by the abundance of cages hanging outside the houses and booths.

We all of us are aware that the Heathen Chinese is peculiar, and in his bird-fancying he is no less so than in most other ways, according to Occidental notions.

The Chinese is exceedingly fond of taking his avian friends for a walk into the country, and often one may meet a middle-class Celestial strolling along with a small but beautifully-made bamboo cage balanced on the palm of his outstretched hand, or sitting on the grass whilst his insectivorous little pet grubs busily for treasures entomological in the earth exposed by the removal of the bottom of its cage. In these peculiarities, as in his method of exhibiting single flowers in solitary vases, it is by no means certain that the man from Far Cathay suffers by comparison with his Western brother.

Bird-catching must go on to a considerable scale in China, to judge by the crowds of birds to be found in the bird-shops, and also by the quantities shipped on board coasting steamers brought to the south from the north, and sometimes *vice-versâ*. The members of the crews of the coasting steamers coming down from Taku and other North China ports have almost always each a private venture in cage-birds.

Should one chance to travel in a coasting steamer from any North China port to Hong Kong, one will see on a sunny morning almost every man of the Chinese crew who is off duty sunning his

birds in the little and often much overcrowded cages on the forewell deck.

Of course in a country which supports so large a proportion of its population in boats, bird-shop junks and sampans are not unknown, and one may see these ungainly craft simply hung all over with cages full of Canaries and other feathered songsters.

In addition to the volume of trade in cage birds which flows along the coast in junks and steamers, a considerable amount also follows the great rivers in these craft.

At the same time the variety in species seen at the coast ports is not observable in the interior, where, in Southern China at any rate, the great majority of cage birds are individuals of two species—*Copsychus saularis* and *Zosterops simplex*. In some places various species of Larks are fairly common, and especially is this the case with *Alauda cœlix*. Doubtless native bird-catchers exist in Far Cathay; but it is pretty certain that in South-East China, at any rate, the great majority of non-imported birds are taken as nestlings, and reared either by the parents or by hand.

It is for this reason difficult to get a Chinese to show to a European nests and eggs of *Zosterops simplex*, *Copsychus saularis*, or *Alauda cœlix*.

Bird-catchers who use clap-nets and call-birds may exist, and have been said to do so, but the writer never actually saw them.

Trailing a net over the dried-up paddy fields after dark to capture the so-called Rice Birds (which are really Buntings of various species) is a common practice. The birds, however, are killed and sold as delicacies for culinary purposes.

Snares one sees on rare occasions, but they also are to kill, and flight-nets on mud flats for the taking of Ducks and other wild fowl are as well known in the East as in the West.

Of all the birds one sees in captivity in Southern China, perhaps *Zosterops simplex* (the little Chinese White Eye) is the most popular. These little birds are taken from their nests when almost able to fly, and are placed in a cage not far, as a rule, from the site of their birthplace, when the parents come to feed them.

These birds become very tame in a very short time, and are extremely fascinating pets.

Almost as popular as *Z. simplex* is *Copsychus saularis* (the Magpie Robin). These birds are also, as a rule, removed from their nests before they can fly.

The Chinese spend a lot of time searching for the nests of this species, with a view to removing the young when sufficiently grown.

This species has a pleasant song and becomes very tame. One of these birds, seen at Hong Kong, performed a sort of tumbling trick round its perch, and also displayed great boldness in making pretended attacks on its owner.

In a wild state these birds are very courageous, and attack Blue Magpies and other robbers without fear.

Trochalopteron conorum (the "Wah Mee" = "painted eye brows" of the Chinese, from its white superciliary stripe) occasionally occurs as a cage bird at Hong Kong, but apparently does not thrive.

Dryonastes sinensis (the Chinese Babbling Thrush) is not at all uncommon; but although the species breeds at Hong Kong it is not common in a wild state there, and the live-stock dealers assert that their specimens come from Kwangsi up the West River.

This species has a few mellow, flute-like notes, which, heard occasionally out in the woods, are rather pleasing. In captivity, however, the same few notes repeated continually with maddening persistence very shortly grow wearisome in the extreme.

These birds seem to thrive in captivity, and there is no great difficulty in feeding them.

Liothrix lutea is a common cage-bird in South-Eastern China, but in a wild state it is rare, and where the caged specimens so often seen are obtained is doubtful—possibly not far from Hong Kong, for many species are wonderfully local in distribution.

Passer montanus: Tree Sparrows are often seen in the bamboo cages of the Celestial bird-fanciers, crowded together in astonishing numbers, and with them are occasionally incarcerated a few specimens of *Passer rutilans* (the Russet Sparrow). Whether the Chinese eat these sparrows or what becomes of them is doubtful.

Java Sparrows are very often seen caged in China, and less often the other local Munias, but the smaller species from the Malay Archipelago are very common in confinement, and, as they at times

escape, sometimes appear in the woods and gardens as stray introductions.*

A very common and very favourite cage bird both north and south in China is the Mongolian Lark, or Shantung Lark as the bird-fanciers call it (*Melanocorypha mongolica*).

This Lark is readily tamed, and is a beautiful singer. The Chinese place the bird in a cage with a small pedestal in the centre, and on this it sits, dropping its wings and spreading out its tail, to give vent to its song. The song is very sweet, but compared with that of a Skylark it is feeble.

Another very favourite Lark is *Alauda cœlix*, and, unlike the last, it is a common bird in the south of China. These birds also are placed in little cages fitted with a pedestal, on which they mount to sing.

The Chinese often take these little Larks into the country, and there, removing the bottom of the cages placed upon the ground, allow the inmates to pick up insects, etc., from the grass.

