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Birds

THE AVICULTURAL MAGAZINE

BEING THE JOURNAL OF THE
AVICULTURAL SOCIETY FOR
THE STUDY OF BRITISH AND
FOREIGN BIRDS IN FREEDOM
AND CAPTIVITY.

EDITED BY

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

AND

R. I. POCOCK, F.R.S.



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AMERICAN MUSEUM OF NATURAL HISTORY ; 77th Street and Central Park West, New York City, U.S.A.

AMSLER, MAURICE, M.B., F.Z.S. ; Eton Court House, Eton, Windsor. (Dec., 1908.)

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10 BARLOW-MASSICKS, Miss F. M. ; The Friary, Tickhill, Yorks. (1913.)

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- BENTLEY, DAVID ; 80 St. Hubert's Street, Great Harwood, Blackburn. (July, 1895.)
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- BORTHWICK, ALEX. ; Cooper Street, Longueville Lane Cove, Sydney, N.S.W. (Feb., 1909.)
- BOURKE, Hon. Mrs. ALGERNON ; 75 Gloucester Place, Portman Square, W. 1. (Feb., 1911.)
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- 20 BOYD, HAROLD ; Box 374, Kelowna, British Columbia. (March, 1902.)
- BRIGGS, T. H. ; Sefton, Dawlish, South Devon. (June, 1918.)
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- BUTLER, ARTHUR LARCHIN, M.Aust.O.U. ; Waimarie, Lower Sandy Bay, Hobart, Tasmania. (July, 1905.)
- 30 BÜTTIKOFFER, Dr. J., C.M.Z.S., M.B.O.U. ; Director of the Zoological Gardens, Rotterdam, Holland. (Oct., 1907.) (*Hon. Mem.*)
- *CARPENTER, The Hon. Mrs. ; 22 Grosvenor Road, S.W. 1. (Feb., 1898.)
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- CASE, Mrs. ALICE M. ; Holmbury, Silverdale Road, Eastbourne. (May, 1918.)
- CHAPMAN, G. B. ; 17 Tottenham Court Road, London, W. (Nov., 1922.)
- CHAWNER, Miss ; Forest Bank, Lyndhurst, Hants. (July, 1899.)
- COCKELL, N. F. ; Karrageen, Cricket Field Road, Torquay. (1922.)
- CONNELL, Mrs. KNATCHBULL ; The Orchard, Brockenhurst, Hants. (Nov. 1897.)
- COOPER, JAMES ; Killerby Hall, Scarborough. (Orig. Mem.)
- 40 CORY, REGINALD R. ; Duffryn, near Cardiff. (August, 1905.)

- CURREY, Mrs. ; The Pit House, Ewell, Surrey. (Feb., 1906.)
- *CUSHNEY, CHARLES ; The Bath Club, 34 Dover Street, Piccadilly, W. (June, 1906.)
- DAVIES, G. ; 96 Greenfield Terrace, New Tredegar. (July, 1914.)
- DAWSON, W. LEON. ; Museum of Comparative Oology, Santa Barbara, Cal., U.S.A. (Oct., 1919.)
- DEACON, Miss L. ; The Springs, Wormley, Herts. (Sept., 1922.)
- DECOUX, A. ; Géry-près Aixe, Hte. Vienne, France. (April, 1917.)
- DELACOUR, Lieut. JEAN ; Clères, Seine Inf., France. (April, 1916.)
- DELL, CHARLES ; 9 Greenhill Road, Harrow, Middlesex. (July, 1900.)
- DENNIS, Mrs. H. E. ; Lisle Court, Wootton Bridge, Isle of Wight. (March, 1903.)
- 50 DIRECTOR, THE ; Zoological Museum, Tring, Herts. (1912.)
- DONALD, C. H. ; Egerton Hall, Dharmsala Cantt., Kangra District, Punjab, India. (March, 1906.)
- DOUGLAS, Miss ; Rose Mount, Pitlochry, N.B. (June, 1905.)
- DOWSON, E. M. (June, 1915.)
- DRAKE, G. TYRWHITT, Cobtree Manor, Maidstone. (June, 1918.)
- *DREWITT, FREDERIC DAWTREY, M.A., M.D., F.R.C.P., F.Z.S. ; 14 Palace Gardens Terrace, Kensington, W. 8. (May, 1903.)
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- DUNMORE, OSCAR E. ; 23 Alexandra Road, Leicester. (Oct., 1922.)
- ENRIQUEZ, Major C. M. ; c/o Messrs. Thomas Cook & Son, Rangoon. (1921.)
- *EZRA, ALFRED, O.B.E. ; Foxwarren Park, Cobham, Surrey. (1912.)
- 60 *EZRA, DAVID ; 3 Kyd Street, Calcutta. (June, 1912.)
- FASEY, WILLIAM R. ; The Oaks, Holly Bush Hill, Snaresbrook, E. 11. (May, 1902.)
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- GHIGI, il Prof. ALESSANDRO ; Via d'Azeglio, Bologna, Italy. (Mar., 1911.)
- GIBBINS, WILLIAM B. ; Ettington, near Stratford-on-Avon. (June, 1895.)
- GILES, HENRY M., M.Aust.O.U., Zoological Gardens, Perth, Western Australia. (June, 1903.) (Orig. Mem.)
- GODDARD, H. E. ; Rotheray, Thicket Road, Sutton. (Feb., 1899.)
- GOODLIFFE, Capt. M. H. S. ; Cavalry Club, Piccadilly, S.W. 1. (Sept., 1918.)

- *GOSSE, PHILIP, M.R.C.S., L.R.C.P. ; Savile Club, Piccadilly, W. (April, 1911.)
- 70 *GRAY, HENRY, M.R.C.V.S. ; 1 Redfield Lane, Earls Court Road, S.W. 5. (June, 1906.)
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- 80 HAILEYBURY COLLEGE NATURAL SCIENCE SOCIETY ; Haileybury College, Herts. (Dec., 1922.)
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- 90 HEUMANN, G. A. ; Ramona, Bucroft, Sydney, N.S.W. (Sept., 1913.)
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- JEAKINS, A. E. ; The Studio, Simla, India. (March, 1915.)
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 France. (April, 1918.)
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 (Aug., 1908.)
- 130 MACKENZIE, J. ; 21 Palewell Road, East Sheen. (Jan., 1923.)

- MALONE, Mrs. M. L'ESTRANGE ; West Lodge, Malton, Yorks. (Jan., 1902.)
- MANCHESTER PUBLIC LIBRARIES ; Reference Library, Piccadilly, Manchester. (July, 1913.)
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- MYLAN, JAMES 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.)
- NATIONAL ZOOLOGICAL PARK (The Superintendent) ; Washington, Dt., U.S.A.
- NEILSON, Major GEO. M. ; Hillside, Elie, Fife. (June, 1918.)
- NEVILLE, Capt. T. N. C. ; Bramall Hall, near Stockport. (July, 1917.)
- NEWMAN, T. H., F.Z.S., M.B.O.U. ; Verulam, Forty Lane, Wembley Park, Middlesex. (May, 1900.)
- NEWMARSH, C. T. ; Gamage's, Ltd., Holborn, W.C. (Aug., 1915.)
- NEW YORK ZOOLOGICAL SOCIETY, New York, U.S.A.
- NICHOLS, Walter B., M.B.O.U. ; Stour Lodge, Bradfield, Manningtree. (Jan., 1907.)
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- 150*OBERHOLSER, HARRY C. ; 2805 18th Street, N.W. Washington, D.C., U.S.A. (Oct., 1903.)
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- O'REILLY, NICHOLAS S. ; 144 Eastern Road, Kemp Town, Brighton. (Dec., 1894.)
- PAINTER, K. N. ; 3240 Fairmont Boulevard, Shaker Heights, Cleveland, Ohio, U.S.A. (Jan., 1922.)
- *PAM, Major ALBERT, F.Z.S. ; Wormleybury, Broxbourne, Herts. (Jan., 1906.)
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- PENROSE, FRANK G., M.D., F.Z.S., M.B.O.U. ; Rathkeale, 51 Surrey Road, Bournemouth. (Dec., 1903.)
- PERCIVAL, WALTER G. ; Kalnangi, Chania Bridge, British East Africa. (Feb., 1915.)
- PHILLIPS, JOHN C. ; Wenham, Mass., U.S.A. (March, 1910.)
- 160 PICKFORD, RANDOLPH JOHN ; Thorn Lea, Carmel Road, Darlington. (Feb., 1903.)

- PIKE, L. G. ; King Barrow, Wareham, Dorset. (1912.)
- *POCOCK, R. I., F.R.S., F.L.S., F.Z.S. ; Zoological Society's Gardens, Regent's Park, N.W. 8. (Feb., 1904.) (*Hon. Editor.*)
- PORTER, SIDNEY ; Selwyn House, Old Normanton, Derby. (April, 1920.)
- *POTTER, BERNARD E., M.B., M.R.C.S., L.R.C.P. ; 33 Harley Street, W.
- PYCRAFT, W. P., A.L.S., F.Z.S., M.B.O.U., etc. ; British Museum (Nat. Hist.), Cromwell Road, S.W. 7. (Nov., 1904.) (*Hon. Member.*)
- PYMAN, Miss E. E. ; West House, West Hartlepool. (June, 1919.)
- RATHBORNE, HENRY B. ; Blen-na-lung, Leggs P.O., Co. Fermanagh. (May, 1901.)
- *RATTIGAN, Capt. G. E. ; Fluder, Kingserswell, near Newton Abbott. (Aug., 1908.)
- REID, Mrs. ; Funchal, Madeira. (Feb., 1895.)
- 170*RICE, Major G. ; Persey House, Blairgowrie, N.B. (May, 1912.)
- RICHINGS, Rev. B. G. ; Barton Vicarage, Cambridge. (June, 1919.)
- *ROBBINS, HENRY ; The Maisonnette, New Oxford Street, W.C. (April, 1908.)
- ROBERTS, Miss IDA ; Beaumaris, Montpelier Street, Hobart, Tasmania. (Jan., 1923.)
- ROGERS, H. E. ; "Arequipa," 7 Aigburth Road, Liverpool. (June, 1919.)
- *ROGERS, Col. J. M., D.S.O., F.Z.S., M.B.O.U. (late Royal Dragoons) ; Riverhill, Sevenoaks. (April, 1907.)
- ROTHSCHILD, LIONEL DE, M.P. ; 46 Park Street, W. 1. (Nov., 1913.)
- ROTHWELL, JAMES E. ; 153 Sewall Avenue, Brookline, Mass., U.S.A. (Oct., 1910.)
- ROYAL ZOOLOGICAL SOCIETY OF IRELAND ; Phcenix Park, Dublin. (Oct., 1905.)
- RUMSEY, LACY ; 23 Rua de Serpa Pinto, Villa Nova de Gaya, Oporto, Portugal. (April, 1919.)
- 180*ST. QUINTIN, WILLIAM HERBERT, F.Z.S., M.B.O.U. ; Scampston Hall, Rillington, York. (*Orig. Mem.*)
- SAKAI TATSUZO ; 2 Chrome, Kano Cho, Kobe, Japan. (1919.)
- *SAMUELSON, Lady ; Hatchford Park, Cobham, Surrey. (July, 1916.)
- *SCLATER, W. L., M.A., F.Z.S. ; 10 Sloane Court, S.W. 3. (Aug., 1904.)
- SCOTT, Capt. B. HAMILTON, R.F.A. ; Hamildean, Ipswich. (1912.)
- SEBAG-MONTEFIORE, Mrs. ; 2 Palace Houses, W. 2. (1913.)
- *SEPPINGS, Lieut.-Col. J. W. H., A.P.D. ; c/o Messrs. Cox & Co. (K. Branch), 16 Charing Cross, London. (Sept., 1907.)
- SETH-SMITH, DAVID, F.Z.S., M.B.O.U. ; Zoological Society, Regent's Park, N.W. 8. (Dec., 1894.) (*Hon. Editor.*)
- *SETH-SMITH, LESLIE M., B.A., M.B.O.U. ; Nagunga, Kampala, Uganda. (July, 1912.)
- *SICH, HERBERT LEONARD ; Corney House, Burlington Lane, Chiswick, W. 4. (Feb., 1902.)
- 190 SILVER, ALLEN, F.Z.S. ; 18 Baneswell Road, Newport, Mon.
- SIMPSON, ARCHIBALD ; Oakfield House, Stanks, Crossgates, near Leeds. (Feb., 1901.)

- *SMALLEY, F. W., F.Z.S., M.B.O.U. ; Hawthorns, 193 Clapham Road, S.W. 9. (1912.)
- SMITH, C. BARNBY ; Woodlands, Retford. (Aug., 1906.)
- SMITH, PHILIP ; Haddon House, Ashton-on-Mersey, Sale, Manchester. (Dec., 1917.)
- SMITH, W. PROCTOR ; Haddon House, Ashton-on-Mersey, Sale, Manchester. (Nov., 1917.)
- SOUTHOFF, M. G. DE ; 13 Via San Spiritu, Florence. (1921.) (*Hon. Mem.*)
- SOUTHPORT CORPORATION, CURATOR OF ; Hesketh Park, Southport. (Jan., 1904.)
- SPRANGE, Sergt. D. H. ; Terranova, Chinderah, Tweed River, N.S.W. (Feb., 1918.)
- SPROSTON, Mrs. ; Elm House, Nantwich, Cheshire. (June, 1917.)
- 200 STEVENS, H. ; Gopaldara Mirik P.O. *via* Kurslong D.H.Rly., Bengal, India. (Oct., 1911.)
- STOCKPORT CORPORATION ; Superintendent, Vernon Park, Stockport ; and *c/o* London Joint City and Midland Bank, York. (Oct., 1902.)
- STOKES, Capt. H. S. ; Longdon, Rugeley, Staffs. (Oct., 1922.)
- SUGGITT, ROBERT ; Suggitt's Lane, Cleethorpes, Grimsby. (Dec., 1903.)
- SUTCLIFFE, ALBERT ; Fairholme, Grimsby. (Feb., 1906.)
- SWAYSLAND, WALTER ; 47 Queen's Road, Brighton. (*Orig. Mem.*)
- TAKANO, T. Z. ; 67 Shichome Honcho, Yokohama, Japan. (Jan., 1921.)
- TAKA-TSUKASA, NOBUSUKE ; 106 Honmura-Cho, Azabu, Tokyo, Japan. (Feb., 1914.)
- *TANNER, DR. FRANK L. ; Vanvert House, Guernsey. (Jan., 1914.)
- TAVISTOCK, The Marquess of ;] Warblington House, Havant, Hants. (1912.)
- 210 TESCHEMAKER, W. E., B.A. ; Ringmore, Teignmouth, Devon. (May, 1904.)
- THOM, ALFRED A. ; Whitewell Lodge, Whitchurch, Salop. (June, 1913.)
- THOMAS, Miss F. G. F. ; Weston Hall, Towcester, Northants. (Mar., 1899.)
- THOMAS, HENRY ; 15 Clinning Road, Birkdale, Southport. (Jan., 1895.)
- THOMASSET, BERNARD C., F.Z.S. ; Seend, Wilts. (July, 1896.)
- THOMASSET, H. P. ; Weeness, Natal, South Africa. (Nov., 1906.)
- TILLEY, G. D. ; Darien, Conn., U.S.A.
- TRANSVAAL MUSEUM ; The Director, Transvaal Museum, Pretoria. (Jan., 1921.)
- UPPINGHAM SCHOOL ; the School Library, The Old School House, Uppingham. (Nov., 1920.)
- VALENTINE, ERNEST ; 7 Highfield, Workington. (May, 1899.)
- 220 VAN OORT, Dr. E. D. ; Museum of Natural History, Leiden, Holland.
- VAN SOMEREN, V.G.L., L.R.C.P. & S., Edin., L.R.F.P.S., Glas., L.D.S. ; Nairobi, B.E.A.

- WAXMAN, A. E. WRIGHT DE BERRI ; Maitai, Murray Road, Beecroft, N.S.W. (Aug., 1914.)
- WALKER, Miss H. K. O. ; Chesham, Bury, Lancs. (Feb., 1895.)
- WAUD, Capt. P. REGINALD ; Falcon Close, Woolton Hill, near Newbury. (May, 1913.)
- WEIR, J. ; Douglas Cottage, Upper Ashley, New Milton, Hants. (July, 1918.)
- WELCH, F. D., M.R.C.S., L.R.C.P. ; Hartley, Longfield, Kent. (March, 1920.)
- *WELLINGTON, Her Grace the Duchess of ; Ewhurst Park, Basingstoke. (Oct., 1913.)
- WHIPHAM, Mrs. U. F. ; 34 Westbourne Park Road, W. 2 ; and St. Loyes, Heavitree, Exeter. (July, 1921.)
- WHITLAW, Miss ROSA M. ; Amerden, Taplow. (Aug., 1914.)
- 230 WILLFORD, HENRY ; Sans Souci, Havenstreet, Ryde, Isle of Wight. (Nov., 1907.)
- WILLIAMS, Mrs. C. H. ; 49 Okehampton Road, Exeter. (May, 1902.)
- *WILSON, Dr. MAURICE A. ; Walton Lodge, Pannal, Harrogate. (Oct., 1905.)
- *WINCHELSEA AND NOTTINGHAM, The Countess of ; Haverholme Priory, Sleaford. (April, 1903.)
- *WINN, The Hon. Mrs. ; 27 Hill Street, W. 1. (Nov., 1920.)
- WINTER, DWIGHT ; Center and Negley Avenue, Pittsburg, Pa., U.S.A. (1922.)
- WOOD, Dr. CASEY ; 7 West Madison Street, Chicago, U.S.A. (Sept., 1922.)
- WOODWARD, KENNETH M. ; 1 Madison Avenue, New York, U.S.A. (March, 1915.)
- WOOLDRIDGE, Prof. G. H., F.R.C.V.S. ; Royal Veterinary College, Camden Town, N.W. (1912.)
- WORKMAN, WILLIAM HUGHES, M.B.O.U. ; Lismore, Windsor Avenue, Belfast. (May, 1903.)
- 240*WORMALD, HUGH ; Heathfield, East Dereham, Norfolk. (Dec., 1904.)

Rules of the Avicultural Society

As amended July, 1920

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 January and end on the 31st of December 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 Secretary, an Editor, a Treasurer, an Auditor, a Scrutineer, and a Council of fifteen members. The Secretary, 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 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 £1, to be due and payable in advance on the 1st of January 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 Secretary before the 1st of December, so that their names may not be included in the "List of Members", which shall be published annually in the January 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 November 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 Secretary, 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 time 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 November number of the Magazine preceding the retirement from office of the Secretary, 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 Secretary on or before the 15th of November.

The Council shall also publish yearly in the November 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 November 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. Secretary *by the 15th of November*. The names of the four candidates will then be printed on a voting paper and sent to each Member with the December number of the Magazine, and the result of the voting published in the January 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 Secretary, Treasurer, 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. Secretary, 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 connexion 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 Secretary, 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 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 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 Secretary and Editor shall respectively refer all matters of doubt and difficulty to the Executive Committee.

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

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

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

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

The Society's Medal

RULES

The Medal may be awarded at the discretion of the Committee to any Member who shall succeed in breeding, in the United Kingdom, any species of bird which shall not be known to have been previously bred in captivity in Great Britain or Ireland. Any Member wishing to obtain the Medal must send a detailed account for publication in the Magazine within about eight weeks from the date of 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 must appear in the *Avicultural Magazine* before it is published or notified elsewhere. It 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.

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."



THALURANIA FURCATA (Gmel.)

THE AVICULTURAL MAGAZINE

BEING THE JOURNAL OF
THE AVICULTURAL SOCIETY
FOR THE STUDY OF
FOREIGN & BRITISH BIRDS
IN FREEDOM & CAPTIVITY

4th
1.

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JANUARY, 1923.

EDITORIAL

For several years the *Avicultural Magazine* and *l'Oiseau* have had many contributors in common, and their respective Editors have worked in consultation with one another to the benefit of both magazines. The Avicultural Society and the Ornithological section of La Société Nationale d'Acclimatation now consider it necessary to co-operate even more closely, with a view to popularizing the keeping and rearing of birds of all kinds, to help and advise beginners and thus to increase the number of aviculturists. The Councils of the two Societies have therefore decided to start in the two magazines a series of articles, appearing simultaneously in English and French, dealing with the care of birds, giving descriptions of the principal species, and all information useful to aviculturists. These articles will be accompanied by a large number of coloured and black-and-white plates, and will be written by members of the two Societies who are specially conversant with the various species. Starting with the present number, the articles will be published in the magazines every month until the series is completed.

After an Introduction, published in this number and giving general instructions as to the housing, food, and care of various birds, the different families will be dealt with separately. The species most interesting in captivity and most frequently imported will be dealt with at greater length. All necessary information regarding the keeping and rearing of birds which are easily obtained and, consequently, more popular, will be given in detail. With regard to those species of which no specimens have ever been imported, these will

only be touched upon sufficiently to facilitate any future experiments in keeping them in captivity.

In order to be of practical and general use, these articles will be written in simple and non-technical language so that they may be intelligible even to beginners. The whole series will be completed in about forty numbers of the Magazine, and will then be published as a separate volume of more than 600 pages and fully illustrated. This book will supply a long-felt want, since there does not at present exist a complete and modern manual of this kind.

Our members are requested to make this publication known to any friends who are interested in birds, so that these may from the outset have the advantage of this series of articles, which will give our subscribers the advice and experience of the most distinguished and expert aviculturists.

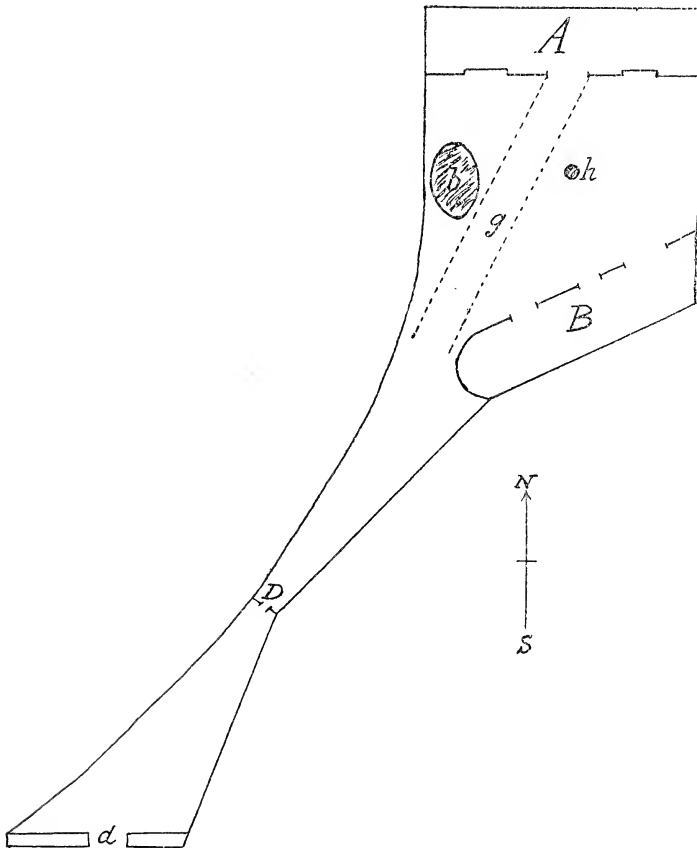
THE CONSTRUCTION OF AN AVIARY

By Major A. PAM, O.B.E.

Since the war I have kept no birds of any kind. I had, in fact, no aviaries at my present house to which I had only moved in 1913. In that year I started by stocking my lake with waterfowl (Flamingoes, Ducks, Black-necked Swans, Coscorobas, etc.). All these were killed by foxes during and directly after the war, which so disgusted me that for two years I ceased to be an aviculturist. However, the desire to keep birds of some kind proved to be too strong, and early this year I easily succumbed, the suggestion coming from our member, Monsieur Delacour, who was staying with me at the time. Together we found a suitable place for the construction of an aviary for small birds, and as a series of articles on aviculture begins with this number of our Magazine, it may be of interest to members who wish to construct and stock an outside aviary to hear what I did and how I did it.

I was lucky enough to have behind my conservatory a small yard surrounded by brick walls 10 feet high; against one wall there was a wooden shed, which had been used for storing and wintering shrubs and plants in pots. Against the opposite wall was a smaller shed, leaving between them an open space of about 40 square yards. In the

centre of this space I erected a straight stem of a holly-tree (which is one of our hardest woods), about 10 inches in diameter, sinking the lower end 2 feet into the ground, and leaving 10 feet above ground, so that the top was level with the top of the walls. The holly had many side branches, which I cut at various lengths from the main stem, and



Plan of Major Pam's Aviary. *A* and *B*, the two sheds; *g*, gravel path; *h*, holly tree; *b*, bath; *D*, inner, and *d*, outer door to aviary.

these served as perches. I then attached six pieces of 1 in. gas-piping radiating from the top of the holly post to the two side walls and to the roofs of the two sheds, and this piping served to support the $\frac{1}{2}$ in. wire netting, 3 feet wide, which I then stretched over from wall to wall to

form a complete roof. I allowed each width of wire netting slightly to overlap its neighbour so as to prevent the risk of small birds escaping through gaps between the widths : the netting was then laced together with strong wire, and the roof was complete. I should add that I nailed wooden laths to the top of the walls, so that the wire netting could be easily fixed by means of staples. The passage way which is shown on the sketch plan was then treated in the same way, except that only few supports were needed as the walls were not far apart.

I then made a bird bath by digging an oval 5 feet long by 3 feet wide by 12 inches deep, filling the bottom with stones and bricks beaten very firm, and then filling up with cement left rough, till the depth in the centre was 6 inches with a gradual slope to the sides. A brass plug for emptying the bath was fixed at the lowest point, and an overflow pipe at a little below ground-level, both these being connected with a drain. Thus the bath could be easily cleaned, but could never overflow ; it was suitable for birds of all sizes as the depth of water varied from a fraction of an inch to 6 inches. The water supply was provided by a $\frac{1}{2}$ in. pipe inlet, being flush with the top of the bath, and was regulated by a tap sunk 6 inches into the ground inside an iron box.

I next turned my attention to the two sheds. The larger, marked "A", was 18 feet long by 6 feet wide by 8 feet high at the eaves, and 10 feet at the back. This I arranged in such a way that it could be closed altogether for use as an inside aviary, and be heated by a gas stove in cold weather. I had a large window put in on each side of the central door, and the glass was stippled to prevent birds from flying against it, which is always a danger with transparent glass. The walls and the floor needed but little attention ; three sides of the former were of brick, and the front was of double boarding with an air space between ; these were washed down thoroughly and then coated with hot whitewash. The floor, being of cement, only required careful examination to fill up any crevices through which rats or mice might gain access, and it was then covered with an inch of rough sand. Various perches were fixed in suitable places, and large branches of yew were suspended from the roof and fixed in the corners. Box or fir would have been better than yew, but I do not think that there

is any danger of using the latter, provided that plenty of green food is available for the birds. I used a large flat earthenware vase on a pedestal as a food dish for seed; this vase was like a bird bath in shape, but rather deeper. A wooden block was cut to fit in the bottom, leaving room for about $\frac{1}{2}$ in. of seed to be spread on it; the rim of the vase being slightly raised, prevented the seed from being thrown out and gave plenty of room for a number of birds to feed at the same time. Only a small water dish was provided inside as the birds could drink and bathe in the basin in the outside aviary. Two doors were fitted, each being in two sections, the lower part 5 feet high and the upper 15 inches. The outer door is of wood, the inner of wire netting on a strong frame; the lower section of the inner door is always kept closed and the top section open, while the outer door is ordinarily always open. The birds fly into the inner aviary through the top opening, but in very cold weather the two sections of the outer door may have to be closed and the birds kept in the inside aviary for a short time. There should be quite sufficient light through the windows, but for use on very foggy days I have provided a strong electric light hanging from the roof, and this may also be useful in dark afternoons in mid-winter.

The other shed was treated rather differently, as it was meant to be an open-air shelter; it is marked "B" on the plan. The windows and doors were taken out altogether, so that three large openings are available. The walls were whitewashed, sand was strewn on the brick floor, and yew branches and perches fixed as in the shed opposite.

The only thing that now remained to be done was to plant shrubs and put up perches in the outside aviary: this need not be described, as it is a matter of taste, but I should like to mention that the shrubs should be dense so that birds can hide and possibly build nests in them, and that there should be plenty of perches of various thicknesses. I made a gravel path leading from the entrance door "D" to the door of the larger shelter, put a thick layer of rough sand on the left round the bath, and laid grass turves on the right of the path, thus giving variety, which the birds appreciated, as the sand was always dry, while the grass grew rank and afforded amusement to the birds in hunting for insects.

The entrance door "D" was put in under a brick arch, and was made of wire netting on a strong wooden frame with a good lock. The outer door "d" is of wood, the space between the two doors being available as another small aviary, where I have placed a pair of green blue-bred Budgerigars, which were too destructive to the growing plants to be left in the larger aviary.

Everything was now ready for the birds. I started with the cheaper seed-eaters as the season was advancing, and I wished to gain more experience of the suitability of my aviary before purchasing rare and expensive birds. I bought the following and give the approximate prices to show that really beautiful birds can be obtained for a very moderate outlay: the prices in all cases are for a pair: Fire Finch, 7s. 6d.; Nutmeg Finch, 6s. 6d.; Zebra Finch, 7s. 6d.; Cut-throat Finch, 6s. 6d.; Cordon Bleu, 10s.; Avadavats, 7s.; Silver Bills, 6s. 6d.; Golden-breasted Waxbills, 7s. 6d.; Bronze-winged Mannikins, 7s. 6d.; Orange Bishop Weavers, 11s.; Crimson-crowned Weavers, 15s.; Paradise Whydahs, 8s. 6d.; Queen Whydahs, 30s.; Nonpareil Bunting, 50s.; Long-tailed Grass Finch, 60s.

All the above are quite hardy and agree well together, but not more than one pair of Nonpareil Buntings can be kept in the same aviary.

The cost of the wire netting was under £5, and the only other expense, apart from labour, was the cost of the gas and water piping, and a trifle for cement and whitewash.

In the case of an aviary for which the walls and sheds are not available, as in my case, there would be more expense for wire netting and also the cost of the wood for a shed, and iron supports or a framework for the wire netting; but none of these materials are dear, and with a little ingenuity an aviary can be built for a very moderate sum. The pleasure it gives to anyone fond of birds is great, out of all proportion to its cost.

MY LAST LIVING BIRD

By ARTHUR G. BUTLER, Ph.D.

In the *Avicultural Magazine* for March, 1909, our member, Mr. H. L. Sich, recorded the appearance in his aviary during the

preceding year (July, 1908), of a hybrid between a cock Cherry Finch and a Masked Grass Finch, and noted its coloration when it left the nest, in the month of September following, and again in January, 1909. Subsequently, he kindly presented the bird to me, and it lived in my bird-room (which was divided into two aviaries) until 22nd December, 1922, dying apparently from a severe chill, due to the breakdown of the boiler which heated the bird-room and adjoining greenhouses.

For some years this bird had lived peaceably with one companion, a hen Napoleon Weaver, purchased in 1900,¹ and which died on 15th March, 1922, its probable age being about 23 years; a really remarkable record for a small bird. The hybrid did not appear to trouble itself in the least about the disappearance of its companion.

My old friend, Mr. F. W. Frohawk, who is now living with me, very kindly skinned and dissected the body, a difficult business owing to the moist character of the inside and the almost rotten condition of the liver, heart, testes, and intestines. Nevertheless, he succeeded in making so good a skin of it that there is no difficulty in accurately describing it.

The general colouring of the upper surface is mouse-brown, very slightly more ruddy on hinder back, which is then crossed by an irregular belt of jet-black; the upper tail-coverts white fringed with grey and with black bases excepting the innermost series, forming part of the irregular belts afore-mentioned, which are black, bordered behind with white; tail-feathers black; lores and chin black, the latter followed by four small black spots and a few black dots; cheeks and throat pale, almost pure white behind the eye and at centre of throat; breast paler brown than the upper surface; flanks also paler excepting towards vent; abdomen very pale, spotted with black, becoming almost white and heavily spotted posteriorly, the spots at the sides transverse, bar-shaped, and less intensely black; vent and thighs white; beak pale pink, inclining to chestnut on upper mandible; legs pale pink.

In the general colouring of the upper surface this bird resembles the Cherry Finch, excepting on the forehead and upper tail-coverts,

¹ I noted this bird, as a remarkable instance of longevity in captivity, in the April number of our Magazine for 1921.

but it has the black lores and chin of the Masked Grass Finch. The under-surface more nearly approaches the colouring of the female Ribbon Finch, excepting for the heavily black-spotted abdomen and black tail.

Why some of our members do not turn their attention to the breeding of hybrids between species not nearly related, I cannot understand; for in such birds you obtain a partial, if not complete, reproduction of an ancestral type, from which forms now widely separated branched off. Hybrids between closely related forms are, I believe, simply intermediate in character between the two parents, but where the parents are widely distinct, one gets an exceedingly interesting combination of characters indicating relationship between very dissimilar species.

OBITUARY

JOHN HENRY GURNEY

We greatly regret to record the death of Mr. John Henry Gurney, J.P., D.L., of Keswick Hall, Norwich, which took place on 8th November in his 75th year. He was the eldest son of the late Mr. John Henry Gurney, of Northrepps Hall, Cromer, also a very well-known ornithologist, who founded the celebrated collection of Raptores in the Norwich Museum. Mr. Gurney from earliest youth was as keen an ornithologist as his father. He was elected a member of the Zoological Society in 1868, later becoming a fellow; two years later he joined the B.O.U.; in 1886 he became a fellow of the Linnean Society. He was High Sheriff of Norfolk in 1894.

Though better known as an Ornithologist than as an Aviculturist, he had kept live birds from his early days both at Keswick and Northrepps. At the latter place, in days gone by, large numbers of White Cockatoos were turned out, and lived and bred for many years in the trees in the garden. He kept various species of Eagles in large aviaries, including three Imperial Eagles, which lived to a very great age. His Eagle Owls bred every year, and at this date (1880) his live birds included Bateleur Eagles, Choughs, Sandgrouse, and White Storks, besides a varied collection of small birds and some Wallabies.

At Keswick also in the old days he always kept numerous birds, several species of Vulture and many different kinds of Hawks and Owls, besides birds which in those early days of Aviculture were not often seen in captivity, such as Little Bitterns, Night Herons, Oyster Catchers, and other Waders, and on a small pond most of the commoner species of Ducks. When writing a book on the Gannet, at least five specimens of this bird were also kept on this pond for observation purposes. He won the Avicultural Society's Medal for breeding the Jackal Buzzard (*Buteo jackal*). Of recent years, however, the live birds at Keswick were entirely taken over by his son, Mr. Gerard Gurney, while he occupied himself more entirely with his many ornithological writings, and with the collection of Raptores at the Norwich Museum, to which he was constantly adding, so that this unrivalled collection became one of the best in the world. Still he was never so happy as when strolling round the outdoor aviaries.

AUBYN BERNARD ROCHFORD TREVOR-BATTYE

With deep regret we have to record the passing away of Mr. Aubyn Trevor-Battye, who died suddenly at Las Palmas on the 20th of December, 1922.

He had been a member of the Society for many years, and was on the Council. His was a most attractive personality; very diffident, in spite of his wide knowledge of birds, for which he had an intense love, only equalled by his joy in his garden. His adventures on the island of Kolguev were recorded by him in *Icebound on Kolguev*. In addition to this work he was the author of several books on travel and natural history, and was a writer of very charming poetry. Taking the keenest interest in the work of the Society for the Protection of Birds, he from time to time visited the last remaining haunts of the Kites to assist in guarding them from egg-robbers, as well as other places in the British Isles where rare species have to be protected. His contributions to the *Avicultural Magazine* were always welcomed, and his personal accounts of his travels in Nepal, Arctic Russia, Africa, etc., were vivid and graphic.

He will be greatly missed, not only on the Council of the Society, but by a large circle of friends. A fine spirit, and truly a gentleman.

REVIEW

A MONOGRAPH OF THE PHEASANTS¹

This sumptuous work of four volumes is now complete, after much delay owing to the war, which not only put a stop to the production of beautiful works of art, but also destroyed many. Mr. Beebe himself gallantly came over to offer his services in beating down the Dragon, instead of pursuing his great and interesting work in the Station of Tropical Research in British Guiana, for like many many others, he knew he must help to destroy before he could once more produce and create. The fourth volume of his Monograph of the Pheasants, besides including well-known species such as Golden and Amherst, and the Peafowl, deals with rarer and very rare species: Peacock Pheasants, Argus and the Ocellated Pheasant of Malay (*Rheinardius nigrescens*), some of which have never been seen in their wild state by white men. The Bornean Peacock Pheasant (*Polyplectron schleimacheri*)—it might have been named more euphoniouly, for the bird has several notably distinctive beauties of plumage—is rare everywhere, and unknown even to many of the native Dyak hunters.

The Palawan *Polyplectron*, confined to that small island, is “the most brilliant and specialized of the entire genus”, and only a few specimens have been secured. The foreparts of the male remind one of the colouring of the Monaul, but the head bears a long crest which curves slightly forward, at any rate in the display; the upper tail-coverts and the tail are broadly fanned to show the two semi-circular rows of ocelli, and these eye-spots are bluish-green changing to rich violet on the finely mottled rufous and black ground of the feathers.

Mr. Louis Agassiz Furtés has provided a beautiful coloured plate, the same talented bird-artist being responsible for that of Germain's Peacock Pheasant, in which the male is depicted in full display before his mate in his native forests, which are in Siam and Cochin China.

Of the group *Chalcurus*—the Bronze-tailed Peacock Pheasants—there is a charming coloured plate by Mr. G. E. Lodge of the Sumatran

¹ *A Monograph of the Pheasants*. By William Beebe, Fellow of the New York Zoological Society and Director of the Tropical Research Station in British Guiana, etc., etc. In four volumes, £12 12s. each. London: H. F. and G. Witherby, 326 High Holborn.

species, which no white man has ever seen alive ; and of which only a few skins, obtained from natives, have been secured. It is high time that the great island of Sumatra was more fully explored, for it is probably rich in bird life.

The other "Bronze-tail" is in Malay, and again very little is known of it. It has never been kept in captivity, and until Mr. Beebe visited its haunts, almost nothing had been learnt of its habits. This is *Chalcurus inopinatus*. These pheasants inhabit the dense jungles among the damp overgrowth.

The author's accounts, as one would expect from his intense perseverance under hardship and difficulties, his power of observation and his great love of his subject, added to a graphic and poetical style of writing, are vastly interesting, his description of the lying-in-wait for the appearance of the Argus Pheasants on their dancing arenas being entirely original and enthralling. These chapters are also illustrated by fine coloured plates from paintings by Mr. Archibald Thorburn.

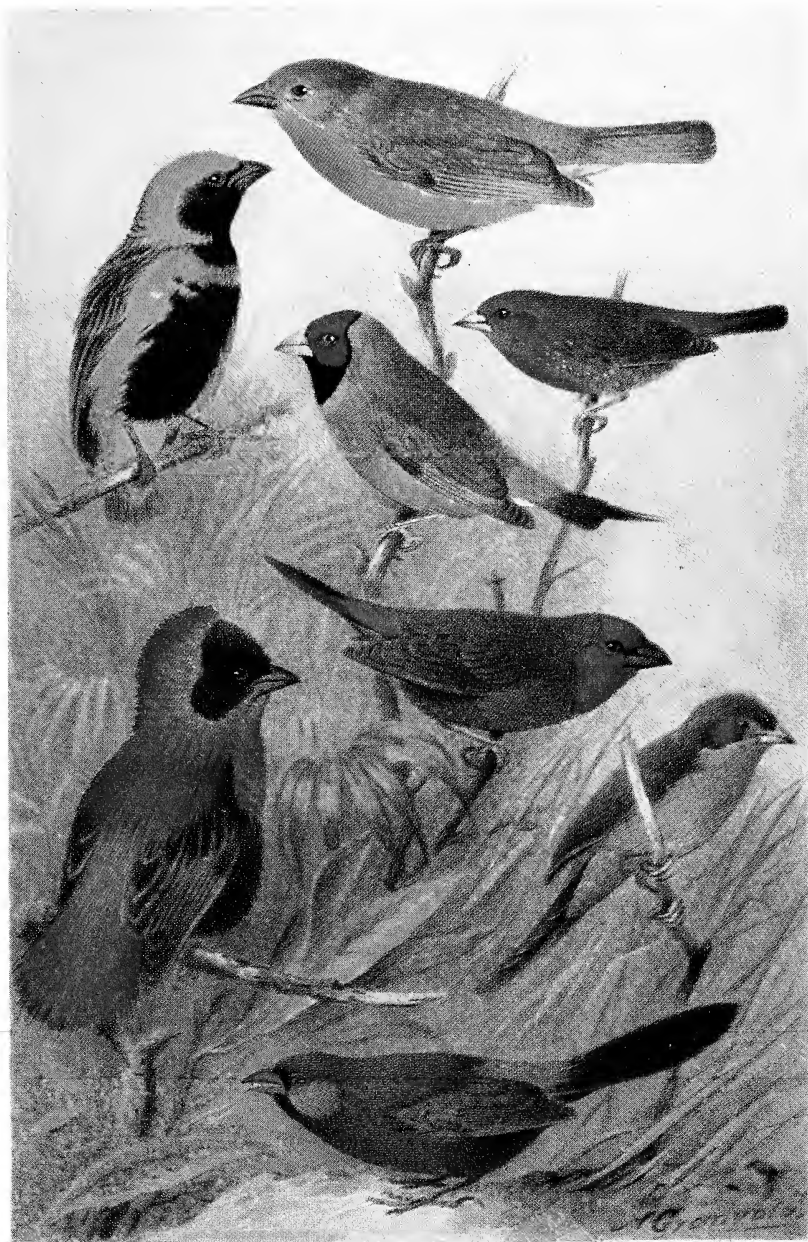
The description of Mr. Beebe's endeavours to catch sight of the rare and wary Ocellated Pheasant in the central mountains of the Malay Peninsula makes engrossing reading. After much endurance and patience and disappointment his experiences were thus completed : "A pheasant had been calling at dusk, and on my way back to camp I turned aside and followed a narrow game trail to a stream. A loud rustle made me crouch low, but whatever animal was the cause, it made its way off. I waited on general principles for five minutes, and then the call of the Ocellated one rang out directly behind me ; so loud was it, I thought at first it came from overhead. Then a second time and my ears rightly orientated it as a few yards behind. The light was failing, in a few minutes it would be dark, and I could hear a bird moving. I was hidden by a barrier of scrub. I attempted to leap to my feet and turned as I rose ; but instead I merely fell awkwardly backward. Both of my feet were paralysed, asleep, and would not support me. A second effort succeeded, and I saw the swaying stems close together behind the fleeing bird, but never a glimpse even of a tail feather."

This chapter is further illustrated by a very beautiful photograph,

taken by the author, as are all the others in the work, of the jungle home of the Ocellated Pheasant. At the end of the volume is a striking midnight flashlight of about thirty-five male Silver Pheasants roosting on a dead tree in the aviaries of Colonel Anthony Kuser, at Faircourt, New Jersey.

Perhaps the coloured plates of the Common and Green Javanese Peafowl are not as satisfactory as others. The train of the Common Peafowl seems too much curved at the end, and the "eyes" are washy; whilst in the plate of the Javan Peafowl, the head of the male appears rather large in proportion to the body, and the train is skimpy. The bird itself is depicted looking round at it, and one feels it is thinking, "Well! I thought I had a better train than *that*!"; but the full-page photograph of this bird's mountain haunts in Central Java is most excellent; a wooded and rocky ravine with precipitous hanging cliffs and a magnificent waterfall. One hankers to be there!

H. D. A.



NAPOLEON WEAVER
(*Pyromelana afra*).

ORANGE WEAVER
(*Pyromelana franciscana*).

RAINBOW BUNTING
(*Passerina leclancheri*).
RED-HEADED GOULDIAN FINCH
(*Poephila mirabilis*).

PARROT FINCH
(*Erythrura psittacea*).
VIOLET-EARED WAXBILL
(*Granatina granatina*).

FIREFINCH
(*Lagonosticta senagela*).

CORDON BLEU
(*Uraeginthus phœnicotis*).

AVICULTURE

Being a practical manual of general utility on the keeping and rearing of birds. Published under the auspices of the Avicultural Society of London and La Société Nationale d'Acclimatation de France, by a Mixed Committee, and the Editors of the "Avicultural Magazine" and of "l'Oiseau".

INTRODUCTION

General hints on the housing and feeding of birds, their purchase and care

With the sole exception of domestic animals, birds are undoubtedly the favourite companions of mankind. Birds not only please the eye by reason of their elegant shape and plumage, but also arouse interest by their graceful movements, their fascinating ways, and particularly by their tuneful voice, that unique gift lavished by Nature on so many of the smaller species.

Fortunately, most birds stand captivity well. There are many means by which they can be made to thrive, means suitable for most species and attainable by all bird lovers. From restricted confinement in the smallest cage in a room to the entire freedom of a park, there are a hundred methods of keeping and bringing up birds in captivity.

We propose to review briefly the best of these methods. Housing will be considered first, then the question of food for young and for adult birds, their care in sickness, and the precautions to be taken when purchasing them. In our introduction we shall deal broadly with these subjects, reserving for special chapters any further details as to the various families and species of birds.

I. HOUSING

It is impossible here to deal exhaustively with all existing methods of housing birds, which are infinite in their variety. We shall content ourselves with mentioning those which have proved most satisfactory.

Birds are housed in many different ways—in cages, bird-rooms, indoor aviaries and galleries, outdoor aviaries, enclosures, paddocks, and parks.

The simplest and most widely used method of housing birds is in cages. There are very many kinds of cages, some excellent, a few adequate, and the majority frankly useless. All the complicated "chalet" cages and other so-called ornamental devices come under the latter category; they offend good taste and commonsense, are uncomfortable for the bird, and difficult to clean.

We shall, therefore, only concern ourselves with good cages, which are of three kinds—metal cages, wooden cages, and box or breeding cages. Each kind suits a different kind of bird.

Metal cages made of painted or unpainted iron wire¹ consist of a wooden or, better still, an iron frame, forming rectangular panels filled in with bars. The more slender the frame and bars, the lighter and more elegant will be the shape of the cage, but strength should not be unduly sacrificed to beauty.

The bottom of the cage should be fitted with bars or covered with a wooden panel. The latter is preferable, because it catches all rubbish falling from the inside tray and prevents untidiness in the room. Over the bottom of the cage slides a metal tray, fitted with a ring by which it is pulled out. The edges of this tray should be at least $1\frac{1}{2}$ in. in height, to prevent sand or food falling out. The sides of the cage also, for the sake of cleanliness, should have a wooden border 3 or more inches high, one of the sides being movable and fitted with hinges to let the tray through. This movable side must shut very tightly; otherwise birds may escape through it. It is likewise advisable for the lower part of the bars to be lined with a strip of glass above the wood, to a depth of from 3 to 4 inches. Thus all chance of the room containing the cage becoming untidy is practically eliminated.

The cage should have no angles or corners. These are difficult to clean, and liable to harbour vermin and rubbish.

The question of doors is an important one. They should be numerous and convenient for cleaning the cage, putting in food, catching the inmates, etc. It is an excellent plan to have a central door in the front of the cage, a smaller door at either side, and two other doors

¹ Cages made of copper wire should not be used. They are not very strong, and the verdigris which soon covers them is poisonous.

giving access to the food containers, if necessary. The doors should move easily and close tightly. Doors closed by a spring are effective, but sometimes cause an accident by crushing a bird attempting to escape. Sliding doors are highly recommended.

Now that we have described the essential points of metal cages, let us proceed to give some hints as to their fittings.

Perches can be made of smooth wooden staves or of natural branches. The wood should not be too hard, and the perches should not be hollow, as they are liable to harbour parasites. There should not be too many and they should be wide apart, to enable the bird to get as much exercise as possible. They should vary in width, in order that the bird's claws should not always remain in the same position. It is almost unnecessary to add that the perches should be kept scrupulously clean and should be proportionate to the size of the bird.

The best food and water containers are those made of pottery, enamelled iron, or china. Since they are easy to wash, and food keeps perfectly in them, they may be said to be indispensable for pastes, syrup, and fruit. Metal or wooden containers can be used instead of china ones for seed. There are many kinds on the market, but the plainest and easiest to clean are the best. Dishes for pastes should be carefully washed once a day; seed containers should at least be cleaned, if not washed, daily. Similarly, the best water containers are those which are easy to clean, preference being given to those made of glass, pottery, or glazed earthenware.

Open baths have the disadvantage of flooding the cage. It is, therefore, advisable, to use a tin bath enclosed in glass, hanging it up *outside* and against the open door of the cage. These baths are made in different sizes.

The whole cage should be thoroughly cleaned out and washed at least once a month.

Wooden cages are similar in size and shape to metal ones, and everything said above regarding the latter applies to them. They are made of wooden frames filled in with cane or wooden bars. Their appearance is picturesque and pleasing, and they are ideal homes for insectivorous birds. Wood has the advantage of being softer than metal. The

plumage of birds housed in wooden cages keeps in better condition, and there is less chance of birds hurting themselves.

Box cages, or breeding cages, are made entirely of wood with the exception of the front part, which has wooden or metal bars. The interior of the cage should be painted white or some light shade. The two smallest side panels have a large door each, the front of the cage being fitted with two small doors through which food and water are passed. There is a bottom tray, as in the other kinds of cages.

Birds housed in box cages reap the advantage of greater quiet and of freedom from draughts. Such cages are recommended for delicate insectivorous birds and for any small birds kept for breeding in cages.

The use of cages is very general. First and foremost, all newly arrived birds no larger than Magpies should be provisionally housed in cages as an indispensable precaution. Hardy birds in good condition should be caged for at least a fortnight. The more delicate birds should be kept in cages until they have moulted once after arrival. Newly arrived birds must be caged, as otherwise they cannot be kept sufficiently under observation to ensure their receiving all necessary care.

All moulting insectivorous or grain-eating birds should also be caged, more especially singing birds and those of a somewhat delicate constitution. Many small birds take kindly to caged life and occasionally breed when caged.

It should be added that the size of all cages should be in proportion to that of their inmates. A cage for a bird, or a pair of birds, of the size of small finches, should be at least 18 in. long, 10 in. wide, and 15 in. high. Birds of the size of canaries should have cages 24 in. in length, 15 in. in width, and 18 in. in height. The size for birds as big as blackbirds should be 30 × 18 × 24 inches. If more than two birds are to be kept in one cage, its dimensions must be proportionately increased. It is both cruel and unhealthy to confine too many birds in a small space.

Bird-rooms.

The room in which caged birds are kept should, if possible, face south or east and be well lighted. Its walls should be whitewashed

or, better still, painted with enamel, so that they may be frequently repainted or washed. Shelves, trestles, or tables should be fixed along the best-lighted walls of the room to receive the requisite number of cages, which can thus be brought to the window in turn, and all birds get their share of sunlight.

Sand, which must be strewn over the floor of the bird-room, should be sifted and cleaned every day. If the floor can be easily washed—linoleum makes an excellent covering—sand need only be supplied in a tray.

Windows must be covered with wire netting and fitted with shutters or curtains, in order that the room may be easily darkened. During the summer it is often necessary to exclude the light until the bird-room is tidied for the day, as otherwise its inmates wake too early and may suffer from eating food that is stale. Greater security is obtained by fitting an automatic closing device to the door and an inner door of wire netting.

The bird-room must be warmed. A stove, cut off from the rest of the room by wire netting, serves the purpose; but a radiator is infinitely preferable and allows an equal temperature to be maintained.

Wherever possible, the bird-room should be electrically lighted. In winter time, lights should be kept burning until 7 p.m.; otherwise small exotic birds have not time to get sufficient food. On dark days it is advisable to turn on the lights, as certain species require strong light.

The bird-room is a sort of aviary in itself, where certain kinds of birds can be let loose. Branches of trees such as pine, cedar, and box should be placed along the walls not lined with cages, and these branches should be gathered in the autumn if they are to keep green for long. Baskets, hollow logs, and boxes of all sizes, should be fastened among the branches for nesting purposes, their diversity being such as will enable all the birds to make a suitable choice. Food troughs should be placed on the floor, or, better still, along a small table. Perches should be fixed in a sunny spot near the window; and fairly large, but shallow, dishes, should contain water and a few pebbles, the latter enabling the birds to stand in the water and bathe comfortably.

The use of bird-rooms is particularly recommended in cold countries or districts, where it would be difficult to keep exotic birds in the open.

Birds which can live in the open during fine weather, but which cannot stand the cold, can be placed in the bird-room for the winter months.

It is essential that the bird-room should be free from rats and mice. All suspected parts of the floor, as also the walls, should be cemented or covered with a close wire netting, and constant watch should be kept for these pests.

Indoor Aviaries

A bird-room is insufficient when birds are kept on a large scale. Indoor aviaries have then to be arranged for species too delicate to live in the open, and for those which have to be brought indoors during the winter.

A good method of furnishing an indoor aviary is to have a long table with numerous cages running down the side which gets the most light, and to place aviaries along the walls. These can be built in two or three stories of various dimensions, but in no case should they be smaller than 1 cubic yard each.

Indoor aviaries should, if possible, be heated by hot-water pipes, in the same way as a conservatory, or by radiators. A temperature of 60° is sufficient for most birds, but it should be raised to 65° or 75° for the more delicate species. Indoor aviaries require the same care and attention as advocated above for cages. They should be free from all bad smells, which are due solely to carelessness and want of attention to cleanliness. With a little thought these aviaries can be made most attractive, provided there is plenty of air and light.

Open-air Aviaries

It is in surroundings resembling nature as closely as possible, among trees and herbage, and by the waterside, that the native grace of birds can best be appreciated, and it is there they enjoy the best

health and are most inclined to breed. An open-air aviary is, therefore, the finest home we can give to those birds, and their name is legion, which can stand an outdoor climate the whole year round, or at least from April or May to October or November.

An aviary should comply with certain indispensable conditions. It should have a good aspect (S. or S.E.), be sheltered from strong winds, and get as much sunshine as possible; it should be built on healthy and well-drained soil. Lastly, there should be a fairly large shelter, well but not excessively lighted, with solid walls and roof. According to circumstances, this shelter should be entirely closed or should have an open front, and should be heated or not.

There are many kinds of aviaries suitable for various kinds of birds, and it would be an impossible task to attempt a description of the various makes and styles. Personal experience, however, leads us to group them under five different heads, i.e. (1) for small birds, (2) for Parrakeets, (3) for water birds, (4) for birds of prey, and (5) for the gallinaceous birds.

We will here restrict ourselves to the description of the aviary suitable for small birds of various kinds.

It is suitable for housing all kinds of Waxbills and Finches, Doves and Pigeons of all kinds and sizes, and insect and fruit-eating birds, from Tanagers, Japanese Nightingales, and White Eyes, to Black-birds, Starlings, Troupials, Jays, and kindred species.

The dimensions of this aviary must accord with the size and number of its inmates, but should in no case be less than 3 yards in length, 2 in width, and 2 in height, the shelter measuring 2 yards by 1.

Open-air aviaries consist of a wooden or iron framework covered with wire netting. Those made of iron are decidedly lighter and more handsome, as well as being stronger and more durable than wooden ones, but they possess the drawback of being dearer. The netting can be of single or treble twist. The latter is cheaper and stronger, being better galvanized; the former is the more elegant.

In any case, very small meshes should be chosen—say, $\frac{1}{2}$ in.—in order to prevent the inroads of noxious pests, such as mice, weasels, etc. All metal, or wood, and netting should be well painted, the paint being renewed whenever necessary to prevent rust or rot. The colour

chosen should be black or very dark green, since these shades make for invisibility. Light shades tend to hide the birds within. There are special paints which keep iron in very good condition and are most suitable for aviaries.

The whole framework should rest on a masonry foundation at least 20 inches deep, or the wire netting can be sunk into the ground to a depth of 18 inches and then turned outwards for 1 foot to prevent the inroads of rats and mice. It is also beneficial to have wire netting sunk 1 foot in the ground over the entire surface of the aviary.

The shelter should be built of brick or stone, with a brick, tile, or cement floor. The interior must be whitewashed. Partitions, if any, may be of wood. If the shelter is to be a closed one, it must be fitted with a door and with glazed sash windows. Ordinary glass should not be used for this purpose, as birds, failing to see it, dash themselves against it. Opaque glass should be used, as it is dull and also thicker. The glass should be protected on the inside with a movable wire netting frame.

In order that the warmth of the shelter may be maintained without interfering with the freedom of the birds to fly in and out, two small trap-doors, measuring 6 inches square, or a trifle more, should be cut at the top and bottom, and they alone should remain open during the cold weather.

If necessary, a radiator or heating pipes may be set up in the shelter. It should also be fitted with a ceiling, to prevent too rapid cooling.

The shelter should preferably have a penthouse roof, projecting 1 yard. Food is placed under this, as well as inside the shelter, and perches and nesting boxes fixed up. If the shelter is not intended to be an entirely closed one, half the front should be filled in with masonry or wood, leaving the other half open. In that event, no overhanging roof will be necessary.

An open-air aviary for small birds should be fitted up in accordance with the owner's taste and the nature of its occupants. If the chief aim is merely to have a collection of beautiful birds, without wishing them to breed, the aviary may be planned like a small garden in any desired style, with lawns, walks, ponds, etc. If, on the other hand, breeding is the chief object, the aviary should be planted with very

thick shrubs and long grasses. In addition to growing trees, there should be plenty of perches in suitable places, but care should be taken that they do not cross each other or extend over grass and bushes, which would soon be badly soiled by the birds.

Weeping willows are excellent trees for aviary purposes in the open, as are conifers and other evergreen trees. Thick-growing shrubs, with small and dense foliage, are also recommended. Yews should perhaps be avoided, as they are said to be poisonous, although personally we have never come across any proof of the truth of this.

Sand should be strewn wherever the ground is not covered with grass. Great care should be taken to keep all ponds and tanks, provided with running water if possible, very clean. They should be shallow and easily accessible, and should contain stones at intervals, to avoid any risk of the birds drowning.

It is hardly necessary to point out that the larger the aviary the easier its arrangement and the better the chances of breeding. Bird lovers often possess aviaries measuring 6×4 or 8×5 yards for varied collections. Smaller dimensions are, of course, sufficient for a few pairs of birds. The aviary shelter should be fitted up in the same way as a bird-room or an indoor aviary, with plenty of perches and nesting boxes.

The inmates of a single aviary should be selected with great care, as only very peaceably disposed birds or those equal in strength should occupy the same quarters. Doves, for instance, mingle successfully with very small birds. Generally speaking, one and the same aviary may contain Waxbills and Finches, although several pairs of the same kind or of similar kinds should generally be avoided.

Another aviary may contain Whydahs and Weavers. To these may be added Cardinals, Saffron Finches, Pekin Robins, etc. The inmates of a third aviary may be Starlings, Thrushes, Troupials, Glossy Starlings, and others. Various birds of the Magpie, Jay, and Toucan families agree well together.

If the principal object in view is breeding birds, it is preferable for each pair to have separate quarters. If this cannot be done, a small number of pairs of very different kinds, but equal in strength and of a peaceable disposition, may be kept together.

Outdoor aviaries must be kept clean in the same way as indoor aviaries. Care should, however, be taken not to disturb birds during the breeding season, the aviary being entered with care and as seldom as possible.

It is advisable to group together all aviaries for small birds, a passage-way covered with netting and constructed between them, rendering the escape of birds impossible. This passage-way may, moreover, be converted into a very charming pergola by means of climbing plants and rambler roses.

The aviaries suitable for Parrakeets, birds of prey, water birds, and gallinaceous birds will be described in the chapter devoted to those groups.

Enclosures

Most large birds can be kept in enclosures, which are large strips of ground surrounded by wire netting, but not covered in. The enclosures are first surrounded by wooden, or, better still, iron stakes, to support the metal wire and netting.

Their position and aspect should be the same as for aviaries. The ground should be well drained, and, if possible, well covered with grass. A sufficiency of trees and shrubs should be planted, and a shelter should be provided for less hardy species.

The shelter should have one glazed door and one covered with netting, according to the amount of protection required, and, if large enough, windows glazed in opaque glass. There should be a brick or cement floor, covered with straw or sand. Various materials can be used for the roof, but old tiles or thatch look best. Thatch should, however, be lined with small-meshed netting, to prevent the entry of rats and mice.

The wire netting round the enclosure must be of a height and strength in proportion to the size and nature of the birds kept. It should always be made as vermin-proof as possible by sinking about 18 inches in the soil and turning 6 inches outwards. A good average height is 6 feet; but where foxes abound some 2 feet more is recommended. It is a good plan to have a strip of wire netting, 18 inches wide, of large mesh fixed at the top of this fence and

projecting outwards at an angle of 45° or even at right angles, and supported on iron brackets.

Running water is recommended ; but in any case a sufficient area of water must be provided for waterfowl and waders.

Gardens or parks surrounded by walls or fencing are best suited for keeping birds at liberty, but care must be taken that the walls are not defective anywhere. Strong wire netting can be used to make good any such defects.

II. FOOD

Birds require a very varied diet according to their species and size. The kind of food which should be given will be mentioned under the description of each species or group, and it will only be necessary here to give a few general indications.

Birds belonging to the same genus often differ radically in the food which they require, but from the point of view of diet, birds may be classed under the following headings :—

(1) *Seed-eaters*

Among this class are found some of the smallest as well as the largest birds, and their food varies according to their size from grass seed to maize and sunflower seed.

For the smaller varieties a good mixture consists of Canary seed and white and yellow millet ; the last can also be given in the form of millet sprays. Groundsel, plantain, and the larger grasses when seeding are also liked. For larger birds, wheat, maize, either whole or crushed, barley, and buckwheat should be given according to the size of the birds. Nearly all seed-eaters require a certain quantity of green food such as lettuce or cabbage leaves, which should always be provided.

Many seed-eaters feed their young on live insects. During the breeding season it is therefore necessary to provide special food for this class such as mealworms, grasshoppers, and ants' eggs. The insectivorous food described under (2) is also often very useful during this period.

(2) *Insectivorous Birds*

These require a prepared diet, of which the following mixture is recommended: 12 parts of biscuit meal, 4 parts of dried flies and ants' eggs, 2 parts of chopped salad or cabbage, 1 part of hard boiled yolk of egg, 2 parts of minced carrot. The dried flies and ants' eggs must first be well soaked and washed in water. All the ingredients are then slightly moistened with hot water and thoroughly mixed.

This food when ready should be only slightly damp but quite friable. The addition of a few drops of olive oil is useful, because it prevents fermentation.

Bread and milk can also be given: sufficient hot water is poured on cubes of very stale bread to moisten it. Then some boiled and sweetened milk is poured over it in sufficient quantity to saturate the bread, which should be soft but not pasty, and without any hard lumps.

A few live mealworms as a special treat may be given daily, but should not exceed 5 to 10 in number, according to the size of the bird.

Live spiders are a most useful addition to the diet of this class of bird.

(3) *Frugivorous Birds*

Apart from such species as are naturally purely frugivorous, many insectivorous birds will eat a considerable quantity of fruit, and this also applies to some mentioned under (4) in the next paragraph.

In captivity fruit alone is insufficient in our climate for any birds, and it is necessary to add the foods mentioned under (2) or (4). Soft boiled rice is often liked by this class of bird.

The fruit provided must be perfectly ripe but not decaying, and all soft fruits can be given to advantage, including bananas and grapes. Ripe green figs are often much appreciated and dried figs and raisins are useful foods.

(4) *Honey Suckers*

For these birds, which are mostly delicate, a special food must be prepared in a fluid state, consisting of one part of Mellin's Food, one

part of honey, and one part of condensed milk to every ten parts of boiling water. The Mellin's Food should first be dissolved in the boiling water and the milk and honey added, the ingredients being mixed very thoroughly.

(5) *Carnivorous Birds*

For this class raw meat or fish must be provided ; and it must be chopped up or minced for the smaller species, but for the larger ones, such as birds of prey, it is best given in large pieces, so that the bird itself can tear it up. In the case of owls, it is necessary to provide the food with the skin and fur or feathers intact, as the bird eats these and throws them up in the form of a pellet.

As a general rule it is of the utmost importance that all food provided should be absolutely fresh, and except in the case of seeds, be changed at least once a day and twice in hot weather. Variety of food is essential to all, but especially to the birds mentioned under (2), (3), and (4), and care must be taken that a bird does not pick out one particular ingredient, which in large quantities may be indigestible, constipating, heating or otherwise harmful. In such cases it is wise to restrict the quantity of that particular item and induce the bird to eat the other ingredients.

It is advantageous to add to the food of all birds a minute quantity of "Marmite", a food product derived from yeast and very rich in "B" vitamine. This is especially useful in the breeding season. It is a specific for avian polyneuritis, a disease due to deficiency of "B" vitamine in the food, and indicated by weakness of the legs and cramp of the whole body.

III. BUYING AND GENERAL CARE OF BIRDS

It is most important, when buying birds, to select them carefully. If they have been reared in captivity or are already acclimatized, a glance is sufficient, but newly imported birds should be very closely examined.

This should be done when the bird is quite calm and not unduly excited through fear; then note the following: that the bird is active and alert, his eyes bright and his feet in good condition; his feathers glossy and smooth, his movements brisk; his appetite good, but not excessive. Then take him up and see that he is not too fat, nor yet too thin. Make sure that the parts around the anus are healthy and clean; if otherwise, digestive trouble is indicated. Do not purchase birds which fail in any of these respects. If, however, they be bought on account of a particular interest attaching to them, the birds must be given special care, and possible loss must be prepared for. The condition of the plumage, on the other hand, is not so important. Even if damaged a good deal, it does not constitute a serious defect. This will be rectified in the next moult, and the health of the bird is not much affected, provided the moult is not excessive. When the feathers are very defective or very dirty, the birds are most susceptible to cold and often die in consequence. The only precautions to be taken in the case of moulting birds are to keep them warm and put them into a small cage. If, on account of the condition of its wings, a bird cannot fly easily, it should not be allowed into the aviary until it can do so perfectly well. Newly imported birds have generally been deprived of their bath during the voyage and their subsequent stay at the bird-dealer's. They should be given a bathing vessel, but the latter removed from the cage immediately after their first bath, and they should then be helped to dry themselves, if very wet. If the bath is left in the cage they are apt to continue bathing, and being unable to dry themselves sufficiently, are liable to take cold and quickly die of pneumonia.

Palmipeds and Waders require special care. Their plumage loses its water-resisting quality if they are deprived of water for any length of time, and they must be gradually accustomed to it again, otherwise they will drown or die of cold in a short time if left to bathe at will.

When a bird is too dirty to clean itself properly, it must be washed, always provided it is strong enough to stand it. Soap and tepid water should be used for this, a shaving-brush admirably serving the purpose. Then rinse the bird thoroughly in tepid water and dry it *well* with a warm, dry cloth. This latter operation is essential. The drying

process must not be hurried or done carelessly. The bird will always appear fatigued after being washed, but if well dried, will quickly recover, and its apparent exhaustion need not cause anxiety. When the wings and tail only are dirty, they should be washed with a sponge, without wetting the whole body. Many people pull out the wing and tail feathers, if broken, so that they may grow more quickly; but this is a dangerous practice, as the bird is subjected to a forced moult, which is very trying, and if it is not in good condition, often ends fatally. Feather pulling must, therefore, be done with discretion, and only in the case of birds in perfect health.

If the bird is troubled with parasites, it should be powdered with insecticide until the vermin have disappeared, and the cage should be disinfected.

A new bird should always be isolated in a cage at first, or at any rate not allowed to mix with other birds except those that arrived at the same time. In this way risk of contagion is avoided and the bird can be watched more easily and given any special care or food it requires.

Before letting a bird out in an aviary or enclosure, it is advisable to put its cage there for a day or two, in order to let it get accustomed to its surroundings.

It is also necessary not to change a bird's food all at once. Inquiry should be made as to what it has been fed upon, and that diet continued for a time, even if unsuitable. It should then be gradually diminished and the correct diet substituted little by little, without sudden change.

Birds should be handled as little as possible, but if unavoidable this must be carefully done. If the birds are in aviaries or enclosures, fishing-nets should be used to catch them. If caught by hand they must not be held too tightly and care must be taken to prevent them breaking their wings and legs through struggling.

When a wing or leg is broken, it should be kept rigid; but this is not always easy. Advice can hardly be given on this point beforehand, as the procedure will naturally vary according to circumstances. Any kind of splint, bandage, and sticking-plaster may be used. When the fracture is simple, it generally heals, but when the tissues are bruised

or torn, the bird nearly always dies from blood poisoning. When the extremities only are affected, they should be amputated. All wounds must be well disinfected with iodine, cleaned and dressed with an antiseptic, such as lysol, iodoform, or hydrogen peroxide. Birds often suffer from frostbitten feet, especially the Gallinaceæ and long-legged wading birds. Frequently this state is unnoticed until too late. It is therefore advisable to try and prevent any such occurrence by sheltering delicate birds.

If the frostbite, which leads to loss of the claws, is noticed at once, the foot should be placed in hot water, and rubbed and massaged with grease until circulation is restored.

An accident which frequently occurs is egg-binding in the hen bird. If this is treated at once, there are no dangerous results; but if neglected, death ensues. A bird in this condition looks ill and depressed. If taken up a swelling will be noticed in the abdomen. The bird should be isolated, given a dose of castor oil, and an injection of olive oil. If the egg does not fall away, hold the bird in the steam over a vessel filled with boiling water until the egg is laid. This complaint, if properly treated, leaves no ill effects, but recurrence is likely, and the bird should be watched when laying.

To deprive a bird permanently of the power of flying, it must be pinioned, that is to say, the tip of the bone of one wing must be cut off at the point where the terminal flight feathers arise. To carry out the operation it is necessary to keep the bird motionless, to tie a ligature as tightly as possible just above the last joint of the wing, and, leaving the rudimentary "thumb", cut off the wing immediately below the ligature. If properly done there should be very little bleeding. The cut end of the bone should be painted with tincture of iodine and the ligature removed when all danger of bleeding has passed. When the operation is properly performed, it only affects the patient temporarily.

Diseases

Birds are subject to numerous diseases. Only those occurring most frequently need be mentioned.

Colds, which are often followed by pneumonia, occur frequently

and are very serious. The symptoms are difficult and whistling breathing. The malady comes on very rapidly and should be attended to without delay. The first step is to place the bird in a cage and maintain a high temperature. Administer either Ditchfield's lung tonic or Parrish's chemical food. The diet should be nourishing, and include a little cod-liver oil. Care should be taken to keep the beak and nostrils clean, and a little permanganate of potash should be added to the drinking water. Suspending the bird's cage over a steam-kettle often eases the breathing.

Diarrhœa, or enteritis, is frequently only a symptom of serious internal troubles. Here again, the bird must be kept warm and all food stopped which may have been the cause of the illness, such as damp greenstuff or sour food caused by dirty feeding-troughs. The sick bird should be given castor oil, or some Ditchfield's drops, and a little tincture of opium, one drop to about a wine-glass of water.

Constipation is serious if neglected, but is quickly cured. The treatment is a small dose of sulphate of soda, or liquid magnesia, in a mild strength. Heating food, such as eggs, for instance, should not be given for a day or two.

Apoplectic fits are the cause of numerous losses in aviaries. Sometimes they are due to heat, or great excitement, but chiefly to over-feeding and lack of exercise. As soon as a bird shows signs of apoplexy, its head must be held under a jet of cold water, and its legs subsequently bathed in very hot water, which must then be cooled. When the bird has recovered, it should be given light food, an aperient, and as much freedom as possible.

There are many other diseases which affect both large and small birds alike: *Diphtheria* and other contagious affections, which are treated by isolation, painting with an antiseptic, and tonics. *False moult*, which yields to a treatment of a tonic and cod-liver oil. *Diseases of the liver*, due to imperfect food, which is rectified sometimes by a diet rich in fatty foods, a purge, and a tonic like Parrish's food. *Scabies*, attacking the legs, requiring washing with soap and application of sulphur ointment. *Plucking*, a vice which causes a bird to tear out its own feathers, or those of other birds, and which can often be overcome by smearing the body with medicated ointments.

More detailed reference will be made later on to diseases to which particular species are more especially liable. But, prevention being better than cure, the chief things for the aviculturist to bear in mind are the general rules here laid down with regard to the housing, food, and care of birds. If he carries these out, he will, to a great extent, avoid loss and disappointment and derive the maximum amount of pleasure and profit from his feathered pets.

THE AVICULTURAL MAGAZINE

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FOREIGN & BRITISH BIRDS
IN FREEDOM & CAPTIVITY

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FEBRUARY, 1923

THE LESSER NILTAVA (*NILTAVA MACGRIGORIÆ*)

The Zoological Society is indebted to Mr. E. W. Harper for his present of an example of this very beautiful Flycatcher, probably the first specimen ever imported. It is considerably smaller than the Rufous-bellied Niltava, which has from time to time been kept by aviculturists. Its colours are purplish-blue above, relieved by brilliant cobalt-blue on the crown and sides of the neck, the under surface being greyish.

This species occurs in the Himalayas, from Garhwal to Assam, at an elevation of 3,000 to 5,000 feet. It is said to form its nest of moss in a hole in the trunk of a tree or on the ground.

The female is said to be plain olivaceous-brown above, lighter beneath, with patches of lavender-blue on the sides of the neck; these blue neck patches being common to the females of all of the Niltavas. An example of the Rufous-bellied Niltava (*N. sundara*) has also been added to the collection in the Small Bird House at the Zoological Gardens, which now contains many feathered gems.

D. S-S.

THE GOLDEN-SHOULDERED PARRAKEET

(PSEPHOTUS CHRYSOPTERYGIUS)

This very beautiful parrakeet was discovered by Mr. Elsey on the north-west coast of Moreton Bay and described by John Gould at a meeting of the Zoological Society held on 10th November, 1857. Very little further seems to have been heard of it until the Spring of 1897, when some half-dozen living specimens arrived in London. These were in immature plumage, and were at first thought to belong to the species known as the Paradise Parrakeet (*Psephotus pulcherrimus*), but, when one of the two secured by the Zoological Society commenced to assume the adult coloration of the male, it was seen that they were examples of *P. chrysopterygius*. In addition to those purchased by the Zoological Society, two were secured by the late Mr. Reginald Phillipps, the remaining two being subsequently exhibited at a bird-show at the Crystal Palace. There was only one male in the consignment.

A coloured plate, drawn by Mr. P. J. Smit, from the pair at the Zoological Gardens, appeared in the *Avicultural Magazine* of July, 1898, together with an article by Mr. Phillipps.

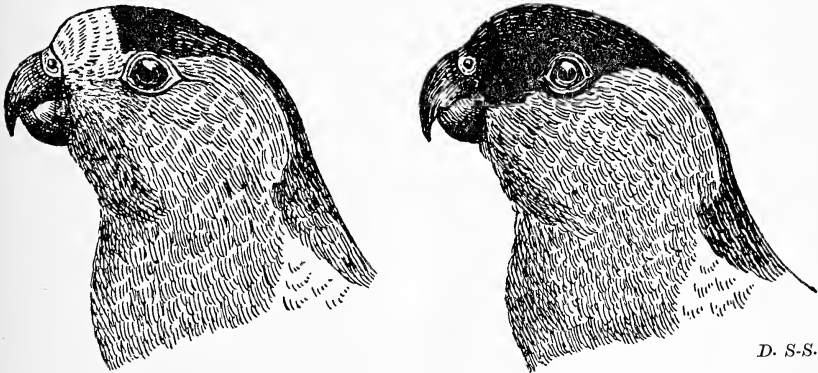
Since then the species seem to have disappeared. No specimens were collected and no live birds obtained, the so-called Golden-shouldered Parrakeets that have since been imported all belonging to the allied species *Psephotus dissimilis*, the Hooded Parrakeet.

The true Golden-shouldered Parrakeet has, however, now been re-discovered in the Cape York Peninsula, where it utilizes tall ant-hills for nesting sites, a most interesting account of this discovery being published in the *Emu* of October, 1922.

Mr. William McLennan, who was collecting on behalf of that excellent Australian ornithologist, Mr. H. L. White, gives a very interesting account from his diary of his expedition, with the following notes on *Psephotus chrysopterygius* :—

“ A bushman first told me of the “ Ant-hill Parrot ”, and said he knew of a nest. Go out with him eastward into lightly timbered country in places a bit boggy, and come to a flat, thickly dotted with

magnetic and tall, thin, spire-shaped termitariums (white-ant mounds). Locate the nest in one of the ant-hills, and the bird flushes while I am within a few yards. Can feel eggs with a light twig. . . . Termitarium 18 in. diameter at base, 6 ft. in height ; entrance to nest 2 ft. 6 in. from ground and $1\frac{3}{4}$ in. diameter ; tunnel $3\frac{1}{4}$ in. long, then enlarged chamber 7 in. by 6 in. deep, bottom being $2\frac{1}{2}$ in. below level of entrance. Hearing strange Parrot calls, a pair of birds presently appeared, the male flying to the top of the ant-hill and the female to the entrance of the nest. I really expected to see *P. pulcherrimus*, the Paradise Parrot, but they proved to be the very rare Golden-winged Parrot.



GOLDEN-SHOULDERED PARRAKEET (*left*).

HOODED PARRAKEET (*right*).

“Several old nests were noted in similar situations ; then we found one where the birds were preparing, as a mound of dirt at the base of the ant-hill was quite fresh. By fastening a lighted match to the end of a twig the interior was illuminated. No eggs yet.

“1/5/22.—Found a nest in which I could hear young squeaking. Another had five eggs and one young bird just hatched. Four miles further on found that a Black-tailed Finch (*Poephila atropygialis*) had built in a chamber hollowed out by Golden-winged Parrot ; on looking in found the Parrot had laid four eggs in the Finch’s nest ; found still another *Psephotus* Parrot’s nest, which contained four fresh eggs. Numerous old nesting-holes were noticed, all in termitariums.

“ Later in the month several nests were examined which contained young in various stages of development. In the floor of the nesting-chamber in every instance there was a remarkable colony of scavenger grubs, the larvæ of some moth, the species of which has not yet been determined.”

Mr. H. L. White gives a careful description of the eggs of this species, which are laid on soft broken-up termitarium material, and number from four to six to a clutch. They are pure white, almost round, and with little gloss. The type-clutch measure in millimetres 83×73 , 84×74 , 84×68 , and 82×73 .

Mr. Reginald Phillipps was, however, in all probability the first person to see and describe the eggs of this species, though these were laid in captivity. In the *Avicultural Magazine* for August, 1899, he gives the following somewhat crude description:—“ The eggs are small, of a stout oval in shape, of precisely the same length as those of the Peach-faced Lovebird, but thicker.”

D. S-S.

CORRESPONDENCE

KESTREL ATTACKING WOODPIGEON

SIRS,—I do not know whether any of our members keep the above bird of prey (*Cerchneis tinnunculus*), but if so a scene which occurred here on 5th January, 1923, may interest them as it did me.

One of these, a male, has for the past eleven years hunted regularly over some pasture land quite close to my house; and when standing by the side of a thorn hedge about 11 a.m. on the above date, stooping down to look at some plant in the hedge, I heard a scuffle in the air above me with much flapping of wings.

Looking up, the cause of the excitement was seen, there being a Kestrel grappling with a Woodpigeon, both birds about 25 yards above ground level, fighting furiously.

Apparently the Kestrel had a firm hold with its toes on the Woodpigeon's breast, because feathers were falling from it—but with the two birds tussling furiously in the air it was impossible to see *exactly*

where the Kestrel had its intended victim in its grip. Unfortunately, my presence below would seem to have interfered with the fight being fought to a decisive ending, because after struggling with the Woodpigeon for about 20 seconds (as seen by me) the Kestrel let go of it, and flew to hunt over the pasture above referred to (which was alongside where it met the Woodpigeon). The latter clearly in damaged condition, as shown by feathers falling from it flew, after the Kestrel's departure, to some trees about 40 yards away to the north, where it rested on a tree near the house.

While, on the one hand, the Peregrine Falcon (*Falco peregrinus*) will often attack Woodpigeons (it being a "natural enemy" to these destructive-to-crop birds), I was not aware, until this scene on 5th January, that a Kestrel would attack so large a bird.

Woodpigeons are often crossing from a clump of forest trees some hundreds of yards south of where the tussle occurred, over the pasture to the trees near our house, where the damaged bird rested; and probably the Kestrel met it, coming in the opposite direction, when proceeding to the pasture to hunt mice, and chose the opportunity to attack it *unexpectedly*. I may add that Kestrels do *not*, according to experiences here, by any means follow the hover and drop method *on all and every occasion* when their prey is birds, as sometimes happens.

FREDERICK D. WELCH, M.R.C.S.

COLORATION OF HERONS AND CRANES

SIRS,—In the magazine *Discovery*, an article about the Red-throated Diver (*Colymbus septentrionalis*), of circumpolar distribution, was printed in the number for February, 1922, part of which consisted of theoretical views founded on birds seen in the region of Spitzbergen.

The author, Mr. Julian Huxley, referred to other species of birds; and in those remarks made some statements about coloration which the present writer, when originally reading the article, could not agree with. That being so, it seemed desirable to refer to the subject in the journal of the Avicultural Society (the members of which are all observers of birds in some one or other natural order) rather than comment on it in the pages of *Discovery*—a magazine which deals with various subjects.

On p. 45, Mr. Huxley stated: "In the Divers as in the Grebes, *the Herons*" (italics mine), "*the Cranes*" (mine) "both sexes are alike and both *brightly coloured*" (italics again mine).

As a matter of fact, both sexes are *not* alike (in spite of the above statement), in the Asiatic White Crane, as previously mentioned by me in the *Avicultural Magazine*, 1920, p. 196. The difference, is, however, small; and so hardly worth discussing. But as to the remarks "brightly coloured", it seems to me that such is erroneous, the only possible exceptions which come into mind at the time of writing being the Crowned Crane group of Africa—the *Balaerica* genus. Even with these, there is *not sufficient* pinky red on throat-bag and cheek-patch to justify such words as "brightly coloured".

If such are so termed by any other writers in addition to Mr. Huxley, what term do they propose to use in describing the gorgeous red and blue of some of the Parrot tribe? A word like "brightissimus", recurring several times, would, it seems to me, be required in order to demonstrate the far more gaudy plumage of the latter, such as the genus *Eclectus*! Again, what proportion of bird observers would term the European Grey Heron (*Ardea cinerea*) or the Grey Crane (*Grus cinerea*) "brightly coloured"?

Personally, I should call the two latter *dull-coloured* birds; and also the Cooi Heron (*Ardea cocoi*) of Brazil, which are rather larger than the European, with whitish necks. Certainly the aberrant African bird, about 25 inches long, known as the Hammerhead (*Scopus umbretta*) and connecting the more typical Herons with the Stork tribe, is a *dull-coloured* bird, the plumage umber brown, iris brown, beak and legs blackish-brown.

The birds placed between this aberrant form and the typical Egrets, are also dull-coloured — American Boatbills and the Shoebill (*Balaeniceps*) of the White Nile.

I do *not* see that Mr. Huxley's wording "bright" is justifiable.

F. D. WELCH.

IS THE INDIAN ORIOLE A MIMIC ?

SIRS,—One of the Orioles in my aviary has developed a tendency to imitate the notes of other birds. A liquid *pee-ho* and a not very harsh *ko-ka-wak* are its usual call notes. I have never heard, nor ever read anywhere, of a like attempt on the part of an Oriole. But this bird has begun to chatter various sorts of notes which seem to me to be an attempt to imitate the voices around it. It has not yet been able to render any definite note of any particular bird, but I expect it will gradually succeed in its efforts.

SATYA CHURU LAW, M.A., B.L., F.Z.S.

CALCUTTA.

AN ANGRY SILVER PHEASANT

SIRS,—In the *Avicultural Magazine* for 1921, p. 84, 85, Mr. Astley referred to bad temper in Stanley Cranes owned by him.

At the time of reading about the doings of that male and female, their actions recalled to mind the temper of a cock Silver Pheasant, which lived for several years—about 1903 to 1910—at the same house in Cheshire as the Amazon and Parrakeet mentioned by me on pp. 56, 57 of the 1921 volume.

That Silver Pheasant was, without exception, by *far* the worst-tempered bird I have yet met, and would attack anyone who ventured inside its aviary; so that it had *always* to be shut into either inner or outer compartment, as the case might be, when one or the other was being cleaned.

If a fox-terrier came anywhere near the bars, it would at once rush at it, making a loud noise like *ka-ka-ka*, *kar*, *kar*, the first three notes following rapidly one after the other, the last two being long drawn-out and lasting several seconds.

It *always* made that noise when in a temper either with a man or a dog or a cat; and that seemed to show it was the usual voice of extreme anger in these South China Pheasants—presumably uttered if two cocks are fighting each other when in the wild state.

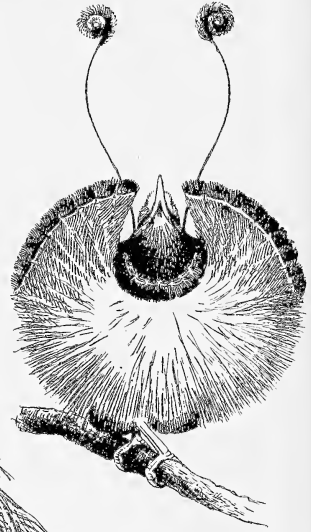
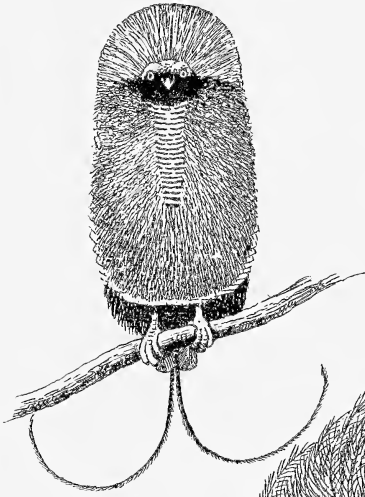
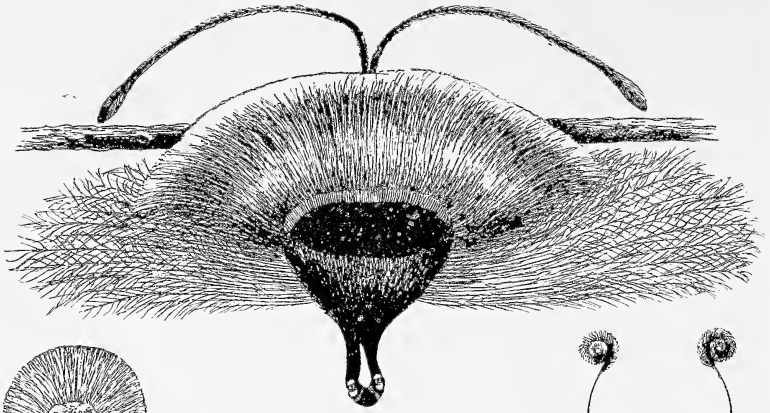
This bird was said to have killed two other Silver Pheasants before I knew it.

F. D. WELCH.

ORNAMENTAL WATERFOWL

Mr. Wormald writes :—We hope for great things from our ducks this year, as we have much the best lot we have ever had, though there are still some bad blanks in our collection. Next autumn I expect a good consignment of American ducks, such as Ring-necked Ducks, Lesser Scaup, Buffel-heads, and Blue-winged Teal. My Canvas-backs and Red-heads are settled down, and should breed, as they were hand-reared in Canada last year. You may like to hear the hand-reared stock we have for the coming season :—

6 pairs	Mandarins.	1 pair	Ringed Teal.
6	„ Carolinas.	4	„ Falcated Duck.
3	„ American Wigeon.	6	„ Pochard.
6	„ Common Wigeon.	6	„ Tufted.
2	„ Chilœ Wigeon.	2	„ Red-crested Pochard.
3	„ Shovelers.	1	„ Ringbill.
3	„ Pintails.	3	„ Redheads.
4	„ Gadwall.	5	„ Canvas-backs.
3	„ Common Teal.	2	„ Chilian Pintail.
1	„ Garganey Teal.	1	„ Ruddy Shellduck.
2	„ Chestnut-breasted Teal.	2	„ Spotbills.
2	„ Chilian Teal.	2	„ Yellowbills.
4	„ Cinnamon Teal.	1 ♀	White-eyed Pochard.
1	„ Brazilian Teal.		



BIRDS OF PARADISE IN
DISPLAY

- Top . . . *Paradisornis rudolfi.*
Left . . . *Diphyllodes m. hunsteini.*
Right . . . *Cicinnurus regius.*
Bottom . . . *Paradisea minor.*

THE BIRDS OF PARADISE AND BOWER BIRDS

By DAVID SETH-SMITH

Curator of Birds, Zoological Society of London

The Birds of Paradise are comprised in a group of passerine birds ranging in size from that of a Crow to that of a Starling, including a number of genera in the two families *Paradiseidae* and *Ptilonorhynchidae*, the latter containing also the Bower Birds which, in many of their characters are closely allied to the Paradise Birds proper. All are inhabitants of the vast forest country of New Guinea or the islands in its vicinity, and Australia.

In this group of birds Nature has been most extravagant in her methods of adornment in the male sex, providing them with plumes of brilliant colour and eccentric shape, which render them some of the most beautiful of feathered creatures, but has certainly not tended towards the preservation of the race since, from a remote period man has sought to slay these birds for the possession of their plumes to adorn his own kind, a fact which would doubtless ere now have led to the extermination of those species, such as *P. apoda*, possessing a limited range, were it not for the fact that these birds are capable of reproduction in the immature stage, probably some years, in some species, before the plumage of maturity has developed.

So far as we know, most of the species are polygamous, the males having their regular dancing and displaying places, either on trees or on the ground. All are furnished with very powerful feet, and most are very active amongst the branches of the trees.