At times contests in singing are held between the birds, the cages being put in close proximity and the inmates encouraged to sing one another down.

A wild Lark of this species may also challenge a caged bird, and a vigorous competition be thus instituted.

Cockatoos and various species of Parrots are very commonly kept caged in Hong Kong and Canton, and now and again escape into the country-side.

It has been surmised that the Ring-necked Parroquets (*Palæornis torquatus*), now fairly common at Hong Kong, may have been first thus introduced there. Canaries are also plentiful in the fanciers' shops and on the bird-shop sampans of the harbour, but as these birds are not indigenous they do not seem to call for any special mention.

There are, of course, many species which occur occasionally as cage-birds in China, but the few above-mentioned constitute the bulk of those commonly to be met with there.

* One sees some funny strays at Hong Kong. I've seen a pink and grey Cockatoo on a tree in the R.N. Hospital, and I picked up a Mongolian Lark (*Melanocorypha mongolica*) alive and well on my verandah there. I kept it a long time in a cage and very tame it was.—K. H. J.

KALEEGE AND OTHER PHEASANTS.

By FRANK FINN, B.A., F.Z.S.

It is noticeable that while forms differing only in colour, even when ranked by us as species, habitually interbreed freely where their ranges overlap, species differing in structural characters only do so sporadically. Thus, among our own birds, the Hooded and Carrion Crows, where they meet in the breeding season, pair indiscriminately, but the Capercaillie and Blackcock only produce hybrids here and there.

There seems to be, however, a remarkable exception to this among the Pheasants of the Kaleege group, where an unbroken chain of forms, to all appearance due to interbreeding, exists between the black Horsfield's or Purple Kaleege (*Gennæus horsfieldi*) and the lovely Silver Pheasant (*G. nycthemerus*) of our aviaries. Yet the nearest member of the group to this, the Lineated Kaleege (*G. lineatus*), which shows a recognisable approach to the Silver Pheasant in its coloration, being black below and pencilled above, differs from it in several structural points; its crest is narrow and expands laterally, instead of being full and expanding only vertically; its tail is short and almost hen-like, and it is much smaller, only about half the Silver Pheasant's size.

I have noted another very important difference in the Lineated Kaleeges bred at the Zoo. The Silver Pheasant is well known not to get his full male plumage till the year following that of his birth; the Lineated bird gets his colour in his first autumn—indeed, he is nearly in complete male colour long before he is full-sized, so that he looks rather like a bantam edition of his sire. The hen Lineated also is as fully crested as the male, while in the Silver Pheasant the crest of the hen is so short as hardly to be noticeable.

Well-characterised species can exist side by side without intermixing. A good case of this is seen in the Amherst and Golden Pheasants, which do not become fused in the wild state, though inhabiting the same area, owing to the hostility of the Amherst to the Golden, which it drives from its own favourite localities, according

to Père David, in his 'Oiseaux de la Chine.' Yet these species can be crossed in captivity, and the hybrid, as is well known, is perfectly fertile, showing a close blood-relationship. Now if we compare the males of these two Pheasants, we find that they could be easily distinguished by structural characters, even if they were all white. In the Gold Pheasant the crest is full, and covers the whole crown; the ruff is square-tipped, and all the under-plumage disunited and glassy-looking; in the Amherst the crest is scanty and confined to the back of the crown, the ruff is round-tipped, and the under-plumage is close-textured and on the breast scale-like and velvety, while the ruff and tail are much larger than in the golden bird. Moreover, the Amherst has in both sexes a conspicuous bare area round the eye. Thus, although forming a natural generic group, the two species have good structural differences. As to the meaning of genera, I should like to quote here what I said in "The Indian Pheasants and their Allies," published in the 'Indian Forester,' vol. xxviii, 1902, p. 228 (it is not in these articles as republished in book-form, with additions, as 'The Game-Birds of India and Asia'):

"It is often stated, even by high zoological authorities, that genera have no real existence in nature, but are only the invention of naturalists for cutting up the numerous species into manageable groups, the species themselves being presumed to be real enough. This notion is entirely fallacious. A genus is, or should be, a group of species, each of which more closely resembles all the other species of that group than it does any other species outside. This being so, a genus is just as real a thing as the species of which it is composed, and this is obvious enough in the rare cases when the separate species of the whole genus each have a popular name. For instance, it would be absurd to admit the existence of the Carrion Crow, our old friend the Indian House-Crow, the Raven, Rook, and Jackdaw, and then say that the genus 'Crow,' or *Corvus*, in scientific language, which includes all these, did not exist except in the imagination of naturalists. A 'Crow' is a big (more or less) black bird of certain physical attributes, and most people recognise the existence of the genus before they know the species."

MY INDIAN PARTRIDGE.

By Lieut.-Col. A. LLOYD.

I have been asked to write a short account of my Indian Grey Partridge. Sultan has honoured me with his company for over eight years, and he was brought to England from India a few months before he was given to me. The first two winters Sultan felt the cold greatly and used to huddle up to the fire. Now he seems fairly well acclimatised, but of course needs care; has constant fires; even in summer he mostly has a fire in the mornings. Sultan runs about the dining- and drawing-rooms in the daytime, and at night goes up on to the sideboard in the dining-room to roost. When I go to bed I persuade Sultan to go into his cage, and I take him up to my room. A piece of flannel is put on the floor of his cage. One night the parlourmaid forgot it, and Sultan's language on the subject while being carried upstairs was decidedly unparliamentary. Sultan loves squatting on my knee and being stroked, and he delights in a fight with a newspaper crumpled up and pushed backwards and forwards. Sultan makes the "feathers" fly and crows in triumph.