Birds of Paradise are very quarrelsome, it being often impossible to keep two birds in the same cage, even though they be of opposite sexes.

Although at one time thought to be "Birds of the Sun", the Paradise Birds are denizens of the dense jungle, and apparently shun

direct sunlight. In captivity they should always be provided with abundant shade. The males, when in full plumage, keep to the thickest cover, probably fully aware of their conspicuous appearance, this habit of concealment persisting to a marked degree in captivity, for, when kept in an aviary, although the females and young males are bold and fearless, no sooner do the latter develop their adult plumes than they become very shy, taking advantage of any cover they can find with which to hide themselves. The food of all these birds appears to be much the same, namely, fruit and insects, and this being so they are not difficult to cater for in captivity. They need an abundant supply of such fruit as grapes and bananas, and a good mixture of insectivorous food as well as mealworms, cockroaches and such-like. The larger species should have finely-chopped raw meat added to the insectivorous mixture, and some of them are not averse to an occasional mouse. All are fond of bathing. As to their nesting habits, not very much is known. They mostly build an open cup-shaped nest composed of fine twigs, rootlets, or creeping shoots, and the eggs of the true Paradise Birds cannot be mistaken for those of any other group. They are generally two in number, with a ground colour of cream, boldly marked with streaks of reddish-brown or purplish, radiating from the centre of the larger end.

The first living Birds of Paradise brought to England (and probably these were the first seen alive in Europe) were two male examples of *Paradisea minor*, which the late Dr. Russell Wallace purchased for the Zoological Society in Singapore. This great traveller and naturalist had made several unsuccessful attempts to keep Birds of Paradise alive in their native countries, but he succeeded in bringing home these two birds, which reached London early in 1862. They were lodged in a large cage in the upper part of the Society's old Museum, but had to be at once separated as they fought, "the sight of one another or even a Paradise Bird's plume waved near them in the air, producing in them the greatest excitement."

In 1881 the Society purchased a Red Bird (*Uranornis rubra*), a Twelve-wired Bird (*Seleucidides ignotus*), and a Manucode (*Manucodia chalybata*), while in the following year an Australian Rifle Bird (*Ptiloshis paradisea*) was obtained. But it was not until the year 1904 that

private aviculturists commenced to keep these birds. In that year Mr. Walter Goodfellow, who had been collecting in New Guinea for Mrs. Johnstone, brought home a collection of rare birds, containing seven Birds of Paradise, one Greater (*P. apoda*), two Lesser (*P. minor*), two Kings (*Cicinnurus regius*), and a pair of Black Manucodes (*Manucodia atra*).

In 1908 there were no less than ten species of Paradise Birds exhibited in the Zoological Gardens, thanks mainly to the enterprise of Sir William Ingram, Bart., and the skill of Messrs. C. B. Horsbrugh and Wilfred Stalker, who had made a collecting trip to New Guinea on his behalf, and Mr. Walter Goodfellow, who collected for Mrs. Johnstone. These consisted of Greater, Lesser, Reds, Kings, and Twelve-wired, to which were added as new to the collection several specimens of Count Raggis' Bird of Paradise (*Paradisea raggiana*), a magnificent species with red plumes, eight specimens of Hunstein's Magnificent Bird (*Diphylloides magnifica hunsteini*), a New Guinea Rifle Bird (*Craspedophora magnifica intercedens*), seven examples of the Six-plumed Bird (*Parotia sexpennis lawesi*), several Manucodes (*Manucodia chalybata*), and two species of Bower Birds, the Gardener (*Amblyornis subalaris*) and the New Guinea Cat Bird (*Ælurædus melanocephala*).

About this time the enthusiasm of certain wealthy aviculturists reached a high pitch, and several collecting expeditions were dispatched to New Guinea, with the result that some wonderful birds arrived in this country. In 1910 Mr. E. J. Brook possessed in his splendidly equipped aviaries at Hoddam Castle no less than nineteen species of Paradise Birds, mostly imported by that intrepid collector, Mr. Walter Goodfellow, and comprising such treasures as the New Guinea Rifle Bird, the Lesser Superb Bird (*Lophorhina superba minor*), D'Alberti's Southern (*Drepanornis cervinicauda*), Meyer's Sickle-bill (*Epimachus meyeri*), Princess Stephanie's (*Astrarchia stephanieæ*), and the wonderful blue Prince Rudolph's (*Paradisornis rudolfi*).

The group of Paradise Birds is contained in the family *Paradiseidæ*, containing thirty-one genera, and *Ptilonorhynchidæ*, containing fourteen genera and including the Bower Birds. It is proposed to deal here briefly with only those species that have been imported alive into Europe.

THE AUSTRALIAN RIFLE BIRD (*Ptilorhis paradisea*)

Three species of Rifle Birds and one Manncode are the only true Birds of Paradise inhabiting Australia, and of these one of the Rifle Birds has been imported, a specimen of *P. paradisea* having been received by the Zoological Society of London on 4th April, 1882.

The prevailing colour of the male Rifle Bird is velvety black with brilliant purple and green reflections. The crown of the head is clothed with short feathers of burnished coppery green, fringed on the hind neck with metallic steel blue. Behind the eye is a longitudinal patch of velvety purple. On the throat is a triangular shield of brilliant metallic green. The breast is velvety purple, and the flank feathers long and silky.

The female and young male are coloured ashy-brown, the feathers narrowly streaked with buffy white, and over the eye a long streak of dull white. This species inhabits South Queensland and New South Wales, being replaced in North Queensland by the nearly allied *P. victoriæ* and *P. alberti*.

In describing the nest of this species, which is usually decorated with pieces of the shed skin of snakes, Mr. A. J. Campbell remarks that "the male was in a transition state of plumage, as was the case with the male of the type nest, proving that the males occasionally breed before their full and beautiful livery is donned".

THE NEW GUINEA RIFLE BIRDS (*Craspedophora magnifica intercedens*)

Mr. Walter Goodfellow brought home three pairs of New Guinea Rifle Birds for Mrs. Johnstone in 1908, which belonged to this form from German and British New Guinea. It is somewhat larger than the Australian bird, the pectoral shield more extensive, and the flank plumes longer. The female is more rufous than that of the Australian bird.

The New Guinea Rifle Bird attempted to nest both in Mr. Brook's aviaries and at the London Zoological Gardens, but without success. In Mr. Brook's aviaries two attempts were made during the summer and autumn of 1911, but the two eggs were laid from the perch and broken, although the female had constructed two fine nests before

the second pair of eggs were laid—one in a large bunch of birch twigs in the inner aviary, and the other on a branch of a tree covered with honeysuckle in the flight aviary. The eggs are typical of the Paradise group, pale buff in colour streaked with deep reddish brown and purplish, the streaks mostly radiating from the larger end. The plumage of the male of this species is extremely soft and velvety, and as the bird flies the sound emitted is like that of the rustling of silk. In displaying this species holds its long black curved bill almost vertically upwards, extending the chest with its beautiful metallic shield, which flashes green or blue as the bird turns rapidly from side to side, and the angle of the light changes. A female of this species escaped from Mrs. Johnstone's aviaries at Groombridge soon after its arrival, and lived at large in the woods for several months.

THE TWELVE-WIRED BIRD OF PARADISE (*Seleucidés ignotus*)

This splendid species occurs both in the lowlands of New Guinea and in the island of Salawati, and has been represented in the collection of the Zoological Society on three occasions, the first as long ago as 1881, and Mr. Brook has had specimens; but only males have been imported so far as we are aware. The general colour above is velvety black, with a distinct greenish gloss and coppery bronze reflections, the wing coverts black with brilliant purple reflections, and the tail purple. The velvet-like feathers of the head coppery purple above, and green on the face and throat. The fore-neck and chest are furnished with a shield of velvety black feathers shaded with green and fringed with brilliant metallic emerald green. The under surface of the body buffy yellow. Two tufts of yellow feathers grow from the flanks, each tuft being furnished with six peculiar thread-like shafts of considerable length and bent backwards on the body. The bill is black and somewhat long and slightly curved, the inside of the mouth being pale apple green. In displaying this bird extends the neck shield, which forms a hood or ruff of greenish black, edged with brilliant green and faces the object of its attention.

A specimen imported in 1907 lived in the London Zoological Gardens for thirteen years.

D'ALBERTI'S SOUTHERN PARADISE BIRD (*Drepanornis cervinicauda*)

This splendid species inhabits the Owen Stanley Mountains in South-East New Guinea, and was amongst those collected by Mr. Goodfellow for Mr. E. J. Brook. It has a long curved bill, and its prevailing colour is brown. The throat is metallic purplish green, the chest purplish brown, and from the sides of the latter grow tufts of feathers, purplish in colour and edged with orange, terminating in black tips. Lower down a second pair of long side tufts grow, their colour being brown with a purplish gloss, each feather tipped with amethyst purple. The female is a brown bird, her plumage barred with black.

PRINCESS STEPHANIE'S PARADISE BIRD (*Astrarchia stephanicæ*)

In 1909 Mr. Walter Goodfellow brought three pairs of this wonderful bird home from the Owen Stanley Mountains for Mr. Brook, and one pair went to nest three times, laying one egg on each occasion. One egg was destroyed by the male, and of the other two, one was presented to the British Museum and the other to the Société d'acclimatation de France, and it is believed that these are the only authentic eggs of the species in any collection. The egg is figured in the *Ibis* for 1912, and is considerably larger than that of *Paradisea raggiana*. The nest was a large rough structure placed in a bracket where a forked branch was fixed to the wall of the inner aviary, the foundation being of birch twigs and the rest built of bamboo twigs with the leaves on.

The male of this very rare and splendid species may be described as olive greenish with a velvety lustre in the upper surface, wing and tail coverts black, with a bright purple gloss, the very long curved tail black with a bright purple lustre, the shafts of the inner feathers white. The whole head metallic steel green, with a purple gloss, the forehead and sides of the face, throat, and chest glossy emerald green. The ear coverts are long and form a frill on each side of the nape, and are steel blue with purple reflections, while across the chest is a broad band of bronze green, edged with fiery copper. The female is olive brown, with the head and wings velvety black.

MEYER'S SICKLE-BILLED PARADISE BIRD (*Epimachus meyeri*)

This is another wonderful species from the Owen Stanley Mountains, of which Mr. Brook had specimens in his aviaries in 1909, imported by Mr. Walter Goodfellow. The male is velvety black above, with metallic feathers of a coppery green on the head, middle of the back, and rump. The central tail feathers are very long, black with brilliant metallic blue lustre. Large pectoral fans velvety black, tipped with a broad band of steel-blue. From the flanks grow long drooping plumes of a mouse-brown colour with sub-terminal bands of velvety black and purplish blue.

The female is brownish-red above, the under parts being whitish-brown barred with black.

THE GREATER BIRD OF PARADISE (*Paradisea apoda*)

Inhabits the Aru Islands. It is about 18 inches in length, the body colour being rich maroon in both sexes. The adult male has the head bright yellow (fading to pale straw colour in dried skins and captive specimens), the feathers compressed and velvety in texture. The forehead, lores, and chin are black with a metallic green lustre, the throat and fore-neck covered with close-set velvety feathers of dark metallic green. The two central tail-feathers are elongated into wire-like shafts some 30 inches in length, each curved outwards. The remarkable plumes for which this species is celebrated, and which have cost so many thousands of specimens their lives, grow from the sides of the body, beneath the wings, and are of a beautiful golden yellow colour at the base, gradually shading into pale chocolate at the extremity, where they become very soft in texture, the barbs much separated, and the shafts produced considerably beyond the barbs. At the base of these plumes are several rigid plumes of bright yellow, ending in blood red. The bill is bluish lead colour.

The female is maroon brown all over, somewhat darker on the head, neck, and chest.

The young male is coloured like the female, but is somewhat larger in size, the first indication of his characteristic dress appearing when he is perhaps 3 or 4 years old, when the head becomes yellow. At the next moult the throat becomes green, the long tail wires appearing

a year later. Another year or more elapses before the side plumes appear, and in their first year these do not attain to the length that they reach in full maturity. The exact age at which this species arrives at full maturity is uncertain, but there is little doubt that these birds do not attain their full adult plumage until they are from 8 to 10 years of age.

According to Mr. Wilfred Frost, who has made several expeditions to New Guinea and the Aru Islands for rare birds and has studied the Paradise Birds especially, these birds breed when some 4 or 5 years old, a fact which accounts for the continued comparative abundance of the species in spite of the persistent slaughter of the fully mature birds.

In 1760 Linnæus named this bird *Paradisea apoda*, the footless Bird of Paradise, from the fact that at that date all the skins imported were minus legs and feet, and it was believed that they had lived without these appendages, constantly floating in the sunshine!

Dr. Alfred Russell Wallace, who visited the Aru Islands some sixty years ago, was the first to give to the world an accurate account of the habits of these birds. At that time they were very common, and apparently the species still holds its own in spite of constant persecution for the sake of its plumes. Mr. Walter Goodfellow was there in 1903 and has given an excellent account of the species in the *Avicultural Magazine* for 1910. He describes how the natives every season systematically kill every bird that carries fully developed plumes, the number of skins exported in one year being in round number 1,100. "The *Apodas*," he writes, "resort to the same dancing trees year after year, and at the commencement of the season (March) the owners of the trees are able, before the birds' plumes are quite mature, to estimate almost to a skin the number they will obtain when shooting commences. This really means that each year possibly not one full-plumaged bird escapes."

In 1909 Sir William Ingram imported a number of Greater Birds of Paradise with the object of acclimatizing them on the small island of Little Tobago in the West Indies, which he owned. The island, of about 400 acres in extent, is thickly covered with tropical jungle and very tall trees, and the climate very nearly the same as that of Aru.

Mr. Frost, the collector, successfully conveyed no less than forty-eight of these birds to their destination, and they were set at liberty at the end of September, 1909. Reports seem to indicate that they have done well, and have bred, and it is greatly to be hoped that they will continue to thrive and multiply.

The Zoological Society of London received their first specimen of *Paradisea apoda* in 1886, since which date the species has been exhibited on many occasions. It is by no means delicate, though examples will at times die in a most unaccountable way just as they have arrived at their full state of perfection. Fruit, especially grapes and bananas, mealworms, cockroaches, and finely ground meat, and the usual insectivorous food-mixture composes their diet in captivity.

The note of this species is a loud harsh cry, *wawk-wawk-wawk* frequently uttered. In displaying the bird hops rapidly backwards and forwards along the perch, then bending forwards and lowering the wings, throws up the side plumes into a beautiful double cascade-like erection, which almost hides the body and presents a wonderful spectacle. Both young males and even females sometimes go through the action of displaying.

COUNT RAGGI'S BIRD OF PARADISE (*Paradisea raggiana*)

Occurs in South and South-East New Guinea. It is somewhat less in size than *P. apoda*, and differs from that species chiefly in the colour of the side plumes, which are of a brilliant crimson, the feathers becoming paler at their tips. The head is yellow as in *P. apoda*, this colour being continued to form a narrow collar below the green of the throat. The lesser wing coverts are also yellow. The female is of a nearly uniform ruddy-brown or maroon colour, very similar to the female of *apoda*.

This lovely species was imported into England in 1908, when Messrs. Horsbrugh and Stalker between them brought home twelve living specimens for Sir William Ingram, and Mr. Goodfellow nine for Mrs. Johnstone.

THE LESSER BIRD OF PARADISE (*Paradisea minor*)

The home of this species is in North-West New Guinea and Mysol Island. The male is not unlike a small edition of *P. apoda*, but differs

in being yellowish on the back and upper wing coverts. The plumes are bright yellow for their basal half and becoming white to the tips.

The female differs from the females of the other members of the genus in being white on the whole of the under surface, and in a considerable amount of yellow on the hind neck, mantle, and upper wing coverts.

This species appears to have been the first to reach Europe alive, two examples (as above recorded) reaching London in 1862. Of these two birds Dr. Wallace writes as follows in his *Malay Archipelago*: "When I returned home in 1862 I was so fortunate as to find two adult males of the species in Singapore; and as they seemed healthy, and fed voraciously on rice, bananas, and cockroaches, I determined on giving the very high price asked for them—100 *l.*—and to bring them to England by the overland route under my own care. On my way home I stayed a week at Bombay to break the journey and to lay in a fresh stock of bananas for my birds. I had great difficulty, however, in supplying them with insect food, for in the Peninsular and Oriental steamers cockroaches were scarce, and it was only by setting traps in the store-rooms, and by hunting an hour every night in the fore-castle, that I could secure a few dozen of these creatures—scarcely enough for a single meal. At Malta, where I stayed a fortnight, I got plenty of cockroaches from the bakehouse, and when I left, took with me several biscuit tins full, as provision for the voyage home. We came through the Mediterranean in March, with a very cold wind; and the only place on board the mail-steamer where their large cage could be accommodated was exposed to a stormy current of air down a hatchway which stood open day and night; yet the birds never seemed to feel the cold. During the night journey from Marseilles to Paris it was a sharp frost; yet they arrived in London in perfect health, and lived in the Zoological Gardens for one and two years respectively, often displaying their beautiful plumes to the admiration of the spectators."

Several examples have been imported since Wallace's time, and have been kept in most of the Zoological Gardens of Europe, but so far as we know all have been males.

The note of this bird is very similar to, but not quite so loud as that of *P. apoda*. The display of this species has been fully described

by Mr. Ogilvie-Grant, and illustrated by Mr. G. E. Lodge in the *Ibis* for 1905, page 429-40.

THE RED BIRD OF PARADISE (*Uranornis rubra*)

This species inhabits the islands of Waigiou, Batanta, and Gemien, the first living specimen imported into England being exhibited in the London Zoological Gardens in 1881, since which date several have been received in the various Zoological Gardens of Europe.

This bird is about the size of the Lesser Bird of Paradise, and in several ways resembles that species. The yellow parts of the plumage are, however, of a deeper orange colour and extend from the back of the head over the mantle and upper wing coverts, sides of the neck, and fore-neck. The fore part of the crown, sides of the face, and entire throat, are brilliant metallic green. The side plumes are comparatively short and stiff, and of a brilliant crimson colour, becoming whitish at the tips. The green feathers above the eyes are elevated into small prominent tufts. The two central tail-feathers are very peculiar, being formed into long flattened ribbon-like shafts some 22 inches in length, forming a spiral double curve.

The female is maroon-brown, blackish on the head and yellow on the nape, upper back, and upper wing coverts.

PRINCE RUDOLPH'S OR THE BLUE BIRD OF PARADISE (*Paradisornis rudolfi*)

This is another of the wonderful species inhabiting the Owen Stanley range of mountains in South-East New Guinea. It is a thick-set bird, much less elegant in shape than most of its congeners, but of extremely beautiful coloration. The head is black with a crimson tinge on the crown and nape; the mantle velvety black, contrasting vividly with the wings, which are bright verditer blue; the chest is black, gradually becoming tinged with blue downwards to the breast. The abdomen is black; the lower back is of a dull blackish blue, and the tail blue. The flank-plumes are very remarkable, being brightly coloured on the *under side* and dull above, a phenomenon directly connected with the bird's habit of displaying in the reversed position presently to be described. From the sides of the breast, beneath the

wings, grow tufts of beautifully filimented plumes, the outer feathers being about 9 inches in length of a rufous colour above, the under side of the barbs being bright blue, and the shafts reddish-brown. The inner feathers are shorter and consist of first a bar of short black feathers forming a line with the black of the abdomen, then a band of slightly longer red-tipped features, and finally a tuft of blue filimented plumes, the base of which are verditer blue, changing into indigo, and finally again into brilliant verditer blue. The powerful bill is white, and there is a line of white feathers above and below the eye. Two central tail-feathers very long, narrow, and curved.

The first example imported of this wonderful bird was one collected for Sir William Ingram in 1907, which unfortunately died very soon after its arrival. Another specimen formed part of Mr. Brook's collection a few years later, and in the autumn of 1920 a pair of this species reached the New York Zoological Park. They passed through the moult safely, and soon after regaining full plumage, the male commenced to display. In an account of these birds published in the New York Zoological Society's Bulletin for September, 1901, Mr. Lee S. Crandall thus describes the display. "Instead of remaining in an active, upright position, he grasps his perch firmly with his powerful feet, and, with legs extended to the utmost, hangs head downward. During the entire display period of several minutes, the position of the feet is never changed, and the firm grip never is relaxed.

"Viewed from the front, the plumes, inconspicuous and rather disappointing when at rest, form a brilliant inverted triangle, with the raised feathers of the abdomen completing the centre. In the middle appears a longitudinal ovate patch of velvet black, bordered above by a narrow band of dull red, formed by the feathers that ordinarily clothe the abdomen. The long pendant 'wires' rise to half their length, then droop gracefully downward on either side. The wings are held tightly closed and the head is held upward.

"During the display the body is moved forward and back, with the hips as a fulcrum, and with a violent motion of the body the plumage is frequently spread to its widest expanse. The white lines of feathers which border the eye above and below are conspicuously extended, leaving the bird only a narrow slit through which to peer at the observer.

Throughout, the bird sings softly, in a low, grating voice, moving his head slightly by sharp jerks. This habit of singing seems peculiar to this species."

THE KING BIRD OF PARADISE (*Cicinnurus regius*)

This lovely little bird has a wide range, occurring over the greater part of the mainland of New Guinea, as well as on the islands of Salawati, Mysol, and the Aru Islands. It is about the size of a thrush. In the adult male the whole of the head, throat, back, and wings are bright crimson with an orange tinge, especially on the short velvety feathers above the bill. Above the eye is a spot of black with a greenish lustre. The crimson feathers of the fore-neck terminate in a narrow band of orange buff, which is followed by a band of brilliant metallic green, below which the plumage of the under parts is pure white. From the sides of the breast beneath the wings spring two pectoral shields of comparatively long feathers, ashy in colour, but tipped with a broad band of metallic green, before which comes a narrow line of buff. The two central tail-feathers are elongated shafts with curved discs of metallic green at the tips. The bill is yellow and the legs and feet blue. The female and immature male is uniform brown, the wings with a crimson shade, and the under parts barred with blackish. The inside of the mouth is apple green in both sexes. This splendid species was first brought alive to England in 1904 by Mr. Goodfellow, and a number have been imported since.

The females and young males are generally quite tame, but the males in colour are generally very shy and adept at hiding themselves when kept in an aviary. In a cage, however, the males become quite tame, and it has been found that as a rule not only do they exhibit themselves to better perfection, but they thrive better in such a situation. A specimen owned by Sir William Ingram in 1907, and kept in a large cage, become so tame as to go through the whole performance of "display" even when under close observation. This extraordinary phenomenon has been well described in a paper written by Sir William and illustrated by Mr. G. E. Lodge, which appeared in the *Ibis* for 1907 (pp. 225-9). He writes: "He commences his display by giving forth several short separate notes and squeaks, sometimes

resembling the call of a quail, sometimes the whine of a pet dog. Next he spreads out his wings, occasionally quite hiding his head ; at times, stretched upright, he flaps them as if he intended to take flight, and then, with a sudden movement, gives himself a half-turn so that he faces the spectators, puffing out his silky-white lower feathers. Now he bursts out into his beautiful melodious warbling song, so enchanting to hear but so difficult to describe. He sings with a low bubbling note, displaying all the while his beautiful fan-like side plumes, which he opens and closes in time with the variations of his song. These fan-plumes can only be expanded when his wings are closed, and during this part of the display he closes his wings and spreads out his short tail, pressing it close over his head so as to throw the long tail-wires over his head, while he gently swings his body from side to side. The spiral tips of the wires look like small balls of burnished green metal, and the swaying movement gives them the effect of being slowly tossed from one side to the other. He suddenly turns right round and shows his back, the white fluffy feathers under the tail bristling in his excitement ; he bends down on the perch in the attitude of a fighting-cock, his widely opened bill showing distinctly the extraordinary light apple green colour of the gullet." This species has also been seen to display occasionally in an inverted position, after the manner of *Paradisornis rudolfi*.

HUNSTEIN'S MAGNIFICENT BIRD OF PARADISE (*Diphyllodes magnifica hunsteini*)

Of the five races or sub-species of Magnificent Paradise Birds, Hunstein's, from South-East New Guinea, appears to be the only one that has been imported alive, though it is not certain that some of the Magnificents in Mr. Brook's unrivalled collection were not of other forms, such as *D. magnifica magnifica* and *D. magnifica seleucides*, both from North-West New Guinea.

The Magnificent Bird of Paradise is about the same size as the King Bird. It has the top of the head covered with velvet-like brownish feathers ; the back metallic reddish chestnut, becoming orange on the lower back ; the wing coverts yellow with a distinctly orange shade

in *D. hunsteini*; the abdomen and under tail coverts black; the tail dark brown, except the two central feathers, which are produced into very narrow curved plumes, some 9 inches long and of a brilliant metallic green; covering the under surface of the body from the throat, and occupying the whole of the breast, is a shield of rich velvet-like green, the outer feathers tipped with metallic blue, and down the centre of this is a band of metallic emerald green. From the hind neck grows a broad fan-shaped shield of pale yellow plumes, with the texture of spun glass, flanked on each side by tufts of reddish-brown feathers.

The female is dark brown above, pale brown, barred with black beneath. In both sexes the gullet is apple green, and the legs and feet blue. This species was first imported about the year 1908, since which date a fair number have been received. It is somewhat lethargic in captivity, the males preferring to sit motionless in hiding.

A specimen kept in a cage in the London Zoological Gardens was often seen to display, this being generally accomplished in two distinct stages. In the first, after uttering a series of notes resembling *qua*, *qua*, *qua*, the body was bent slightly forward and the pectoral shield extended forward and its sides erected to the level of the top of the head, the feathers more or less fluffed out and then contracted, during which process the colour appeared to change from green to purple and from purple to green. Meanwhile the mouth was opened and shut several times, exhibiting its lining of a delicate apple-green shade. At this stage the central band of iridescent feathers completely disappeared, being hidden beneath the surrounding feathers, and the same with the metallic terminal band to the shield. At this stage the hood was not erected or visible.

Then, very suddenly, a remarkable transformation would take place, the body being erected to its utmost and the pectoral shield becoming a smooth broad ribbon of shining green, its sides nearly parallel and its surface like burnished metal; the central band of metallic feathers and the terminal band became conspicuous, while the fan-shaped shield of straw-coloured feathers from the nape was erected as a hood above the head, its lower edges meeting the upper edges of the green pectoral shield.

WILSON'S BIRD OF PARADISE (*Schlegelia wilsoni*)

This species inhabits the Papuan Islands, Waigiou, and Batanta. In the autumn of 1915 Mr. A. E. Pratt brought to London several pairs of this rare bird, the first that had ever been imported alive, and presented one pair to the Zoological Society of London, which lived for three years. It is somewhat smaller than *Diphyllodes*, but in many respects closely resembles that species. Its chief peculiarity lies in the decoration of the top of the head, which is bare, the skin being bright blue, a very narrow line of black velvety feathers running down the centre of the crown, and transversely crossed by two lines running down the sides of this bare patch. There is a large rich green pectoral shield, and a small collar of yellow feathers on the hind neck; the back bright crimson edged with a line of velvety black, the remainder of the plumage reddish brown, the wing coverts being edged with crimson. The two central tail-feathers are elongated and narrow, curved outwards into loops of a metallic blue. The female is dark brown above, pale yellowish brown barred with black on the under surface, and the head with the same peculiar decorations as in the male.

THE MANUCODES

The imported species of Manucodes are comprised in the genera *Phonygama* and *Manucodia*, the former being distinguished by the possession of two elongated tufts of plumes from the occiput. They have metallic blue or green plumage, and are remarkable on account of the structure and position of the trachea, which is formed into a double coil and lies on the surface of the breast muscles just beneath the skin. This structure doubtless accounts for the peculiar note of these birds, which, although, not loud, is penetrating and audible at a considerable distance. Before uttering this the bird raises its wings and extends the body, the note being emitted as the wings are lowered and the body contracted, the sound being, as it were, pumped out of the body through the specialized trachea.

Manucodes, especially those of the genus *Manucodia*, are very Crow-like birds, with plumage of green or purple with a strong metallic lustre. Those of the genus *Phonygama* are ornamented with plumes from the sides of the head, and the feathers of the neck and throat

are long and pointed. The sexes are superficially alike. Although there has been a certain amount of confusion in the naming of the Manucodes that have been imported, there is little doubt that the following have been kept alive in England :—

Phonygama keraudreni, from Dutch New Guinea.

P. jamesi, from South-East New Guinea.

Manucodia atra and *M. chalybata*, both of which inhabit New Guinea generally, the first also occurring in several of the surrounding islands.

SIX-PLUMED BIRDS OF PARADISE (*Parotia*)

The Six-Plumed Birds of Paradise, of which there are some seven recognized species or geographical races are placed by Sharpe amongst the Bower Birds, and they resemble these in some of their habits. Several examples of the species from South-Eastern New Guinea (*P. lawesi*) were imported in 1908, and it is possible that Mr. Brook's collection also contained one or more examples of the closely allied *P. sefilata* from North-West New Guinea.

The Six-plumed Bird of Paradise is of a rich soft purplish velvety black ; from above the ear coverts grows a tuft of elongated silky plumes, edged with a band of brilliant metallic green and purple, from amongst which spring two sets of three long shafts, each ending in a racquet of black with a metallic gloss ; from above the bill springs a longitudinal tuft of velvety-black feathers tipped with shining white ; on the lower throat is a large shield of brilliant metallic feathers of golden copper, with green, blue, and purple reflections. The black feathers of the flanks are very long and velvety, and the eyes are bright blue. The display usually takes place on the ground, the bird spreading out the side plumes like a skirt, the white tuft over the bill is spread forward, and the six long plumes on the head are erected with the metallic band of feathers at their base. The head is rapidly jerked from side to side, thus violently oscillating the metallic racquets on the head plumes, which form a dazzling nebula, their shafts being invisible, at the same time displaying all the brilliant tints of the pectoral shield in the most prominent manner. The female is reddish brown, darker at the head and lacking the ornamental plumes of the male.

THE SUPERB BIRD OF PARADISE

The collection belonging to Mr. E. J. Brook in 1910 contained an example of the form known as the Lesser Superb Paradise Bird, *Lophorhina superba minor*, which inhabits the Owen Stanley and Charles Louis Mountains in South New Guinea. Mr. Brook was good enough to present this bird to the Zoological Society of London in 1911, and it lived in their collection until the end of 1914.

The general colour of the male of this species is black, with a bronze-purple gloss. The crown of the head and the nape are metallic steel blue; the mantle is produced into a hood of long, velvety-black feathers, with a purple lustre; on the fore-neck and breast is a shield of bright metallic green feathers, the lateral ones much longer than those in the centre. In displaying the hood is erected, forming a background to the brilliant green crown, while the pectoral shield is extended.

LADY MACGREGOR'S BOWER BIRD (*Loria loriae*)

This rare species, which inhabits the mountains of North and South-East New Guinea, has once been imported, a male example collected by Mr. Goodfellow forming part of Mr. Brook's collection. It is of small size, the adult male being of a deep velvety black with a violet lustre, and the female and young male greenish olive. The inside of the mouth is yellow.

THE SATIN BOWER BIRD (*Ptilonorhynchus violaceus*)

This species, which is an inhabitant of the wooded country of the eastern coastal districts of Australia from Northern Queensland to Victoria, is well known to aviculturists as numbers have been imported in the past. The male, when in full plumage, which is not acquired until the seventh or eight year, is of a uniform purplish-black colour, his eyes being bright blue. The female is green with the same blue eyes as the male, and the immature males cannot be distinguished from the adult females.

At the commencement of the pairing season the male constructs his bower, which consists of two thick parallel rows of twigs with the ends firmly embedded in the ground, nearly meeting at the top, and about 18 inches in height. Around this the bird collects a number of coloured objects, pebbles, shells, leaves, flowers, and so on. This is his dancing ground and much of his time is taken up in either

dancing about and through the bower or adding sticks or ornaments thereto. The nest is built on the branch of a tree, from 10 to 30 feet from the ground, and is an open, shallow structure composed of twigs. An account of the breeding of this species in captivity, by Mrs. Johnstone, appeared in the *Avicultural Magazine* of December, 1902, and it is noteworthy that the male of the breeding pair had not assumed his full adult coloration.

THE GARDENER BOWER BIRD (*Amblyornis subularis*)

This interesting species was first imported in 1908, when Sir William Ingram presented two examples to the Zoological Society of London, a third specimen being presented by Mr. Hubert Astley the following year. These were all plain brown thrush-like birds, one only showing three or four yellow feathers growing from the hind neck. The last to arrive of these, however, soon commenced to grow a crest of beautiful golden fan-like feathers, which, when expanded, completely covered the top of the head, but when closed was invisible except as a narrow yellow stripe, by reason of the feathers at the sides and many of the central feather-tips being of a dark chocolate-brown colour.

This species inhabits the mountains of British New Guinea. The male builds a bower which he decorates with various bright objects, being specially partial to flowers, from which fact the species has derived its popular name.

The display of the male Gardener Bower Bird was often witnessed during the seven years that Mr. Astley's bird lived in the London Zoological Gardens. The bird, usually keeping in hiding in the vicinity of its bower, would suddenly run out with crest closed. It would then suddenly erect its crest, which resembled a large golden-yellow flower, and uttering a sound more or less resembling the running down of a clock spring, would run backwards in a zig-zag route, keeping the crest fully displayed until it vanished again into its hiding-place.

An allied species, *A. inornatus*, was represented in Mr. Brook's collection.

THE REGENT BIRD (*Sericulus chrysocephala*)

Of all the Bower Birds, the Regent Bird, when in full adult plumage, is generally regarded as the most beautiful. It inhabits the bush country of South-East Queensland and North-East New South Wales.

The adult male has the top of the head, hind neck, and mantle of a brilliant orange-yellow with a strong tinge of red on the forehead, the feathers of the head being of a velvety texture; the secondary wing-feathers, as well as the eyes and bill, are bright yellow, the remainder of the body being velvety black. The female and immature male are brown, mottled with whitish, the hinder crown and occiput being black. The male acquires the full mature plumage at the age of about 4 years. To the late Mr. Reginald Phillipps belongs the credit of having bred this splendid bird in captivity in his garden in West Kensington, where so many rare species were kept and bred some twenty years ago.

We commend to our readers his exhaustive articles on this species (*Avicultural Magazine*, New Series, Vol. IV, pp. 58, 88, 123).

THE SPOTTED BOWER BIRD (*Chlamydodera maculata*)

This species is an inhabitant of the interior regions of Queensland, New South Wales, Victoria, and South Australia, and has been imported on several occasions. It is slightly smaller than the Satin Bird, its general colour being dark brown, spotted with tawny buff, the under side being whitish, the chest and flanks barred with dusky brown. On the nape is a very conspicuous band of plumes of a rosy lilac hue. The bower is a substantial structure, but the sides do not nearly meet at the top, but are somewhat sloped out from one another. It is decorated with small conspicuous objects such as dried bones, pieces of stone or glass, and unripe fruit.

THE AUSTRALIAN CAT BIRD (*Elurædus viridis*)

This fine Bower Bird is mostly grass green above and yellowish green on the under parts, many of the feathers spotted with white. It inhabits the jungle-like scrub of the coastal regions of New South Wales and Southern Victoria, and has been imported on rare occasions.

The note resembles the mewling of a cat. The Cat Bird has been bred in captivity in Australia.

Two allied species have been imported, namely the BLACK HEADED CAT BIRD (*Elurædus melanocephala*), from South-East and Central New Guinea, and the BARBET-LIKE CAT BIRD (*Æ. buccoides*), which occurs in Dutch New Guinea and some of the islands near. So far as is known the Cat Birds do not build bowers like the other Bower Birds.

THE AVICULTURAL MAGAZINE

BEING THE JOURNAL OF
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FOREIGN & BRITISH BIRDS
IN FREEDOM & CAPTIVITY

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MARCH, 1923.

'THE EXPORT OF AUSTRALIAN BIRDS

At a recent Congress of the Australasian Ornithologists' Union held at Adelaide, the question of the export of live Australian birds was discussed, and the following resolutions were carried:—

- (1) That no export of Australian birds be allowed for profit.
- (2) That no export of any bird in danger of extinction be permitted.
- (3) That no export without adequate inspection be allowed.
- (4) That a board be constituted to control the necessary export and exchange of birds for scientific and educational purposes; the board to consist of two representatives of the R.A.O.U., and (a) one representative of the University and learned societies in each State; (b) one representative of State Natural History and Animal Protection Societies; (c) one representative of the Zoological Society in each State; and (d) one representative of the Museum in each State.

The following telegram was dispatched to the Minister for Customs: "Request prohibit totally export Australian fauna pending receipt scheme adopted by Conference."

With most of the above resolutions the members of the Avicultural Society will heartily agree. That any species of bird should be allowed to become extinct, if such can be avoided, would be a crime, but if no export of species which are common is to be allowed for profit then no

birds are likely to be exported at all. A permit may be obtained if the birds are wanted for scientific or educational purposes, but how are such birds to be got home? If left to the tender mercies of the ship's butcher anything less hardy than a Cockatoo is not likely to survive the voyage. It is the experienced collector who will only collect if he is to make a profit, who alone is capable of bringing his charges home safely. It would seem to us over here that a system of licensing a limited number of collectors, whose collections should be strictly inspected at the port of departure, would adequately meet the case.

D. S-S.

A WINTER BROOD OF YELLOW-BILLED DUCKS

In November (1922) I was most astonished to see a female Yellow-billed Duck (*Anas flavirostris*) appear on the moat which surrounds my house with a brood of seven ducklings. She had hatched out eight or nine in the summer, but as always happens, the young were dragged about, and owing to there being very little natural food all perished. If this came to pass in the summer, how sealed was the fate of the children of winter, but I managed to save six out of the seven by popping a net over them when the duck was brooding them on one of the banks. The seventh survived two days only. I reared them entirely by hand, keeping them in a bath-room, where there are hot pipes, and for the first ten days giving them a hot-water bottle at night, covered with flannel, to nestle on. I had no duckweed to give them, but I cut up some lettuce to mix in their food, and they have prospered.

Did the parents foresee an extraordinarily mild winter, when mignonette was still in bloom to the middle of January, and polyanthus tried to persuade one that it was March or April?

There was one brief spell of frost when the Yellow-billed Duck was sitting, and it was unnatural to see tiny ducklings on the open water, when leaves had fallen and apples had been gathered in.

HUBERT ASTLEY.

PHOTOGRAPHING THE BLUE GROUSE

By Capt. H. E. KNOBEL

The Blue or Mountain Grouse is the largest of its species in North America, and is particularly prized on account of the difficulty in hunting it. It lives at an elevation of from 4,000 to 6,000 feet, and is extremely shy in its habits.

While prospecting a silver-lead claim, known as the Beer Bolt, on the Alaska boundary, we came upon a nest of the Blue Grouse, with seven or eight white eggs in some low underbrush. We determined to endeavour to obtain a photograph of the sitting hen and nest, and with that view, started a long and painful stalk, crawling on hands and knees. With the greatest care not to disturb the hen, we finally succeeded in getting to within 10 yards and secured the photograph. To complete the picture we decided to photograph the nest, showing the eggs, at a short distance. In approaching we momentarily expected the hen to fly off, but to our surprise, she paid not the slightest attention to us. Finally, I gently pushed her off the nest, but she promptly returned. In the end, I had to lift her off and hand her to my assistant to hold, while I secured the photograph.

With a bird that is usually so shy and wary, this is a good example of fearlessness and devotion to its young.

THE LATE MR. J. D. HAMLYN

One of the most familiar figures in the live-stock world has passed away with the death of John D. Hamlyn, the well-known animal dealer of 221 St. George's Street East, which took place on 25th February. Those of us who knew him well, as almost every aviculturist did, will miss the bluff man who, in his day, had many curious adventures in the handling and transporting of wild animals. I wish I could recollect all the tales he has told me from time to time of his various exciting experiences, and I wish still more that he had taken my advice and written a book of his adventures.

As a boy, Hamlyn was apprenticed in a City office, but he could not

endure the drudgery ; animals fascinated him, and in his dinner-hour he would frequent the London Docks in the hope of seeing animals brought by sailors from abroad. His first speculation was the purchase from a sailor of a monkey, which he took to Jamrach and sold at a good profit. This he repeated as opportunity occurred, until Jamrâch, recognizing his qualities in his particular line of business, engaged him to purchase animals on their arrival ; and so commenced the trade which occupied him through life.

In addition to sending collectors to various parts of the world for livestock, Hamlyn himself, late in life, made several expeditions to South and West Africa, and returned with large collections. But that the work of the collector is not always easy or profitable is shown by his account of a purchase he made in Johannesburg of 250 Violet-eared Waxbills, newly caught and all apparently in perfect condition. The price was 1s. each, and he says he gazed at them with pleasure, and calculated his profit on selling them at £1 each in London. " They were fed and watered very carefully, and left in the store-house with the stock in Johannesburg. I went down the following morning, very very anxious to see how these birds were going on when, judge of my surprise and sorrow, I saw the whole of the birds on their backs in the two cages, very much dead. Whether they were caught on wet grass or were disturbed by vermin during the night, or what was the cause of their death, was never fully explained. I lost 250 Violet-eared Waxbills in one night."

The most skilful partner in the business during recent years has been Mrs. Hamlyn, and the somewhat brusque manner of the husband, which at times was apt to offend clients, was often counterbalanced by the tact and courtesy of his wife. No one I have ever met could keep and train young Chimpanzees so well as she, and to see her with these animals was delightful ; she treated them as children, and they loved her and obeyed her, and she loved them. Many a sad time has Mrs. Hamlyn had when obliged to part with one of these intelligent and delightful creatures when a purchaser claimed it.

The small bird part of the business has been almost entirely in her hands, and her knowledge of foreign cage-birds is great and her skill in keeping them considerable.

Mrs. Hamlyn is, I understand, hoping to continue the business, and those who know her will, I feel sure, wish her every success and do their best to help her in a difficult and trying undertaking.

D. S-S.

NOTES ON A BLACK HANGNEST

By FREDERICK D. WELCH

All but one of the Hangnests which I have seen in past years (previous to the end of 1922) in the living state have had some part of their plumage of bright colour, usually yellow, easily seen at a distance of several feet. The exception referred to was a rather large species, the Black Hangnest, known scientifically as *Cassidix orizivora* and inhabiting Brazil. Presumably it is contained in the sub-family *Cassicinæ*, one of the groups into which Hangnests of the family *Icteridæ* are divided in the *Royal Natural History*, because the individual referred to had a shield on the forehead at the base of the beak (see lines 7 and 8, p. 357, vol. iii). In total length, as estimated on the living bird, it was about 11 or 12 inches, much of which was taken up by the tail.

The individual known to me arrived in the London Zoological Gardens during March, 1909, and I frequently watched it up to August, 1922. Soon after this it died, so I was told in December of that year when looking for my old friend in the Western Aviary; and its age in captivity was therefore over thirteen years, it being an adult bird when it arrived (at least it looked so to me). When alive it looked rather narrow in body, even when it was in an excellent state of health, as proved by its rapid walk on the ground and general activity of flight.

The iris of the eye was reddish-brown—this being the only part which showed at all bright when the bird was seen at a distance of a few feet, and when moving in walk or in flight—the beak and legs being black. In ordinary daylight the feathers looked all black and dull at a short distance, but on close inspection the bird had some elegance about it.

One day in December, 1920, the bird sat quite close to me for about half an hour, being on the ground and perfectly still, its head pointing away from me but cocked to one side in order to keep a look-out for any bits of food offered it. The sunshine, about midday, fell full on to the back and neck as it sat so; and the feathering of these parts showed for the time being with a well-marked purplish hue, with some gloss on them. As my friend sat there, this purplish hue made me realize that, although the species is by name black, there is *something* attractive-looking about it—in that month at least—even though lacking the bright yellow which makes some Hangnests (for instance the small Golden Hangnest, *Icterus zanthornis*, of Colombia) so elegant and lovely.

I cannot say from personal experience whether this hue can be seen in dried Museum specimens. Possibly not, because some sorts of birds—for instance some Kingfishers—fade to some extent after the circulatory system, present during life, has ceased to act. Birds *alive* are always better to look at!

In this Black Hangnest the beak was strong and pointed, rather more than 1.25 inches in length, I should think, and the bird seemed to like poking it into earth when opportunity offered. Perhaps such action keeps the tip sharp and in suitable condition for weaving bits of grass and other materials into the shape of the pendulous nests, from which these birds apparently take their popular names.

In the above connexion it may be not out of place to insert here that another member, Mr. Allen Silver, remarked in the AVICULTURAL MAGAZINE, 1921, p. 150, when writing about a Greenish Hangnest, that these “want grass and earth to poke their bills in” (lines 15 to 22). Personally, it seems to me that Hangnests of the genus *Icterus*, and others also, such as the Yellow Hangnest, *Cassicus* genus, would keep in better health if supplied with earth to poke their beaks in than they would without such; and in country districts there would be no difficulty in members supplying them with such—whatever difficulties there may be as regards town dwellers. The beak in the Black Hangnest which lived formerly in the London Gardens was clearly a formidable one in the event of disputes and quarrels between birds about food and other matters, and I saw it on several occasions get the best of a fight

with birds as large, or larger, than itself, ending by the Hangnest chasing its opponent away from the scene of the quarrel. All its opponents were, in the quarrels seen by me, unfortunately Old-world birds (except on one occasion), so that it was not possible to get an idea as to the Hangnest's fighting powers if opposed by another New-world bird.