In summer Sultan enjoys walks in the garden and runs after me like a little dog; he takes no notice of Robins and such small fry, but if Thrushes or Blackbirds venture near him he chases them away.

Sultan gets very excited if he sees poultry on the common, swears at them, and has to be kept from dashing after them.

Sultan hardly ever flies, likes running up sloping roofs, and climbing up inside the creepers on the house. He is afraid of nothing, wishes to attack dogs, and one day pursued a stoat, which fortunately did not see him.

Sultan has strong likes and dislikes for people, and never changes his mind about them, but to some people he is indifferent and takes no notice of them. He was very fond of one gardener I had, and spent hours in the garden watching John work, keeping about a yard ahead of him. The next gardener Sultan hated; they could not be in the garden together, as Sultan pecked the gardener's legs so much that he could not work at all.

Sultan's diet consists of white, yellow, and red millet and canary-seed, lettuce, and meal-worms. He is very fond of cake, also of puddings, such as soufflé, lemon, etc.; they must be very hot, and have eggs in them.

Sultan is clever in finding ants' nests in the garden and enjoys the eggs greatly.

There is a large box of sandy earth in the dining-room, and Sultan revels in a dust-bath two or three times a day.

Sultan has only been really ill once; he caught a chill in June some years ago, and in half an hour he got so weak that he could only just stagger along. He had three drops of opium, and next day a couple of doses of syrup of squills, was kept in one room for a week, a big fire day and night, temperature of room kept up over 80° F.

I said Sultan fears nothing. I forgot aeroplanes. One flew over when Sultan was in the garden one day; he was quite frightened, evidently thought it was a mighty bird of prey, and he scuttled away under a bush.

Sultan sends salaams to all who may read about him; he still remains full of life and vigour.

CONGRATULATORY BROODS.

By HUBERT D. ASTLEY, M.A.

(Concluded from p. 272.)

I also have a brood of Monauls, hatched under a Light Sussex hen. There were six. One died very suddenly; I think the hen injured it. The five lived happily in the garden, until they took to roosting in the lower branches of a tall *cupressus* on the edge of the moat, when one morning, to my dismay, only three ran to my feet to feed when I whistled. Under the tree I found where one had been devoured, and by an Owl without much doubt, and of the other there was no trace. Hastily I lured the remaining three (as large as full-grown Partridges) into a small poultry-house with a wire run, into which they walked like lambs, and I tried to encourage my drooped spirits and my great disappointment by—"Better three than none."

In the afternoon of the tragedy I went round at 3 o'clock to feed them, saw two in the run and one outside! "How on earth ——?" At that moment a third walked out of the roosting-house, and then I realised that the "outsider" was the lost bird, which must have fled away in the night when the marauder took the other.

It pleased me greatly, for it shows that these splendid Pheasants have a homing instinct, and it is my intention to leave them at large when they are grown enough to roost higher, and are too big for cats to seize upon.

The parent birds are in an aviary.

Is there anything more gorgeous than a male Monaul in full beauty? The shimmering copper on the neck, with the emeralds, sapphires and amethysts which flash on his upper parts, is enhanced by the deep black of the breast and the chestnut-coloured tail.

The egg of this Pheasant is very handsome. The size of a domestic hen's, but longer—a rich buff, profusely spotted with chestnut.

The young are perfectly easy to rear—custard for the first four or five days and then meal.

My birds had the advantage of as much wild green food as they wanted, and this is very necessary, passing the day with their foster-mother amongst bushes, where they no doubt found plenty of insects.

I had hoped for a brood of Ross's Snow Goose. Four eggs. Two came to nothing, although fertile; one beautiful gosling which hatched was squashed in the night by a lumping Light Sussex hen, and the survivor was pecked on the head by a Jackdaw and succumbed to its injuries. These goslings are clothed in yellowish-green down, which is extremely abundant and fluffy. (June.)

* * * *

The four Monauls (August) are now larger than a common hen Pheasant, and have their squared chestnut tails, barred with dark brown, in the place of the pointed feathers of the first plumage. They have taken to roosting inside a large barn, high up under the roof on a cross-beam, entering under the barn door, jumping on to a waggon, and so up from beam to beam. They run every morning to meet me in the garden.

INDIAN BIRDS IN WINTER.*

By ALTHEA R. SHERMAN.

The Black Drongo, nicknamed the King Crow, has black plumage and a long forked tail. Binoculars reveal to us that the iris of its eye is red, giving it a rather wicked appearance. After the manner of many other Flycatchers it perches conspicuously on telegraph-wires and fence-posts. In temper it resembles our Kingbird, which accounts for the "King" part of its sobriquet, and the books tell us that it is a valiant fighter of the Crows; also that its methods of catching insects and building its nest are such as we observe in our Kingbird. Of the several cousins of this bird only the White-bellied Drongo (*Dicrurus caerulescens*) was seen. He is a striking fellow in appearance with the keen contrasts of his colours.

Another bird frequently seen along this first route was the Indian Roller (*Coracias indica*). This species, partial to both fence-posts and telegraph-wires, seems to favour the former. When perched it is a beautiful sight, but on the wing it is a dream of loveliness as its greenish-blue colours, mingled with various other shades of blue, gleam in the sunlight. Its brilliant colouring, together with its large size, a trifle more than 12 in. in length, makes it a conspicuous sight, which is noted by all travellers, no matter how blind they are to other birds. Since it hunts for its insect food very much as do our Shrikes there is frequent display of its enchanting colours. Although sacred to the god Siva, this distinction has not saved it from the toils of the plumage-hunters, and it is far less numerous than so useful and beautiful a creature ought to be. It was my experience to note the species quite often in some portions of the southern journey, and in diminishing numbers as far as Delhi, after which none was seen. It is interesting to recall that Mr. Finn has written that he thinks this species can be acclimatised in America. It certainly is a pity that the experiment was not tried upon some such bird instead of the hateful English Sparrow.

The Indian Roller is frequently called a Blue Jay; anent this slip Mr. Douglas Dewar has this to say: "He is not a Jay at all, but

* Reprinted from the 'Wilson Bulletin,' No. 90.

the misnomer is perhaps a pardonable one, for in more respects than one the bird resembles the true Jays, and I am told that the European Roller (*Coracias garrula*), a near relative of the Indian Blue Jay, is known in parts of Germany as the Birch Jay. American visitors to India, however, make no such mistake. You never hear one of them call the Roller a Jay. They dub him the Surprise Bird, a name which admirably suits both him and the Paddy Bird."

Along the railway route through Jubbulpore (and occasionally in other parts of India), two species of birds, both small and green of plumage, were quite numerous. These were the common Indian Bee-eater (*Merops viridis*) and the Crimson-breasted Barbet (*Xantholæma hæmatocephala*). A large flock of the Barbet was seen daily near my hotel in Delhi, and they were quite plentiful on Mount Abu. They are rather droll, clumsy-looking little fellows, as one would expect to be true of a species closely related to the Woodpeckers. Their predominant colour is green with sulphur-yellow trimmings about the head, and with patches of crimson on the forehead and throat. Unfortunately for the tourists these birds are silent during cool weather, and we did not hear their peculiar metallic notes that have earned for them the nickname of Copper-smith.

In spite of the brilliant green colouring of the Common Indian Bee-eater, its gentle mien and fly-catching habits constantly remind one of the Phœbe, and the impression is deepened when we find three or four of them sitting closely together on a branch in the exact fashion of a brood of young Phœbes. The books say that this fondness for each other's society leads them in some places to roost in large companies; also that they nest in burrows that they dig for themselves in the banks of the rivers and ravines. Although their size and colours are similar, yet their slender forms and long central tail-feathers readily distinguish them from the short-tailed, chunky Barbets.

The railway journey to Calcutta occupied forty-four hours, and terminated in the grey dawn of a January day. It was in this city that the more leisurely observation of the birds began. Among the first birds noted were two representatives of a species not met with afterward, though it is said to be a common species in winter:

throughout the region of the plains. It was a brown bird that perched on dead twigs and flicked its tail like a Phoebe, being about the size of that bird, but the shape of its head was shrike-like, as were its motions when it darted to the ground for insects, therefore it was with genuine satisfaction I found that afternoon in the Indian Museum a mounted specimen of the species labelled Indian Brown Shrike (*Lanius cristatus*); and near it another specimen of a female Indian Koel (*Eudynamis honorata*), which settled for me the identity of a large speckled bird that was watched for a long time that morning. It belongs to the Cuckoo family, and arouses interest, because, true to the traits of its tribe, it lays its eggs in the nests of other birds.

Besides many interesting glimpses of the industrial life and customs of the natives, a visit to the banks of the Hooghly River afforded an introduction to the Brahminy Kite (*Haliaster indus*). Several of these handsome birds were flying over the river; others perched in the rigging of ships were preening themselves. This is another species that shows great beauty of colouring when on the wing, the bright, clear, chestnut-rufous or maroon colour of its upper plumage contrasting finely with the under parts, which are white, narrowly streaked with brown; its head and neck are white also. This scavenger of the surface of the river was frequently seen to the westward as far as Benares, gracing now and then the top of a fence-post by the wayside, from which it watched for frogs and crabs and other favoured tidbit.

COLOUR CHANGE WITHOUT A MOULT.

By ARTHUR G. BUTLER, Ph.D.

(Concluded from p. 286.)

With regard to the Indigo-Finch referred to in the above paper, it is convincing enough, but by no means so absolutely intermediate as a beautiful example which I left some years ago with the late Sir William Flower; hoping that, after he had studied it, he would hand it over to my colleague, Dr. Sharpe, for the Museum series; unfortunately it appears never to have found its way into the collection.

The change of colour from young to adult plumage in *Paroaria* was, I believe, regarded as absurd by certain ornithologists ; but that is certainly not the only group in which startling transformations of juvenal into adult plumage are effected without a moult. Of *Agelasticus thilius*, I purchased what purported to be a pair in 1894 ; in the autumn the supposed hen died during its change from the young to the adult male plumage (dissection proved it to be a cock bird). In this specimen, which I have before me, the general tone of the plumage is smoky rather than bluish-black as in the perfected male feathering, a few feathers on the crown still retain partly brown tips, as also most of those on the mantle ; the wing-coverts and secondaries still retain their well-defined, red-brown borders ; the throat feathers have their fringes partly white, but many of those on the breast are in a transitional stage, some of the fringes being whitish-brown, whilst at the sides, on the lower abdomen, and vent this colour is prevalent.

All bird-students agree that many birds gain their nuptial plumage by shedding the tips or fringes of their feathers ; but we have no right to assume that this is the case with all those which do not pass through a regular spring moult. Our common Redstart is supposed to shed the tips of its feathers ; yet I have a male which died during the change of plumage, and its colouring is intermediate between that of winter and summer, but the fringes are not abraded. Birds in a wild state are far more likely to get the edges of their feathers rubbed off than those properly looked after in semi-captivity ; so that if shot with partly abraded fringes to the feathers, they may incline one to come to incorrect conclusions. In the case of my Redstart, two-thirds of most of the feathers of the hind-breast and abdomen (and not the fringes alone) would have to be sacrificed in order to acquire the summer colouring by abrasion.