The impression created in my mind, when watching the Hangnest chivvying other birds about, was that the species would be a match in fighting for most birds of about its own size. In this connexion it would be of interest to hear if any member can give any details about the doings of these Hangnests when in the wild state as to their behaviour towards other Brazilian birds, and also as to their nesting habits.

The exception above referred to was the most comical-looking encounter I have seen between foreign birds! A Toucan was (several years ago) put temporarily for a few days only into the Aviary—apparently being taken care of during its owner's absence for the time being from England—and therefore these two New-world birds had a chance of quarrelling, which chance the Hangnest accepted—eagerly it would appear! When seen by me the Hangnest was pecking on the ground, and it at once attacked the Toucan as soon as the latter approached within a few feet. But although the Toucan (so far as I remember now a Red-billed, *Rhamphastos erythrorhynchus*) has a long beak, about 5 to 6 inches long, it was no match in combat for the Hangnest! Its beak seemed unwieldy in being too large to move quickly enough in the attempt to counter-attack the Hangnest's pecks, most of which were delivered at the Toucan's body and clearly made the combat a "decisive victory" for the Hangnest in about 20 seconds, when the Toucan retired as rapidly as possible! In addition to its beak being more suitable for attack in being strong and pointed, the Hangnest was also quicker in movement during the short fight.

Having driven away its opponent, the Hangnest resumed its pecking on the floor of the aviary; and the rest of the afternoon on which this encounter took place the Toucan took good care to keep out of the way of its adversary. In avoiding all chance of a second encounter by

retreating as soon as the Hangnest came anywhere near it within a few feet, the Toucan acted with wisdom.

A person is liable to get an incorrect idea as to the doings of some living creatures as to "usual habits" if they argue an *individual* case (as the above) and attempts to apply such as for the habits of the species *as a whole*. The above certainly seemed to demonstrate that a male and female Black Hangnest, when nesting wild, would be *easily* able to chase away Toucans which ventured to interfere with their nesting. Can any member state experiences on such subjects?

The Black Hangnest in the Gardens was a very silent bird in my experiences of it; and the only voices heard by me were low, continuous chuckles, made when the bird was pecking about on the ground, and lasting a few seconds at a time. As to this, I understood from both the keepers who looked after the bird, namely Sutton and Bailey, that they also found it silent. Other species and genera of Hangnest known to me have uttered voice when living a single life, and therefore the silent habit of the bird mentioned in this article does not appear to me as due to having no companion. Was this due to being a female? Personally, I should think so. But perhaps when Hangnests are being referred to in the special articles on Aviculture, the writer on them—whoever he or she may be—may have some interesting information on such a question?

Be that as it may, some birds certainly "improve with acquaintance" (to borrow a human phrase) and become more interesting than they appear at first sight, and the Hangnest in question was one such. I never remember seeing any other Black Hangnest in living state besides this individual—but from what was seen of this one, I should be inclined to recommend this species to a member, conditional on having an aviary to itself—or if not that, as large a one as in the Gardens, so that other birds can get away from it easily if it should become pugnacious.

CORRESPONDENCE

A RARE DOVE

SIRS,—I have lately received a pair of very rare Doves—*Phlogœnas jobiensis*, the white-chested Dove—which is found in South-East New Guinea and the islands of Jobi and New Britain. The much more familiar Bleeding-heart Dove belongs to the same genus. The White-chested Dove is a size smaller. In the male, the head and hind neck are deep black-grey, the lower body, wings, and tail very dark brown, throat and upper breast white, as also is a stripe over the eye; back and shoulders deep, rich reddish-violet which, overlaying the brown foundation, has a prismatic appearance. The female is less brilliant, and the white parts are dusky.

These doves keep largely to the ground, and have the same quick tipetting walk as their cousins, the Bleeding-hearts.

I believe this species has been very rarely imported. It is described, with a coloured plate, in Gould's *Birds of New Guinea*, vol. v.

HUBERT ASTLEY.

CATS AND OTHER ENEMIES

SIRS,—I am sure many members, especially those like myself who live in a town, are troubled with the cat nuisance. Two years ago, a brood of four St. Helena Waxbills, all fully fledged, were starved to death owing to a wretched cat sitting immediately above the nest.

Being surrounded by small houses—the smaller the houses and the poorer the people the more cats they keep—my aviary roof became the exercising ground of the whole population. I have kept them off since by the following method: Take a strip of wire-netting, about 9 inches wide, make the edges rough, bend it in a half-circle, fix it to the side of the aviary near the top, with a few staples along the middle of the curve, but leave room for free play; do this round the whole of the aviary. Now, when the cats climb up, they meet the rough edge if they put a foot inside the wire guard and press the lower edge down; the upper edge swings over the top of their heads, preventing them going any further. It does not improve the look of one's aviary, but it is effective.

Mr. Teschemaker, writing some years ago, says :—" O happy London aviarist ! if you only knew what it is to be raided with Hawks, Owls, Stoats, Fieldmice," etc. I say : " O happy country aviarist with a minimum of cats, rats, and house-mice !—and have all your young birds die because you can only get mealworms and gentles to feed them on, which upsets their digestion." I keep the mice out of the seed-tray by fixing an inverted iron-enamelled basin above it, and suspending it from the roof by a wire.

H. L. SICH.

FLYCATCHERS AND BEES

SIRS,—In her second report of " Birds in a Garden near London ", in the AVICULTURAL MAGAZINE, 1922 vol., p. 141, Mrs. Currey mentions Spotted Flycatchers as nesting.

A scene which amused me to watch may interest her or others to hear about. In last year's volume of a journal called *The Naturalist* there is a note of mine in the December number headed " Sap of Fir-trees attractive to Bees ", which records considerable insect activity one warm day in 1920 round some fir-trees near Southfleet, Kent, when a number of both bumble and hive bees, with flies and other insects, were feeding on an exudation which was oozing out of the fir leaves near where they join the wood branch, and also to some extent from the soft recent wood growth.

As that was written to primarily record the bees' doings, I intentionally omitted then to mention the doings of two Spotted Flycatchers, male and female evidently. Both were perched on branches of the trees near the main stem, and were at intervals of a few seconds making flights to catch some of the flies and insects which approached to feed on the exudation above described. That was only what would be expected of such birds. But the part which interested me, and therefore possibly also Mrs. Currey and other members to hear about, was that Flycatchers and the bees fed and flew near each other in *quite a friendly way* ! The birds did not attack the bees; nor attempt to interfere with them even when quite closer; neither did the bees get excited or angry with the birds, which were sometimes flying within a few inches of them. These Flycatchers were enjoying

themselves immensely! Are Pied Flycatchers also friendly with bees, under more or less analogous circumstances?

FREDERICK D. WELCH, M.R.C.S.

ANTS' EGGS

SIRS,—I have heard from a man who has promised to try and get me some "eggs" of the Wood Ant during the season. He writes to ask when they will be ready and how to collect them. I should be very much obliged if you or any other member of the Avicultural Society could inform me how the Ants' eggs of commerce are collected and when they will be in season in this country.

For instance, taking a spade and digging into the nest is all very well in theory, but I know what it is to have one's hands covered with the Common Black Ant all digging their jaws into one at once. With an insect as large as the Wood Ant it might be a serious matter.

H. L. SICH.

BREEDING LESSER SULPHUR-CRESTED COCKATOOS

SIRS,—I have succeeded in hatching two Lesser Sulphur-crested Cockatoos. The male did most of the incubating. I thought this might interest you, as I don't suppose it is of frequent occurrence. The nest is a very stout square box hung on a wire 14 feet from the ground. I intend to try my luck with *roseicapillus* ♂ and *leadbeateri* ♀.

M. V. ALLEN.

THE CHINESE NECKLACED DOVE

SIRS,—I have just bought a pair of what a dealer calls "Himalayan Chinese Necklaced Doves". Would you please give me the proper name, and tell me if small twigs will do for nesting material? I am told they are rare. Do you know if they have been bred here before?

E. G. DEWAR MURRAY.

[Probably *Spilopelia chinensis*, the Chinese Necklaced Dove. Whether this particular race of the Necklaced Dove has bred in captivity we are unable to say, but there should be no difficulty in inducing it to do so. Fine twigs or bents would be used in the construction of the nest.—EDS.]

REDRUMPS AT LARGE

SIRS,—It may interest members of the Avicultural Society to hear that I have a pair of Redrumps nesting in my garden. I had them about a year in my aviary, the only survivors of a lot of Parrakeets and Finches, which died from eating the lead round the old diamond-paned lights. The Redrumps got out about a month ago, and as they seemed to stay about I left them out, and they, almost at once, drove a pair of starlings out of a hole in a very large apple-tree just in front of our drawing-room window, and after fussing about for a long time, making the hole larger, in which I helped her, she is now sitting. I seldom see her, but the cock sits nodding in front of the hole and feeds her.

They have very powerful flight, and are often seen several miles from here, but the cock always comes back and sleeps in the inside aviary.

Before the hen decided finally on the apple-tree, she spent several days exploring all the nooks and corners of some old buildings, going into holes in the brickwork, cement, etc., but fortunately nothing suited her. She did the whole of the house-hunting and work at the hole, the cock being an idle onlooker.

L. K. RICE.

HERSTMONCEUX, SUSSEX.

THE CROW TRIBE (*CORVIDÆ*)

By E. G. B. MEADE-WALDO

The Crows include a vast number of highly specialized birds, which are found in almost all parts of the world, with the exception of the Antarctic Regions and New Zealand. The true Crows of the genus *Corvus* are found in the greater part of this vast area, and everywhere their habits are much the same. All are birds of high intelligence, all are monogamous, and apparently pair for life. Amongst them may be found some of the cleverest mimics, both of various sounds and the human voice. Some species are gregarious both in nesting and roosting, such as the Rook and Jackdaw, while others are gregarious only when roosting, and that occasionally. All are omnivorous, but some are far more carnivorous than others, notably the Ravens and Crows. Few are suitable for close confinement or are safe companions for other species of birds in aviaries, but in aviaries by themselves or at semi-liberty are most amusing and delightful companions, delighting in being noticed and showing great affection to their owners. All seem to have the same habit of hiding their food and of appropriating any bright object. They are birds of great activity, but less so than the Jays, and are of powerful and sustained flight, travelling long distances when necessary morning and evening for food and when on migration. The true Crows, and, indeed, all of the Crow tribe, are not birds that require feeding once or twice a day, but should have some food almost always before them. They are not large eaters and to thrive require food in considerable variety. All are great bathers, and it will be found that the Common Raven (*Corvus c. corax*) will bathe almost every time fresh water is put into its bath. All the Crows have the habit of burying their food in various places, and seem to remember every place where something is hidden. The greater number of the genus appear to be hardy, the only two species that are not, with which I am acquainted, being the Great-billed Raven (*Corvultur crassirostris*) of Abyssinia, and the Blue-eyed Raven (*Macrocorax fuscicapillus*) of New Guinea, both these being most

remarkable and interesting birds, but very rarely imported. The Choughs, though apparently so closely allied to the Crows, are, of course, entirely distinct, both species, the Red-billed Chough (*Pyrrhocorax pyrrhocorax*) and the Alpine Chough (*P. graculus*) making delightful pets both in the aviary and at liberty. They are harmless with other birds, but require an almost complete insectivorous diet, and are *not* flesh-eaters. In nature, they feed mainly on Coleopterous insects and their larvæ. The Crows breed freely in confinement if given the opportunity, but are not good at rearing their young, as apparently they are prone to eat them! But the Raven has been very successfully bred many times by Mr. St. Quintin, at Sampston Hall, the great majority of young being hatched and reared. It was found that to rear the young properly it was necessary to supply strong food, such as horseflesh or beef, in addition to rabbit and birds, or otherwise the young showed signs of rickets. The Raven has been bred also at Lilford Hall, and possibly elsewhere. It is needless to say that all the Crows when breeding must have an aviary to themselves. Flesh should not be the only diet provided, for a certain amount of farinaceous food should be given, and some form of vegetables or fruit. Shell-fish and fish is also much relished by some of the Crows.

The Nutcrackers (*Nucifraga*) appear to come close to the true Crows, and are a small genus with several geographical races. They appear harmless in aviaries with most other birds, and fairly easily kept on insectivorous food with nuts and pine-seed, especially those of the Cembra pine. On the American Continent they have a representative, Clark's Nutcracker, which also has various geographical races. They do not appear to be quite so sprightly and entertaining in confinement as the majority of the Crow tribe, but are very interesting birds.

The family of Jays contains many of the most beautiful birds in the world; sprightly to a degree, ceaselessly active, very noisy, sometimes too much so! with most flexible voices, from the well-known raucous "squawk"—which is in use, I believe, by the whole genus of *Garrulus*—to the most beautifully modulated imitation of the songs of our warblers. The Common Jay of our islands—which has a bad name, and justly, for its depredations to gardens, especially

to peas and beans—can be taken as a type of a genus which reaches, with many variations, from Ireland to Japan and its islands. Our Jay has the specific name *Glandarius*, and all its allies are equally entitled to the same, as all are to a great extent dependent on the oak, or some form of oak, for their livelihood during some part of the year. The Jays, of course, are great egg eaters, and at times destroyers of young birds, but I do not find that in confinement or semi-confinement they have any special partiality for eggs. Fruit, insects, caterpillars, mice, young birds, not too young, are relished. Jays can be kept in aviaries with other birds as a rule; not, of course, with small birds. I have kept them with Sandgrouse, Pigeons, etc., for years. Any of the Jay family that are paired and likely to nest should certainly have an aviary to themselves, and on no account should be watched. Beyond feeding them and giving fresh water, they should be left entirely to themselves. The best chance of success is to let them think that their intentions are unsuspected, and, indeed, this advice applies to the majority of breeding birds. A very aberrant member of the Jays is the Siberian Jay (*Cractes infaustus*), which inhabits the coniferous forests of Scandinavia, Russia, and Siberia. This bird is rarely imported, and, indeed, with the exception of the males of my own and which I caught myself, I have never seen it in confinement. I got my two in Nordland, Norway, in 1896, by the simple method of holding a trap in my hand baited with a mealworm! They lived for many years. They appear perfectly happy in an aviary, are quite inoffensive, of ceaseless motion, and have a number of most melodious notes. Professor Newton describes this bird so well in his *Dictionary of Birds* that I must quote a passage from it: "It is one of the most entertaining birds in the world, its versatile cries and actions, as seen by those who penetrate the solitude of the northern forests it inhabits, can never be forgotten by one who has had experience of them, any more than the pleasing sight of its rust-coloured tail, which an occasional gleam of sunshine will light up into a brilliancy quite unexpected by those who have only surveyed the bird's otherwise gloomy appearance in the glass case of a museum. It seems not to know fear, obtruding itself on the notice of any passenger who invades its haunts, and should he halt, making itself at once a denizen of his

bivouac. In confinement it speedily becomes friendly, but suitable food for it is not yet easily found." Since those days the food question is not a difficulty!

In North America, a closely allied species, the Canada Jay or Whisky Jack, has much the same habits, but although it occasionally is imported, it does not appear to be a popular aviary bird, or one that thrives long in confinement. It is of sombre coloration. I have never seen any arrive in good condition in this country. Probably, if they did, there would be no difficulty in keeping them.

Very different to these are the beautiful Blue Jays of North America, of the genus *Cyanocitta*; these Jays, all of beautiful plumage, have been but rarely imported in any numbers. They are hardy, but those from the southern parts of their range require a warm compartment to retire into for roosting. The genus is widely spread, *C. cristata* of E. North America going far north, while *C. florincola* inhabits Florida, *C. carbonacea* the coast districts of California, the Aztec Jay (*C. azteca*) South Central Mexico. I have known the Yucatan Blue Jay (*C. yucatanica*) to live for many years with Doves and Quails, and never molest them in any way.

The genus *Cyanocorax* contains a number of beautiful and interesting species, amongst them the Pileated Jay (*C. chrysops*); this bird is capable of imitating strange sounds to a remarkable degree. I knew of one that could imitate the weighing of an anchor by the capstan so perfectly that it was almost impossible to believe it was not taking place, unless you saw the bird and its surroundings. Unfortunately, the bird was so proud of its accomplishment that it practised it almost continuously. Other beautiful members of this genus are the Blue-bearded Jay (*C. cyanopogon*) of Brazil, the Peruvian Blue Jay (*C. incas*) of Colombia, *C. chrysops* of South Brazil and Uruguay, *C. cyanus* of Guiana, and *C. cæruleus* of South Brazil. These tropical Jays are none of them hardy, and to keep them in health require roomy flights, with plenty of cover and a great variety of food. With proper accommodation they live for years.

The genus *Xanthura*, of Central America, contains a number of lovely species, of which *Xanthura glaucescens* of Texas may be taken as a type; the genus extends throughout tropical South America.

The well-known genus *Pica* extends throughout Europe, Asia, and North Africa, and contains some beautiful species. Closely allied are the Blue Pies (*Urocissa*) of India and China, extending into Formosa, and the genus *Dendrocitta* of India and China. Known as the Wandering Tree Pies, of more sober colouring, these Pies seem to be hardier than the tropical Jays, and are nearly, but not quite, hardy. They are far more restless than Pies of the genus *Pica*, and are more Jay-like in their actions. They are powerful birds, and not to be trusted with small birds. The Occipital Blue Pie has bred in confinement and reared its young. A most beautiful member of this genus is *Urocissa caerulea* of Formosa. The genus *Cyanopolius* is a remarkable one. It contains but four species, which are found in Eastern Siberia, Japan, China, and Spain. The Spanish Blue Magpie (*Cyanopolius cooki*) is found locally in South Central Spain, is common near Cordova and the province of Estremadura, and also locally common in Portugal, but is very local everywhere. Another representative is found in China, *Cyanopolius swinhoei*, only differing from the Spanish bird in its very slightly larger size, and in having a white tip to its tail. They are charming aviary birds, quite hardy in the South of England, and both species have bred successfully in aviaries. They did not interfere with other birds when in my aviaries, bred regularly, and lived for years. The nest is solidly built, lined with wool, and resembles a Shrike's nest, and the eggs are not at all Corvine in type, but more resembling the Shrike's. Seven was the usual clutch laid with me. I found they would eat almost anything, fruit, insects, mice, small birds, mealworms, etc.; we never gave them meat. I have been more descriptive in writing of this genus, as I had some years experience of them and liked them very much.

Of the true Magpies of the genus *Pica*, not much need be said. They are all geographical species of our own *Pica p. pica*. They are delightful thieves and companions, and are almost ubiquitous in their habits. Their distribution in some of their areas is rather remarkable. In Morocco *P. mauritanica* is very common locally, but great tracts of country may be gone through without a sign of one, notwithstanding apparently precisely similar conditions. The same applies to Spain.

I have omitted to mention the genus *Cissa*, which contains the beautiful Hunting-crow of India (*Cissa venatoria*). The tropical Jays of Central America and South America are so numerous in species and geographical races that a paper of this kind would be unnecessarily prolonged in recording them all. Their management in confinement is practically similar.



LESSER BIRD OF PARADISE
(*Paradisea minor*)

MAGNIFICENT BIRD OF PARADISE
(*Diphyllodes magnifica*)

KING BIRD OF PARADISE
(*Cicinnurus regius*)

WILSON'S BIRD OF PARADISE
(*Schlegelia wilsoni*)

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THE EXPORT OF AUSTRALIAN BIRDS

By THE MARQUESS OF TAVISTOCK

The new bird protection legislation in Australia, and prohibition of export of native birds, calls for some revision in favour of aviculturists in Europe or elsewhere, who cannot actually claim to represent scientific and educational societies. No true aviculturist would wish his hobby to hasten the extinction of any rare bird. He would gladly forego the pleasure of seeing it in his aviary if he knew that his self-denial was helping to preserve the species for the enjoyment of naturalists in another part of the world. But it would seem that the protective legislation forbids the export of birds which are by no means threatened with extinction, as well as of certain rare kinds which are almost certainly doomed to extermination in a wild state, but which might be saved by being bred in confinement.

With regard to common birds, such as the various Finches, etc., a limited number properly and humanely caught and transported by accredited persons with licences, might surely be allowed to give pleasure to the hundreds of lovers of Australian birds who live outside the Commonwealth. This would be a very different matter to permitting the cruel and wasteful practices of the wholesale trapper, though, as a matter of fact, I doubt if the extinction of any bird has been proved to have been materially hastened by the demands of aviculture.

The case of rare birds, mainly Parrakeets, which are threatened with extinction in a wild state, but are capable of being bred in confine-

ment, also demands very special consideration. In many cases, the factors hostile to them are beyond the control of legislation—settlement of their habitat and destruction of natural food supply, imported vermin, especially cats, and, very important, but usually overlooked, *the toll taken by natural enemies, which, once a species falls below a certain numerical strength, is always greater than the natural increase where the species is one which has many natural enemies.* In the case of the Paradise Parrakeet, for example, it is possible that even if not a single bird is exported or shot, and no cats exist in its range, yet now that its numbers are so reduced, Hawks, Owls, and Iguanas will infallibly wipe it out before many years have passed. The reason is that once a bird becomes extremely scarce it cannot replace a lost mate and reproduce its species before it is itself overtaken by sudden death, and the scarcer it becomes the more severely is it handicapped in the struggle for existence. That is why breeding in confinement is a method of preservation which deserves serious consideration and some encouragement, as it may well prove the only way of preventing certain birds from vanishing from the world. It would, I think, surprise a good many Australians to know how easily many of their native birds can be bred in Europe, in spite of the disadvantages of climate. Turquoise, splendid, elegant, and Blue-winged Grass Parrakeets, Paradise, Bourkes, Princess of Wales' and Rock Peplars have all been bred in England or on the Continent, in some cases in considerable numbers. It is true that they are now rare or absent from European collections, but this is not due to any impossibility in keeping up a healthy strain, but simply to the laziness of aviculturalists who have not used the same care in housing and mating their stock that is employed by breeders of prize dogs and poultry. The writer, at any rate, does not intend to repeat in the future the mistakes of which he and others have been guilty in the past. The present state of affairs is not satisfactory, and threatens to annoy aviculturalists without any real compensating advantages.

Friends of mine who have been in Australia tell me of recent cases of Barraband's Parrakeets poisoned with wheat, Pileated Parrakeets shot in numbers by owners of orchards, and Turquoise Parrakeets killed to provide railway workers with a change of diet. In a huge

country like Australia, where, as in our own country, the majority of the people scarcely know one bird from another, and care nothing about the preservation of rare species, such killing is unpreventable, however strict the laws. But the point is this: I—and I think a good many other naturalists over here—am perfectly willing to forego the pleasure of having Turquoisines, etc., in my aviaries, if by this self-denial I am helping to keep a lovely species from extinction, so that bird-lovers in Australia may enjoy its beauty; but—and it is a big “but”—I entirely fail to see why I should be prohibited from having a few breeding pairs of rare Parrakeets so long as it is possible for *anyone* to poison or shoot them in their native land; neither do I think that the aim of bird protection is best realized by such an anomalous state of affairs! I feel sure that, as the interests of all true aviculturalists and of those aiming at bird protection are identical, some arrangement ought to be possible which is satisfactory to both sides and conducive to the preservation of birds from threatened extinction.

CORRESPONDENCE

REDRUMPS AT LARGE

SIRS,—I was interested in your correspondent's note on the nesting of Redrumps at liberty. I have bred them at liberty on several occasions, and a pair never leave a place where they have bred so long as both are alive. The great danger, especially in winter, is from Brown Owls, and I should strongly advise the owner of the pair to shut them up, anyhow at night, when the trees begin to get bare in autumn. When you have only one pair of Parrakeets at liberty it is quite a simple matter to shut them up at night by closing the aviary door and feeding them each afternoon on a tray hung from the aviary roof with a downward-pointing funnel of wire netting leading to it. The birds see the food through the wire netting, and climb down the funnel to get to it. They are then unable to find their way out again if the mouth of the funnel is just too high above the food tray to prevent a bird standing on the tray from reaching it. In a few days they get quite used to the process, going to roost contentedly after their last feed and flying out each morning through

the door or window opened for them. It would not, however, be possible to treat the Redrumps and their young in this way, as the old birds would be likely to kill the latter if shut up with them after they have ceased to care about them.

TAVISTOCK.

THE WHITE-CHESTED DOVE

SIRS,—I find that the pair of White-chested Doves (*Phlogoenas jobiensis*) which I wrote about were bred by Mr. Herbert Bright, near Liverpool.

HUBERT ASTLEY.

[Mr. Bright published an account of the breeding of this species in the *Avicultural Magazine* for November, 1922, and has been awarded the Society's Medal.—EDS.]

A HYBRID ALEXANDRA PARRAKEET

SIRS,—The hybrid which I bred in 1922 between *Polytelis alexandrae* and *P. barrabandi* is, I believe, a female, favouring the mother, the Queen Alexandra, more than the Barraband father. It is, in fact, a Queen Alexandra Parrakeet of a richer green, the throat being pink suffused with yellow, and the shoulders, which in the pure Queen Alexandra are bright yellow-green, are duller in the hybrid. I hope that this bird is mated to a pure male *P. alexandrae*, unrelated. Unfortunately the cock Barraband is dead.

HUBERT ASTLEY.

ANNUAL SUMMER MEETING

This will be held in the Zoological Gardens on 6th July, tea being served at 4 o'clock. It is hoped that many members will be able to attend.

THE DRONGOS, STARLINGS, GRACKLES, AND TROUPIALS

By JEAN DELACOUR

A. The Drongos

The Drongos form a well-defined family (*Dicruridae*), whose rather large size (10 to 12 in.), strong bill, short legs, forked tail, and generally glossy black plumage suffice to distinguish them easily. They inhabit the South of Asia, Oceania, and Africa, and are numerous. They are insectivorous birds, often catching their food on the wing. They sometimes perch on the backs of cattle. Some of them have musical notes. They build in trees cup-shaped nests. Drongos are not really migratory, but rather erratic in their movements.

Drongos are naturally tame and quiet, and do rather well in captivity; however, they are seldom met with in Europe, though their strange aspect and nice song make them desirable cage birds. They do well on the usual insectivorous food. We shall only mention the few species of Drongos which have lived in Europe.

The Hair-crested Drongo (*Chibia hottentotta*), from India and China, is a large bird, black, with purple and bronze reflections; the tail is hardly forked, and the head is crested with hair-like feathers.

The African Drongo (*Buchanga dissimilis*) is of a little smaller size and devoid of a crest; tail longer and decidedly forked. The White-bellied Drongo (*B. caerulescens*), from India, is deep indigo, with grey breast and throat; under parts white.

The Madagascar Drongo (*Elolius forficatus*) is all black with a straight crest on the forehead. The Racket-tailed Drongo (*Dissemurus paradiseus*) is the most interesting member of the family; it is a shining blue-black bird, with a long ricketed tail, and a well-developed crest. It lives in forests in India, and sings beautifully.

B. The Starlings

We include here three closely related families under the general appellation of Starlings: the true Starlings (*Sturnidae*), the Grackles (*Eulabetidae*), and the Ox-Reckers (*Buphagidae*). All have rather similar aspect and habits. They are medium-sized birds (averaging 9 to 10 in.); their bill is generally long, rather slender, but strong; legs and wings long, tail short (with the exception of some Glossy

Starlings); the plumage is often dark, but varied or glossy. Starlings' voices are generally strong and harsh, but a few genera show a great inclination to imitate other birds' songs and different noises; some are excellent talkers, rivalling Parrots in this respect. Starlings are widely distributed in the Old World; they do not exist in America, where they are replaced by Troupials.

Generally speaking, Starlings live in flocks, and are most sociable; they haunt cultivated and inhabited districts; some of them, like the Mynah, live in towns. Confiding, enterprising, and inquisitive by nature, they are quite tame when not persecuted.

Starlings are omnivorous, but their staple diet is of insects, fruit, and berries; but some eat other food, even seeds. *Sturnidæ* are rather terrestrial, while Grackles are more arborial. As a rule, Starlings make their nests in tree holes or rock crevices, and even under roofs of buildings; a few species, some African Glossy Starlings as an example, build among the branches. They lay from four to seven eggs, plain pale blue in the true Starlings, more or less spotted in the Grackles. Both sexes take part in the incubation, which generally lasts twelve days; nestlings are bare, with patches of long down; they leave the nest when about twenty-two days old. Many species are more or less migratory.

All Starlings are excellent aviary birds, merry, active, and tame; the antics which accompany their song are often most amusing; some of them, on account of their facility to learn whistling and talking, are very desirable cage-birds, in spite of their rather large size: such are the Grackles called "Hill Mynahs" (*Eulabes*), some Common Mynahs, and Common Starlings.

Numerous species can well stand the British climate out of doors all the year round if they can use a cold shelter, and it is only the less hardy ones which should be wintered in heated quarters. The typical Starlings and the Mynahs are the hardiest; the Grackles and Glossy Starlings being more delicate in cold weather.

In a cage, a Starling should be kept very clean, as it is naturally a dirty bird; it needs to bathe freely, and the cage should be fairly large.

Outdoor aviaries, with good shelters, suit Starlings very well, at least from April to November, when the more delicate species should

be taken into slightly heated indoor aviaries or bird-rooms, a temperature of 50 to 60° being sufficient. One can put a large number of birds together if there is plenty of room, and associate them with other birds of the same strength and general habits, such as Troupials, Thrushes, etc. ; it is not safe to put them with weaker birds, as, without being naturally spiteful, they are inclined to bully their companions.

Aviaries for Starlings should be planted with shrubs and grass, which they do not damage ; they should be fitted with strong perches and nesting boxes.

Starlings do well on the food for omnivorous birds described in our first chapter, that is to say, insectile mixture, boiled rice, fruit, and a little meat now and then. Of course, live insects are excellent. When one wants to breed them it is better to isolate each pair in a separate aviary, well fitted with nesting boxes ; however, Starlings will breed in society. To rear the young ones, plenty of live insects, especially grasshoppers, are necessary. Under that condition there are no difficulties. Different Mynahs have bred freely in captivity, and also some Glossy Starlings. A large number of Starlings are imported into Europe, and found in our aviaries. We shall review them presently.

I. TRUE STARLINGS AND MYNAHS

(*Sturnidæ*)

The Common Starling (*Sturnus vulgaris*) is too well known to need a description ; it is a good cage-bird, sensible and tame, and can become a good talker and whistler ; his drawback is that he is rather noisy and coarse in his behaviour. Different Asiatic species of Starlings, very similar to the European one, have been imported.

Mynahs are Asiatic birds, often imported into Europe, and make excellent aviary birds ; they belong to several closely related genera.

The birds belonging to the genus *Spodiopsar* are medium sized, with feathered chicks and rather light-coloured plumage, mostly drab and buff, with dark or black wings and tail. They are found in India, Indo-China, China, Japan, and Siberia. The best known species are the Blyth's Mynah or Starling (*S. blythi*), the Grey (*S. cineraceus*), the Silky (*S. sericeus*), the Cambodian (*S. cambodianus*), the Burmese (*S. burmanicus*), the Malabar (*S. malabaricus*), and the

Andaman (*S. andamanensis*); these three last species have bred in captivity. The *Sturnopastor* have a long pointed beak, and their plumage is varied with glossy black, grey, and white, the bare skin round the eyes being yellow. They are good aviary birds; the commonest species, *S. contra*, from India, is often offered in the market under the name of Pied Mynah. An allied species, from the Malay Islands, resembling the first one very closely, *S. jalla*, has also been imported.

A curious bird allied to the above genera is the African Wattled Starling (*Creatophora carunculata*). This strange Mynah is clad in drab colour, with black wings and tail; the male has a bare head, ornamented with yellow skin behind and much developed black wattles on the forehead and under the bill. This bird has seldom been seen in captivity.

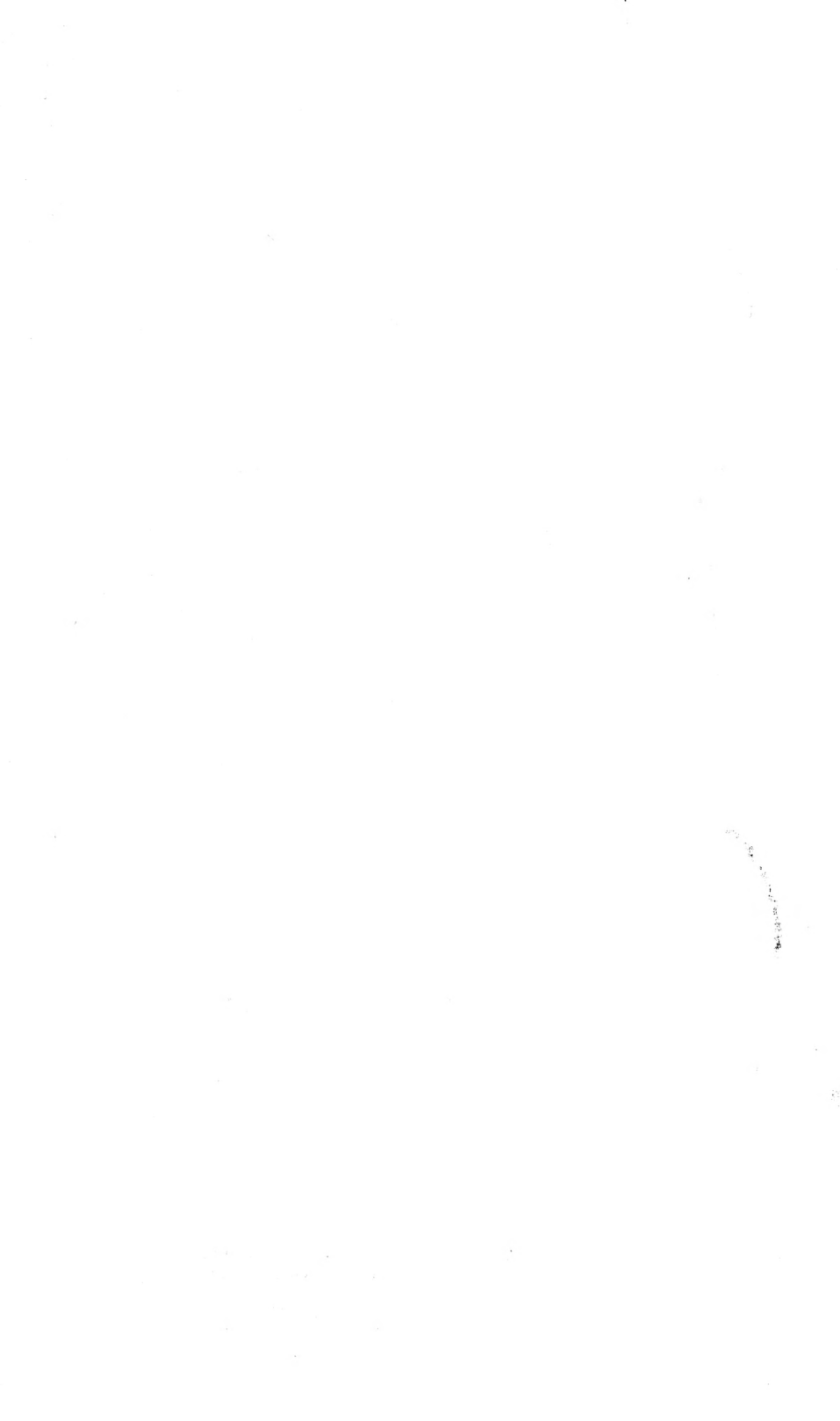
The Rose-coloured Starling (*Pastor roseus*) is well known as a great destroyer of locusts. It is a migratory bird, breeding in Asia Minor and in the South-East of Europe, and spending the winter in India. It is a pretty rose-coloured bird, with a crested black head, black wings and tail; it is a sociable and peaceful bird.

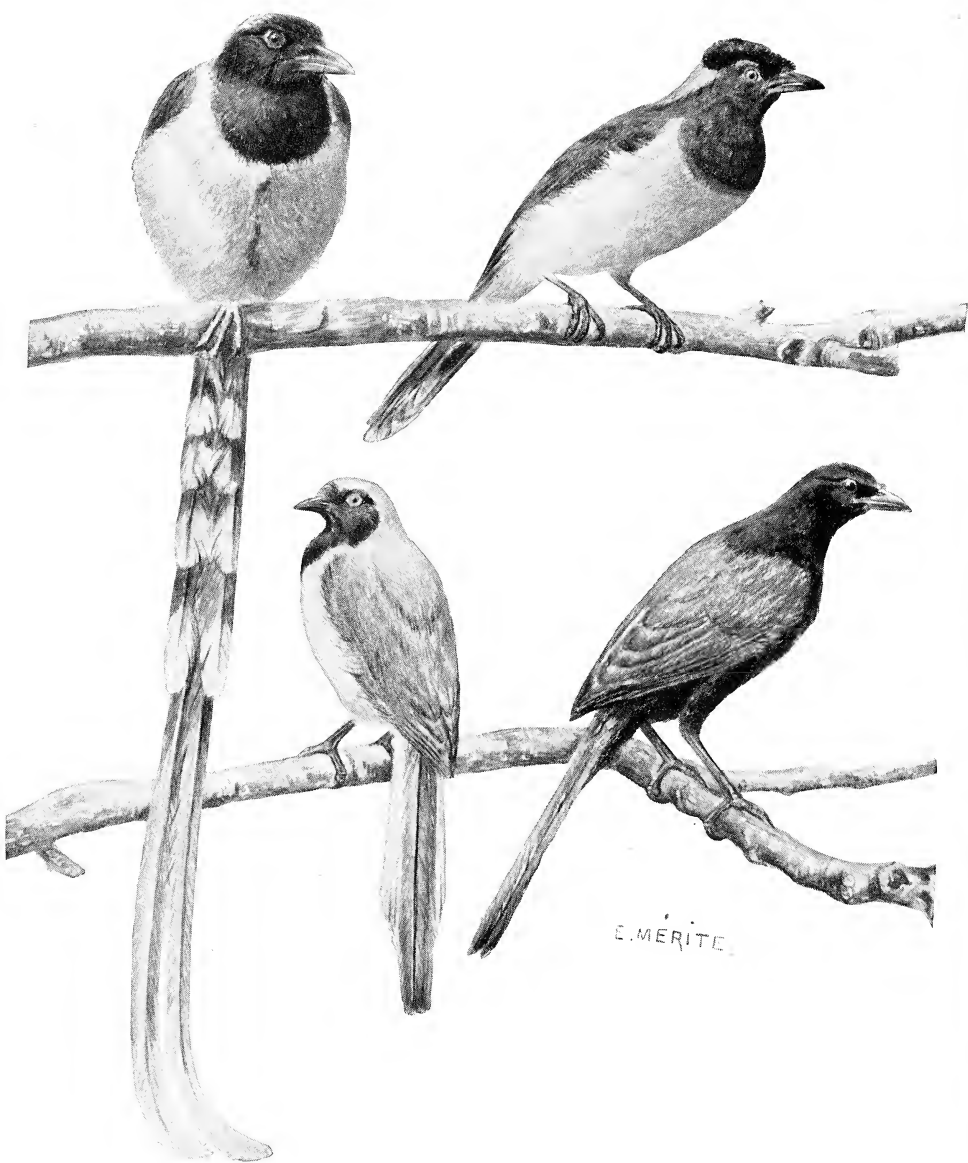
The small Mandarin Starling (*Sturnia sinensis*), of the size of a Lark, is beautifully variegated with silky white and pearl grey, having black wings and tail. It is a very desirable aviary bird, as it breeds easily in captivity, if provided with plenty of live insects.

The Pagoda Mynah (*Temenuchus pagodarum*) is one of the most beautiful Starlings, and is now and then offered on the market. Smaller than the Common Starling, it has a pretty and rather bright plumage: black head and crest, upper part French grey, under parts rich buff; vent white, tail black edged with white, feet yellow, beak yellow at the tip, grey near the head. This Mynah has more terrestrial habits than the birds already mentioned; it lives in India. It is a good aviary bird and inclined to breed in captivity.

The *Graculipica* differ from the preceding genus in that the crest is much reduced and they have more extensive bare skin round the eyes, their size being larger.

The Black-necked Mynah (*Graculipica nigricollis*) inhabits Burmah, Indo-China, and China. The general colour is greyish brown, spotted with white on the wings and tail; breast, abdomen, cheeks, throat,





OCCIPITAL BLUE PIE
(*Urocissa occipitalis*)

VENEZUELAN GREEN JAY
(*Xanthura cœruleocephala*)

PILEATED JAY
(*Cyanocorax chrysops*)

YUCATAN JAY
(*Cissolopha yucatanica*)

and cap white ; neck, black ; beak, brown-red ; feet and bare skin of the face yellow.

The Black-winged Mynah (*G. melanoptera*), from Java, is white with black wings and tail ; beak, feet, and bare skin of the face yellow. It is a very fine aviary bird, but unfortunately seldom introduced. It is hardy and has been bred in captivity.

We come now to the true Mynahs of the genera *Acridotheres* and *Æthiopsar*. They are differentiated by a tuft of feathers, more or less developed, which makes a crest on the forehead. Birds of the first genus have a naked space around the eye, while the others have a wholly feathered face.

The Common Mynah (*Acridotheres tristis*) lives in India, where it is most common, especially in the towns. It has also been introduced into Madagascar, Mauritius, Reunion, etc., and everywhere has rapidly increased in numbers. It is a good sized bird (10 in.), with strong legs, of a rich resinous brown, with head, neck, and upper breast black ; wings brown with the base of the primaries white ; when the bird flies the white patches on the wings are very noticeable and produce a pretty effect. The tail is black, tipped with white ; beak, skin of the face, and feet yellow. The Common Mynah is very hardy and strong, active, and amusing. Like all its relatives, it is a good aviary bird and breeds freely. Some make excellent whistlers and talkers.

The Bank Mynah (*A. ginginianus*) is smaller than the preceding species ; its general colour being grey, with a black head ; tail and wings as in the Common Mynah, but with pale buff marks instead of white ; the beak and bare skin of the face are orange red ; feet yellow. It is a free breeder in captivity and one of the prettiest Mynahs.

The birds of the genus *Æthiopsar* are a little different. The Jungle Mynah (*Æ. fuscus*) is found over the greater part of India. In habits it resembles the Common Mynah, but lives in more wooded country. It is a little smaller than that species, with head, wings, and tail similar and the body reddish brown.

The Javanese Mynah (*Æ. javanicus*) is a little larger than the above species, and differs in having the brown colour extending to the head. The Siamese Mynah (*Æ. grandis*), from the Malay States, Siam, and Cochin-China, is nearly as big as the Common Mynah ; it is all black,

with white-marked wings and tail; the frontal crest is extremely developed; beak and feet yellow. The Crested Mynah (*Æ. cristatellus*), from China, which is also found in the Philippine Islands, is similar to the Siamese Mynah, but is still larger, has a less developed crest, and a very pale yellow beak.

II. GRACKLES AND GLOSSY STARLINGS (*Eulabetinæ*)

The birds belonging to this family differ from the true Starlings and Mynahs in having more arboreal habits, spotted eggs, and nasal bristles.

The Grackles (or Hill Mynahs) form a well-defined group of large birds (10 to 12·5 in.), glossy black and purple, with white patches on the wings like the Common Mynah; their legs are shorter and beak stouter than those of the Starlings, and of an orange tint; caruncles of yellow skin appear on the head, under the eyes, and on the nape.

Grackles live in forests, mostly on the hills; they feed largely on fruit and seldom come down to the ground; they breed in holes of the trees. They are sedentary birds, and the different species of Grackles only differ from one another in their size and the disposition of the yellow caruncles. All are excellent cage-birds, tame and peaceable, and their wonderful ability to imitate the human voice and all noises they can hear, makes them most attractive. They are hardy and omnivorous feeders. In an aviary they do well, but they are heavy birds and somewhat clumsy.

The commonest species in captivity is the Southern Grackle or Hill Mynah (*Eulabes religiosus*), from Southern India. The caruncles in this species are well developed, especially on the nape. The Indian Grackle (*E. intermedia*), from the North of India, is a little larger, and has smaller caruncles on the nape, larger under the eye. The Ceylon Grackle (*E. ptilogenys*) is of the size of the first, but has only two caruncles on the nape. Last, the Greater Grackle (*E. javanicus*), which inhabits the whole of the Malay country and islands, mostly differs in its larger size (10·5 in.). It is the best talker and whistler of the family, and a most desirable cage-bird.

Some relatives of the Grackles are sometimes, though seldom,

seen in captivity; such is the Bald-headed Starling (*Sarcops calvus*) from the Philippine Islands, a queer grey and black bird, whose naked head is flesh coloured.

We now come to a group of magnificent birds of great interest to the aviculturist, the Glossy Starlings, whose plumage comprises rich metallic green, blue, violet, and purple.

A first group of these birds inhabits Oceania, Malay Islands and State, and one species occurs in India and Cochin-China.

The *Aplonis* are a little smaller than Starlings; males are generally glossy black, females less dark; the different species are found in numerous islands, and are of little interest to aviculture and seldom introduced.