I always like to give reasons for my views, but to those who do not regard them as conclusive, I do not desire to be dogmatic ; there is so much to learn and so little that we understand of the workings of Nature that we can only conclude—"Magna est veritas et prevalebit."



CA 3

Toucanet

Generosity of Capt. Collingwood Ingram.

TOUCANET AT VILLERS-BRETONNEUX.

THE SMALLER SKETCH SHOWS DETAILS OF THE EYE.

Collingwood Ingram, del.

AVE ATQUE VALE: VILLERS-BRETONNEUX.*

By a misfortune without parallel in the history of aviculture, Lieut. Delacour's collection at Villers-Bretonneux has been utterly destroyed. The Editor feels that no words of his can adequately describe this tragic episode, involving the loss of what was practically an entire zoological garden of birds. A short account of the catastrophe was published in our August issue. The following list speaks eloquently for itself:

LIST OF THE BIRDS LOST AT VILLERS-BRETONNEUX (APRIL, 1918).

	♂	♀		♂	♀
Ostriches	1	1	Chiloe Pintails	1	1
White Rheas	1	1	Bahama Pintails	1	1
Sarus Cranes	1	1	Rosy-billed Ducks	1	1
European Cranes	1	1	Scaup (milounian)	1	—
Crowned Cranes	1	1	Tufted Ducks (moullons)	2	1
Stanley Cranes	1	1	<i>Fuligula ferina</i> (miloun)	3	1
Demoiselle Cranes	—	1	Wigeons	2	1
Great Egrets	1	1	Chiloe Wigeons	3	2
Lesser Egrets	1	2	Teal	2	1
Night Heron	1	—	Summer Teal	2	—
White Ibis	1	—	Formosan Teal (<i>E. formosa</i>)	1	1
Senegal Porphyrios	1	1	Hooded Gulls	2	1
Blue Porphyrios	1	2	Cinereous Gulls	2	1
Black Swan	—	1	Common Peafowl	2	2
Cereopsis Geese	1	1	Black-shouldered Peafowl	4	6
Upland Geese	1	1	White Peafowl	3	2
Barheaded Geese	1	1	Spicifer Peafowl	1	3
Ruddy-headed Geese	1	1	Germain's Peacock Pheasant	1	—
Maned Geese	1	1	Manchurian Crossoptilons	1	1
White-faced Tree Ducks	1	2	Sonnerat's Jungle Fowls	2	1
Eyton's Tree Duck	1	—	Mikado Pheasant	1	—
<i>Sarcidiornis carunculata</i>	1	2	Sæmmerring's Pheasant	1	1
<i>Tadorna tadorna</i>	2	1	White-crested Kaleege	1	1
Summer Ducks	3	4	Vulturine Guinea-fowl	—	1
Mandarin Ducks	3	2	Crested Guinea-fowl	1	—
<i>Anas clypeata</i>	2	1	Hildebrandt's Francolins	1	1
Falcated Ducks	3	1	Sclater's Curassow	1	—
Australian Wild Ducks	2	3	Prince Albert's Curassow	1	2
Pintails	3	2	Wattled Curassow	1	—

* Ave atque vale = "Hail and Farewell."

	♂	♀		♂	♀
Pauxi Curassow	1	-	Mexican Jay	1	1
Crested Guan	1	-	Butcher Birds (<i>Dendrocitta</i>		
Marail Guan	1	1	<i>rufa</i>)	1	1
Bleeding-heart Pigeons	4	3	White-crested Jay Thrush	1	-
Common Crowned Pigeon	1	-	White Blackbird	1	-
Victoria Crowned Pigeon	-	1	Brazilian Thrush (?)	1	-
Nicobar Pigeons	2	1	Red-legged Cuban Thrush	1	-
Green-winged Doves	1	1	<i>Acuticaudus</i> Glossy Star-		
Fair Pigeon (<i>C. speciosa</i>)	1	-	lings	1	-
Spotted Pigeon (<i>C. maculosa</i>)	-	1	<i>Auratus</i> Glossy Starlings	2	1
Pigeons Hollandais	2	3	<i>Sycobius</i> Glossy Starlings	-	1
<i>Chloropterus</i> Macaw	-	1	<i>Aeneus</i> Glossy Starlings	1	1
Macao Macaw	1	-	<i>Chalibeus</i> Glossy Starlings	1	-
Severe Macaw	1	-	<i>Amblyramphus holosericeus</i>	1	-
Leadbeater's Cockatoo	2	-	<i>Xanthocephalus longipes</i>	3	-
Rosy Cockatoo	1	2	Wagler's Troupials	2	-
Goffin's Cockatoo	-	1	Bellbird	1	-
<i>Molluccensis</i> Cockatoo	1	-	<i>Acridotheres siamensis</i>	1	2
Sulphur-crested Cockatoo	-	1	<i>Acridotheres cristatellus</i>	1	1
<i>Pionus corallinus</i>	1	1	<i>Acridotheres ginginianus</i>	1	-
<i>Zanygnathus lucionensis</i>	1	-	<i>Acridotheres tristis</i>	1	1
<i>Psittacara acuticaudata</i>	1	-	<i>Pastor roseus</i>	1	-
Vasa Parrot	1	-	<i>Temenuchus sinensis</i>	2	2
<i>Palæornis schisticeps</i>	1	-	<i>Temenuchus burmanicus</i>	1	1
Pennant's Parrakeets	1	1	Virginian Cardinals	3	2
<i>Palliceps</i> (mealy) Parrakeets	1	1	Brazilian Bishop (<i>Coccororus</i>		
Rosella Parrakeets	1	1	<i>cyaneus</i>)	2	2
Adelaide Parrakeets	1	1	<i>Poephila gouldiæ</i>	3	4
Many-coloured Parrakeets	1	1	Parrot Finches	1	1
Rosy-faced Love Birds	1	1	Longtailed Grass Finches	1	1
Blue Budgerigars	6	6	Diamond Finches	1	1
Blue Breeding Budgerigars			Hooded Siskins	1	1
(green)	3	2	Blue-breasted Waxbills	1	1
Yellow Budgerigars	2	2	Scarlet Tanagers	3	-
Buffon's Touraco	3	3	Black Tanagers	1	1
Hornbill (<i>Buceros atratus</i>)	1	-	Masked Sugar-bird	1	-
Ariel Toucans	2	2	Yellow-winged Sugar-bird	2	-
Green-billed Toucans	5	5	Purple-winged Sugar-bird	1	-
Baillon's Toucanet (<i>Andi-</i>			Malachite Sun-bird	1	-
<i>gena</i>)	2	2	Double-collared Sun-bird	2	-
Spotted-billed Toucanet	2	1	Purple-collared Sun-bird	1	-
Motmot	1	-	Amethyst-rumped Sun-bird	1	-
White Jackdaw	1	1	<i>Saturata</i> Sun-bird (<i>Æto-</i>		
White Jay	1	-	<i>pyga</i>)	1	-
Occipital Blue Pie	1	1			

(141 species of birds.)

<i>Hybrids.</i>		♂	♀
Egyptian Goose × Upland Goose		1	1
Summer Duck × Chiloe Wigeon		1	—
Elliot Pheasant × Mikado Pheasant		2	2
Scemmerring Pheasant × Reeves Pheasant		1	1
Spotted Pigeon (<i>C. maculosa</i>) × Fair Pigeon		3	3
Canary × Hooded Siskin		1	—
Canary × Goldfinch (quite white and light yellow)		1	1
(360 birds.)			

A full account of this grand collection appeared in the 'Avicultural Magazine' for November and December, 1917, and January, 1918. It was illustrated with two plates, and is well worth re-reading. The aviaries were again figured in our issue for April, 1918.

REVIEW.

FEATHERED COMPANIONS.*

This is an interesting book. Consisting of reprints from the 'Times of India Illustrated Weekly,' the volume before us deals with a number of dumb companions—feathered, furred, and scaled. While all parts of the work are well worth reading, it is with the bird portion that we aviculturists are chiefly concerned.

The author has the power of writing interesting and accurate description; this is seen both in his studies of special individuals, and also in the field notes of the movements of whole flocks of birds. Weavers, Golden and Imperial Eagles, Vultures, Crows, Choughs, Wild Duck, and Cormorant, figure in these pages; we see the Coucal stalking by the water's edge, and the Tragopan high on the snowy slopes of the Himalayas. Humour is also to be found in these pleasant pages, as, for instance in this account of two Baya Weavers kept by the writer:

"From the date their eyes opened Willy grabbed the stick of food, as soon as it was put near him, and it had to be withdrawn forcibly, before stick and all went down his throat, but with Billy it was different. He opened his mouth very wide and screamed for his food, and emphasised his request by shaking his whole head at a

* 'Companions—Feathered, Furred, and Scaled,' by C. H. DONALD. Bombay: The Times Press. Pp. 105. Illustrated.

terrific pace. The result was that the stick missed the mouth and the gruel went all over his head and eyes, and had to be wiped off. Constant applications of gruel were not conducive to the growth of feathers, with the result that, long after Willy's head was well covered, Billy's alternated between feathers and gruel stains."

The author uses both camera and pencil in illustrating the book, and we especially like the frontispiece, depicting an Eagle in flight, bearing a Pheasant in its talons. There is also a good photograph of the nest of a Baya Weaver.

The illustrations, unfortunately, are of unequal merit; several—apparently enlargements—being quite indistinct. There are also errors in the letter-press: judging from remarks on pp. 12 and 36, the writer believes that the maw of a bird is its mouth, while several misprints also occur. We do not know what tint "isabeline" may be, though acquainted with "isabelline," so called from Queen Isabella. The "*bhurrel*" is unknown to zoology, the Himalayan blue sheep being styled *burrhel*; it would indeed be interesting to see a trained Weaver Bird let off a toy "*canon*," and we can well believe the statement on p. 24, that "everything hinges on his first mastery of this secret."

G. R.

GAPES.

Mr. Alfred Thom writes:

Speaking of gapes, I notice that Mr. Moody does not mention the cure of putting turpentine down the wind-pipe with a feather, which I have always found successful with young chickens.

For diarrhœa, I have found putting small birds for some hours in my airing cupboard, which is very hot, a very good cure. It is nearly as hot as the hottest room of a Turkish bath. Often I leave them in it all night. For egg-binding I also find it very good, even without anointing.