The Calornis (*Lamprocorax*) are beautiful birds with wedged tails, and lanceolated feathers, brightly coloured with metallic green and purple; the beak is a little curved on the culmen, and the legs are rather short. Young birds have spotted under parts. The Glossy Calornis (*L. metallica*) is sometimes brought from North Australia, New Guinea, and neighbouring islands. It is wholly bright metallic green with purple reflections; the eyes are bright crimson; the size is 8 in. The Indian Glossy Calornis (*L. chalybea*) is similar, but smaller and of a more uniform green.

Another group includes the true Glossy Starlings, which are almost all African. They replace on this Continent the European and Asiatic Starlings, and have similar habits, though less terrestrial. They are very abundant south of Senegal and Abyssinia.

The Amethyst Starlings (*Pholidauges leucogaster*) are smaller birds (7 in.) and very beautiful; the whole body is metallic pure violet, with the exception of the White lower breast and under part. There are two local forms: north of the Equator one finds *P. l. leucogaster*; on the south one meets with *P. l. verreauxi*, which differs in having white edges to the external tail-feathers. Amethyst Starlings were extremely rare in captivity until recently; only one male had lived in the London Zoo, but since 1920 a good many birds of the southern race have been imported. They live well in captivity on the ordinary Starling's food; they need a warm shelter in the winter.

All Glossy Starlings, whose plumage is entirely glossy green, blue,

violet, or purple, can be considered as species of the same genus, *Lamprotornis*. We first find long-tailed species exceptional amongst Starlings. The best known is the Long-tail Glossy Starling (*L. caudatus*), whose size reaches 20 in. ; the tail, which is 11 in. long, is glossy violet ; the head is purple black ; wings very large, and body metalling green with darker spots and blue reflections. Eye yellow, beak and feet black. The Long-tailed Glossy Starling is a beautiful aviary bird, hardy and strong ; but he is a dangerous companion ; his voice is harsh. He is often found on the market. One finds also, but seldom, Ruppels' Glossy Starling (*L. porphyropterus*), Meve's Glossy Starling (*L. mevesi*), and Burchell's Glossy Starling (*L. australis*).

The other species have short tails, and the best known is the Green Glossy Starlings (*L. chalybeus*) ; this bird is metallic green, with ear coverts, lesser wing coverts, sides and thighs blue ; eyes yellow, beak and feet black. Length 10 in. Two closely allied species are also often seen on the market : the Crimson-eyed Glossy Starling (*L. sycobius*), almost identical, but smaller and bluer and having ruby eyes ; and the smaller Glossy Starling (*L. chloropterus*) of a more uniform green, with orange yellow eyes, whose length is under 6·5 in. These three Glossy Starlings are common in almost the whole of tropical Africa, especially in Senegal ; they are very good and lovely aviary birds, hardy and sociable, and they have been bred in captivity. The Purple Glossy Starling (*L. purpureus*) exceeds all others mentioned above in beauty ; the head and under parts are of a gorgeous violet, while the wings and back are metallic green and blue ; the short tail is violet. The head is bigger than in the other species ; the enormously big eye is golden yellow, feet and beak black. Its size is that of the Green Glossy Starling, and it lives in West Africa. In captivity it requires the same treatment as other Glossy Starlings.

Let us mention the names of some other species which have sometimes been seen in captivity, and which differs from each other in the distribution of the green, blue, and violet feathers : *L. acuticaudus*, *L. purpureiceps*, *L. phænicopterus*, *L. chalcurus*, etc.

Glossy Starlings of the genus *Spreo* differ from the true Glossy Starlings in having the under parts of a different colour to the upper parts. Hildebrandt's *Spreo* (*Spreo hildebrandti*) from East Africa is

metallic blue-green above, chestnut below ; it lives well in an aviary, and has even laid eggs. The Beautiful Spreo (*Spreo pulcher*) is slightly larger and brighter in colour, and inhabits northern tropical Africa from Senegal to Abyssinia. The Superb Glossy Starling (*Spreo superbus*) has just been imported from East Africa ; it is a gorgeous bird with bright greenish-blue upper parts, orange-chestnut under parts, and a white bar across the breast.

The Chestnut-winged Starling (*Amydrus morio*) is steel blue, with primaries chestnut ; length, 12 in. ; it occurs in South Africa. Many allied African species, and Tristram's Starling (*A. tristrami*), which inhabits Palestine, are very similar and also do well in captivity, but they are seldom brought over owing to their dull plumage.

III. THE OX-PECKERS (*Buphagidæ*)

Ox-peckers are seldom imported owing to their dull plumage, but they are worth mentioning because of their peculiar habits. The family consists of two species, the Yellow-billed (*B. africana*) and the Red-billed Ox-peckers (*B. erythrorhyncha*) ; they are brown birds, about 9 in. long, with stout bills ; but their peculiarity is in their life habits ; they continually live on the back, or near, large animals, such as Rhinoceros, Buffaloes, Antelopes, and cattle, whom they rid of insects and give alarm when any danger arises by loud cries ; but sometimes they make holes in their flesh and drink the blood.

C. The Troupials

Starlings and Orioles are replaced in America by a family peculiar to the New World—the Troupials (*Icteridæ*). These birds are related to the Starlings, the Finches, and the Weavers, but for habits and size they are more closely allied to the Starlings, from which they only differ in that they lack the first primary feather in the wing. They can also be distinguished by their more abrupt movements, their more pointed and angular beaks, and, lastly, by their plumage, in which either glossy black or orange-red and yellow nearly always dominates, without ever showing any true green or blue shade. Some Troupials are much larger than any Starlings, and resemble Crows in their size.

The family includes birds of very different habits. Some are purely arboreal and hardly ever come down to the ground; others, on the contrary, spend their life on the soil and never roost; some breed in colonies in reeds and build cup-shaped nests; others (more numerous) build curious, purse-shaped nests, which hang from the branches either in colonies or isolated; others even lay in other birds' nests, like the European Cuckoo. Certain Troupials possess a very bright song, while others have only a harsh and unmusical voice.

Some Troupials migrate in the spring to nest in temperate parts, but most of them are resident in various localities in tropical or sub-tropical America. As among the Starlings, there are lowland and hill birds, forest-dwellers, or cultivated ground inhabitants. Like the Starlings, Troupials are omnivorous, mostly feeding on fruit and insects. Some of them also eat seeds.

Most of the Troupials are excellent cage and aviary birds; nearly all are brightly coloured; many get very tame, have a nice song, which a few even improve in learning whistling. So they are capital cage-birds which are very much appreciated in their native country. They do well on the diet for "omnivorous" birds, like the Starlings, but many require more fruit; they are also more susceptible to cold and are less hardy. Anyhow, they are quite easy to keep as long as they are shut in a warm room from October to April. Up to now they have seldom bred in captivity. Their aviaries and cages should be like those used for the Starlings. Troupials are often offered on the market, and many species have been kept in Europe. In reviewing them we propose to divide them into five groups, according to their aspect and habits.

I. THE CASSIQUES

Cassiques are mostly arboreal birds in which black and dark shades are dominant, with more or less developed frontal shields. They possess a strong and disagreeable musky scent. Most of them nest in colonies and build wonderful long, purse-shaped nests in tall trees. Some Cassiques measure 19 inches, of which the tail occupies only 7 inches; they look like Crows. Many show a great ability to imitate the voices of other birds, and they whistle and make all sorts of noises. The

smaller species, which are larger than the common Starlings, are very much appreciated in their native countries as mimics, and one sees them kept in cages everywhere. They don't seem to be so popular in Europe, where they are seldom imported; nobody knows why. They eat all sorts of food, boiled rice being their staple diet.

The Montezuma Giant Cassique (*Gymnostinops montezumæ*) has sometimes been imported from Mexico. Its length is 19 in.; upper parts are chestnut; head and throat black, gradually passing to dark brown on the abdomen; tail yellow, with the middle blackish; beak, black and yellow.

The Great Crested Cassique (*Ostinops decumanus*), from the northern half of South America, is black, with brown, chestnut rump and abdomen, and sides of the tail yellow; its enormous bill is white; the eyes blue; legs black.

The Great Green Cassique (*O. viridis*), from Guiana and Amazonia, is olive green, with the same black parts as the above species.

The Yellow-backed Cassique (*Cassicus persicus*) is very common in the South American jungle, from Brazil and Bolivia to Colombia. They live in large flocks, and frequent forests and plantations. Its nesting colonies are one of the most striking sights; they are often established near inhabited spots. In captivity it is a charming bird, owing to its ability to mimic. It has a pretty plumage: black, with golden-yellow back, abdomen, part of the wings, and tail; white beak and blue eyes.

The Red-backed Cassique (*C. affinis*) is black, with a crimson back. It is also a fine bird, less common than the Yellow-back.

The All-black Cassiques (*Amblycercus solitarius* and *A. holosericeus*) have also been imported. The Black Rice Cassiques (*Cassidix oryzivorus*) are large, terrestrial Troupials, partially grain-eaters, whose black plumage is glossed with purple and bronze shines; their avicultural value is not great.

II. THE COW-BIRDS AND MARSH-BIRDS

We intend to deal now with members of the family *Agelaiinæ*, which are known under several popular names: some are called Cow-birds, many Marsh-birds, and we find among them the well-

known Bobolink. All have rather terrestrial habits and long legs ; some have thick and short conical bills, reminding one of those of the Finches, while others have them long and very sharply pointed. Black is their dominant colour. Size rather small, from that of the Lark to that of the Starling.

These birds live in open country and grassland ; they are omnivorous and readily eat seeds. They build cup-shaped nests in reeds, with the exception of the Cow-birds (*Molothrus*), which lay in other birds' nests, imitating in that our European Cuckoo. They are found in all parts of America.

Cow-birds and Marsh-birds, especially those whose black plumage, is varied with yellow or red, are excellent aviary birds, hardy and inclined to breed in captivity. Their diet is that of the " omnivorous " birds, with a supplement of seeds, especially canary seed. Many species have been introduced into Europe, and are often offered for sale. We shall only mention the more interesting ones.

The Bobolink (*Dolichonyx oryzivorus*), of a small size (7 inches), has the shape and aspect of a Finch, and still more of a Weaver. The male, in the spring, is black, with a pale-buff nuchal patch ; white scapulars, and back and wings varied with brown ; tail feathers pointed. In the autumn he becomes like the female, and then resembles a hen Sparrow or Weaver. Bobolinks inhabit almost the whole of America ; their bright song is rather agreeable, and they are quite hardy in our climate.

The Bronze Cow-bird (*Tangarius aeneus*), from Mexico, is 8 in. in length ; its bill is rather long ; the male is glossy-black, the female dark blackish-grey.

The Cow-birds belonging to the genus *Molothrus* are parasitic birds, as we have said, and are half arboreal and half terrestrial in their habits. Their bill is rather short and thick. Males are generally glossy-black, sometimes with chestnut parts ; females are brown ; young ones are streaked.

The Black Cow-bird (*Molothrus ater*) lives in the United States and Mexico ; it is a black bird, with chestnut-brown head and neck. The Silky Cow-bird (*M. bonariensis*) is all black ; its size is 7 inches. It is found in the Argentine and neighbouring countries, has a nice song,

and is common in captivity. The Purple Cow-bird (*M. purpurascens*), the Glossy Cow-bird (*M. atronitens*), and the Bay-winged Cow-bird (*M. badius*), are also imported.

The Marsh-birds are more elongated than the Cow-birds; their bills are longer and less thick; they nest in colonies among the reeds. They are terrestrial, but often perch, and are fond of marshy country.

The Redwing Marsh-bird or Blackbird (*Agelaius phoeniceus*) is common in North America. Its size is 8.5 inches; the cock is black, with shoulders red, bordered with pale buff; the hen is streaked black, white, and brown. The Tawny-shouldered Marsh-bird (*A. humeralis*), from Cuba. The Yellow-shouldered Marsh-bird (*A. thilius*) inhabits Argentine and neighbouring countries. Also some more brightly-coloured species have been imported, such as the Yellow-headed Marsh-bird (*A. icterocephalus*), the Yellow Marsh-bird (*A. flavus*), the Bay-fronted Marsh-bird (*A. frontalis*), and the Red-headed Marsh-bird (*A. ruficapillus*).

The Red-breasted Marsh-bird (*Leistes guianensis*) resemble the above species in shape, but mimics the plumage of the Military Troupial; it is also more terrestrial; it inhabits the north of South America, and is a dark-brown bird, with scarlet breast and abdomen; the upper parts become almost black in the breeding season. The Southern form (*L. superciliaris*), found from Brazil to Argentine, is a little larger, with brighter scarlet extending up to the chin. Both do well in aviaries.

The Yellow-headed Marsh-bird (*Xanthocephalus longipes*), from North America, 9 inches long, is high on the legs, all black, with yellow head, the yellow becoming duller and mixed with black in the winter. It is a hardy bird, but its colours are dull and appearance somehow awkward. The Red-headed Marsh-bird (*Amblyramphus holosericeus*), from Argentine, is a magnificent bird, velvety black, with bright orange-red head, neck, upper breast, and thighs; its beak is very long and sharp. It is an excellent and hardy aviary bird.

Green Marsh-birds (*Pseudoleistes*) are greenish-brown above, yellow below; they live in South America, do well in aviaries, and feed on the usual diet of Marsh-birds.

III. THE MEADOW LARKS

Two genera of Troupials form a sub-family (*Sturnellinæ*) which rather reminds one of that of the Larks in their ways and habits. They are terrestrial birds, with long slender bills, strong feet, and short tails. They have streaked under parts, and live in open grass country. The true Meadow Larks (*Sturnella*) inhabit the whole of North America, and extend down to Guiana and Venezuela. They are brown above and pale yellow underneath, with a black mark on the chest. The best known species (*S. magna*) is common in the United States.

The Military Troupials or Starlings (*Trupialis*) are confined to the South. They mainly differ from the Meadow Larks in having crimson under parts, and they resemble in colour some of the Marsh-birds. The different species are very similar. *T. militaris* and *T. defilippi* are often imported. They are purely terrestrial birds, living well in aviaries and feeding on "omnivorous" food and seeds.

IV. THE HANGNESTS

The Hangnests are medium-sized arboreal birds, living in orchards, hedges, and small woods, but avoiding tall jungles as well as denuded plains. Their legs are rather short, bills long and sharp; the dominant colours of their plumage are yellow or orange-red, black, and a little white. Sexes are sometimes alike, sometimes different.

Hangnests are found from the United States down to Brazil, but are most abundant in Central America. They nest separately, some building cups, others purse-like nests. They feed on insects and fruit.

Hangnests are amongst the most brilliantly coloured of American birds, and are much sought after as cage-birds even in their native countries, where they are also much appreciated for their song. They become very tame and learn to whistle tunes. Their diet is that of the "insectivorous" birds, with plenty of fruit; they rather fear the cold, and do better in cages than in aviaries.

The Black and Yellow Troupial (*Gymnomystax melanicterus*) is allied to the Marsh-birds, and shares their terrestrial habits. It lives in flocks in open parts of Guiana, Venezuela, and North Brazil; it is bright yellow, with black wings, back, and tail. It is seldom seen

in European aviaries, though often kept in captivity in South America.

The true Hangnests all belong to the genus *Icterus*, which includes some 40 species. The Americans call them "Orioles", because they remind one of the yellow and black plumage of these birds, from which, however, they are otherwise entirely distant. All are rather alike, and their sizes vary from 7 to 10 inches. Many species have been imported, the most interesting and commonly offered ones we shall mention here.

We first find small Hangnests (7 to 8 inches).

The Baltimore Hangnest or "Oriole" (*Icterus baltimore*) inhabits North America, and spends the summer in the United States. It is bright orange, with black head, throat, and back; wings are black, mixed with white and orange; tail, orange and black. The female is greyish above and yellowish underneath.

Bullock's Hangnest (*I. bullocki*) inhabits California and Western Mexico, and differs from the Baltimore in having orange cheeks and eyebrows.

The Orchard Hangnest (*I. spurius*) is black, with chestnut breast and abdomen, wings mixed with black, chestnut, and white, tail black, slightly marked with white; it lives in North America.

The Moriche Hangnest (*I. chrysocephalus*) is black, with cap, shoulders, and thighs golden yellow; it lives in Venezuela, Colombia, Guiana, and Amazonia, but is scarce everywhere. In Venezuela it is considered as the best cage song-bird. Wagler's Hangnest (*I. wagleri*) is found in Mexico and Guatemala; it is a black bird, with yellow shoulders, lower back, and under parts. The Gold-headed Hangnest (*I. auricapillus*), from Colombia and Venezuela, is black above, with shoulders, lower back, and under parts yellow; the nape is bright orange-red; throat, breast, and sides of the head, black.

We now find larger birds, from 18 to 20 inches long.

The Yellow-tailed Hangnest (*I. mesomelas*), often seen in captivity, is golden yellow, with the face, throat, upper back, black; wings, black, with yellow shoulders and a few white marks; tail yellow, with black centre. This fine bird gets very tame and whistles well; it lives on the Pacific Coast, from Mexico to Ecuador.

The Golden Hangnest (*I. xanthornus*), very common in northern South America, is bright orange-yellow; a black mark in front of the eye; throat, black; wings and tail, black and yellow.

The Common Hangnest (*I. icterus*) is the best known in captivity; it inhabits the Colombian and Venezuelan coasts, from which it is often brought over; it is a good songster and capable of learning tunes; its length is 10 inches; its plumage is more or less bright orange-red, with head, neck, throat, and tail black; the wing is varied with black, orange, and white; the throat feathers are elongated and pointed; the bare skin round the eye is bluish. The Brazilian Hangnest (*I. jamacaii*) is slightly smaller and has less white in the wing.

Some other Hangnests have been imported, but they are little different to those we have reviewed.

V. THE AMERICAN GRACKLES

The name of Grackle has been applied in America to the *Quiscalinæ*, the sub-family of Troupials which resemble most closely the Starlings. They have rather slender and Thrush-like bills, long legs and wedged tails which sometimes take a peculiar boat-shape. The dominant colour in males is glossy-black; females are dark greyish-brown. American Grackles more often live on cultivated grounds and inhabited parts. They swarm round the farms and cattle-sheds, and are found everywhere on the continent as well as on the islands. They utter musical calls, and nest in society on trees, where they build rather coarse, spherical nests of twigs. Their habits and aspect remind one more of Starlings, and particularly of the African Glossy Starlings, than those of any other groups of their family.

American Grackles are good aviary birds, but they are seldom imported, probably because of their dark hues and extreme abundance, which make people think they are not worth catching. All are very similar, metallic black, glossed with purple or green; their tails generally are more or less boat-shaped, and their eyes golden-yellow. We shall mention the Common Grackle (*Quiscalus quisculus*) from North America, those from Cuba (*Holoquiscalus gundlachi*), Martinique (*H. martinicensis*), and Venezuela (*H. lugubris*).



COMMON HANGNEST
(*Icterus icterus*)

BOBOLINK
(*Dolichonyx oryzivorus*)

MILITARY STARLING
(*Trupialis militaris*)

YELLOW-BACKED CASSIQUE
(*Cassicus persicus*)

RED-HEADED MARSH BIRD
(*Amblyramphus holosericeus*)

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EARLY AVICULTURE

THE BUTCHER BIRD IN 1835

(The following is an extract from the Diary of the Rev. James Dimock, of Uppingham, under date 1835.)

Mr. Barnby Smith writes :—

Perhaps some readers of the AVICULTURAL MAGAZINE might be interested in enclosed extract from an old Diary of the Rev. James Dimock, of Uppingham.

In another place in his Diary, under date 1839, he made the following quaint entry :—

“The Spotted Crake (*Crex porzana*) is not infrequently shot in Cowbit Wash in the Autumn. . . . This Crake is, I think, by far the most delicious eating of any bird that I ever tasted ; it is very much superior to a snipe.”

I surmise there are few people living nowadays who would be in a position to contradict the Reverend gentleman's statements.

A pair of Butcher birds (*Lanius collurio*) bred this last summer in one of Tyler's nursery gardens close to the town (Uppingham). The old birds were both shot at, at different times, and wounded, but escaped. The same day that the last was shot at, a boy found the nest with four young ones in well fledged ; one, however, was dead, and a second sprang out of the nest and made its escape : the other two were brought to us. They lived and thrived for some months.

As winter came on, we were very careful in keeping them from the cold ; but in vain, or perhaps they missed the insect food ; at any rate they died, one about the middle of December (1835), the other about a month later. They appeared to have fits ; used to drop off their perch and struggle about at the bottom of the cage : the one that died first was carried off, I think, by the first attack of this sort ; the other had several attacks before they proved fatal.

They were very lively, active birds. At first they were playful and mischievous, often pecking each other and pulling one another's tails ; afterwards, however, they became excessively quarrelsome, constantly scolding and fighting, so much so that it was sometimes necessary to separate them in order to prevent fatal consequences.

They were prodigious eaters ; devoured flies, beetles, earwigs, with great relish. They would pounce head foremost from their perch upon an earwig or anything else running on the floor of the cage with the nicest accuracy. The insect was invariably in their beaks at the same instant that their feet touched the ground. I have often, too, seen them catch a piece of meat in their beaks when dropped from some little height above their heads. When let loose in the room they soon cleared the windows of flies. They were very fond of wasp-maggots ; they ate, too, numbers of wood-lice, but not apparently with so much zest. Any meat, raw or dressed, satisfied them when we could supply them with nothing better. When they had got a beetle or piece of meat too large to bolt whole they would take it in one of their claws, rest the leg on the perch, and forthwith eat it piecemeal. They would often take a piece of food in their beaks and rub it up and down the bars of the cage, as if endeavouring to fix it ; this, however, I rather fancy they only did when they could eat no more. A dead mouse or small bird roused their fury much ; they would hold it in their claw and peck away at it most savagely, without, however, being able to make any impression.

The manner in which they disgorged their pellets was very curious. A retch or two would bring the pellets up to the mouth ; they then bent their heads down and lugged it out with one of their claws. If we gave them fresh food half an hour or so after they had had their fill of insects, they would look very grave and pukish for a few seconds,

and then before they attempted to swallow the food, would make room for it by disgorging in the manner I describe the pellet that had been formed out of their previous banquet.

ON MUTUAL INCOMPATIBILITY OF TEMPERAMENT AND THE PERSONAL FACTOR

By THE MARQUESS OF TAVISTOCK

If birds were mere living automata, governed solely by what are termed "natural" instincts, aviculture would be more simple, more profitable—and more uninteresting. The moving of my collection of parrakeets into aviaries of an entirely new type—which I hope to describe in another article—has brought a happy release from a long series of vexatious losses due to the time-honoured custom of keeping the birds always on the same ground. It has also brought them into breeding condition in a most surprising way, but more than one prospective family has been endangered, or removed from the sphere of practical politics, by the personal factor. To begin with the crimson-wings—two cocks and two hens in excellent condition: for the sake of convenience we will call the cocks A and B, and the hens C and D. A and C came to me some years ago from Sir Leo Chiozza Money with the reputation of being unable to agree. On being turned out into the aviary together, A promptly attacked C, who, to the astonishment of the aviary attendant who was not used to the peculiar methods of courtship adopted in crimson-wing circles, not only did not resent being bitten and plucked, but actually made advances to her persecutor. After a few moments he stopped pulling out her feathers and responded with a very ill grace, after which he calmed down somewhat. In due course eggs were laid, but the hen did not sit and nothing came of them. Some time later B came into my possession, and lived for a year in an aviary with a very old female who eventually died. In 1921 A and C did not nest, and when the moult had begun I gave A and B their liberty, keeping C in an aviary. A and B had a good fight when they first met, which resulted

in the victory of B, after which they were sociable to the point of sometimes going for a fly together, although it would be an exaggeration to say that they were friendly. A neglected C and spent much time towards the end of the winter courting an unresponsive hen Barraband whose heart was engaged in another direction, but B paid considerable attention to C and flew about the outside of the aviary chewing bits of greenstuff with his neck stretched to its fullest extent, an exercise which a cock crimson-wing considers very telling in its effect on the female heart. However, as I considered A the more likely breeding bird of the two, I shut him up in the aviary with C, and sent B away to pass the summer with D, a young hen imported the previous autumn. A showed no pleasure on being reunited to his neglected wife. From the beginning to the end of their association he never attempted to conceal the fact that she bored him stiff. However, he was rather thrilled by the 6 ft. high log with which I had provided him in recognition of the prejudice his race has to ordinary nest-boxes, so he decided on making a "mariage de convenance" with C in the hope that she might provide him with a family. He was not disappointed, for although he paid C the minimum of attention and never fed her, she laid two eggs and hatched one.

To do A justice, he was a good father. Never, up to the time I again released him, did I see him show his daughter anything but kindness and consideration. For her sake he endured the close proximity of his wife in the log for hours at a stretch and even when he was moulting and his daughter had been a long time on the wing, he never tried to hurt her, though he cursed and chivvied her mother with evident relief that his period of enforced forbearance was over. Last winter was spent by the crimson-wings much as the previous one had been, the two cocks at liberty and C in an aviary. A paid no further attention to his mate and was evidently glad to be rid of her society, though she, poor thing, called broken-heartedly and continually for him; for crimson-wing hens, like some human females, are never happy when parted from the husbands who knock them about. A employed his liberty for the first part of the winter in renewing his advances to the Barrabands and later he conceived a great passion for a hen King. About February I brought D over and put B with her again.

Their meeting was a repetition of the first meeting of A and C, but, unlike A, B never properly settled down with D, although he had shown no interest in C, as he had done when she was alone the year before. Instead, he grew more and more spiteful with his companion, driving her about continually and being in no wise mollified by the introduction of a nest log. If A or any other Parrakeet appeared near the aviary, he used to dash about after D, calling her names that it would be shocking to repeat. Finally, as things seemed to be getting worse instead of better and D's occasional advances to her ill-humoured companion were met with bad language and bites, I resolved to change the birds round and try A with D, and B with C and as a preliminary measure I turned B loose again. Things looked quite promising with regard to A and D, for as soon as B was out of the aviary, A left the King and began to make advances to D which she evidently appreciated. B meanwhile, ignoring C, attached himself to a cock Rock Peplar and started to feed him with unfortunate results on the latter's domestic life which will be recorded later. After a few days I put A into the aviary with D, but at first quite thought that the experiment would end in murder unless I intervened. A flung himself upon D with a ferocity even greater than B had displayed, but it was only his way of impressing her with admiration for his virile qualities ! Just as I was about to rescue her from further pluckings, she stopped trying to escape and begin to make advances to him and in a little while the stormy courtship ended with the couple sitting side by side like old friends. This time it was a real love match. A seldom drove D about and hardly ever swore at her. She even presumed to ask him to feed her, though with proper self-respect he declined to do so, telling her very plainly to remember her place and not to think that because he had honoured her so far he was going to make a fool of himself about her. In due course D took to the nest log, eggs were laid and at the time of writing have hatched. On the rare occasions when D has been off the nest, A has been quite pleased and excited and although now and again he has driven her about and tried to bite her, no doubt to revive happy memories of their early courtship, he has even given way on the feeding question and I have seen him feed her in a hurried and rather self-conscious

way, as though troubled by the thought that he was making rather an ass of himself.

But such an idyllic ending has not favoured the relations of B and C. B was forcibly removed from his unnatural attentions on the Rock Peplar and shut up in an aviary with C. He displayed no particular animosity to C at first, but he bullied her with increasing activity the longer they remained together. To bring him to reason I removed him to an aviary at a distance from all interesting neighbours and subjected him to a period of solitary confinement until C was in full breeding condition. When I put him back with her he seemed fairly friendly ; that is to say he swore at her for a long time in a very sad tone, as though contemplating a surrender to the inevitable, made little attempt to bite her and looked at the nest with some interest. For a week or two I quite thought that the pair would take to each other. The hen made timid advances and the cock, like Punch's Master of Foxhounds, sometimes "swore at her, as sociable as could be". When she went into the nest he showed considerable excitement, calling loudly and even doing a little leaf-chewing.

But it was not to be. This year he just did not like C. He was in breeding condition and so was she and the sight of her entering the nest aroused his breeding instincts strongly. But it was the personal factor versus natural instinct and in the end the personal factor won. His dislike for the hen grew and his interest in her nesting operations waned. He became more and more unfriendly and bullied her worse and worse, until I felt that even a crimson-wing hen must be feeling life with such a partner a burden. As a last resort I tried a plan for reconciling unfriendly crimson-wings which is recommended in Greene's *Parrots in Captivity*. I caught the hen and smeared a few drops of aniseed oil on her plumage. The charm did not work. The cock had no use for her, anointed or otherwise and so I sold him ; the personal factor had beaten me. The hen spent most of the next three days sleeping ; I did not wonder at it !

But although she will pass this year unmated with a male of her own species, it is possible that she may yet be the mother of interesting and beautiful hybrids. In my collection there is a cock Princess of Wales Parrakeet. Last year his mate, to whom he was

much attached, very unfortunately died. Unlike my first cock Princess of Wales, who fell in love with every hen bird within sight who was not of his own species, and could only be induced to take a half-hearted interest in his proper wife by a policy of strict isolation and enforced boredom, he was a very faithful mate and proved by no means ready to console himself. At first I tried him with hen Barrabands, whom he ignored and then with a Sulu Island King, whom he disliked. Finally, I tried him with the crimson-wing. On being first introduced the two birds eyed one another curiously, each not quite sure what to make of the other. A few days later I saw that although the crimson-wing was master and chattered at the Princess of Wales when he came near her, yet he was inclined to pay her some attention. Later she ceased to resent his presence and now they seem to have quite mated up and are inspecting the nest together. The crimson-wing seems to find a husband that she can keep in order preferable to one who harries her from dawn to dark, but I think she finds him just a trifle effeminate. I once watched him treating her to the courtly and elaborate display of his species by which for some minutes she remained quite unmoved. Finally, in irritation at her indifference, he gave her a sharp bite. Instantly she responded to his advances. *That* was the sort of thing one expects when a lover is really in earnest!

CORRESPONDENCE

A PIED WAGTAIL'S UNTIRING ENERGY

For some weeks past a Pied Wagtail has flown unceasingly against the panes of a row of windows high up on an old landing in our house, pecking at the glass. Outside is a stretch of roof, at no great height, as the house has only one storey. There seems little doubt that the bird has his nest on the roof, though a search we have made has not revealed it. As he continues, with only short intervals, the whole day long at this game or sport, whichever it is, he is now an intolerable nuisance, as his onslaughts on the window panes are so noisy and vehement that it seems as if they must be broken. He goes on from dawn, when the loud tapping and banging begin and awakens the

unfortunate sleeper who occupies a bedroom close by, till sunset. He seems to care nothing for people passing on the landing below him nor even for the opening of his windows, when he continues hovering before them, darting at the glass to peck—*what?* If gnats, mosquitoes, or flies, he must by this time have caught many millions, and our gratitude towards him should be as great in proportion as that of the risk we must otherwise have run of a plague of these insects. The little heat-wave we have had may have hatched innumerable eggs, and is his tapping perhaps the same sort of summons as that of the Woodpecker to the insect in the tree-stem, to come out and be eaten?

The country folk—the old ones—would see in it a dire omen of evil, but we do not live in the country and, apart from superstition, I look forward with something like dismay to the likelihood of our Wagtail friend spending the entire summer in this manner!

K. CURREY.

EWELL, SURREY.

8th April, 1923.

FLYCATCHERS AND BEES

I have read Dr. Welch's account in the March number of the AVICULTURAL MAGAZINE with much interest, and wonder if the bee is too large a mouthful for the Fly-catcher's little beak or too dangerous to tackle on account of its sting. If so, the Fly-catchers showed much discernment and wisdom in maintaining a polite and friendly attitude towards the bees. Is the Bee-eater—that marvellously beautiful bird—now quite extinct in England? Its beak is large and powerful in comparison with the Fly-catcher's and fit to grapple with a bee. Further, is the Fly-catcher fitted to catch larger insects than flies? If not, the bees could not but regard him in the light of a friend who was keeping off marauders from the bees' larder.

K. CURREY.

EWELL, SURREY.

8th April, 1923.

[The Bee-eater is only an occasional visitor to the British Islands, chiefly on the spring migration, but sometimes in the autumn. It breeds in the countries bordering the Mediterranean and eastwards and now and again in Central Europe. It spends the winter in north-western India and the warmer part of Africa.—Ebs.]



RACKET-TAILED DRONGO
(*Dissemurus paradisens*)

GREEN GLOSSY STARLING
(*Lamprocolius chalybeus*)

GOLDEN ORIOLE
(*Oriolus galbula*)

GREATER HILL MYNAH
(*Eulabes javanensis*)

PAGODA STARLING
(*Temennchus pagodarum*)

THE BLUE GROUSE

SIRS,—In regard to the very *wild* and *difficult to hunt* Blue Grouse on p. 63 of the AVICULTURAL MAGAZINE, I've seen a good deal of this species in various parts of the Rockies; from Wyoming, Montana, and Alberta, and I never found them really shy. I always got all I wanted with a 22 cal. pistol, although you can't get all you see in this way. Still, I must have shot many at ranges between 10 and 20 yards, both old and young birds. Of course, these are wilder than Black Grouse (Franklin's Grouse), but they could hardly be called really difficult hunting, except, perhaps, where they are greatly disturbed.

JOHN C. PHILLIPS.

ANNUAL SUMMER MEETING

This will be held in the Zoological Gardens on 6th July, tea being served at 4 o'clock. It is hoped that many members will be able to attend.

OUR SPECIAL ARTICLE

We regret that owing to unforeseen delays, the plate illustrating our special article on Whydahs by Mr. Shore-Baily, printed on pp. 108-18 of this issue of the Magazine, was not completed when we went to press. It will be inserted in a subsequent number. Our special article for next month, also contributed by Mr. Shore-Baily, will deal with the Wearers.—EDS.

WHYDAHs

By W. SHORE-BAILY

The Whydahs or Widow-birds (Sub-family Viduinæ) are confined entirely to the African continent. There are altogether about forty species, which are for the most part distributed throughout the coastal regions of South, East, and West Africa, although some of the species range inland, but only where water is abundant. They are easily distinguished from their cousins the Weavers, by the curious habit they have of scratching on the ground, like poultry or game birds, and also by the long tails most of the males assume in the breeding season. Whydahs are comparatively hardy birds and most species will stand the English climate, though it is advisable to provide moderate artificial warmth during the winter months. Their diet is a very simple one consisting of seed for the most part, though a certain amount of insectivorous food is necessary, as is also green food.

Not very much has been written about these birds in the wild state, but with the exception of the Combassou and perhaps the Pintail Whydah (*Vidua serena*) I fancy that the habits of all of them are very much alike. They are polygamous, and in the breeding season the male bird is usually accompanied by several hens. The nests, as far as I know, are nearly always low down in a thick clump of grass or rushes, the stems being used as supports to carry the nest, and the growing grasses being brought over the top of the nest to form a cover against rain. In some cases the nest is approached by a covered runway, in others the hen is able to fly straight into the nest. The male Whydahs display to the females by spreading their wings and tail, and also by hovering over them, and in the case of the Jackson (*Drepanoplectes jacksoni*) by a series of curious jumps and leaps. The Pintailed Whydah is said to be parasitical in its habits, and to deposit its eggs in the nests of the Waxbills and other small Finches, although Von Heuglin states that he took the nest of this bird from the overhanging branch of a Combratacea, 5 to 6 feet from the ground. The Combassou, on the other hand, makes its nest in holes like a Sparrow, and lays white eggs. Amongst the birds that have been imported into England, some frequently, and others at intervals,

are The Giant (*Chera procne*), The Pintailed (*Vidua serena*), The Queen (*Tetrænura regia*), The Paradise (*Steganura paradisea*), The Red-collared (*Coliuspasser ardens*), The Crimson-ringed (*Coliuspasser laticauda*), The White-winged (*Coliuspasser albonotata*), The Rufous-shouldered (*Urobrachya axillaris*), The Yellow-backed (*Penthetriopsis macrura*), Bocage's (*Urobrachya bocagii*), The Jackson's (*Drepanoptectes jacksoni*), The Combassou (*Hypochæra cænea*), and no doubt others.

The first of the Whydahs to have been bred in England as far as I can ascertain was *Chera procne*, which was bred by Mr. Teschemaker in 1909, and a very full and interesting account was published in the AVICULTURAL MAGAZINE for that year. The nest was built in a tuft of grass near water, and was cup-shaped, the growing grass being drawn together over the top so as to protect it from the rain. Four eggs were laid, dull greyish white, clouded with washy blue grey and faint purplish spots, especially around the larger end. The incubation period appears to have been about twelve days. The hen reared the young ones entirely unassisted, as Mr. Teschemaker shut the cock into a neighbouring aviary as soon as the young ones were hatched. Unlimited live food was supplied and the young ones grew very fast, the first one leaving the nest when about 15 days old. Of the three young ones fully reared two were hens and the other a cock; the latter was much larger and more heavily striated on the back than the hens. The young male began to come into colour when only 2 months old, in which respect it differed remarkably from the species bred in my aviaries, which in some cases took nearly two years to assume any coloured feathers. Since this record, the Giant Whydah has been bred in other aviaries, and notably by the Duchess of Wellington at Ewhurst Park. In the summer of 1922 I enjoyed a visit to these aviaries, and was very much impressed by the fine flock the Duchess had flying in quite a medium-sized aviary. At least two pairs had nests at the time of my visit, and the hen birds were continually asking for mealworms, which they would take from the feet of Her Grace, and I have no doubt that with a little patience they could have been induced to take them direct from the hand. For several years now I have had males of this handsome variety, but although I have bought numerous specimens as hens, they have eventually turned out to be cocks. In

the autumn of 1922 I made another attempt to pick out a couple of hens from a lot of newly-imported birds, and with the assistance of the man who brought them over, I thought that I really had got a couple of hens at last. Alas, before they had been in my bird-room a week one of them started singing. It is certainly not a male *Chera procne* as it is too small and its song is different. I should be inclined to think that it was *Drepanoplectes jacksoni*, but this is not found in South Africa, I believe. However, if it lives to come into colour I shall know.

Vidua serena (or *principalis*). The Pintailed Whydah is one of the most commonly imported of all the Whydahs. It is found all over tropical Africa, and almost every consignment of African birds will contain a good number of these birds. Those from South Africa are rather larger than the West African birds. They are not very popular with aviculturists, as the males when in colour are so restless and excitable, giving the other occupants of the aviary no peace. I have had a good many but have found them rather delicate, and none of them have lived very long with me. In 1909 two young ones were bred by Mrs. Annington in a large mixed series of Finches and other Weavers. Unfortunately nothing was seen of their breeding, and it is unknown whether the birds built a nest themselves or laid their eggs in another bird's nest. That they are parasitical, at any rate, as far as the East African species is concerned, is, I think, certain, as Mr. Van Sommeren, writing from Nairobi, says: "In this country *V. principalis* is parasitic—that is, the female lays her eggs in other Finches nests, either one or two eggs in the nest of each host. I have never come across more than two eggs. The eggs are pure white when blown. The most common bird to be victimized is the small Waxbill (*Estrilda massaica*), but I have also taken eggs or young from the nests of *E. paludicola*, *E. delamerei*, *E. rhodopyga*, and *Lagonosticta ruberrima*. At this very moment there are two young Pintails being fed outside my aviaries by a pair of Waxbills. In my aviaries these birds have deposited their eggs in the nest of the African Sparrow, *Passer rufocinctus*, but this is no doubt due to the fact that no other birds except the Sparrows and the Pintails were nesting at the same time. The young of *V. principalis* do not resemble the adults in any

way. They are uniform hair brown above, buff below, and with blackish brown bills."

Vidua regia, the Queen Whydah, is a much rarer bird here. It is a South African species, and little or nothing appears to be known of its nesting habits. From its general likeness to the last-named species, I should not be surprised if it also was parasitical. It remains for some keen aviculturist to turn two or three pairs into an aviary with other species, when something may be learnt in this direction. It is said to have been bred in an aviary in Australia, but no account seems to have been published.

Vidua paradisea. The Paradise Whydah is the most commonly imported of all the Whydahs, and before the war I have had them offered to me at one shilling each. They are common all over tropical and South Africa, the southern birds being larger than those found farther north. Strange to say, the nest does not seem to have been found, and the species has not been bred in captivity in this country. The only record is a German one, Reve having bred it in his bird-room. The male in full plumage is one of the handsomest of the species, and I have often been asked by visitors whether it was a Bird of Paradise. For years I have been trying to breed it in my aviaries here, but I have never even approached success. For one thing it is difficult to get certain hens, and if you are lucky enough to get them, the cocks don't come into colour at the right time. However, I suppose that they will be bred one day.

Coliuspasser ardens. The Red-collared Whydah is freely imported, but the price is always rather high, and the hens do not seem to come over so often as the cocks. They are found in both S.E. and S.W. Africa, but most of the birds we get here come from the West Coast. This species, like the Pintailed, was bred by Mrs. Annington in 1909. Nothing was known of the nesting until the young ones were seen flying about, and as no record seems to have been kept as to when the young came into colour it is quite uncertain whether the species was bred at all, for as nearly all the female Whydahs in nearly allied species are very much alike, the young birds may have been hybrids. This is exactly what happened to me here. In 1915 I turned into one of my aviaries a pair of what I thought at the time to be *C. ardens*.

These birds nested in a laurel about 5 ft. from the ground. The nest, a very flimsy one made from grass stems, contained two eggs of a pale bluish green, thickly mottled with brown. These were duly hatched, and two fine young ones were reared. A full account was published in *Bird Notes*, and a claim to be the second aviculturist in England to rear this species in England was established. In 1917 the young cock came into colour, and to my surprise it developed the yellow back and mantle of *P. macrura*, which bird in fact it exactly resembled except for its longer tail. This handsome hybrid was accidentally killed, and on being sent to the British Museum, Mr. Chubb gave it as his opinion that it was a hybrid between *C. ardens* and *P. macrura*. In 1916 the hen again went to nest, I thought at first with a Crimson-crowned Weaver cock, but here again I was wrong, as when the young cock hybrid came into colour it had primrose yellow shoulders, and no yellow back and mantle, and it was probable that the father was a Red-shouldered Whydah (*Urobrachya axillaris*) that was in the aviary with her. From this it would seem that it is not safe to claim a breeding record for any of these birds until the young males come into colour. I am still of opinion that young Red-collars have yet to be bred for the first time in England. Describing the nest and eggs of this bird in the *Ibis* for 1907, Mr. Swynnerton refers to the Rhodesian bird as follows: "The nests are placed three feet or so from the ground in long grass or weeds, and are built entirely of grass, the finest portions consisting of the heads stripped of their seeds forming the interior, the loose ends being brought forward in a bunch over the top act as a long fuzzy canopy to ward off the sun and rain. The eggs are three in number and glossy. They vary from pale bluish white to pale greenish blue, spotted blotched and mottled all over with ashy grey and brown of different shades, and much resemble a certain type of the English Tree-Sparrow." In 1920 I had several nests from what I believe to have been a genuine Red-collared hen, as the eggs and nest exactly answered to the above description. Two lots of young ones were hatched, but were not reared.

Coliuspasser laticauda. The Crimson-ringed Whydah is a very rare bird in this country. I obtained two hens and a cock direct from Mr. E. W. Harper, who brought them over from Uganda in 1914.

These birds are rather larger than *C. ardens*, the hens noticeably so. The cock when in colour is black; the back, wing coverts, and a patch on the thighs heavily striated with brown. The crown of the head and a wide ring around the neck crimson. My bird did not come into colour until August. He built three nests, one in a bush, another in a conifer, and the third in a tuft of grass: he could not, however, persuade either of the hens to take any interest in them. This bird is said, in the wild state, to construct playing grounds in the same way as the Jackson Whydah, but my bird made no attempt to do so, in fact, I very rarely saw it on the ground. To my mind, the display was much more like that of the Common Red-collared. At one time he would sink his head into his shoulders, drop his wings like a Pheasant or Turkey, his tail being carried horizontally; at another he would hold his body very erect with his breast well stuck out, and his tail spread to its full extent, and close his eyes as if in an ecstasy. Occasionally I have seen him hovering over a hen in the same way as *V. serena*. His song, which is quite a long one, is almost inaudible except for the last note, which resembles the croak of a frog. Unfortunately I lost the cock during the winter, so I mated the hens with a cock *C. ardens* the next season. Both hens went to nest, one in long grass, and the other in some bushes. The one that nested in the grass had three clutches of two each, but the nests were so flimsy that the first thunderstorm invariably wrecked them. The second hen built two or three well-constructed nests in privet bushes, but although she spent a good deal of her time in the nest no eggs were laid. The eggs were greenish white heavily spotted with reddish brown, and were rather more elongated and not so glossy as those of *P. macrura* and *C. ardens*.

Mr. Van Sommeren, writing of this bird, says: "It is common in the grass country of British East Africa. Nests were found in grassy patches in the scrub and by the swamps. The nest is constructed of grass. The grass blades in the actual nesting site are first woven into a ring, and the body of the nest built out of this. The nest is very frail, and usually remains unlined until the first egg has been deposited. The eggs are bluish or greenish, with numerous spots and blotches of ash brown and darker brown. Two is the usual clutch, but four have been found.

Coliuspasser albonotata. The White-winged Whydah is considerably smaller than the last two species mentioned. It is a pretty bird, the males when in colour having large white wing patches in addition to the yellow shoulder patches. These are very conspicuous when the bird is in flight. It was first bred in this country by Mr. Teschmaker in 1915, but as far as I know no account of the event was published at the time, which is a great pity. Of late years, a good many have been imported, and in 1920 I secured a couple of pairs and turned them into an aviary with various small Finches, but although a good many nests were made in the long grass, no eggs were laid, and it is possible that my birds may have been all males. An invasion of rats in the autumn took most of the birds, so I got no farther. This is also an East African bird, but very little seems to have been published as to its wild life. The eggs are said to be deep blue, with dull red and violet spots, clustering towards the thick end.

Urobrachya axillaris. The Rufous-shouldered Whydah has of late years been freely imported, but there is always a difficulty in getting hens. It has not yet been bred in this country, although a pair that I had in 1916 nested and laid two eggs. This is another East African bird, and when the male is in colour a pretty one, as the red shoulders are very conspicuous when the bird is in flight. Writing of this bird, Stark says: "Like all the members of this genus they are polygamous in their habits, and in the spring the handsome males, looking very brilliant and spruce in their recently acquired plumage of velvety black, with scarlet and orange epaulettes, may be seen flitting over the reeds or grass with a curious 'flopping' flight, each one attended and closely followed by ten or twelve females, insignificant looking little brown birds, which nearly always keep close together in a 'bunch' a few yards behind their lord and master. About the beginning of November the females separate and commence building their nests. The nest is usually built in a tuft of grass 8 to 10 inches off the ground, a beautiful light and airy structure, oval in shape and domed, with a side entrance near the top; it measures about $4\frac{1}{2}$ inches in height and 3 inches in diameter; is constructed of fine grass with the flowering top attached, woven in a kind of open net work, so that the sides can be seen through without any additional

lining. The sides of the nest are attached to many of the surrounding grass stalks, the blades and tops of the latter being bent over in the form of a canopy so as to completely conceal it from above. The eggs, three in number, have a highly polished surface of clear sea green, marked with large spots and blotches of deep olive brown."

Penthetriopsis macrura. The Yellow-backed Whydah is one of the handsomest species. The male in full colour is glossy black, the mantle scapulars and lesser wing coverts bright chrome yellow. It is said to be rather larger than *C. ardens*, but the only male I have possessed was much smaller. As already mentioned in these notes, a hen I believe to have belonged to this species nested two years in succession with males of different species. This bird is found in both East and West Africa, and Dr. Hopkinson brought back a cage full from the Gambia in 1921. I have secured what I believe to be a true pair and have hopes of breeding them this coming season. They have not yet been bred in captivity. Von Heuglin says of this bird: "I found it in pairs during the summer rains in damp valleys in Bongo in the neighbourhood of the Gazelle River. It gains its full colouring in the middle of July, and appears to leave its living haunts in August and September with the young. In December I again noticed some of the birds not far from the Kosanga River among dry high grass. Like its relatives, *P. macrura* makes its dwelling in tall 'Cyperaceæ' and in thickets of other kinds of 'Gramineæ', the seeds of which form its food; only in the breeding season it appears not to live in communities. It is a very lively bird." The eggs are pale green or greenish grey, spotted with grey.

Urobrachya bocagii. Bocage's Whydah is a rare bird in this country. It very closely resembles *U. axillaris*, but is rather more heavily built, has orange instead of red shoulders, and has a larger bill, which is bluish white. Its habitat is Angola and Benguela. I had an undoubted male of this species for several years. One season it mated with an unknown Weaver hen, and the eggs were fertile, although the young were not fully reared. It does not appear to have been bred in captivity, and little seems to be known of its habits in the wild state.

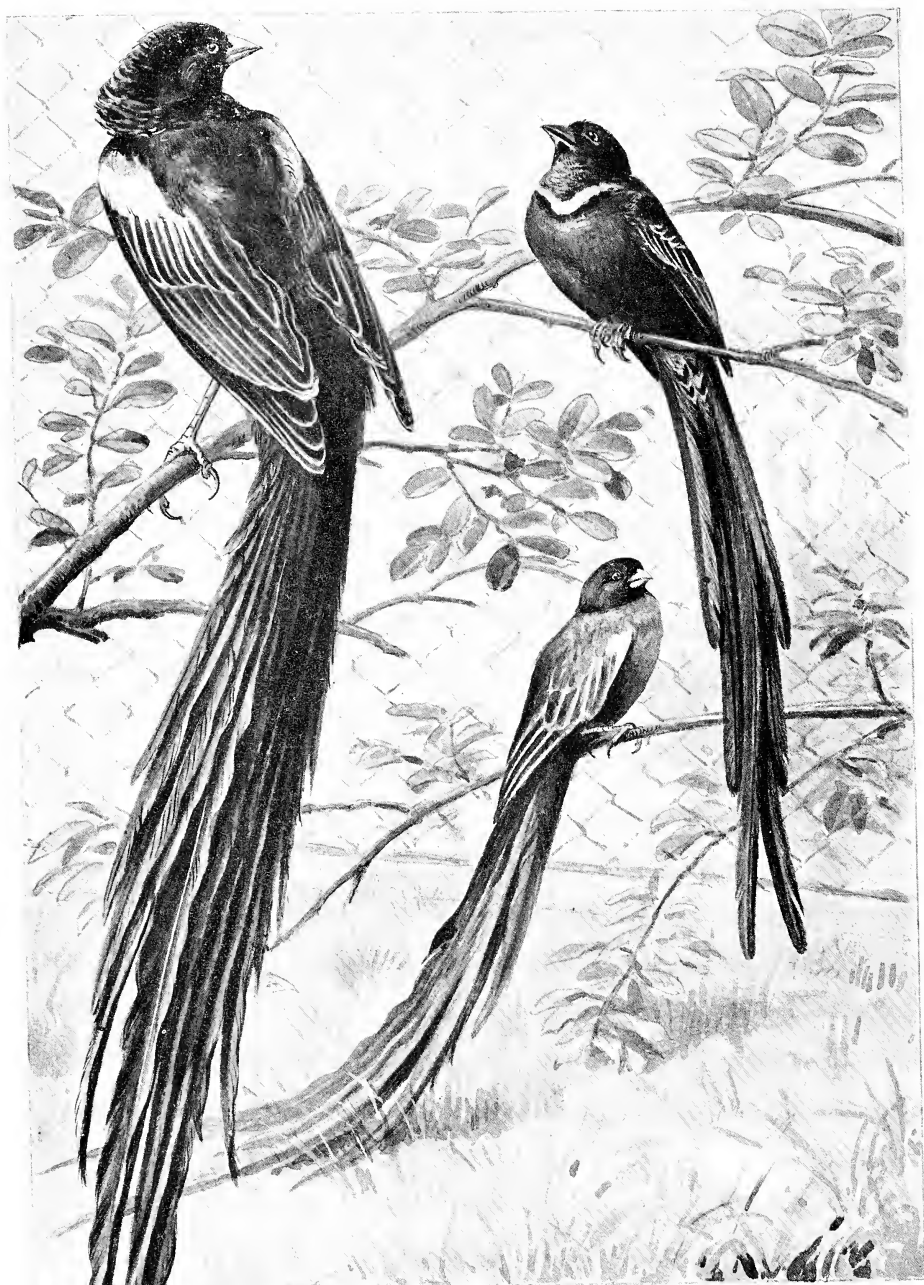
Drepanoplectes jacksoni. The Jackson Whydah is, to my mind,

the most interesting of the species, and it is also a very handsome one. Possibly I may be prejudiced, as I was the first to breed it in this country. The following account of this event published in *Bird Notes* at the time may be of interest. I secured my birds from Mr. G. E. Low, whose brother brought them direct from East Africa. On their arrival I turned the trio into a large cage, with a variety of small birds. These agreed pretty well, although at first they were pretty badly scared when the cock made one of his wild swoops into their midst. Early in January the cock began to go out of colour. The long black tail feathers were the first to go, then the body feathers began to change colour, so that in a fortnight he was only distinguishable from his mates by his larger size, and by his bigger frontal shield. This shield is very conspicuous in the male when he is out of colour, but is not nearly so noticeable when he is in his breeding dress. One would have thought that the exact opposite would have been the case as the shield is ivory white in colour and it should contrast with the black plumage of the head. In the middle of May I turned all three birds into a large aviary, the greater part of which was in grass. Here they were thoroughly at home, and the cock soon prepared his circular playground. On the 20th of the month I noticed that he was showing black on his breast; by June 7 his tail was grown, and he now began displaying on his playground, which was from 3 to 4 feet in diameter, a tuft of grass about a foot high being left in the centre, the grass surrounding it running from 2 to 3 feet high. In this miniature amphitheatre he many times a day went through the most wonderful evolutions. At one time, after circling around the centre tuft of grass with wings brushing the ground, and with head thrown back touching the tail, he would suddenly turn and charge straight at it, the neck feathers forming a distinct ruff. At another he would indulge in a series of high jumps, his tail spread and his other feathers very much puffed up, these jumps just about clearing the top of the surrounding grass, which, as I have stated, was in places about 3 feet high. He would vary these proceedings by short flights to and from a nearby tree, all the time keeping up his apology for a song, the hens meantime looking on from the shelter of the long grass. After this had been going on for a week or two, I noticed one of the hens carrying

grass. By careful watching, I was able to locate the nest. This was built entirely of grass, the living grass being bent over it to form a shelter, which was capable of protecting the occupants of the nest from all but the heaviest thunderstorms. It was neatly lined with the heads of flowering grasses. Three pear-shaped eggs were laid, greenish white, blotched and spotted with various shades of brown and grey. One I removed for my collection, and the other two hatched after an incubation period of twelve days. The young when newly born were naked and flesh coloured. They were fed upon grass, millet, and canary seeds. No live or artificial foods were provided, but no doubt many small ground insects were given them. I have never seen the old birds taking insects on the wing as the Weavers do, and I doubt if they are quick enough on the wing to be able to do so. The young left the nest when 16 days old, and were like their mother, only slightly smaller. They continued to spend their time in the grass. The cock, as appears to be the custom with Whydahs, took no part in the rearing of the little ones, but was always somewhere in the neighbourhood of the nest, where he acted both as sentinel and guard, his warning call enabling the hen to slip quickly out of the nest before anyone could get near enough to see her do so. By this time he had entirely discontinued displaying or using his playground. The first time that I saw the young ones feeding was upon the seeding grasses growing in the aviary, and of these they seemed very fond. The next season several more nests were occupied, but no further success was met with. The young cock, when still in eclipse plumage, constructed a playground of his own, and went through the same series of antics as his father. Unfortunately he did not live to come into colour, which change takes place when they are 2 years old.

Hypochæra aenea. The Combassou is much more like a Finch than a Whydah, but it is nevertheless a true Whydah, as its habits are for the most part the same and it has a similar seasonal colour change. There are four or five varieties of this little bird found in different parts of Africa, but the difference between them is very small. There is, however, one rather rare species that can not be mistaken for any of them, this is the Long-tailed Combassou, *Vidua*

hypocherina. This bird has the bill red and the centre feathers of the tail very much elongated. I once had a pair of these pretty little birds, but they only lived a few weeks with me, and died just as the cock was growing his long tail. Strange to say, none of these Com-bassous have been bred in this country, or as far as I can ascertain in Germany either. This is the more to be wondered at, as they are such common birds over here and so easily kept. Moreover, as they nest in holes they would have much more chance of rearing their young than they would if they nested in the open like the other Whydahs. Many a nest of promising youngsters has been destroyed by a sudden rainstorm in these aviaries, and no doubt other aviculturists have had similar experiences. Von Heuglin, writing of this bird, says: "The nest is placed upon any kind of tree, and consists of dry grass stems. We never met with this bird in very large crowds; it is extremely voracious and destroys a good many ears of corn, of negro millet, and also crams itself on barn floors, even with camels and horses as its hosts. I found nests during the month of July to the beginning of September under rafters of roofs, in gable ends, and holes of walls. They consist like those of the House-sparrow, of a large but orderly heap of straw stalks, rags, cotton, feathers, and the like, and the nest depression is delicately lined with hairs, threads, etc. There is no doubt that it has several broods. It sometimes uses the deserted nests of Swallows. The eggs, from three to five, are white."



Millot

GIANT WHYDAH
(*Diatropera frogne*)

(1/2)

RED-COLLARED WHYDAH
(*Colius passer ardens*)

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JUNE, 1923.

THE VINACEOUS AMAZON
(*CHRYSOTIS VINACEA*)

By E. MAUD KNOBEL

This beautiful Parrot has seldom been imported, and few of us have had the opportunity of seeing it except as skin specimens at the Natural History Museum. It is not, however, unknown to the Zoological Gardens, as the Society has possessed three at different times. The first was purchased in 1881, and lived for two years, and its skin is now preserved at the Natural History Museum. The other two were purchased in 1886 and 1891; and in July, 1915, Cross, of Liverpool, advertised a Vinacea Parrot in *Cage Birds* as the "only one in England".

About the middle of March of this year, I went to Chapman's, of 17 Tottenham Court Road, and there for the first time beheld one of these Amazons alive. It was a beautiful bird, and perfectly tame, and I walked about the shop with it on my hand until one of the big Macaws thought fit to take a flight round, and this so scared my bird that to prevent it fastening on one of my fingers, I put it into an empty cage that happened to be standing near. This bird, I am glad to say, was acquired by the Zoological Society, where many of us now can enjoy and admire its beauties.

Most of the Amazon Parrots are green with green breasts, but there are, of course, exceptions, and the species in question is one. The general colour is green, with the frontal band and lores crimson,

the long feathers of the hind-neck green with a bluish-grey band near the black edges, and a crimson spot under the chin. In the adult bird, the breast and abdomen, according to the British Museum Catalogue, are reddish-vinous, but to my way of thinking the tint is like lovely mother-of-pearl, bluey-grey in some lights, pinky in others, and in that respect the bird quite differs from any other Amazon Parrot. The carpal edge is crimson, and there is a crimson speculum, and crimson in the tail. The beak is also crimson with a white tip, the feet grey, and the iris orange-red.

Curiously enough, within a fortnight of seeing the first bird at Chapman's, I went again to the shop to see some birds that had just arrived from Brazil, and amongst them, lo! and behold, was another specimen of *Vinacea*, but this time a baby one. The man who had brought the collection over had never seen one before, and looked upon it as a great rarity, and within a few days of the second one, yet a third came into Chapman's hands from Belgium. This last was a very much older bird, and very much bigger than either of the others. But the moment I set eyes on the baby one, I was greatly attracted by him. There is a great charm, I think, in young Parrots that you can bring up as you like, and that have never been anyone else's pet. This one was quite tame when he first arrived, but after a day or so he began to look very poorly and out of sorts, and sat with his head under his feathers most of the time. There was a horrid east wind blowing, and the food was not suiting him, and this affected his temper, for he bit me badly through the thumb and he also tried his beak on one of the attendants. However, I was very anxious to have him, and in spite of these drawbacks I finally carried him home. For the first three or four days I kept him very warm and fed him entirely on sponge cake and banana. After that he seemed ready to try seed, but will only eat Canary seed, and a little maize and a monkey-nut or two. Now, after a fortnight, you could not wish to see a more delightful little bird. He chats all day, but beyond the word "Mother" nothing is distinguishable. He loves running about on the floor, and when he finds a dark corner squeals with delight. I think he would really like a hole to go into.

As to his temper, as far as I am concerned, he has not got one,

and is most loving and affectionate to me, will sit on my shoulder, and kiss and talk to me all the time. I noticed, though, that when one of the maids went near him the other day he looked really wickedly vicious, and was ready to fly at her.

Both in size and colouring, he is very different from the one at the Gardens, being very much smaller, and with the reddish-vinous colour entirely confined to the upper part of the breast, and green below and showing none of the mother-of-pearl effect so noticeable in the other two birds. I am wondering how long it will take him to acquire the full adult plumage.

I find in the eight skins of this species at the Natural History Museum, five of them have the colour confined to the upper part of the breast with green below, showing, I think, that they are all immature birds. This Amazon seems to have one very peculiar characteristic that I have not known or noticed in any others of the genus, that is, when talking or excited, it raises all the hind feathers of the head and neck exactly like the Hawk-headed Parrot, and looks almost as if it might be related to that clever and curious bird.

Since writing these notes, Dr. Hopkinson has kindly sent me a translation from Neunzig on this Parrot, in which he says: "When excited, they bristle up the feathers of the hind-neck; are not malicious, but gentle and quiet. As regards talking, they learn to do but little, and that little not very clearly." I find Otto Finsch says: "They have a short, raucous call-note, and are supposed to become very tame and learn to speak well. Azara, however, asserts precisely the contrary, and says they have a quiet, sad nature." I cannot say that I have found this, as mine is a most lively and chatty little bird.

THE ROMANCE OF A TROPICAL FOREST

By JAMES B. HOUSDEN

I have often wondered what it must be like to roam in a tropical virgin forest. This opportunity came to me a few months since.

After nearly a 3,000-mile railway journey, I arrived at my brother's home, who lives on the border of a forest, quite tropical, in south-west Texas—a real paradise for a naturalist. I shall not very soon forget the

first stroll I took into that forest, in the hot sun and where everything was so new and novel, and where I afterwards spent so many pleasant hours.

I remember, when a schoolboy of 12 years, searching for birds and nests in one of our eastern counties; although it is a far cry in point of time, and sixty years have passed since, I still found the same enjoyment, with no fear of being found trespassing this time.

We had a visit from two thieves: they did not steal anything of great value, except from me. A pair of pretty American mice made a nest in one of my boxes in my room, stole my rough notes, and nibbled them up to make a cosy nest; so I am now writing from memory.

An African traveller once wrote: "Afar in the desert I love to ride, with the silent bush boy by my side." I found it quite impossible to ride—at places the jungle was often up to my shoulders—so found it easier to walk. At first I took two native boys with me: they made too much noise in the forest, and frightened away the birds, and, as a boy near here got bitten by a rattlesnake and died, I thought it wise to go alone.

I noticed as I went along some rough tree trunks carrying our telephone wire. Some pretty Red-headed Woodpeckers had made these their home. Quite a number were looking out of the round holes they had made in the tree trunks; also, some very small Tits were doing the same. I then went along some cow-tracks. The scene here was most fascinating: in one direction miles of lovely flowers, including the Texas Blue Bonnet, the national flower of Texas. I turned into the forest, and here saw birds of every hue, including large numbers of American Mocking Birds; red birds (Virginian Nightingale); the six-coloured bird (Nonpareil); Troupials; Hang-nests; and many others; butterflies as large as one's hand and many others, all shapes and colours; beautifully coloured wasps, that build a curious nest hanging to a tree; large red and black ants (one of the first things that attracted the writer's attention was what looked like large heaps of soot, and on examining one heap I found it was the nest of the red ant); beautiful golden and green lizards; large numbers of the horned frogs; and many curious birds' nests.

The first nest I found in U.S.A. was the nest of the Long-billed Butcher Bird (a bird with dark plumage, red eyes, and a sickle bill). This nest I found on the edge of the forest, with five mottled-blue eggs. I brought this nest home, after the birds had forsaken it. I afterwards found many of these nests with eggs and young. The American Mocking Bird's nests I found in abundance: the first week I found about fifty nests with eggs or young.

Of the Red Cardinal's nests I found a great number. I was told I should know this nest, as the red bird, in building its nest, always used a piece of old newspaper or some other kind of paper. I examined about twenty nests and found this was correct. I found a nest of young ones, just hatched, a bright red colour. I took them out and examined them; next day when I visited the nest I found it empty. I was told afterwards that if I took the young ones out of the nest the old ones would carry them away. I hardly know if this is correct, certainly these young ones disappeared. I have often watched the hen bird sitting on its nest, and being fed by the male bird, who looked very beautiful in the brilliant sunshine.

I found many nests of the Mourning Dove and the beautiful little Mexican Dove, with bright red under-wings. A pair of the former built their nest in a tree quite close to our dining-room window. I often watched the mother bird covering its eggs during the tropical storms and it became very tame; as soon as the young were hatched, if I went near the tree, the old bird would drop from the nest and flutter along the ground to draw me away, in the same way as our English Peewit.

In the more open parts of the forest I found birds and nests of many kinds of Hangnests, Grackles, Troupials, Meadow-larks, and many others; in one very small hang-nest I found seven eggs (the eggs of three different kinds of birds, including one Cow-bird's egg). I found one egg of the Silky, or Bronze Cow-bird, in many of these nests.

The Baltimore Oriole builds a very beautiful nest. I found two nests of this beautiful bird, where both birds and nests had been destroyed by one of the wild cats. I found we were in the line of bird migration from south to north. When I arrived (4th April),

the plantation and forest near were swarming with the beautiful Cedar Waxwing, thousands of birds ; in a few days all had disappeared.

My first Humming-bird I saw near the house of a Mexican ; as I wanted to explore the valley where the San Antonio River runs through, and did not know the way, this time I took one of the boys as my guide. There had been a great flood some time before, and houses had been washed away. The river now had partly dried up. It was a remarkable scene : in the branches of the largest trees were broken articles of household furniture left by the great flood. As I went along, I found near here quite a large colony of the Purple Grackle and many Red Cardinals. I was looking at a large tree, covered with yellow blossom, when my boy called out, " Hummer, hummer ! "—my first Humming-bird, at a great height, which looked like a large insect. Afterwards I saw numbers of these lovely little birds, Topaz Humming-birds and others.

I have sat on our gallery (verandah) and watched them come quite close. We had a bank of flowers near, and these were a great attraction to the Humming-birds. As I have watched these, I transferred, in imagination, both flowers and Humming-birds to one of the large cages in the new Bird House at Regent's Park, and thought, had it been possible, what an attraction this would be. These charming little birds were so tame that they would wash in a little puddle under the water-tap and then fly up to the telephone wire to preen and dry their feathers. Near the garden door, a pair of these birds built a tiny nest (about the size of a walnut) and hatched their two young ones ; they were quite tame as they sat on their little nest, although people were continually passing very near. The young birds were so small, mere atoms of bird life. These birds built a nest and hatched their young ones in the same peach-tree the previous year.

(*To be continued.*)

THE GAME-BIRDS AND PIGEONS OF THE GAMBIA

By Dr. E. HOPKINSON, C.M.G., D.S.O., Travelling Commission, Gambia

PREFACE

These notes are based on more than twenty years' experience of the Gambia Protectorate and its birds, among which the Game-birds and Pigeons take a prominent position.

As regards the first it might, perhaps, have been more consistent, as the Sand-grouse and Button-quails appear in this category, to have also included the Bustards, but for various reasons they are omitted. I will, however, just mention them here.

1. The Senegal Bustard. *Otis senegalensis* Vieill. Fairly common.
2. The Black-bellied Bustard. *O. melanogaster* Rüpp. Rarer and more local than No. 1. Both these are residents.
3. The Arabian Bustard. *O. arabs* Linn. A rare October to February visitor to the eastern end of the Protectorate.
4. A much larger Bustard than even the last, which has been very occasionally seen but never shot here; it looks as large as the Great Bustard, and is, I presume, *Otis denhami* Children.

The abbreviations in the references which need explanation are:—

- O.G. . . . Ogilvie Grant's *Handbook of the Game-birds*.
Sw. BWA. . . Swainson's *Birds of West Africa*, 1837.
HL. . . . Hand List of the British Museum.
BM. Cat. . . British Museum Catalogue.

In addition, a valuable paper in last year's *Ibis* on the genus *Francolinus* must be mentioned. In this is given a complete summary of all the latest information as to nomenclature, ranges, distinctions, etc. Unfortunately, I have not the number out here and even forget the author's name, such is the Coast memory. [C. W. Mackworth-Præd, *Ibis*, Jan., 1922, pp. 105–36.—EDS.]

One thing, however, I do remember is that in this paper it is stated that the sexes of *F. albogularis* are probably alike. I am sure that they are not, or that if they are then the birds, which I think (and describe) as *albogularis*, are not this species. Since I read this I have been trying

to get a brace to settle this question, but so far have failed; in fact, have not even seen one in the Province where I now am.

DOUBLE-SPURRED FRANCOLIN (*Francolinus bicaratus*)

Tetrao bicaratus Linnæus. 1766, Senegal

Range.—West Africa, Niger to Mogador (O.G.).

References.—O.G. i, 126; Sw. BWA. ii, 217; HL. i, 24.

Of the four species of Francolin known from the Gambia (three of which I know well), this is much the commonest, and is the Gambia Game-bird *par excellence*. They are known to everybody as “Bush-fowl”, and are plentiful nearly all over the Protectorate, though naturally more numerous in some places than others. As Game-birds they give good sport, rising well, especially at the beginning of the season, and flying very like a Partridge at home, though they generally get up at rather a longer range, which more or less counterbalances their larger size. Later on in the season, when nearly all the grass is burnt, they are much less sporting and more difficult to get, for they then run off in front of one over the bare ground, keeping 70 or 80 yards ahead, and absolutely refuse to rise unless cornered, which is not an easy thing to do. In addition to their sporting attractions, Bush-fowl also help largely to fill the pot and in most places provide (with Pigeons) the staple dish of the Protectorate Officers’ daily menu. An old bird, however, is tasteless and tough, and one of any age shot just outside a native village can be distinctly nasty, for such haunts provide plenty of refuse and filth of all sorts as delicacies for the birds which frequent such places. A Bush-fowl, however, straight off the “Tiofe” (groundnut fields) or the “Faro” (rice fields), especially a young one, is sweet-fleshed and tender, while a cheeper literally melts in the mouth—no *poussin* in Piccadilly could compete.

Native names are “Wallo” in Mandingo and “Tchokerr” in Joloff. Both names are in common use, and the birds are almost as well known here by the Mandingo name as by that given them by the English “Bush-fowl”. One notices that those who shoot pick up very quickly enough of the language to aid their pursuit and patter such phrases as “Wallo assiata-le jang; wallo be minto?”, etc. (“Are there plenty of Bush-fowl here; where are the Bush-fowl?”), long before they know how to



JACKSON'S WHYDAH
(*Drepanoplectes jacksoni*)

CRIMSON-RINGED WHYDAH
(*Coluis passer laticauda*)

say "How do you do?" properly, or even to ask their way home in the language.

These birds have two typical haunts in this country—(1) the comparatively high-lying groundnut and corn fields, (2) the low-lying rice fields and the long grass which borders these. During the rains and the earlier months of the dry season the more elevated and therefore drier situations are the favourite haunts, though when the rice is ripening (about November) numbers flock to the "Faro" in the early mornings and evenings to feed, returning to the farms during the day. As the dry season advances, however, they migrate gradually towards the swamps and neighbourhood of water, and by its later months the great majority are to be found about the swamps (by now mostly dry) and, during the very hottest months especially, among the clumps of small bushes and trees which usually border these swamps. At midday at this time of year Bush-fowl are quite commonly caught by small boys, who run them down and fall on them in the long grass in which they are sleepily passing the torrid hours, the birds preferring when pursued to burrow into tussocks rather than rise and face the midday sun.

At other times Bush-fowl are usually met with in coveys of from six to ten, or at the beginning and end of the season in pairs. Their feeding hours are mostly the mornings and evenings, for during the heat of the day they like to rest in cover. When the crops are ripe they feed mainly on groundnuts, corn, rice, and other products of man's labour, adding to this other seeds, various berries, and insects, which form their food for the remaining months of the year. At the end of the rains the small frogs which then swarm in the swamps must provide plenty of animal food to their taste, for one commonly finds these in the crops of Bush-fowl shot on the swamps in November. Such is the normal diet, but some individuals seem to prefer the tamer life and more easily obtained food supply of the outskirts of the villages, and here become scavengers and live mainly on the refuse, etc., to be found there.

The chief breeding season is from about August to November (the rains and after the rains), but Bush-fowl like the Senegal Doves and some other birds, may apparently breed nearly the whole year round, for I have seen quite young birds as late as May and as early as October. The time or choice would, however, appear to be after the heaviest

rainfall, which finishes about September. They lay white or pale-buff unmarked eggs on the ground in shallow depressions, usually in the open in long grass and on a gentle slope, but sometimes under the shelter of a bush or tree.

During the rains they roost in trees, but for the rest of the year pass the night on the ground in thick grass. They often perch on trees when disturbed, and especially is this the case when flushed after the sun has set and darkness is coming on. A tree, an ant-heap, or other elevation, too, is a favourite place for the male to crow from. This "crow" is something between a crow and a cackle, which always reminds me of the Frog's chorus, *βεβρεκκ-εκ-κεκ, κεκ κεκ, κοαξ, κοαξ*, though with a *k* instead of an *x* in the last words ("Bebrek-ek-kek, kek-kek, koak, koak"). The "Koak, koak" is the most frequently heard and is a particularly challenging sound. Both sexes also have a sweet, low whistle as a call to each other or their young.

Description.—The adult male is brown above mottled with black (the typical Game-bird pattern of coloration); below buff, brightest on the breast and becoming paler below and sparsely spotted with black towards the sides. The head is white or whitish, with three rich dark brown longitudinal stripes, one along the centre of the crown, the other two lateral, one on each side; the chin is white. The wings and tail are brown with black markings. The female is distinguished from the male by smaller size and the absence of the double spurs, with which each of her mate's legs is armed. The iris is brown, the beak horn-colour, and the legs dirty yellow. Length: male about 12 inches, female 10 to 10½ inches.

WHITE-THROATED FRANCOLIN (*Francolinus albogularis* Gray). 1844,
Gambia

Range.—West Africa; Gambia, Casamance (O.G.); Senegambia (HL).

References.—Grant, BM. Cat., xxii, pl. ii; O.G. i, 115.

These very handsome Francolins are much rarer than the common "Bush-fowl", and in (say) a year's bag over the whole country will not amount to more than 1 per cent of the total. They are also much more locally distributed, not so much by districts as confined to certain particular spots nearly anywhere in the Protectorate. They seem to

prefer rather thicker cover than their larger relations, and but rarely visit the rice fields and swamps. One generally finds them on the edges of the cultivation near patches of fairly dense bush, from which they never venture far and into which they dash when disturbed. They are never found in coveys, but go about in pairs, though one occasionally may see four or five together. They are quite the most Partridge-like of our Game-birds and rise with a typical whirr.

Description.—Taken from the first pair I saw, shot at Kau-ur in the MacCarthy Island Province, February, 1905. Considerably smaller than the common "Bush-fowl", measuring about 9 inches in length, but a much handsomer bird with bright chestnut markings and yellow legs. The sexes differ, the male being a rich chestnut above slightly marked with black, below bright uniform buff and having a large area on the chin and throat white. The female is above a duller chestnut more flecked than her mate with black feather-streaks, and below dull fawn mottled with brown, the fawn extending on to the throat and only leaving a comparatively small white area there. In both sexes the flights are chestnut (the noticeable feature when on the wing) and the legs gamboge yellow and armed with spurs, double in the male, single in the female.

I knew this bird for some years before knowing its name, but in 1907 I sent two skins to the British Museum, which were there identified as of this species.

AHANTA FRANCOLIN (*Francolinus ahantensis* Temm.). 1854, Ahanta, Gold Coast

Range.—West Africa; Gambia to Nigeria (O.G.); (Specimens from Gambia in the B.M.).

References.—O.G. i, 133; HL. i, 25.

This is the largest of our Francolins and differs considerably from the others in its habits and haunts, for it is never met with in coveys, but only in pairs or singly, and keeps entirely to the thicker bush (practically jungle) near water, so that it is seldom shot, though I think that it occurs in suitable localities all over the Protectorate. In the South Bank Province I used to see two or three (never more) every year in the belts of thick bush, which are so characteristic of that Province, but I only shot one in the nine years I was there, while in the whole period

of my service in the Gambia, I have only known of seven being bagged, two in the Upper River, one in the South Bank, and four in Fogni. Two of the last were sent to the British Museum and there identified as *ahantensis*.

Its call is deeper and more guttural than that of the "Wallo", and unlike that bird it habitually perches and, I think, roosts on trees. It is known to the Mandingos as "Sutokono Wallo" (i.e. "Forest Bush-fowl").

The general plumage is of Game-bird pattern, but the browns are duller and darker than in the common species. The distinctive features besides the larger size are the strong orange-pink beak and legs, the latter bearing two spurs in the male. Its length is about 14 inches.

LATHAM'S FRANCOLIN (*Francolinus lathamii* Hartlaub). 1854

Range.—West Africa; Loango to Senegambia (O.G.).

References.—O.G. i, 108; HL. i, 24.

The Francolins already described are given in their order of frequency here, the proportion being somewhere about 100:2:1, but this species must be much rarer than the last, for until quite recently the only specimens known were some from the Gambia sent home by the then Governor some sixty years ago (see Ogilvie Grant's *Handbook*). There are now, I believe, other specimens in the Museum from other parts of West Africa, and I have seen a skin of a young bird, which I believe was this species, from Sherbro, Sierra Leone. I have never seen this bird here nor heard of anything like it, though I know well the neighbourhood of the Kunchow Creek, whence the original specimens came. Capt. W. B. Stanley, too, who was formerly the Commissioner of the Upper River, and who shot more and knew more of the Gambia Game-birds than anyone, had never seen any other Francolins than the first three. He it was who sent me the skin mentioned from Sherbro. I am afraid that as far as Gambia is concerned it is a lost species, for this country is now so comparatively thickly populated and so well known all over that it is hardly likely that such a strikingly coloured Game-bird should escape notice for so long.

Its distinctive feature is the white-spotted almost Guinea-fowl like breast. Ogilvie Grant describes the male as 10 inches in length, olive-

brown above with black throat, and with foreneck and breast black marked with white round spots; the female as somewhat smaller and with the breast feathers margined with brown.

(To be continued.)

ANNUAL SUMMER MEETING

The Summer Meeting of the Council will be held in the Zoological Gardens on the 6th of July. Tea, to which members are cordially invited, will be served in the Fellows Tea Pavilion at 4 p.m.

CORRESPONDENCE

WAGTAILS VERSUS WINDOW PANES

SIRS,—It is not uncommon for a cock Pied Wagtail to fly persistently and violently against a window in the manner mentioned by your correspondent. Although in the first instance the bird may fly up to try and capture an insect crawling on the inner side of the pane, I am pretty sure that afterwards he is wholly engaged in fighting his own reflection in the glass. Sometimes he will go on striking at the window until it is marked with tiny spots of blood and it is hardly conceivable that he will continue to hurt himself in the pursuit of unattainable quarry when insects are everywhere plentiful. On the other hand, the Pied Wagtail is very pugnacious towards its own kind when breeding, and the supposed presence of a rival male on his territory is enough to cause the occupant of the garden to waste his time and temper (and sometimes that of the owner of the house also) in the manner described.

TAVISTOCK.

BARGALY, PALNURE, N.B.

WEAVERS

By W. SHORE-BAILY

The number of Weaving Finches known to aviculturists in this country is a very large one. With the exception of four species of Ploceine Weavers that come from the Indian and Malayan peninsulas and the adjacent islands, all of them are confined to Africa. Their popular name comes from the wonderful skill that they show in weaving curious nests. Like the Whydahs, the Weavers belong to the *Ploceidæ* family, and, scientifically, are very little different. They are small birds, varying from the size of a Tit to that of a Starling. The bill is strong and the tail short. In most genera, the males, like Whydahs, have a bright dress during the breeding season; at other times they are grey and resemble the hens.

Weavers are granivorous birds; they generally live in flocks in open plains or bushy districts. They are very excellent aviary birds, and many can stand our climate out of doors all the year round, as long as they have a good shelter from the wind. More delicate species are content with a slightly heated indoor aviary during the winter.

Most of them are harmless and sociable; they breed fairly easily, even if many are kept together, as long as they have sufficient room and plenty of shrubs and long grass. Odd males make nice cage birds, but their colour fades more than that of other aviary birds.

A. VIDUINE WEAVERS

Viduline Weavers, belonging to the genus *Pyromelana*, are by far the prettiest and most appreciated in captivity. They are closely related with the Whydahs; many can be obtained at reasonable prices and are almost always offered by dealers. A number of species have been bred in captivity.

By far the most beautiful and the most popular with bird keepers are those of the genus *Pyromelana* (sub-family Viduinæ). Of these, there are some fifteen (26 ?) species, most of which are from time to time procurable from the dealers, and several of which have been bred in aviaries in this country, and a still larger number in Germany, probably in most cases there, in heated bird-rooms.

The commonest, and at the same time, one of the most lovely, is the Orange Bishop (*Pyromelana franciscana*). This little bird, when out of colour, can usually be purchased for a few shillings the pair. It is extremely hardy, and can be wintered out of doors without shelter, but should the weather be bad, there is a risk of losing the male birds when they are changing colour, which they frequently do in the depth of winter. In breeding plumage the male is a velvety black, with the neck, chin, and fore chest, back and vent a brilliant reddish orange, which gets redder as the bird gets older. The feathers of the neck form a ruff when the bird is in display. The hen is tawny brown, with blackish shaft streaks to the feathers. The cock, when out of colour, is hardly to be distinguished from the hen, and it is somewhat difficult to secure true pairs, when buying these and other members of the family, if they are out of colour at the time of purchase. That this very common bird must have been bred in some of our English aviaries, I feel certain, but no account of its nidification has, so far as I have been able to ascertain, been published. It was bred by Lord Poltimore in 1913. In my aviaries it has nested on several occasions, but no young have been reared. The nests have usually been built in some bush. They were generally constructed of dried grass, and were very flimsy structures; so much so, in fact, that more than once the eggs have fallen right through the nest. These were bright blue, without markings, and very glossy. The males are usually the architects, but sometimes the hen also assists in the house building. The hen alone incubates. In the wild state, the nests are built in low bushes or in the "Durah" fields, where they are suspended to the stems of the growing grain. Becker says: "In its disposition and call note, this Fire Finch has much in common with the true Weaver birds, but we never saw it in high trees: in the autumn, especially, it kept almost exclusively to the cornfields and wild grasses. A company of this restless, chattering, and quarrelsome bright-coloured bird in the "Durah" fields, when they are growing green and swelling with heavy ears, is one of the characteristic pictures of the landscape of the sub-tropical regions of the Nile. From early morning they are busy feeding, climb extremely nimbly over the stalks and sheaves of corn, stretch high up, chirping shrilly and puffing out their plumage,

and crack the hard seeds with their powerful beaks. They rarely descend to the earth; moreover, I have never been able to observe them drinking."

Habitat, North-East Africa and West Africa, from which latter country most of the birds we get are imported.

The Crimson-crowned Weaver (*Pyromelana flammeiceps*) is another very beautiful bird. Male: head, rump, and upper tail coverts, scarlet; mantle and scapula, orange chestnut; narrow frontal band, narrow line over the eye, lores, cheeks, ear coverts, chest, throat, and belly, velvety black. Female: rufous brown, upper parts striated with darker brown. Male in eclipse, similar to female. This Weaver is not so freely imported as some of the others; still, in most seasons it is possible to procure it. It was first bred, I believe, by Mr. Wesley T. Page in 1919. Last year a pair nested with me. The first nest was attached to some blackthorn sprays, growing through the wires of the aviary. It was rather untidy, but substantially built of grass, and lined with the flowering ends. Three eggs, blue with faint spots at the larger end, were laid. These proved infertile, and were removed. The hen then went to nest in a small clump of raspberry canes, the nest being suspended from two or three of the smaller stems. The entrance to the nest was in the side of the upper half, and the eggs were not visible, as the nest was too deep. After ten days two young ones were hatched, which did very well for a week, when they were drowned in a heavy storm. These birds agreed very well with a large mixed series of birds in their aviary, and on account of their extreme beauty, are very desirable occupants of any aviary. Writing of the wild life of these Weavers, Dr. Böhm says: "At eventide, flocks of these birds settle amongst the reeds of almost dried-up swamps to drink and sleep. From every direction, first singly and then in ever increasing numbers, the flocks come with a particularly rapid and loudly whirring flight, wheeling around, closely packed together, with precipitate movements, like a flock of plover, to and fro, then sinking down noiselessly into neighbouring bushes, where they begin their confused noise, which ever increases, then decreases. Hence they fling themselves amongst the reeds, then back into the bushes, and soon increase so much in force that their ascent resembles distant thunder.



NEST AND EGG OF TAHA WEAVER
(*Pyroneclana taha*)



NEST AND EGGS OF CRIMSON-RINGED WHYDAH
(*Colinusbasser laticauda*)

The masses thus gradually advance to the border of open lakes, and then throw themselves on to the water from suitable spots where the clumps of reeds are bent downwards in the form of a terrace, owing to their constantly being used for this purpose ; here they fly up and down for a long period, forming an unbroken stream." Habitat, North-East and West Africa.

The Black-bellied Weaver (*P. nigriventris*) seems a reduction of the last-mentioned species ; it differs also in having no red on the fore-neck. It is found in South-East Africa.

The Grenadier Weaver (*Pyromelana oryx*) is the largest of the Scarlet Weavers, and is very freely imported. It was first bred in 1912 by Mr. De Quincey Quincey. In the season 1921 I was successful in breeding it. Early in April in that year my male built a nest in the top of a young conifer, in which the hen laid two blue eggs, larger, but not so glossy as those of the *P. franciscana*. The nest was like that of *P. flammiceps*. Young were hatched after twelve days' incubation, and they remained in the nest for sixteen days. The cock took no part in the rearing of the young, but guarded the nest most efficiently. The hen, besides what insects she could catch, was supplied with a limited number of mealworms. When the young were about a week old, she began to feed them on millet and soaked bread as well. When the young were about two months old the hen again went to nest and fully reared two more young ones. These, when full grown, are almost exactly like the female, as is the male when out of colour.

Layard, writing of this bird, says : " The Red Coffee Tink, though not an uncommon bird, is certainly a very local one ; that is, although distributed over the whole colony, it seems to be confined to narrow limits. About Cape Town I only know of one place where it is to be found, and that is the swampy ground near the Royal Observatory. It breeds in September among the reeds growing in the river, supporting its nest on three or four stems, like its congener *P. capensis*. In the winter it congregates in flocks and does much damage in the grain fields in the neighbourhood of its meeting-place, but never strays away from that locality. Nest like that of *P. capensis*. Eggs, four or five, pale light blue."

The Napoleon Weaver (*Pyromelana afra*).—One of the commonest of the Weavers. A beautiful bird, and very lively and showy in an aviary, and quite a popular cage bird. In breeding plumage, the male is a bright yellow, face, chin, and lower part of breast velvety black. Female, tawny brown, feathers striated with darker brown. Male out of colour and young birds like the female. The first recorded instance of the breeding of this bird in England was by Lord Poltimore in 1912, but it has been bred in a good many aviaries here since. It first bred in my aviaries five or six years ago: several young ones were reared. The nests were nearly spherical, and flimsily constructed of grass, with the entrance in the side. The eggs were white, sparsely speckled with brown. Habitat, West Africa.

The Taha Weaver (*Pyromelana taha*).—This Weaver takes the place of *P. afra* in South Africa. It differs from the latter in having the whole of the under parts velvety black. The hens of the two species are indistinguishable. In the summer of 1915 I bred this bird for the first time in Britain. A neat dome-shaped nest was built in a clump of rushes, in which two eggs were laid, white lightly speckled with brown, and just like those of *P. afra*. Incubation lasted thirteen days. The hen fed the young from the start with small insects, but after a few days took mealworms and wasp grubs, which she swallowed and regurgitated. The cock, as with most of the Viduine Weavers, did not assist its mate in the rearing operations. Nevertheless, two strong young birds left the nest in due course, one of which came into full colour the following spring. Hybrids have been bred between this bird and *P. afra*. Habitat, South Africa. Anderson, writing of it in *Birds of Damaraland*, says: "It breeds in great abundance in Ondouga and I have also seen specimens from Lake Ngami. It is found in flocks amongst trees, as well as on the reedy banks of rivers and in marshes, where it suspends its nest amongst the tall stalks of reeds and coarse grasses. The nest is composed of fine grass, woven somewhat closely together. The eggs are six or seven in number, white, but sprinkled all over with minute brown specks."

The Yellow-backed Weaver (*Pyromelana capensis*).—This is by far the largest of the black and yellow Weavers, and is a powerful bird with a formidable-looking bill. I have found it, however, quite harm-

less with other birds. It does not appear to have been bred in this country, although according to Russ it is one of the easiest of the Weavers to breed. Possibly this is due to the difficulty of securing hens. Two or three years ago I bought half a dozen of these birds, three being out of colour and three in partial breeding plumage. The males, in colour, have a velvety black lower back, rump and wing coverts rich golden-yellow. My birds built several large, nearly spherical nests in some large clumps of rushes in the pond, but as no eggs were laid I suspected that I had no hens, and this indeed proved to be the case, for the next season they all came into colour. One bird, however, whilst assuming the rich yellow back and wing coverts, retained its brown dress, and I wondered from this whether in some cases they take two years to come into full colour. This bird is confined to South Africa, and principally to the western parts. Messrs. Sharpe and Layard give the following account of the wild life of this species : " It is a very common bird throughout the colony, affecting indiscriminately the solitary vley in the midst of the veldt, or the homestead of the farmer. During the breeding season it is seen about reeds, among which it breeds, placing its nest with great art, so as to include in its structure three or four of the firmest and most upright stems, which support it like pillars. The male generally perches on the topmost twigs of the bushes, mingled with the reeds, or on the heads of the reeds themselves, and his brilliant yellow rump, contrasting with his otherwise intensely black plumage, render him peculiarly conspicuous."