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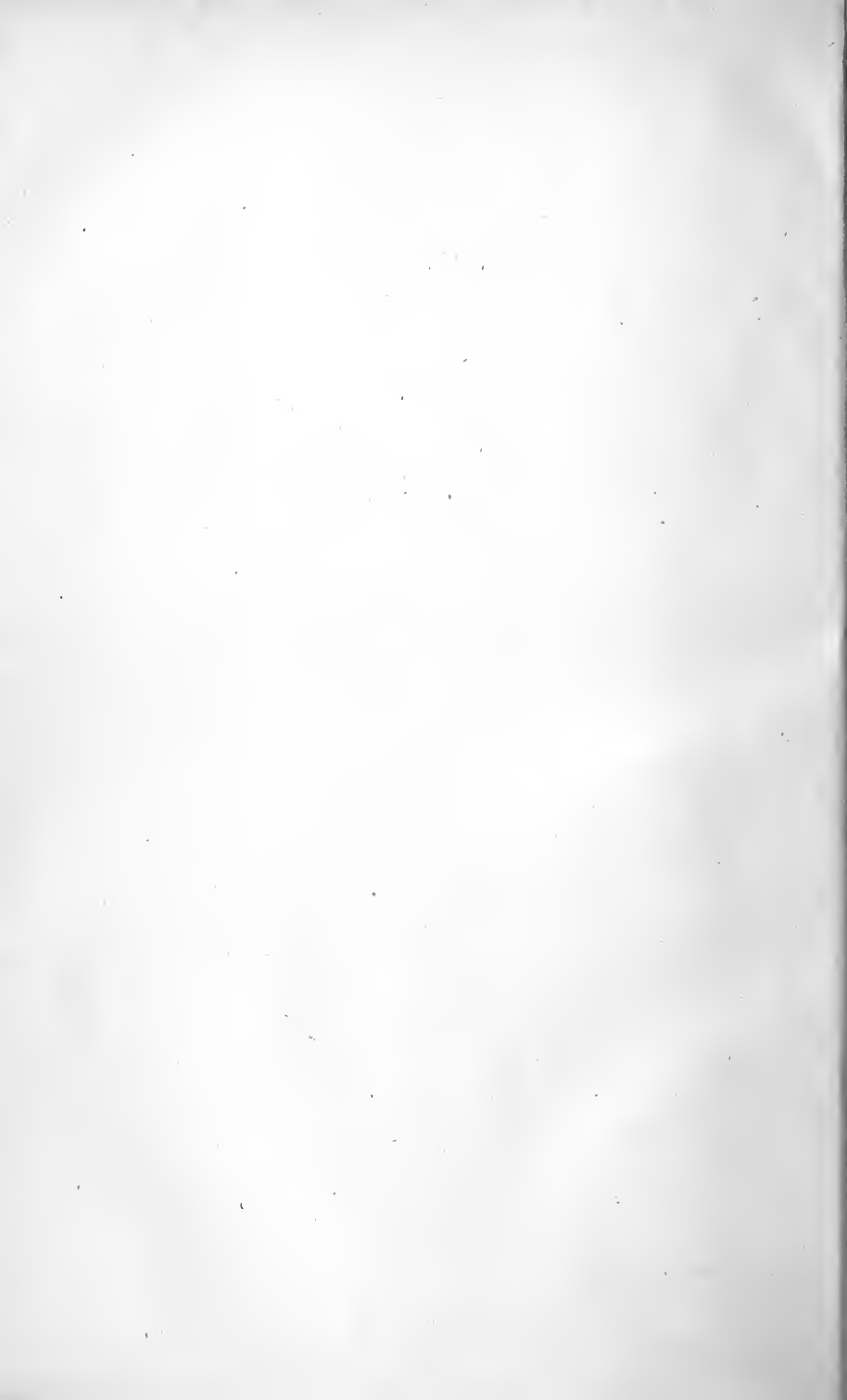
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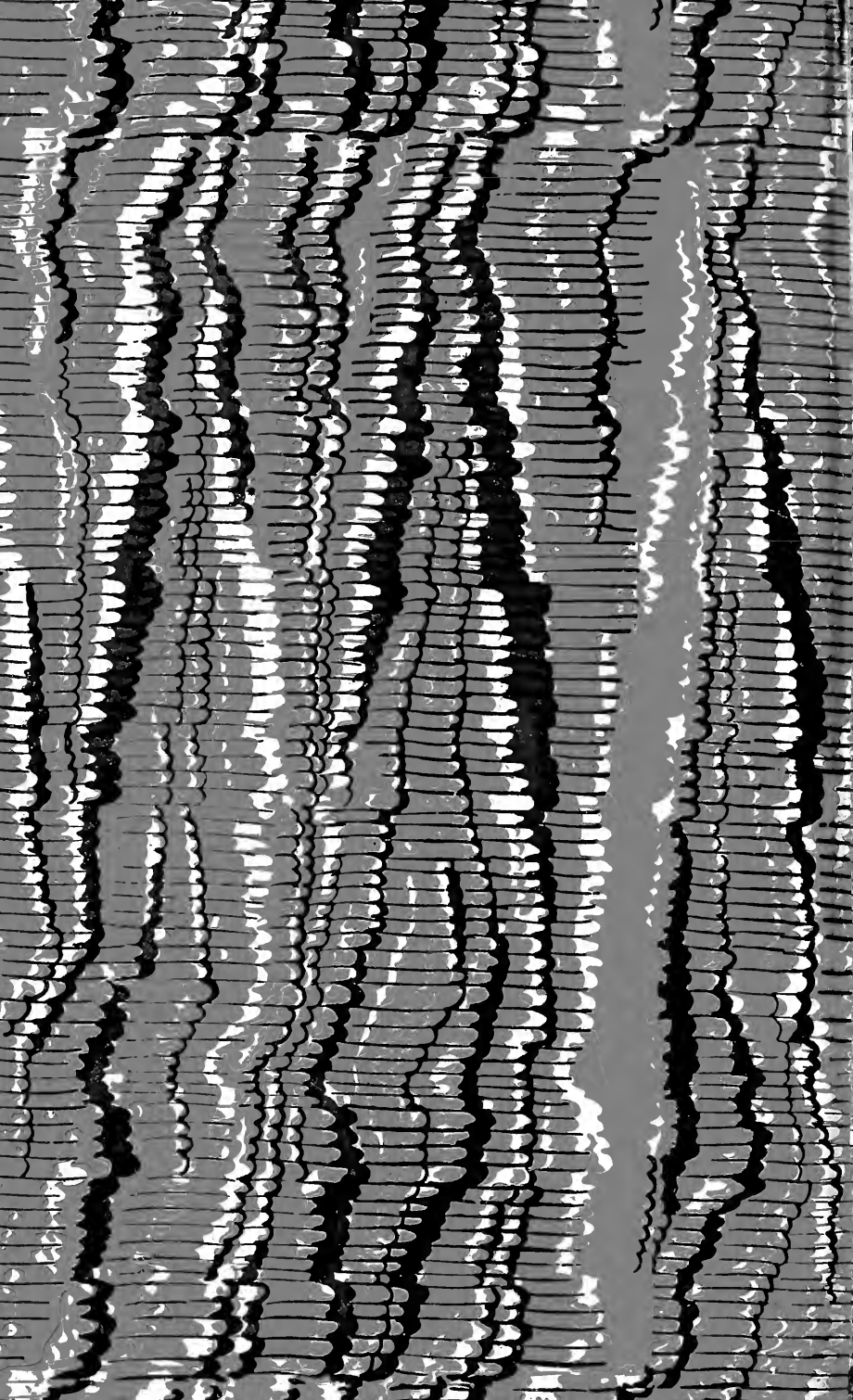