The Red-billed Weaver (*Quelea quelea*), probably the most freely imported of all the Weavers, is nevertheless not a very easy bird to breed in captivity. The only record I can find of its having done so was at the Treloar Cripples' Home about four years ago, but perhaps other aviculturists may have bred it in addition to Mme. Lecallier in 1921-2 and thought that with so common a bird the success was not worth recording. I have kept a small flock of these birds for many years, but although innumerable nests were built I have never seen their eggs. The nests are almost spherical, with the opening on the side. They are strongly but not closely woven, so that it would be possible to see the eggs through the sides or bottom of the nest. Several pairs

of birds will build close together in the same bush. While doing so, they constantly quarrel amongst themselves, keeping up the whole time a queer kind of chattering, which to an unmusical ear is not at all unpleasant. The male bird in colour is quite pretty. The upper parts are brown, the head and under parts rose-colour, forehead, front of face and chin black. The hen closely resembles a hen Sparrow. When out of colour the cock is similar, and its vermilion beak usually turns to yellow. This bird is found nearly all over Africa, but strange to say I can find nothing whatever about its wild life.

Russ's Weaver (*Quelea russi*) differs from the preceding bird by having the black parts buff or pink. Some ornithologists believe it to be identical; it is certain that they come over together from West Africa, and when out of colour are indistinguishable. I was lucky enough to get a pair of these birds to breed here last season, and am keeping the young birds with a view to seeing whether they come into colour with buff faces or black ones. If the latter, they certainly cannot be called a good species. My birds nested in a thorn hedge. The nest was like that of *Q. quelea*, but rather more closely woven. The first two clutches of eggs, two and three respectively, were white, thinly speckled with brown. These were removed as infertile, and after a week or two the hen again laid. This time the eggs were good, and duly hatched after ten days' incubation. The young were a long time in the nest, and during this time were fed by both parents. When they did fly they were quite strong, and at a short distance could not be told from their mother. Late in the autumn she made yet one more attempt to rear a family, but although young ones were hatched they were not reared. It speaks well for the weaving of the nest when I say that after nesting in it four times the parents are still using it to roost in at night. Habitat, West Africa and Transvaal.

Red-headed Weaver (*Quelea erythroptis*).—This is a much rarer bird and is not very frequently imported. General colour above, brown; crown of head and nape, crimson; under parts, whitish. Hen very similar to the same sex in *Q. quelea*. I have had two or three pairs of these birds at different times, but none of them ever made the slightest attempt at nest-building. It has been bred in Germany, but not in England. I can find no particulars of its wild life. Habitat, West and Equatorial Africa.

The Mahali Weaver (*Ploceipasser mahali*) is rarely imported. I have only twice met with it. Once, at a dealer's shop, I saw a cage of about two dozen, but as he was asking £5 per pair I was not tempted to purchase; and the other occasion was when I secured my present bird. It was in with a mixed crowd of South African Weavers and Whydahs, and was the only one of its kind. In appearance it differs altogether from any of the other Weavers. General colour above, light brown; lower back, rump, and upper tail coverts, white; two bars across the wings; eyebrows and sides of neck also white; crown of the head, black; under parts, brownish white; bill and feet, reddish. Female similar. This is the only Weaver I know that has a really good singing voice. It sings as loudly as a Thrush. My bird, presumably a cock, has built two nests. These were nearly as large as a football, and much the same shape, with a hole in the side and an exit at the back. Every sort of material it could lay its beak on was used, and the structure was quite waterproof. I have had somewhat similar nests here built by the Cape Sparrow (*P. arcuatus*). Even the Germans have not succeeded in breeding this Weaver; but I feel sure that it would not be a difficult bird to breed provided true pairs could be obtained. Anderson, writing of this bird in *Birds of Damaraland*, says: "It is gregarious in its habits, and may occasionally be seen in large flocks; it usually frequents the wildest and most desolate spots, far away from either fountain or stream. It feeds chiefly on seeds and insects, which it seeks for on the ground, and if disturbed usually takes refuge in the nearest tree, remaining there until the supposed danger is passed, when it resumes its previous occupation. At the beginning of the rainy season, this bird occasionally, though rarely, sings so melodiously that I have seldom heard anything more exquisite. Several pairs of these birds build on the same tree, constructing large rambling nests of coarse grass near the extremities of the boughs; each nest contains two or, rarely, three eggs, and I have observed that all the old nests have two entrances. Two allied species, *P. superciliaris* and *P. melanorhynchus*, have been imported from Abyssinia, and a few of the latter have just arrived. They differ mainly in having a black bill and white under parts.

A wonderful Weaver (*Pyrenestes ostrinus*) has also come to Europe;

this bird has a big bluish bill ; its colour is velvety black with scarlet rump, tail, head, throat, neck, and breast ; in the hen's dress the black is replaced by dark brown. It lives in West Africa. The beautiful plumage is retained all the year.

B. PLOCEINE WEAVERS

I now turn to the Ploceine Weavers, a still more numerous group. Of these, the species of the genus *Hyphantornis* and *Sitagra* are the most frequently found in our aviaries. These are known to the dealers as Yellow Weavers, and are offered under the various names of " Atlas ", " Black-headed ", and " Half-masked " Weavers. The Hyphantornine and Sitagrine Weavers consist of some sixty species, and from the ordinary aviculturist's point of view there is no difference in the two genera. It would take a highly skilled ornithologist to separate one from the other, so I am taking the two groups together. They vary in size from that of a Willow-wren to a Thrush. The largest, and I think the handsomest, is the Abyssinian Weaver (*Hyphantornis abyssinicus*). This bird is for the most part a bright yellow, having a broad black band down each side of the mantle, wings also black, as are the throat and sides of head. Hen : general colour above, brownish yellow ; under parts, yellowish white. The male, when out of colour, resembles the hen, but this colour change does not always take place. I have had a male now for several years that has never gone out of colour, and is still in fine condition. This Weaver is not very often imported, and, as far as I know, has not yet been bred in captivity either here or in Germany. In the summer of 1914 I came near doing so. A pair built a nest in one of my aviaries. This nest was suspended from the wire roof of the aviary and was shaped like a retort, the neck being about 4 inches long. Three eggs were laid, rather long ovals, white, thickly speckled with pink spots. Two of these proved infertile, but the third duly hatched. The young bird lived for thirteen days, and was then drowned in a heavy thunderstorm. Both parents fed the young one from the start, differing in this respect from most of the Viduine Weavers. Mealworms, seed, and bread and milk were used, and I have no doubt that, but for the accident, the little one would have been fully reared. I have this autumn again secured

a mate for my old cock, and shall hope to have better luck next time. The late Major Dickinson told me that he found this bird nesting in the vicinity of water throughout Northern Uganda and in the neighbourhood of the Great Lakes. Very many nests were to be found in the same tree. Habitat, North-East Africa.

The Rufous-necked Weaver (*Hyphantornis cucullatus*).—This is another large Weaver, but hardly so large as the last species. It is much more freely imported, and is never very high in price. It differs from *H. abyssinicus* by having the nape of the neck and the lower throat rufous, and the yellow-body colour much less bright. It has been bred on one or two occasions at the “ Zoo ”. I have had many nests here, which were very similar to those of the last species, but have never bred it, as all my “ hens ” have proved to be young cocks out of colour. Habitat, West Africa.

The Spotted-backed Weaver (*Hyphantornis spilontus*).—This is another of the large Yellow Weavers, but it is not so big as either of the two preceding species. Colour: gamboge, yellow; back and wing coverts, yellowish green with brown spots; face and throat, black. This bird has nested in various aviaries here, and also at the “ Zoo ”, but no young have been reared. It is not very often imported. Messrs. Woodward say, in *Birds of Natal*: “ This is the commonest of all the Weavers. In nearly every district trees may be seen loaded with their nests, generally not far from water, the large flat-crowned acacia being their favourite tree. Here they suspend their kidney-shaped nests, which are made of strongly woven green grass with the entrance below. Eggs vary, but are generally white, spotted with red. Whilst engaged in building, these bright plumaged birds keep up an incessant chattering, which is not unmusical. And they look quite pretty flying to and fro or clinging to the bottom of their nests. They alight in the fields of Indian corn in large flocks, where, unless scared off, they do a great deal of damage, devouring the soft grain before it is ripe.” Habitat, South-East Africa.

Cabanis Weaver (*Hyphantornis cabanisi*).—About the same size as the preceding bird. Colour above, dull olive yellow; below, bright yellow; forehead, cheek, and throat, black. A large consignment of these birds came over two years ago, the first I had seen. As far

as I know, they have not yet been bred in captivity. A male here last summer built a number of nests. At one time he had eight perfectly finished nests suspended from one branch. Two of these he induced Weaver hens to occupy. One of these was a hen of his own species, the other a half-masked *H. vitellinus*. The Cabanis hen had three clutches of three eggs each, all of which were infertile. The other hen was equally unfortunate, so no young ones were reared. The eggs were pure white. Habitat; East Africa.

The Black-headed Weaver (*Hyphantornis melanocephalus*).—This is a much smaller bird, and is very freely imported. Colour: head and throat, black; upper surface, greenish yellow; under surface, bright yellow. This bird was first bred here by Lord Poltimore in 1912. The birds built in an evergreen oak, about 6 feet from the ground, but no particulars of the incubation were published. In my aviaries they have nested several times, but no young ones have been fully reared. The eggs, two in each clutch, were buff and unmarked. I can find nothing as to its wild life. Habitat, West Africa.

The Black-fronted Weaver (*Hyphantornis velatus*).—A South African species, about the same size as *H. melanocephalus*, but having the crown of the head yellow instead of black; otherwise very similar. This bird was bred at the "Zoo" in 1892. This bird has nested in my aviaries once or twice, but young have not been reared. Eggs white, heavily spotted with reddish brown. According to Woodward, this bird in Natal is nearly always found amongst the reeds along the river-courses, between two of which it fixes its oblong nest. The eggs vary very much, from white to greenish blue, more or less spotted. The birds get very excited and noisy during the nesting-time.

The Half-masked Weaver (*Hyphantornis vitellinus*).—This bird is slightly smaller than the last two species. The crown of the head and lower throat, rufous; chin, fore part of cheeks, lores, and sides of face, black. It is quite one of the prettiest of the small Yellow Weavers. A pair nested with me in 1916. The nest, which was kidney-shaped, was suspended from the branch of a spruce. Two eggs were laid, white, heavily splashed with crimson spots. The incubation period was thirteen days, and the young birds left the nest fourteen days later, but, unfortunately, they did not survive. This



BAYA WEAVER AND NEST
(*Ploceus baya*)

HALF-MASKED WEAVER AND NEST
(*Ilyphantornis vitellinus*)

is one of the most persistent nest-builders amongst the hyphantornines. While the hen is incubating, the whole time of the cock is taken up by weaving and pulling the nest to pieces again. A nest that may have taken two or three days to build will be pulled to pieces in little more than an hour, when a new one will be at once started with fresh material. Habitat, North-East and West Africa.

The Golden Weaver (*Xanthophilus capensis*).—This is quite one of the brightest coloured of the small Weavers. The crown of the head and under parts, bright orange yellow; rest of the body, olive yellow; lores and feathers around eye, dusky. A pair of these birds nested with me in 1916. The nest was suspended from the wire roof of the aviary. It was retort shaped and lined with feathers. Three clutches of three eggs each were laid during the season, but they all proved infertile. In colour they were olive green, heavily covered with small red spots and blotches. I cannot find any record of this bird having been bred in England, but on one occasion I raised two fine hybrids from a hen of this species and one of the large hyphantornine cocks. These hybrids, when they arrived at maturity, were intermediate between the two species. This bird has been bred in Germany. Woodward says, in *Birds of Natal*: “This fine, bright-coloured bird haunts the banks of the coast rivers. At the Ifafa we found them associating with the black-throated variety. The nest, which is fixed to the ends of the branches, is kidney-shaped and has the entrance near the bottom. The eggs are blue, although they are said to vary. Habitat, South Africa.

The Little Masked Weaver (*Sitagra luteola*).—This, the smallest of the Yellow Weavers, is no bigger than a Willow Wren. Colour above, olive yellow; below, bright yellow; forehead, sides of head, cheeks, and throat, black. This little bird is very rarely imported. In 1914 I secured two pairs, and I have not known of any in the bird market since. One pair went to nest at midsummer in the same year. The nest was suspended from a branch over the pond, and was shaped like a miniature retort, the entrance hole being so small that it was impossible to insert two fingers at the same time. Two white eggs were laid, which were incubated for twelve days. The young, which were fed by both parents principally upon insects they them-

selves caught, supplemented by mealworms supplied by myself, left the nest after seventeen days. They were then strong on the wing. Possibly, seeing the water immediately below them, they remained in the nest longer than they otherwise would have done. In aviaries, so many birds leave the nest before they can properly fly, and this often leads to disaster. Later in the season they nested twice more; two eggs were laid on each occasion, and two more young ones were fully reared. Dr. Hopkinson, writing of this bird in *Bird Notes*, says: "Smaller than the other Weavers, the black of the face in the adult cock only covers the front half of the crown, the sides of the face, and the upper throat. Bill rather more slender than that of *Hyphantornis*. I am almost sure that it is this species which breeds in such numbers all up the banks of the river (Gambia) during the rains. The nests are made of coarse grass, suspended in groups in the bushes (generally thorn) over the water, and only accessible by boat. In shape they are like a stumpy retort, with a woven perch between the turn-down entrance and the egg chamber; the latter is lined with fine grass and a few feathers. The eggs are white, rather long, and oval in shape. When building operations are in progress, the banks of the river are alive with these birds, all chattering at once, as they fly in and out with grass stems and vie with each other in the actual work of weaving nests. They are in colour from July to December, a few showing signs of colour till about February. When out of colour, during the dry season, they go about in large flocks in the koos-fields, but I think that a great many leave the country then, returning to the river to breed at the proper season." Habitat, Senegambia to North-East Africa.

A few other species of *Hyphantornis* are occasionally imported, and I have had specimens of *H. galbula*, *H. subaureus*, and *H. xanthops*, but none of these have nested, and I think that none have been bred in Germany. Quite recently a consignment of Hartlaub's Golden Weaver (*Hyphantornis xanthops*) came over. I have secured three pairs and hope to breed them this summer. This bird is midway in size between *H. cucullatus* and *H. melanocephalus*. General colour above, yellow, with a dusky olive margin to the feathers; crown of the head, forehead, and under parts, rich golden yellow; throat and foreneck, chestnut. Habitat, South-West Africa.

The Madagascar Weaver (*Foudia madagascariensis*).—These birds used to be freely imported, and were quite cheap on the market, but it is quite ten years now since I last saw one. General colour above, bright crimson, the feathers of the back, mantle, and scapulars with black centres; lower back, rump, and upper tail coverts, uniform crimson; head and entire under parts also crimson. A strikingly beautiful bird, but a very quarrelsome one in an aviary. Hen similar to a hen Sparrow. I have had several, but they never attempted to nest with me, and I believe that has been the experience of other aviculturists in this country. It has, however, bred in Germany. The nest was said to be retort shaped with the tube cut off. The eggs, from three to six in number, pale blue. Incubation period, fifteen days. At Villers-Bretonneux (Somme), in M. Delacour's aviaries, a cock Madagascar Weaver mated to a hen *Hyphantornis vitellinus*. They mated in 1910 and 1911 in a nesting-box. Three young were reared, two of which were females and quite similar to a hen Madagascar Weaver; the cock, when 2 years old, developed a pale orange creamy colour. Habitat, Madagascar and the neighbouring islands.

The Yellow Madagascar Weaver (*F. flavicans*), from Rodriguez, differs in having the rump, head, neck, and breast bright yellow, tinged with orange on the face and throat.

Here come two small birds, often seen in captivity, which, although belonging to the *Ploceinae* group, rather resemble Waxbills. They are the Frontal and Scaly-crowned Weavers (*Sporopipes frontalis* and *S. squamifrons*). The first species inhabits West and East Africa; the second, South Africa. The Frontal Weaver has black forehead and crown, all spotted with minute white spots, as well as a moustache; nape and sides of the neck, cinnamon; upper parts, ashy brown; under parts, pale buff; bill and feet, whitish; size of an orange Weaver.

The Scaly-crowned Weaver is decidedly smaller, and differs by a greyer general shade; wing and tail coverts, black lined with white; crown and moustache with feathers bordered with white. This bird frequently breeds in captivity.

The Blue-billed Weaver (*Spermospiza hæmatina*) is one of the finest birds of the family. The size of a Madagascar Weaver, it is all black

with a bright scarlet breast; the very big bill is plumbeous blue with a red tip. The female differs in having the under parts spotted with white and dark red tail coverts. This magnificent bird lives in West Africa. It has been very seldom imported, and it is a pity, as it is a good aviary bird.

The Thick-billed Weaver (*Amyospiza albifrons*).—When I first saw this extraordinary bird I took it to be some kind of a Grosbeak, and a Weaver is the very last species to which I should have attributed it; however, a Weaver it is, according to the ornithologists. It is a large bird, and its immense Parrot-like beak makes it look still larger. Adult male: general colour above, chocolate brown; the lower back, rump, and upper tail coverts, blackish; wings blackish, the primaries white at the base, forming a large speculum; head and neck chocolate brown, forehead white, under parts dark ashy grey with dusky shaft stripes and buff margins. Hen, above, rufous brown, mottled with dark brown centres to the feathers; throat and under parts of body white, streaked with dusky brown centres to the feathers. The young birds resemble the female. A small consignment of these birds came over last autumn—a first importation—from which I secured a cock and two hens. On turning them into my bird-room for the winter, I became acquainted with the strength of their beaks. They can bite twice as hard as any of the smaller Parrots, and once they have got a hold, hang on like bull-dogs. However, they seem harmless with other birds, as they have made no attempt to hurt the Waxbills and Whydahs flying with them. They seem particularly fond of the larger seeds like saffron and sunflower. They are consequently easy to cater for. I have every hope of breeding them in my aviaries next season. Woodward says: “From its large bill, we usually call this bird the ‘Hawfinch’ as it reminds us of the English bird of that name. The ‘boys’ call it the ‘Thick-bill’.” It measures $6\frac{3}{4}$ in. in length. The female is spotted on the breast like a Thrush, and, curiously enough, sings well, although we have not heard the male utter a sound. They haunt the thickets on the borders of the woods, feeding on the hard kernels of the berries, the shells of which they can easily break with their thick beaks. They nest in the reeds, sometimes in company with the Yellow Weavers,

and build a very fine nest, nearly round with a sort of porched entrance on one side. At the Illovo we took nine eggs from one nest, greenish, dotted with large and small spots of brown and purple. Habitat, South East Africa.

The Dinemelli Weaver (*Dinemella dinemelli*) is almost the size of a Starling; it has a peculiar plumage: shoulders, wings, back, and tail, dark brown; head, neck, and breast, white; lower back, belly, tail coverts, and under wings, bright red; bill and feet, black. Cock and hen are similar, and keep the same dress all the year round. The Dinemelli Weaver is found from Soudan to Zanzibar. It is rare in captivity.

The Buffalo Weaver (*Textor albirostris*).—The Textor Weavers, of which there are four species and sub-species, are much more like Starlings and Cowbirds than they are like the true Weavers in appearance, and in their habit of attending upon the herds of buffalo and native cattle they also seem very closely allied to those birds. What makes them, however, most interesting to an aviculturist, is the fact that they build communal nests, in which many birds nest together. The London "Zoo" has had specimens of one or more of the species from time to time, but very few have found their way into English aviaries, and, as far as I know, no nests have ever been built, either here or on the continent. Last summer Dr. Hopkinson brought back a cageful of these black Weavers from the Gambia, and was kind enough to make me a present of six of them. Two or three of these were in the adult plumage and the others in the juvenile brown dress. Unfortunately, I had very bad luck with them, as although they seemed healthy enough on their arrival, five of them succumbed after a few days from enteritis. Whether this was brought on by an overdose of live insect food, or whether they ate some green food in the aviary that did not agree with them, I do not know, but they all lost the use of their legs, and the symptoms were exactly like poisoning. The weather, at the time they were turned into the aviary, was fine and warm, and they had everything in their favour. Strange to say, the birds Dr. Hopkinson sent to the "Zoo", and which were also turned into an outdoor aviary, developed none of these symptoms and are, I believe, alive to-day.

Anderson, writing of this bird, says : “ This large, Finch-like bird is rather common in Damaraland and also in the Lake regions, where it is known to the natives by the name of ‘ Isaba Gushoa ’. It is a noisy species, gregarious in its habits, breeding in colonies, and constructing many nests in the same tree ; it seems to prefer the giraffe-acacia for the purpose of nidification, and it is curious that when these birds have used a tree for this purpose it usually withers in a short time after the building of the nest has been completed ; but whether the birds instinctively select such trees as have a tendency to decay I am unable to say. The collective nests consist externally of an immense mass of big twigs and sticks, in which are to be found from four to six separate nests or holes of an oval form, composed of grass only, but united to each other by intricate masses of sticks, defying the ingress of any intruder except a small snake. In each of these separate holes are laid three or four eggs, exactly resembling Sparrows’ eggs, but much larger. I obtained no less than forty of these eggs (all much incubated) on January 29 from two low trees, standing close together, at Amatoni, in latitude 18° south ; and on the following day the birds were busy repairing one of the collective nests which had been injured during the collection of eggs which it contained. I believe these nests are annually added to ; for, so far as I have been able to see, the same nest is retained for several consecutive seasons.” The sexes are alike brownish black, with the basal portion of the feathers white, patch on each side of chest and centres of side-feathers white. Young birds, dull chocolate brown ; chin, throat, and breast variegated with dirty white. Habitat, West Africa, Damaraland, and Central Africa.

I now come to the Indian Weavers, of which there are four species ; the one most often imported, and that not very frequently, is the Baya (*Ploceus baya*). As a Weaver, this bird is *facile princeps*. None of the other Weavers, either African or Indian, can compare with it as a builder. I have had two or three specimens, and these have all been males : the females do not seem to come over. My birds have all built nests. These have been sometimes suspended from the wire roof of the aviary, and at others from the branches of willow-trees. Some of these nests have been over 3 feet in length, and this with-

out the narrow tube-like entrance that is found in the occupied nest. Having had no hens in the aviary, the cocks have no doubt thought it unnecessary to add this to the nest. In every case, the material used has been growing grass. So closely have these nests been woven, that they have been in perfect condition after one of our worst winter seasons. A curious feature is a large patch of mud plastered on each side of the nest inside; there is also a very strong cross-bar of grass near the bottom on which the cock roosts at night. In 1922 my cock tried very hard to get a *Hyphantornis* hen to mate with him. He chased her about from morning to night, but, although she seemed friendly disposed towards him, nothing came of it. I suppose it is doubtful whether she could have completed the nest properly in any case. The males in breeding plumage have the crown of the head bright yellow; upper parts, wings, and tail, brownish; breast, bright yellow; lower parts, white. This bird is found in India, Burma, and the Malay Peninsula, and it is very common. Its nest is suspended from the branches of trees, but in Burma it often hangs its nest from the thatched roof of buildings, as many as one hundred nests having been known to be attached to the roof of one bungalow. Two eggs are the normal clutch, but as many as ten have been taken from one nest, probably the produce of several hens. The late Mr. Horne recorded an interesting note on the breeding of this bird, which I quote: "This morning (July 7th, 1865) as I passed our solitary palm tree in the field, I heard a strange twittering overhead, and looking up, saw such a pretty sight that I shall never forget it. In this tree hung some thirty or forty of the elegantly formed nests of woven grass of the *Baya* bird, so well known to all. The heavy storms of May and June had torn away many and damaged others, so as to render them, as many would think, past repair; not so, thought the birds, for a party of about sixty had come to set them all in order. The scene in the tree almost baffles description. Each bird and its mate thought only of their own nest. How they selected it I know not, and I should much have liked to see them arrive. I suppose the sharpest took the best nest, for they varied much in condition. Of some of the nests two-thirds remained, whilst others were very nearly all blown away. Some of the birds attempted to steal grass from other

nests, but generally got pecked away. As the wind was blowing freshly, the nests swung about a good deal, and it was pretty to see a little bird fly up in a great hurry with a long blade of grass in its beak. He would sit outside the nest, holding on by his claws with the grass under him. He would then put the right end into the nest with his beak, and the female inside would pull it through and put it out for him again; and thus the plaiting of the nest went on. All this was done amidst tremendous chattering, and the birds seem to think it great fun. When a piece was used up, one would give the other a peck, and he or she would fly off for more material, the other sitting quietly until the worker returned. Nests in every stage of building afforded every position for the bird, who seemed at home in all of them. To obtain the grass for building, the little bird alights on the edge of the high strong sarpat grass, with its head down, and bites through the edge to the exact thickness it requires. It then goes higher up the same blade of grass, and having considered the length required, bites through it again. It then seizes it firmly at the lower notch and flies away. Of course, the strip of grass tears off and stops at the notch. It then flies along with the strip of grass floating behind it. As the edge of the grass is much serrated, the bird has to consider and pass it through the work the right way. This serration renders it difficult to pull a nest to pieces, and makes the same nest last for years. In some instances the male continues to build for amusement after the nest is finished, not only elongating the tubular entrance, but also making a kind of false nest." I feel sure that if hens could be obtained these birds would breed freely in a suitable aviary.

The Java Weaver (*Plocella javanensis*) has also been imported; it is a yellow bird, with brown spots above. Another species, *Pachyphantes superciliosus*, has been seen in European aviaries, and also the Nilicourvi (*Nelicurvius nelicourvi*) from Madagascar.



John Baie Sons & Danielsson Ltd

1. *Paradise Whydah, Steganura paradisæ.*
2. *Queen Whydah, Tetraenura regia.*
3. *Crimson-ringed Whydah, Penthetria laticauda.*
4. *Yellow-backed Whydah, Penthetriopsis macrura.*
5. *Jackson's Whydah, Drepanoplectes jacksoni.*

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ON MUTUAL INCOMPATIBILITY OF TEMPERAMENT AND THE PERSONAL FACTOR

By THE MARQUESS OF TAVISTOCK

(Continued from p. 105)

The aviary next the Crimson-wings was originally occupied by a pair of Barnards. They had been together for nearly two years, and their domestic life promised to be as happy and uneventful as that of most members of their family. All the Broadtailed Parrakeets mate for life, and are usually models of constancy and fidelity. The cocks are masters of their establishments, though when their wives are about to nest they allow them to put on airs and take liberties which would not be tolerated at other times. In March, the Barnards began to come into breeding condition, and they started to examine the nest-boxes, but, owing I think to some sharp, badly-made wire netting, one or other was always getting lame. Finally, the hen lamed herself rather badly, and I caught her up and caged her, removing the cock to another aviary where he could hear his mate but not see her. The pair showed the usual concern at being separated and called constantly to each other. After a couple of days, I decided to return the female to her husband, expecting him to be as delighted as the many other cock Broad-tails I have seen reunited to their hens after a long or short separation. Not thinking of the possibility of any trouble, I carried the hen down to the aviary in her cage and let her out. To my astonishment, she was no sooner free than the cock

fell upon her with the utmost fury, and began dashing about after her with the intention of catching her and tearing her to pieces. I had the greatest difficulty in preventing him from carrying out his object, for his rage made him almost fearless of me. Finally, I got between him and the hen and kept him off for some time, thinking that he might be over-excited and would soon calm down. When she had a little recovered from the violence of her reception the hen started to try and make advances to her angry lord, whistling to him and even visiting the nest. But it was all to no purpose; he sat on the perch with his plumage drawn close, angrily pulling his feathers into place, while his eyes fairly glittered with rage. Directly he had got his breath back and thought he could dodge me he dashed at the hen again. I spent nearly the whole afternoon a prisoner in the aviary, which I dared not leave even for a few minutes to fetch assistance. Finally, the appearance of the gardener made it possible for us to proceed with the separation of the inharmonious couple. It occurred to me that possibly the cock Barnard had a weak memory and failed to recognize his wife, imagining that she was still in the aviary he had left, and that I was trying to palm off a strange hen upon him. The best plan appeared to be to turn him loose and give him the opportunity of cooling his temper at liberty and at the same time making any investigations he might desire. With some little difficulty, for he was most unwilling to leave his partner alive, we ejected him through the catching door of the aviary, and watched with some interest to see what use he would make of his liberty. His first flight took him into a neighbouring tree, from which he could see his old home and also another aviary occupied by a second hen Barnard. He made not the slightest attempt to investigate either place, nor did he seem interested in the first taste of complete freedom he had ever known—for he was aviary-bred. He flew almost straight back to the aviary he had just left, and resumed his endeavour to assassinate its occupant, who was now protected by the intervening wire. All the rest of the evening he continued his efforts, and first thing next morning his anger was as great as ever. About ten o'clock, however, he began to go round to the side of the aviary opposite the entrance to a nest-box, and by whistling and tail-wagging invited his mate to inspect it. As often as

she did so he appeared satisfied, but as often as she left the nest he renewed his attempts to kill her. Gradually, however, his resentment cooled, and after the hen had paid many visits to the entrance of the nest in obedience to his orders, he gave up trying to get at her altogether. By evening he had evidently quite forgiven her, and two days later, when I let him back into the aviary, the old affectionate relations were resumed. One is probably too ready to endow animals with human thoughts and feelings, and the scientist ruthlessly denies the possibility of their possessing anything that can fairly be described as a sense of right and wrong; I can only explain the cock Barnard's conduct, however, on the ground that he was deeply offended with his mate for deserting him, as he thought, without excuse, after the weeks of devoted attention she had received, scandalously neglecting her domestic duties at the moment when he was hoping for the promise of a family! How else can one account for him behaving in a manner contrary to the usual habits of his race under the same circumstances? When ninety-nine other cock Barnards would have been overjoyed, he was perfectly furious and, as proved by his conduct at liberty, his rage was not mere sudden excitement, neither was it the outcome of inability to recognize the hen as his own mate. Some weeks later, the incident was repeated; owing to the vilely cold nights we had been getting the hen Barnard became egg-bound and had to be taken into a warm room. When the egg was laid, and she was well again, I brought her back to the aviary, but this time I did not let her out until I had seen how the cock received her. For a moment I thought he was going to be friendly, but after eyeing her critically he gave a low, angry chatter, which I knew enough of Broadtail language to interpret as meaning, "Well, so you've been off for another little jaunt, have you? I'll teach you a lesson in a minute!" He did not get the chance, however, for I shut him out of the aviary, and by next day he had again forgiven her and it was safe to allow him back. They had one other disagreement a week or two later, but it was not of a very serious character. The cock had been trying to get the hen to go to the nest, and finally began to show signs of losing his temper. "Whenever *are* you going to settle down?" he apparently asked her, and at that she, too, became angry and went for him, saying,

I suppose, "How can I lay eggs when I'm not ready, you idiot?" Anyhow, they had quite a little turn-up for a moment or two, but the hen soon had to give in, and he drove her about until she took refuge on the ledge of the nest-box, where she sat looking extremely sulky while he mounted guard close by. They are on good terms again now and the hen seems about to nest, but if the weather remains as miserably cold as it is at present (June, 1923), there is small hope that she will lay her full clutch successfully.

The other hen Barnard already referred to has been even less successful in matrimonial matters, for the mate I intended for her proved to be not abnormal in one respect only, but to be an all-round crank! When he arrived I put him into an aviary by himself; he was very lively and noisy, whistling, wagging his tail, and chattering forth so much abuse of his neighbours generally that he got on the nerves of an old breeding pair of Stanleys a few aviaries away, and set the cock and hen fighting each other. I therefore decided to change him into an aviary then occupied by a hen Crimson-wing and to put the Crimson-wing elsewhere. This manoeuvre involved leaving him for a minute or two in the Crimson-wing's company, and I was a little afraid he might fly at her and give her a nasty bite, for the average Broadtail has little use for Parrakeets of other genera, whatever their sex. However, I found that I had done him an injustice; his manners towards the Crimson-wing during their brief interview were courtly and polite to a degree. When she was gone, he examined a pair of Malabars in the next aviary, and on the cock flying up to look at him he tried to feed him through the wire. "Evidently," I thought, "he is not a bad-tempered bird after all, and although he gets through more cuss-words in a day than most Barnards use in a fortnight, he would appear to resemble some gentlemen of my acquaintance who swear not so much from ill-humour as from habit. It is clear, too, that he is very forward in breeding condition, and will be delighted to see his mate." But a great surprise was in store for me. In due course the hen arrived, and I turned her into the aviary. In a moment he flew at her as mad with rage as the other cock had been when his truant wife came back after her first absence. The only thing to do was to turn him loose, and he flew off without giving any further

thought to the despised hen. Next morning I found him on the top of an aviary containing a number of young lutino-bred Ring-necks. His attitude towards them appeared friendly, as far as I could judge, and equally so to all, for he did not favour any one individual in particular. As I watched him there was a whistling in the trees above, and down came the pair of Broadtails I have at liberty—a cock Brown's mated to a hen Rosella. The Barnard greeted them with some of his best bargee epithets, and the Brown's flew at him and, rather to my surprise, drove him off without much trouble. During the course of the day, the Barnard made the acquaintance of other liberty birds; he objected to the Redrump, but took no notice of a pair of Greatbills. I was a little anxious as to how he would behave towards "Georgie", my Masked Parrakeet, a very ancient bird not able to fly much and very timid with spiteful Parrakeets and quite unable to defend himself. On going out next day the first sight that greeted me was "Georgie" and the Barnard strolling along side by side in a most friendly fashion, the Barnard uttering the chuckling noise that cock Broadtails make when happy in the company of their mates. Every now and then he sidled up to "Georgie" and attempted to feed him, a kindly attention which "Georgie" received with a gloomy expression and a tightly closed beak, for "Georgie" does not care for birds, and prefers human society. After a while, bored by "Georgie's" unresponsive behaviour, the Barnard went off to the Barraband's aviary and spent the next few days in their company. I wished to move one pair of Barrabands to another aviary, and, as the cock entirely declined to enter the catching-box, I was obliged to turn him loose (he was used to being at liberty) in order to secure him in some other way. I was again a little anxious about the Barnard's behaviour, for it occurred to me that he might have fallen in love with the hen Barrabands, and would regard the cocks as rivals; no bird, as a general rule, believes more firmly in the motto "Two's company, three's none", than a cock Broadtail. When the Barraband flew out of the aviary the Barnard went after him at once, but I was relieved to find that he was almost as pleased with him as he had been with "Georgie". When the Barraband flew on to the hen's new aviary the Barnard followed him, and was in no way angry or jealous when the Barraband started

displaying to the female inside. Even when the Barraband pecked him for getting in his way he took it very meekly, although a normal cock Broadtail expects timid and rather modest behaviour from a mate on the occasion of their first meeting and deals severely with any signs of bumptiousness. When, however, his old enemy, the Brown's, appeared on the scene, he showed anything but meekness, and fought him with a great deal more determination than he had displayed at their first meeting, evidently because he felt that he had to stand up for his new friend. He had an equally violent dispute with the other cock Barnard, whose aviary was near that of the Barrabands, and succeeded in biting his foot and in getting bitten in the foot himself.

When the cock Barraband was shut up, the Barnard went in search of new friends. This time he was attracted by an enormous hen Guilding's Amazon, about three times his size. He addressed her volubly, and the Amazon responded by ruffling her feathers, spreading her tail, and uttering yells fit to waken the dead. The Barnard was enchanted: after the coldness of "Georgie" and the Barraband, here was someone who really cared for him and, best of all, there was not a thing about her that reminded him of that filthy genus of Parrakeets—the platywicisal. In the same aviary as the Amazon there was a cock Layard's Parrakeet. Being obviously a member of the respectable genus *Palaeornis*, the Barnard liked him too. But when I turned a many-colour into the aviary, the poor little bird was chivied about continually until he discovered that wire netting is a better protection than it looks. I did not, however, believe in the possibility of breeding Barnard cross Guilding hybrids, and I *did* want young Barnards, so I caught up the Guilding's admirer and confined him in a cage inside the hen Barnard's aviary. Also I put a nest-box close to it so that the prisoner could see the hen examining it. Surely nature would assert herself after a while? But it was no good; day succeeded day; the hen Barnard made shy advances to the cock, sat by him, visited the box: he cursed her as long as she was in sight and flew at her if ever she settled on the cage!

So I sold him, I must say with some regret, for even if he were useless as a breeding bird, he had great spiritual virtues, and there was something attractive even about his failings! How can the theory of

evolution explain the existence of such a nature as his? A normal bird prefers its own kind and, next to that, its nearest relatives, and a male in breeding condition is strongly attracted by a female in the same state. But he loathed his own kind and all their relations with a bitterness that sexual instinct could not quench, and yet he was not a tame pet whose affection had been diverted to the human race. Neither was he just very bad-tempered, for of all the other cock Broadtails I have owned not one could be civil to two companions at one time (their own young excepted), nor take a peck from a new companion without resentment. Yet his amiability to non-platycercine Parrots and Parrakeets was as boundless as his dislike of the members of his own genus. Surely there must be some truth in the doctrine of reincarnation, and he was once a philanthropist who was shockingly treated by his own relations!

The hen Barnard remains unmated and is apparently about to nest in solitude. I tried her with a Many-colour, but she decided that she could not contemplate an alliance with so diminutive a husband, and bullied him until I removed him to other quarters.

MY PEACH-FACED LOVEBIRDS

By C. H. A. TIENAN

As several others beside myself were fortunate enough to secure some of the Peach-faced Lovebirds which were recently imported to Australia from Africa, and, thinking that perhaps my experiences with them might be of interest to them, as well as to other bird-lovers, I will briefly relate their doings up to the present time. The sexes are extremely alike, and although I worked long and thoroughly at the shipment when they arrived, I could discern no difference whatever in any of them. In certain positions, a bird would be marked off as a certain cock. The next minute it would crouch down, and then it was thought it must be a hen. In sheer desperation I asked to have the birds caught, and decided to trust to luck as to their sexes. More by good luck than by good management I have reason to believe that I secured two true pairs, so must count myself very fortunate.

I have a small aviary divided into three compartments, each measuring 12 ft. by 4 ft. and 7 ft. high. After the Lovebirds had done their period of quarantine they were turned into the centre compartment. This was fitted up with plenty of perches, but not thinking that they would care to undertake domestic duties so soon after their arrival in strange surroundings, no domestic accommodation was provided.

They seemed quite contented in their new home for a week or two, when they started to nibble away at the branches which I had provided for perches. Knowing this propensity to be common to nearly all the members of the Parrot tribe, I paid little attention to their doings.

On going out a few mornings later I found that two of them had eaten their way through to the compartment in which the Queen Alexandra Parrakeets were, and had taken possession of one of the secluded corners. Some idea of the strength of their beaks can be formed when I state that they had bitten a hole about three inches across through the half-inch wire netting which forms the division.

Not wishing to have the Queen Alexandras disturbed, I mended the hole in the wire netting and caught the invading Lovebirds and replaced them in their own portion of the aviary.

All went well for a few days, until one morning I found all four Lovebirds in the compartment with the Bourke's Grass Parrakeets, and each pair had taken possession of a hollow log. They had again eaten their way through the wire netting, but this time on the opposite side.

Realizing by this time that they were house-hunting, I again caught them and put them back in their own part, but this time also put in a few hollow logs as well. These were welcomed by them with much screeching and flapping of wings, and it was not long before each pair decided on a log of its own, and woe betide the trespasser if by chance they alighted on the wrong log, if only for an instant. The male of the pair to whom the log belonged would immediately seize the intruder by the foot, and there would be much yelling and struggling before letting go; one of the hens was quite lame for several days following one of these attacks.

The next thing was to provide them with nesting material, and for this I threw in long strips of stringy bark. With their strong beaks they quickly bit it into convenient lengths, and carried it up to their respective logs. The sexes being so much alike, it was impossible to determine whether they all assisted in the nest building, or whether it was done by the males or females, but whichever it was they all adopted the same means of conveyance. The pieces of bark were stuck in between the tail feathers until satisfied that it had a fair load, and the bird would then sail off with the pieces of bark streaming behind. Quite a lot was lost in transit, but it was surprising the amount that was used in the construction of the two nests. Once in the log the bark was bitten into still smaller pieces, so that it resembled very coarse sawdust; a lining of a few feathers and pieces of fluff completed the nest, and in less than a week's time the first egg was laid. The eggs were laid on successive days, one hen laying seven, the other five. The eggs are pure white in colour, and much more pointed than Parrots' eggs usually are. The cock birds are most attentive to their mates; in fact, they spend most of their time in the logs, and it is seldom that one catches a glimpse of a bird at all. If a bird does come down for some food, directly it catches sight of any one it returns to the log with all possible speed.

I am now eagerly awaiting further developments.

A CLEVER JACKDAW

By W. G. MATTHEWS-SHERMAN

We have just recently lost, through death by misadventure, a very human and interesting pet—a Jackdaw.

We say human! because of his very intelligent actions in making himself understood, and of his fidelity to two duties that he set himself to perform—firstly, to guard our gates from intruders by calling us to “come-along” until the door was answered; secondly, to guard from the prey of cats the wild birds that we fed and encouraged for his company.

He would watch as soon as he saw us about to feed them, and, should a cat make its appearance in the distance or through the hedge,

he would give three loud and piercing caws, the birds would all fly up in a cloud, and the cat would turn tail knowing that it was "spotted". During the nearly five years that "Jack" has been our pet, he has given that warning at least nine times a week, and we have never seen the cat catch a bird.

The birds seemed to know that "Jack" was their protector. They appeared to love him, for they hopped in and out of his cage—which was of a large aviary type—sitting on the perches beside him, often sharing his food, while "Jack" looked on with unconcern and kindly eye.

But to the gates, and to the vehicles that stopped outside, he gave his special attention all day long, and never failed to warn us when anyone lifted the latch or a vehicle approached; in fact, he was more useful than a dog, who will often continue to bark, whereas "Jack" stopped calling as soon as we appeared. It was quite easy, too, to tell by the intonation of his voice whether the person approaching was a child, a stranger, or a customary caller.

He was intensely human, lovable, and intelligent. The modulation of his voice was really remarkable. He was capable of expressing his feelings in a most wonderful manner, and could be coaxed from doing wrong into kindly actions. He would adopt an absolutely human tone when demanding, scolding, coaxing, or objecting. We had trained him—for his mind was so elastic, alert, and active that he was easily trained—to be quite clean about the house. He was, therefore, allowed considerable freedom, which he very much appreciated.

He joined in a game of hide-and-seek behind curtains, etc., with great zest, and would often hide under a chair or a table and pounce on our feet and peck them as we passed to entice us to play with him.

His vocabulary consisted of the following words: Jack; Come-along; Come-on; What's that? Oh! Oh, oh; oh! No, don't! No! and Here! Milk, don't know, and also "Ba-wa", the nearest he could get to "Baker", and a word like "yes", that we all understood. But unlike a parrot, these words were all spoken and used at the right time, with their true expression and meaning, not with monotonous repetition, which struck us as being so human and interesting and

making him so lovable. His diet consisted of bread and milk, potatoes raw and cooked, dry macaroni, cooked eggs, fruit, nuts, and *home-made* cake. He would never touch meat of any description or *confectioner's* cake.

We imagine he must have been a lost pet, for we first discovered him in a willow-tree in the garden, attracted by his calling, where he lived for some months before the bad weather decided us to capture him and claim him as our pet, so his age we have never been able to guess.

We, and many who knew him, thought that such a highly intellectual bird was worthy of some recognition after his death, and with that idea in mind we interviewed the Curator of the Natural History Museum at South Kensington, with some hope of having him made a museum specimen. But he very kindly explained that they dealt only with the actual wild birds.

However, he was very interested, and when we explained what an abnormal brain he seemed to have, he suggested our seeing Mr. W. P. Pycraft, who was also very interested, and, at his kindly suggestion, we have sent you this little account of "Our Jack".

A BIRD-SHRINE OF SOUTHERN INDIA

By SATYA CHURN LAW, M.A., B.L., F.Z.S., M.B.O.U.

"Pakshi-tirtha," literally the *Shrine of Birds*, is a famous place of Hindu pilgrimage, in the Presidency of Madras. The name being suggestive of ornithological interest, I decided to visit this place during my tour of the Deccan last year. I had expected to find only an elaborate arrangement of bird-feeding such as is found in Ahmedabad and in Rajputana, but I was not prepared for the peculiar and apparently inexplicable phenomenon that I saw. I found two Vultures coming to feed on rice and sugared *ghee* (clarified butter) from the hand of man regularly every morning. This has been going on for the last five hundred years or more. It seems to me strange that none of the great creators of Indian Ornithology have left any record of these two birds. To them the name of the place probably suggested nothing

more than what I myself had expected to see, and so they never cared to visit it. English travellers who have visited this place have called it "the Hill of the Sacred Kites". It is strange what slight knowledge people ordinarily possess about birds!