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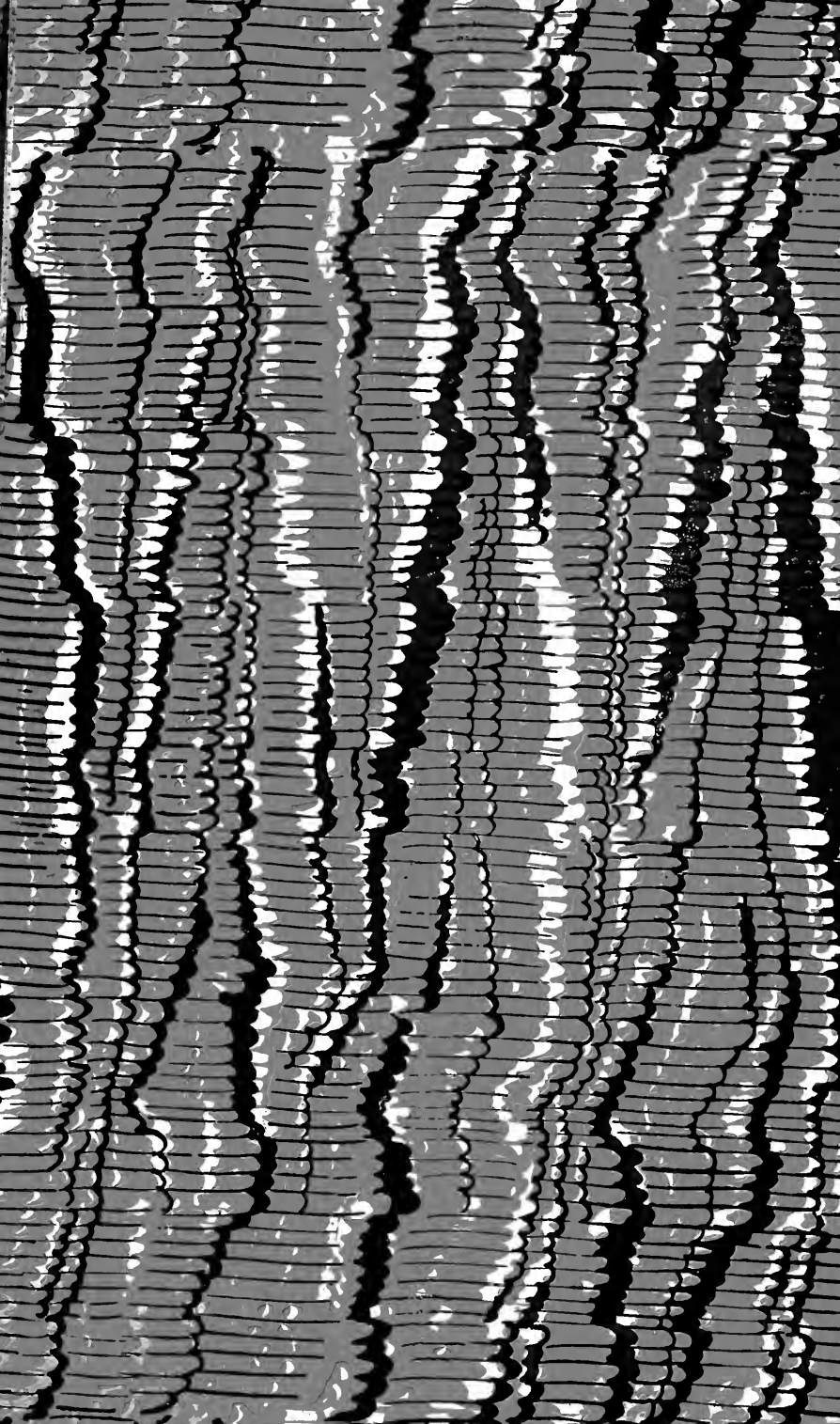
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