The Shrine is in the small village of Tirukkalkunram, about 9 miles from the nearest railway station, Chingleput, which is 36 miles from Madras on the South Indian Railway. There is a bus service between the village and the station. The road between them is picturesque. The village contains many beautiful specimens of ancient Hindu architecture. It is situated at the foot of a chain of four hills, which are said to be the four Vedas, preserved in that form by the God Shiva, who is called Vedagirishwara. The temple is a fortress-like structure situated on the highest point of the four hills. The temple is reached from the village by a long flight of stone steps flanked by rows of pillars. The steps end in front of a ponderous wooden door, through which one enters a large, vault-like dark hall, which admits into the inner tabernacle. Half-way down the hill the stone steps fork out northwards to a courtyard, a little beyond which is a rocky ridge on which the two birds receive their daily meal.

We reached this place on the morning of 6th November, 1922. We went straight up to the main temple to pay our respects to the presiding deity. We then descended the steps and went towards the feeding-place at the invitation of the Pandarum. It was still an hour to midday. The Pandarum carried on his head a pitcher of boiled rice sweetened with sugar and some *ghee* in a separate pot. These he set down on the ledge and placed in position. He sat down, and seemed to go through a form of worship. Presently a white bird hove in sight. I fitted up my camera in a trice. The bird began to fly in circles round and round above our heads. The priest requested the visitors to take their seats in a neighbouring mandapam. Everyone did so; I remained standing with my camera. The bird now came down and stood not far from the priest, and I recognized it as *Neophron gingianus*, the smaller White Scavenger Vulture. The Pandaram had his back towards the bird. By his side were the food-dishes gracefully arranged. The bird slowly approached him. The priest turned round and placed a dish of rice and a cup of *ghee* before the

bird, which began to eat from the vessels without the least shyness. At this moment another bird arrived and alighted by the side of the first. The priest placed another cup of *ghee* and began to hand-feed the new arrival. The first bird flew away after having had its fill. The second bird continued to eat from the priest's hand. When its hunger was appeased it stopped eating and moved off a little; the priest gathered up the dishes and rose, and the ceremony of feeding came to an end. The whole affair lasted scarcely a quarter of an hour.

Neophron gingianus is a comparatively small bird with a slender bill. Probably for this reason it is more timid than other Vultures, against whom it is unable to hold its own. If it happens to arrive at a place where a number of Common Vultures are engaged in feasting on some carcase, this White Vulture, afraid of joining the party, hangs about at a distance. Some are of opinion that its bill is not suited for the purpose of tearing off flesh, and therefore it seeks food among the dust-bins of towns and villages in the company of Crows. Aviculturists have been able to supply us with more details about its food-habits. An American aviculturist noticed that in captivity the Vulture preferred fresh meat to carrion. Mr. Finn thinks that in the wild state Vultures are compelled to feed on putrid flesh, as fresh carcasses are not always available. The White Scavenger Vulture is seldom seen in the wild state to feed on carrion. From its habit of frequenting refuse-heaps, it would not be fair to infer that it is fond of offal only. Hunger drives it to food which it may not like at all. Mr. Finn is probably right in his estimate. In Egypt and America Vultures have been seen to devour dates greedily. I am not aware if anyone has noticed anywhere else a pair of Vultures daily resorting at a particular time of the day to a place to partake of sweetened rice only and in the curious manner described above. The two birds in question come to the hill-temple about midday, day after day, year after year. Do they never find similar or better food anywhere else in order to miss this appointment even once in a while? If the attraction for this place and its food is so very great that the birds give up all other engagements to be punctual at Vedagirishwar, to what is that attraction due?

The second point that struck me as unusual was the small quantity

of food which seemed to satisfy the birds. Vultures are described as gluttons. The priest of the temple had brought a very large pot of rice with him, and on seeing the birds I had expected them to finish the quantity brought. They ate a very small quantity, and went away of their own accord. Aviculturists may possibly certify that it is a slander to call the Vultures gourmands. Mr. Finn says: "In confinement, where Vultures are fed regularly, they do not by any means eat immoderately." But in this particular case this explanation is not sufficient. Firstly, they are wild birds. Secondly, it is the only meal that they are offered in twenty-four hours. The quantity they took did not strike me to be sufficient to serve them for another twenty-four hours. If it be argued that the birds had a sound meal elsewhere prior to their coming to the temple, the mystery is not explained. If they had a full stomach, did they come to keep the appointment only to please the priest? Birds are not known to be sticklers for custom or etiquette.

Another extraordinary feature was that only two Vultures came to the feeding-place. It is a common habit of Vultures to make a social affair of every meal. Why was an exception made in this case? When I was ascending the hill I had noticed a number of the White Scavenger Vultures soaring above the village of Tirukkalkunram. One would have expected them to join the company of these two birds or at least to hang around the place. But nothing of the kind happened. Every visitor who has been to this place has seen only two birds and no more. Birds generally congregate wherever they expect to get regular meals every day. There are many such places in Europe, America, and India. In such places many birds of the neighbourhood collect together, and the number of such birds go on increasing day by day. In Behar, the Barabar Hills attract many visitors annually. At the foot of the hills have grown up a number of shops where pilgrims take their meals. A large number of White Scavenger Vultures have permanently fixed up their dwelling close by, living on the leavings from the shops and the titbits thrown out by visitors. Some of the birds are occasionally bold enough to feed from the hands of man. Here, however, we find not one or two birds, but as many as twelve or more. This is as it should be. The presence

of only two birds at Tirukkalkunram is peculiar because it is distinctly in contradiction to the habits of Vultures in general.

Apart from these considerations, another fact that stands out is the regular arrival of two Vultures at the hill-temple continually for centuries. There is no record of the date when this bird-feeding first began. There can be no doubt, however, that this has continued without any break for five hundred years or more. That this used to happen three hundred years ago is proved by the Dutch writer Havart, who in his "open ondergang van coromandel" says that he visited the hill on 3rd January, 1689, and saw two sacred birds feeding at about midday. It is evident from the signatures of Dutch travellers engraved on the walls of the Orukkalmandapam, or Monolithic hall, in the temple, that the temple and its avine visitors had a wide publicity all over the country in the seventeenth century. At this time there was a very important Dutch factory at Sadras, 35 miles to the north-east of Tirukkalkunram. Dutch merchants, statesmen, and travellers were naturally attracted to Pakshitirtha, and they have left their names on the temple-wall bearing dates ranging between 1664 and 1687. In the classical biography of Chaitanya, the great religious reformer of Bengal in the 16th century (1485–1533), we find it recorded that he visited the temple. There can be no doubt, therefore, that the bird-feeding at Pakshitirtha dates back to a long past.

It would be absurd to suppose that the same pair has been visiting the hill every day for all these centuries. Is it possible that the original pair of Vultures who first began to arrive at the temple have handed down this habit to their direct lineal descendants and the habit is being kept on in the family from generation to generation? Popular belief credits the head priest of the temple with some supernatural power by means of which he draws the two birds to feed from his hand. Will the scientist be inclined to believe that this power, passed from priest to priest, still retains its efficacy or was never efficacious at all? Popular imagination, as is usual, unable to get at any satisfactory solution of the mystery, has woven a number of legends around these two birds. In the distant past two young hermits fell under the wrath of a god who transformed them into two Vultures with the curse that they would be released from their avine form at the end of Kaliyuga.

Legend has it that the birds are ordained to bathe in the Ganges at Benares every morning, take their breakfast at Tirukkalkunram, and pass their night at Rameshwaram, the extreme southern end of the Indian Peninsula. The scientist is not expected to swallow such stuff. Still, the two birds of Pakshitirtha are a standing ornithological riddle.

THE GAME-BIRDS AND PIGEONS OF THE GAMBIA

By DR. E. HOPKINSON, C.M.G., D.S.O., Travelling Commissioner,
Gambia

(Continued from p. 131)

STONE-PHEASANT (*Ptilopachus fuscus*)

Perdix fusca Vieillot. 1823

Range.—West Africa, Senegambia, and Gold Coast to Kordofan and Abyssinia.

References.—Jardine, Ill. Zool. (n.s.), 1837, pl. xvi; Sw. BWA. ii, 220; O.G. i, 199; HL. i, 32.

These charming little Game-birds in appearance suggest a dark-coloured Bantam hen and are quite common in the Gambia. They frequent the ironstone ridges which intersect a great part of the country and which are covered with thin scrub or bamboo. Here one finds them in small parties of about half a dozen, or sometimes in pairs, which lie very close and usually put their trust in their powers of hiding rather than their wings, as they will wait till almost trodden on before moving, and then either scuttle away exactly like frightened chicken, and dodging in and out among the rocks, or else rise with a scuffle and a scattering of dust to fly rapidly away for a few yards and then drop again into shelter. They never appear to perch on trees or to move far away from their customary haunts among the rocks. They must also be able to get along with little or no water, at any rate during the dry season, for then there is never any in the hills they frequent, and one never sees them like other Game-birds on their way to or from water. Their note is a low-pitched whistle, and besides they utter a sort of squawk when suddenly alarmed.

Although easy enough to shoot when met with (as one occasionally

does) in the open on the farmland near the hills, the reverse is the case among their home-rocks, for there they are only flushed with difficulty and even when up and on the wing are away and in hiding again in a moment. It always seems to happen, too, that when a covey does get up, one finds oneself balanced on one leg on a rock looking for a fairly safe place for one's next step. Also if one does drop a bird and it is not stone-dead it will probably be lost, for, if a kick is still left in it, it will almost certainly manage to struggle away somehow into some hole or other. It is in such holes, which are often very deep, that they nest, commencing to lay about the end of May and, I think, bringing off two broods in a season. The young after leaving the nest remain with their parents for some time and form with them the small parties one meets with. Their food must be found chiefly on the ironstone hills, for it is quite the exception to find them on the ordinary cultivated ground; it probably consists mainly of the seeds of various grasses, bamboo, etc., with a considerable addition of insect-life as well.

They are frequently trapped by the natives and do well in confinement, much better than the "Bush-fowl", which want great care when fresh-caught, though once they have settled down live well. When first caught they should be kept in a dark box or cage with a sacking top to prevent damage to the head when they jump. I have had a good many of both these birds at different times and got some of them home. They were usually fed on the ordinary millet and boiled rice, with white ants as a delicacy whenever obtainable.

If they are given an English name here, it is usually "Stone Bush-fowl", or "Bush-chicken", the latter being a translation of the Joloff name, "Ganar-u-ala". The Mandigo names are "Wantiro" and "Beritto-wallo", the second meaning "Rock Bush-fowl".

COMMON QUAIL (*Coturnix coturnix*)

Tetrao coturnix Linn. 1758

Range.—Europe, N. Asia, Indian Peninsula, S. Africa in winter (HL.).

(Rendall, writing on the Birds of Gambia, *Ibis*, notes this species as common there in February and March.)

References.—O.G. i, 180; HL. i, 31; BM. Cat. xxiii, 231; Seth-Smith, AVIC. MAG., N.S., V, plate of head, 1906.

AFRICAN QUAIL (*C. coturnix africana*)

Coturnix vulgaris africana Temm. and Schlegel. 1850, S. Africa.

Range.—South Africa, Lemuria, Atlantic Islands (HL.).

References.—O.G. i, 183; Stark and Scl. BSA. iv, 221; Seth-Smith, as above; C. Grant, *Ibis*, 1915, 22.

These two species are very closely allied and very alike, and I am almost sure that both occur in the Gambia as winter visitors only, though perhaps this is unlikely as regards the South African bird. In size they resemble one another and the females are very similar, but the males differ in the markings of the head and neck. In *coturnix* the sides of the face, the chin, and throat are white or whitish, in *africana* rufous or rufous buff. In some (the minority) of the Quails I have seen here these parts have been white (= *coturnix*), but in most of our birds they are decidedly more rufous than white, so that I take it that the African form is the more common here, unless our Quail is a race intermediate between the two, which breeds to the north of us in Senegal and other parts of North Africa and visits us from there in the winter. The differences between these Quails (and others of the genus) was well shown in a coloured plate in the 1906 volume of the AVICULTURAL MAGAZINE, which illustrated an article by Mr. Seth-Smith on these birds. In this, if I remember aright, the author pointed out the frequency with which forms apparently intermediate between these two species are met with.

In full breeding plumage the males of both have the centre of the chin and throat black and the white eyebrow much more distinct than at other seasons, while in *africana* the rufous of the cheeks becomes deeper and brighter at this time of year. Quail, I am sure, do not breed with us, and therefore one would not expect to see the full dress here, but I have once (and only *once* in twenty years) seen one with a black chin mark. This was a bird shot in December, 1906, which I at first though might be *C. delegorguei* till I looked it up, and then decided that it must be an old male of the European species which had retained its previous season's breeding plumage. It had a very distinct white eyebrow, while down the middle of the chin and throat ran a black line, the rest of the chin and throat being white with a narrow red-brown streak across the cheeks from the gape backwards, and a crescentic similarly coloured half-collar across the front of the lower neck, the points of which joined the loreal streak below the eyes.

As already stated, Quail are only winter visitors to the Gambia. They are by no means uncommon though then (from about mid-November to February or March), and are usually found in pairs in the shorter dry grass along the edges of the swamps or in the patches of similar grass left among the corn and groundnut farms. They generally rise almost at one's feet, and skim off with a rapid swerving flight just above the top of the grass, uttering a sharp "twit-twit-twit" as they go, to dive again at the earliest opportunity into cover, from which it is generally impossible to raise them a second time, for when once flushed and missed, they lie close or creep out of the way among the grass stems rather than rise again. Although only temporary visitors, they are well known under the names of "Jattoberrando" (which means "lion-startler") among the Mandigos, and "Tiprip" or "Pikrik" among the Jolloffs, whose name is no doubt an imitation of the note.

DELEGORGUE'S QUAIL (*Coturnix delegorguei* Delegorgue). 1847

Range.—Tropical Africa; South Arabia (HL.); Africa south of 15' N. latitude; Aden (O.G.).

References.—O.G. i, 187; Stark and Selater, BSA. iv, 224; Seth-Smith, AVIC. MAG., 1906, p. 23; plate of head; C. Grant, *Ibis*, 1915, 22.

This "rare" Quail (O.G.) might from its range occur in Gambia (which is 13–14' N. lat.), but has never been collected there, and I certainly have never seen it.

It has a very definite pattern of rufous and black face markings, which are well shown in the plate above referred to in the AVICULTURAL MAGAZINE.

GUINEA-FOWL (*Numida meleagris* Linn.) 1766

Range.—West Africa, Senegambia to the Niger; Cape Verde Islands (HL.).

References.—O.G. ii, 57; Sw. BWA. ii, 226; Elliott, *Monl. Phasianidæ*, pl. xxxix.

Guinea-fowl are found nearly all over the Gambia in localities which suit them, and in many places they are very common and to be seen in large flocks. The neighbourhood of water is a necessity to them,

and their favourite haunts are usually near the bank of the river where thick bush and high trees abound. If such a place is backed by a tract of ironstone country it is a sure find for them. Near the coast one sometimes finds them among the mangroves, feeding, I presume, on crabs and other dwellers in the mud.

During the heat of the day Guinea-fowl keep to the shelter of the bush, but in the mornings and evenings sally forth in flocks to feed on the cultivated areas round their haunts. As a rule they are most regular in their habits, for wherever they occur they are usually to be found in certain particular spots at certain hours of the day. The day commences with a drink, almost before daylight, after which they move slowly on foot to their feeding grounds; by about 10 a.m. they retire to the bush, to come out again about 3 or 4 o'clock (according to season) and re-visit the open, finishing the day by a flight to the river or other water for a last late drink. High trees in thick bush is perhaps the usual place, but in these parts, where the river is bordered with dense Piassava palm-growth, this is a favourite night-haunt and a very safe one, for once in this they are unapproachable by man and most beasts.

Guinea-fowl are so well known in their domesticated state that a description is unnecessary, though I may note that in the young all the feathers of the upper parts have brown ends, giving these parts the appearance of being washed with this colour. In the young the head too is brown with two longitudinal black streaks.

Native names are "Kammo" in Mandingo, "Nát" in Joloff.

BLACK-CRESTED GUINEA-FOWL. *Guttera cristata*

Numida cristata Pallas. 1767

Range.—West Africa, Sierra Leone to Gold Coast; Togoland (HL.).

References.—O.G. ii, 97, pl. xxx; Elliott, Mon. Phasianidæ, pl. xlv; AVIC. MAG., 1917, 265.

Occasionally one sees in captivity a few Black-crested Guinea-fowl, and I have been told that they are occasionally found wild in the most easterly part of the Upper River Province. I think this very unlikely, as their known range is entirely south of the Gambia, Futa Jallon in French Guinea being the nearest place where they are known. Formerly (and perhaps still) some wild people, Konajis from Futa, used to bring in these birds, together with caponized cocks of the ordinary domestic fowl, and these might have been the founders of a Gambia colony, was it not for the fact that practically all the Konaji birds were capons, whether fowls, Guinea-fowls, or Ducks.

The general colour of this species is dull black, spotted with blue grey. It has a long crest of curly black feathers and a black collar of similar but shorter

feathers encircling the back and sides of the neck. The chin and throat are bare and red, and the other bare parts blue.

PTEROCLIDIDÆ

SAND-GROUSE

FOUR-BANDED SAND-GROUSE (*Pterocles quadricinctus* Temm.). 1815
Range.—West Africa; Senegal, Gambia, to Nigeria.

References.—O.G. i, 24; Sw. BWA. ii, 222, pl. (= female); *Ibis*., 1905, 390; 1915, 35.

These Sand-grouse, which are commonly called here "Barbary Quail", are common all the year round nearly all over the Protectorate, but at two seasons, December-January and again in June, their numbers are enormously increased, their increased abundance varying in different years. Those which join our residents in June are, I presume, on their way north to the desert and drier parts to breed there during the rains, while the December crowd—always by far the largest immigration—are the results of the breeding season on their way to spread themselves over the country to the south. Although most leave us to breed, a certain number remain to nest, as I have once or twice found their eggs, laid on bare ground, from April to June.

The favourite haunt of these birds during the dry season is thin bush in the neighbourhood of cultivated ground, and they are particularly partial to recently burnt patches. In such places one may put up pair after pair one after the other in quite a small area, and in December and January one may find hundreds collected in one such spot. On the ground they are most difficult to see, so well do their markings blend with their surroundings. During the day they lie quiet, moving about slowly perhaps to feed during the morning, but it is not till evening that they become really active and fly off to pools to drink, arriving just before dark in small parties to drop noiselessly at the edge of the water and drink their fill and be off again at once. They then scatter over the country to feed, often continuing their meal till late into the night, especially when the moon is up. They are very conservative as regards drinking places. One pool out of several apparently much alike is selected and kept to. Although I have had plenty of opportunity I have never seen any of these birds at a drinking place in the morning or any morning flight towards water. It looks

as if their one evening drink sufficed them. During the day they lie very close and only get up when absolutely obliged, to zigzag rather heavily away and settle again at no great distance. Their evening flight is very different, rapid and direct, so that they give very pretty shooting when flying over to water, while at many places the last ten minutes before dark may provide a bout of as quick and varying shots as one could wish.

The common Mandingo name is "Pilli-pilleecho", an imitation of their note, a low characteristic whistle, uttered both on the ground and on the wing, which often gives useful warning of their whereabouts or approach.

These Sand-grouse seem to have more scent than our other Game-birds, that is if one can judge from a rather limited experience with dogs. Although I have had a good many dogs out here at different times, and known many more, not one in ten has been of any use for shooting and of those that were of some help none that I have known seemed ever to scent any bird alive except these Sand-grouse. One of these dogs was a mongrel Pointer-Piedog which was an absolutely certain indicator of crouching Sand-grouse in the immediate neighbourhood, and of their direction as well, when one had learnt that what her hereditary instincts considered pointing was to direct the tail at the bird and look beseechingly at her master and the gun.

(To be continued.)

NOMINATION FOR COUNCIL

At the meeting of the Council held on 6th July Captain P. Reginald Waud was nominated to the vacancy on the Council caused by the death of Mr. A. Trevor-Battye.

CORRESPONDENCE

ATTEMPT TO REAR A YOUNG KESTREL

SIRS,—A Kestrel's nest was built in an old fir-tree and situated twenty-eight feet above the ground in a wood in Midlothian, within a few feet of our tent pitch, during July last year. Although my daughter and I had passed and repassed this tree dozens of times,

we were unaware of the presence of the nest until one day my daughter noticed a young Kestrel lying dead below the nesting-tree. The bird had fallen out of the nest, and was dead when found. Climbing the tree I found two other young birds and one egg in the nest, and after some difficulty secured a photo of one of the young ones, the other one keeping to the outermost limit of the leafy platform out of reach. Next day we discovered that another of the birds had fallen from the nest, but it was alive. As the other bird would not remain in the nest we eventually took it to our tent and constructed a shady place for it in a near by fir-tree, feeding it on rabbit's flesh and liver. It did well for a few days, and on the fifth day I was astonished to find that its crop was full, the food apparently being undigested. On the sixth day it appeared to be dying, and I then made an incision with a lancet and emptied the crop of its contents. I then sewed the crop up, the entire operation occupying only a few minutes. Within two hours the bird made a complete recovery, moving its head about in a natural manner, shaking its wings, and adjusting its plumage with its beak. I then gave it small *mashed* (crushed) pieces of rabbit liver, but I found later this food had not passed from the crop, and the bird died on the eighth day. There is no doubt in my mind but that it had succumbed to improper food. I also tried it with worms, beetles, pieces of common shrews, etc. All the food had to be forced, as it refused to eat itself. It would be interesting to learn if any reader has had a similar experience in connexion with the feeding of young Kestrels.

W. A. NICHOLSON, F.Z.S. (Scot.).

EGRET SWALLOWING BIRD

SIRS,—I once observed one of the Great American Egrets at the Zoological Gardens capture and swallow a Sparrow in the following manner: It made a sudden stretch with its long neck and seized the Sparrow, which was sitting on the ground, the latter being caught round its neck near the tips of the Egret's long yellow mandibles and held there firmly.

As the Egret seemed going to proceed leisurely in devouring its struggling prey, judging from the fact that it held the Sparrow for about half a minute without attempting to swallow it, I thought it would be

interesting to time the whole performance, and therefore walked rapidly to the Clock Tower close by. On arriving the time was three minutes to three o'clock ; and on returning to the Egret it was holding the Sparrow as it did before.

So Egret and Sparrow remained until just after the clock struck three, when the Sparrow ceased to struggle and looked to me to be dead. The Egret then threw it slightly into the air and, catching it between its mandibles as it fell, gulped down the Sparrow into its mouth.

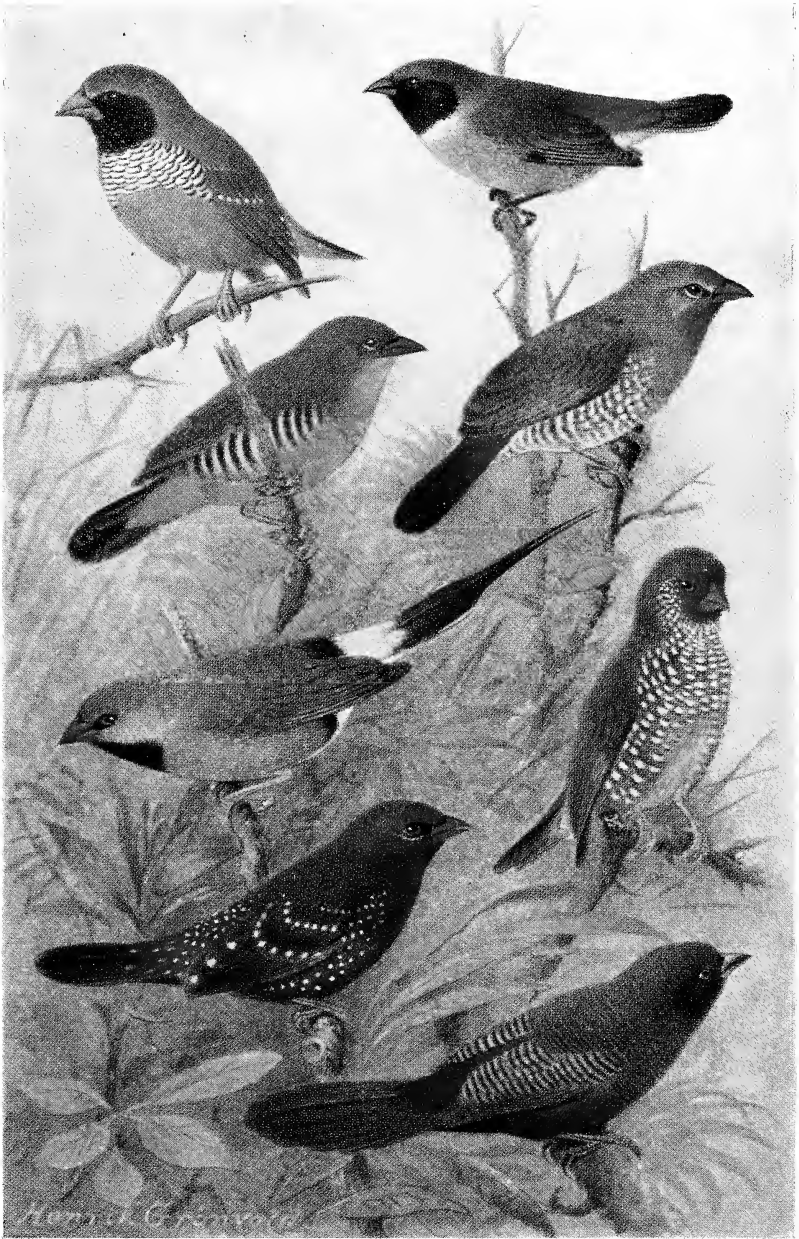
But here there was a tight fix, the Sparrow being firmly impacted with its tail and part of its wing feathers showing outside the Egret's mouth, the latter being unable to close its beak, there being about an inch between the tips of the mandibles. Then the Egret walked quietly to the pond and immersed its *whole* head under water several times, thus wetting the Sparrow's feathers. Having done so, the morsel apparently became easier to swallow, and it passed head first down the Egret's long throat just after eight minutes past three o'clock.

From this it will be noticed that the whole process of swallowing was a very slow one.

It was carried out in such a methodical way as to leave *no doubt* in my mind that these herons habitually catch and devour any small bird which comes within range of their beaks when in the wild state—in addition to fish, frogs, and various aquatic creatures.

In height these birds are (when fully drawn up erect) about 30 inches to crown of head, estimated on the living specimens ; and to complete the coloration I may add that the iris is yellow like the beak and the legs dark grey.

F. D. WELCH.



PECTORAL FINCH
(*Munia pectoralis*).

GREEN AVADAVAT
(*Stictospiza formosa*).

LONG-TAILED GRASS FINCH
(*Poephila acuticauda*).

AVADAVAT
(*Sporaeeginthus amandava*)

DUFRESNE'S WAXBILL
(*Coccopygia dufresnei*).

MELBA FINCH
(*Zonogastris melba*).

RUFIOUS TAILED FINCH
(*Bathilda ruficauda*).

BLACK-CHEEKED WAXBILL
(*Estrilda erythronota*).

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AUGUST, 1923

BREEDING OF THE BLACK-WINGED GRACKLE (*GRACULIPICA MELANOPTERA*)

By J. DELACOUR

In aviculture luck seems to be attached to certain spots and certain aviaries. Sometimes one possesses flights in a series, all of the same size, same exposure, same dispositions; in one of them breeding results are excellent, while nothing happens in the others. Such has been the case with me this year. I have about twenty aviaries of different sizes built together, and among them, three, next to each other and exactly alike, measure 16 feet long by 10 feet wide, with a heated shelter of 10 by 6 feet. Two are occupied by Pennant's, King Parrakeets, and a few other birds, and, so far, no breeding has taken place in them. In the third one, one pair of Crimson-winged Parrakeets and one pair of Black-winged Grackles live together. By the 1st July both pairs had young ones out of the nest and fully reared.

The Crimson-wings had taken possession early of their "Grand-mother's clock" nesting box, and there they reared a beautiful pair of young ones, which are now as big as their parents. Everything went smoothly with them. We say in French "Les peuples heureux n'ont pas d'histoire". Such is also the case with breeding birds, and especially with my Crimson-wings this year.

The Grackles' story, on the other hand, is rather a complicated one. Early in April, the pair began to take much interest in a large log (meant for the nesting site of Woodpeckers), the cover of which

had been removed ; and it had been hung almost horizontally high up in the darker corner of the shelter, close to the ceiling. Two years ago a pair of Chestnut-bellied Glossy Starlings (*Spreo hildebrandti*) had nested in the same log, but unfortunately the female caught a severe cold and died on the nest ! I soon discovered that the Grackles had laid and were sitting ; but, though tame, they were very nervous about the nest, and the sitting bird would leave it as soon as it heard any noise. So I would not look into it to make sure of its contents and refrained from unwise curiosity. Anyhow, a fortnight later, one could realize that young ones were born, and hear them squeak. Everything went on well for about twenty days, when a young one, still having very short tail and wings and a yellow gape, came out. He seemed to be very healthy ; but the weather was awful, rain in the day and frost at night. The day after the young Grackle had a cold and in three days died of pneumonia. Three others were found dead in the nest, probably from the same cause, although there might have been also a question of food, insects being very scarce and difficult to provide in large quantities at that time of the year.

It was a most disappointing failure and I felt despondent. Such was not my Grackles' state of mind, and they immediately went to nest again, in the same log.

In another fortnight young ones were hatched. At last the weather was nice and warm and cocoons plentiful, and between 20 and 22 days old, three strong and healthy young birds came out, rather different in size, having been hatched, in my opinion, at two or three days' interval of each other. For the first four or five days they could not fly, and remained in the shelter, though the door was wide open. They squatted in the hay which covered the floor. They gradually got strong on the wing, and when a month old, became quite independent of their parent, which, however, kept on feeding and looking after them.

The young Grackles are very pale whitish buff, tinged with brown on the head and back ; their wings and tail are very dark brown ; feet yellow ; bill yellow with a greyish base. They remind one very much in shape and actions of young Starlings. The eggs are turquoise blue and spotless. The Black-winged Grackle is a native of Java, and one

of the handsomest members of the Starling family. Both males and females are ivory white, with black wings and the tail black edged with white; legs, bare skin round the eyes, and bill are pale yellow, the latter being bluish grey near its base; eyes black.

This species is seldom imported, which is a great pity, as it proves a very satisfactory, beautiful, and hardy aviary bird. Mr. Frost brought some in 1920, and pairs found their way to the aviaries of the London Zoo, of Mr. H. D. Astley in England, and of Mme. Lécallier and myself in France.

One young one was bred at the Zoo in the Western Aviary in the summer 1922. My Grackles spend the winter in a slightly heated aviary, and are let out from April to November. Until this year they had shown no sign of a desire to nest. Their food consists of insectivorous mixture, with a little boiled rice, bread and milk, cut up dry figs and raw meat. During the breeding time they were given plenty of live ant cocoons and some mealworms.

It is interesting to state that there has never been any serious fight between the Crimson-winged Parrakeets and the Black-winged Grackles, and that no interference with one another's nests ever took place.

WEDDELL'S CONURE NEW TO AVICULTURE

By E. MAUD KNOBEL

I was looking round Chapman's shop last week, when he drew my attention to a small Conure in one of the cages amongst a varied stock of the smaller Parrot tribe. As it was perfectly tame and would sit on his finger without attempting to fly away, one had a good chance of examining it. I knew at once I had never seen it before, and immediately began to think what it was likely to be. I came home and consulted the British Museum Catalogue and determined that it must be *Conurus weddelli*. I copied out the description and went back to the shop to verify it, but to be quite sure I thought I would go on to the Natural History Museum and have a look at the skins. Mr. Chapman was as keen as I was to find out what the bird really was, and suggested I should take it with me, which he kindly allowed me

to do. However, we had rather an exciting bus drive, as it was in a cardboard box and promptly set to work to bite a hole through and come out. The conductor, who came and asked if I "had a mouse in there", was very kind, and, with his assistance and a piece of card, I managed to keep it in until I arrived at the Museum. There I looked over the skins they had, and we determined without doubt that the bird was *Conurus weddelli*. The description in the catalogue gives "the bill horn brown, feet dusky, the naked skin round the eyes pale". In this little bird the bill was uniformly black, the feet nearly so, the naked skin round the eyes nearly white, and the iris, which the catalogue does not give at all, pale grey. This beautiful little bird is exceedingly rare and I believe has never been imported before. It has now become the property of our distinguished member, Mrs. Dalton-Burgess, and I hope one day I may meet it again, perhaps on the show bench.

A POSSIBLE CURTAILMENT OF AVICULTURE

By ALLEN SILVER

I have been led to understand that it is probable that a Departmental Committee will be set up to inquire into the question of keeping birds. A large amount of correspondence relating to this matter has already appeared in our contemporary, *Cage Birds*, which caters both for ourselves and for a considerably more numerous section of the community interested in this recreation from a fancier's standpoint. Up to the present date I am not aware that a Bill has been presented in the House, neither have I yet learned the name of its promoter; but I think it is common knowledge that there is a section of the community which, solely upon sentimental grounds, would, if it could, make aviculture illegal in any respect, and be cursed by posterity for its pains. I feel we are all in sympathy with any measure that tends to preserve disappearing birds of a harmless description and to foster the discreet and proper handling and care of birds used in a live state for food, study, ornament, recreation, or pleasure; but as a body of aviculturists I think we should strongly use our influence to make it generally known that birds discreetly kept in cage or aviary, and in

private or public collections, are not necessarily animals whose lives are spent in misery, and that legitimate bird-keeping is not in any sense an act of cruelty. The plea that bird-keeping entails great cruelty is the lever most frequently used to impress the uninitiated (who care or know little or nothing about birds except that they are pretty little things), just because on occasions incidents occur that are as distasteful to bird-keepers as they are to those who pose as bird defenders. It is obvious that the people to whom birds are of the greatest importance are those who maintain them alive. This entails enterprise, expense, and in some cases slavish and persistent attention, with no reward other than desirable knowledge, mild pleasure, or competitive amusement and very little notoriety. In a wild state many of these birds do not interest the masses economically or scientifically and at the most only a limited number of persons in any country. Dead, their bones become food for speculation to the anatomist, and their skins tablets of record for the cabinet ornithologist, and erstwhile to the student and lover of living birds articles of reference. Whilst living under control they tend to create incidentally trade in various directions, apart from the fact that in this state they constitute a commendable and pleasurable form of recreation for their owners, without necessarily living under uncomfortable circumstances themselves. Under these conditions they are always available as first-hand records for study, and models for such artists as may desire to depict things as they are, providing they have the ability to do so. We keep birds under control in the main because they interest us, and it is impossible for us to try to "Home" with any degree of success small birds in the way that is usually employed with regard to Pigeons and Fowls. Many of these birds a few people may possibly be able to observe any day and at any time, but in a population it is a very limited section that is able to do this or even find time to visit the Zoos, much less to see them in their native haunts. Many bird-keepers with a desire for knowledge and experience exhaust by degrees their wishes to possess certain species they have kept, and move on to something new, but by far the larger and less fortunate section of the community is fond of easily-obtained birds, usually of no important economic value in their own country. Most of these people

have neither garden nor space at their disposal, neither have they much leisure, but we must admit them under our wing, for we cannot fail to appreciate that in most cases their Linnet, Lark, or Finch gives them as much pleasure and oft-times is an object of as great concern to them as is the rarest, most attractive, or valuable specimen in our aviary or bird-room.

Birds imported to Great Britain for the purposes of bird-keeping have never been caught alive in such numbers as wastefully to exhaust or even endanger their prevalence in a wild state, and the native agriculturists do not unduly suffer from this small toll. In a British population of 40 millions I question whether there are two thousand people at one time who keep (other than orthodox talking Parrots) anything in the shape of a collection of foreign birds. With regard to European birds, the wild birds commonly kept in this country are Linnets, Goldfinches, and a few Chaffinches, Redpolls, Siskins, Bullfinches, Greenfinches, Skylarks, and an occasional Blackbird and Thrush. Keepers of any other kind of bird are so extremely rare that in hundreds of villages it is difficult for one to discover such a bird as a pet Hawk, Owl, Magpie, or Jay. These few popular Finches and the Skylark, all of which are exceedingly numerous throughout Europe, never were and still are not rare in any suitable district except where the builder has driven them afield. In thirty years I have seen no appreciable difference in the prevalence of such birds, except where some reasonable explanation could be given for their absence. Birds that are of real economic value to the gardener are seldom kept at all, and even then only by an enthusiast, and in Great Britain there are not five hundred such people. The traffic in cage birds, which is such a small matter that only comparatively few importers and dealers can exist in a country like Great Britain, is obviously a sufficient demonstration to the general public that a very small toll of birds is required for their purposes. On occasions (and these are rare) losses occur, but obviously when such things are the stock in trade of a dealer one must give him credit for more sense than to impose upon them treatment that causes him loss. In many cases birds after shipment and catching are usually in the dealers' possession from a few days to a few weeks, and the sooner they are in the hands of the bird-keeper

the better the dealer likes it. A bird importer is not so deficient in business acumen as to buy or import birds that are not readily distributed. I estimate, regarding a given 1,000 birds in transit, that the losses are less per diem than would occur to that given 1,000 in a wild state, and that the losses which occur to a given 1,000 healthy birds in the hands of experienced bird-keepers are still infinitely less. The loss of birds from flocks in the wastes of Australian grass, African swamp, and Amazon forest, taken for the purposes of keeping alive is inappreciable, and such a loss is felt by no one. The presence of such birds alive here in proper hands not only tends to produce pleasure and recreation to those who appreciate them, but may help others from an educational and æsthetic point of view. The defunct remains of an animal have their uses and one gives credit and respect where credit is due to collectors and systematists and others, but provided one is prepared to maintain a living animal properly it can in the end bring about greater benefit to the human race than it can when it is tucked away in some obscure tract of land known only to natives, explorers, collectors, and hunters. As a defence we can safely contend that:—

(1) Bird-keeping alone has never directly brought about the extinction or scarcity of any species.

(2) The Horticulturist and Agriculturist have never suffered on account of the bird-keeper, but that the seed grower and fruit grower have been helped on many occasions by the catcher.

(3) The general public on sentimental or other grounds has never been the loser on account of bird-keeping.

(4) The welfare and tone of the community has never been lessened or affected adversely by bird-keeping. Rather the contrary.

(5) Ninety-nine per cent of the people habitually keeping birds are as keenly humane as any other section of the community, and certainly exercise a greater care over the animals in their control than is customary with animals other than small cage birds.

(6) Expert bird-keepers understand more about how birds are affected by being under control than those whose extreme views would prevent bird-keepers enjoying a legitimate privilege.

In this increasingly interfering age we should not tolerate yet another attempt upon the part of a body of people to standardize our tastes or lessen our privileges. Such behaviour is the thin end of a wedge and unless we look to such matters in time, private or public collections of birds, hunting, shooting, fishing, racing, and many other things could follow in the wake. Discontent is only stimulated by such procedure. Printed details, illustrated photos, dead skins, and tabulated records will never suffice to stimulate the interest of a live-bird lover, neither will such things produce an expenditure as beneficial to the public as is the case when birds are maintained alive possibly for many years. A graveyard of birds does not benefit the public financially to the same degree as an aggregate mass of bird-keepers, and I sincerely hope everyone interested will endeavour to impress their parliamentary representative that such a measure as the prevention of bird-keeping is not only quite uncalled for, but unjust. Deal with people who wilfully and senselessly misuse an animal if you like, but do not allow people to conclude that bird-keepers should be wiped out because others err. One might as well take motors off the road because unfortunate people occasionally get killed by careless motorists. Our old and respected correspondent, Dr. Arthur Gardiner Butler, in his introduction to Part II of *Foreign Bird Keeping*, said, with reference to that section of the public who wishes to stop our hobby, that "Any seeker after self-advertisement who strives to prevent our means of acquiring knowledge is an offender both against God and Man, and deserving of the severest punishment". In the main anyone interested in bird-keeping cannot refrain from heartily agreeing with him. Unquestionably a bird-keeper means a bird preserver, and bird lover. I have given the spare time of a working life covering a period of over thirty years to birds and garden matters, and those incidentals connected with country life that mean so much to those to whom the study of Nature in any form is a real pleasure, and it has been my pleasure to know bird-keepers and their outlook in all stations of life, from "Dukes to Dustmen", and I feel I can unhesitatingly state from this experience that whenever a keeper of wild birds is made, be it early or late in life, a bird preserver is made. Such people tend to conserve their resources and incidentally spread

information that tends to build up among lay folk a truer estimate of the economic value of birds. The sportsman, fisher, hunter, and shooter preserves his quarry, but the bird-keeper takes a much lighter toll from his resources and always encourages a reasonable respect for wild birds and their uses, economic and æsthetic.

THE GAME-BIRDS AND PIGEONS OF THE GAMBIA

By DR. E. HOPKINSON, C.M.G., D.S.O., Travelling Commissioner,
Gambia

(Continued from p. 172)

Description.—General colour pale “Game-bird” brown, spotted with black. Flights below, grey; tail, dark brown, more or less regularly barred with black. Head with definite black and white markings, the forehead and a spot above and in front of each eye white, and a band behind the white forehead ending on each side at the loreal line black, the rest of the head being of the same colour as the back. The breast is crossed by three cross-bars, chestnut, buff, and black, in that order from above downwards. The iris is brown, the eye-ring pale yellow. The feet (three toes forward only) are yellowish pink on the dorsal, full pink on the plantar surface; the tarsus is feathered with short dirt-brown feathers in front, bare and dull flesh-coloured behind. Length 11 inches.

The female is uniformly “Game-bird” brown, with no head or breast markings. The young males don the breast band-markings some time before they assume the full head-markings of the adult.

I know no other Sand-grouse in the Gambia, but the ranges of the two following species would include the Gambia.

PIN-TAILED SAND-GROUSE (*Pteroclorurus exustus*)

Pterocles exustus Temm. 1825

Range.—Senegal to Egypt.

References.—O.G. i, 12; Gould, *Birds of Asia*, pl. lxiv; C. Grant, *Ibis*, 1915, 31.

The sexes differ, the male having the lower breast and belly deep chestnut-brown, while in the female the belly is blackish-brown closely

barred with rufous-buff. Length 10 inches. The above from Ogilvie-Grant's handbook.

SPOTTED PIN-TAILED SAND-GROUSE (*Pteroclorus senegallus*)

Tetrao senegallus Linn. 1867-71

Range.—Southern Sahara to N.W. Africa.

Length: Male, 13 inches; female, 13½ inches. In the male the belly is black, in the female the upper parts and belly are spotted with round greyish-black spots (O.G.).

TURNICIDÆ

THE BUTTON-QUAILS

SMITH'S BUTTON-QUAIL (*Turnix lepurana*)

Ortygis lepurana Smith. 1836.

Range.—Africa, south of about 13 N. latitude; Aden (O.G.); Africa (HL.).

References.—Smith, Illustr. Zool. S. Afr. Aves, pl. xvi; Stark and Selater, BAS., iv, 238; *Ibis*, 1915, 30.

These tiny three-toed "Quails" certainly occur in the Gambia, but are rare and probably visitors which arrive about April and stay the rains to breed with us. This is presumably the species we have, for one of those obtained in 1907 sent to the British Museum was, if I remember right, so identified there.

My notes on the few I have seen are as follows:—

1907. March. Capt. Stanley sent me from the Upper River a *Turnix* he has shot. It agrees fairly well with the description of *T. lepurana* given in the BSA.

3rd May. Saw (and missed) a small quail (probably a *Turnix*). It was certainly not our much larger Common Quail.

13th June. Another skin from the Upper River. Sent to the British Museum.

1918. I see an odd one or two of these minute "quails" nearly every year, always after the Common Quails have gone, and generally after April. (Stanley's first bird—March—was the earliest I have seen.)

1919. This year I got one in May. The three toes, their tinyness (finch-size), and the sharp crescent shape in flight, are their characteristics.

The Pigeons

GREEN PIGEON (*Vinago calva* Temm.). 1911. Loango and Angola
Synonyms.—*Vinago nudirostris* Swainson, 1837, "Senegal"; *V. calva sharpei*, Rehw., 1902, "Ober-guinea."

Range.—Senegambia; N.E., E. Africa (HL.). Senegal, Gambia, Sierra Leone, Liberia to the Cameroons, Congo, Fernando Po, etc. (*V. calva calva*, C. Grant, *Ibis*, 1915).

References.—Sw. BSA. ii, 205; Bannerman, *Ibis*, 1914, 629; C. Grant, *Ibis*, 1915, 37.

These lovely Fruit-pigeons are clad in green, golden yellow, and mauve, and they are as good to eat as they are to look at. In the Gambia they are common all the year round, but are wanderers, moving in parties from place to place, as the different trees, which provide their food, ripen and are finished. At the beginning of the rainy season (June) a more definite migration occurs. This is particularly noticeable in Bathurst on the coast, where for a week or a fortnight large flocks consisting entirely of young birds pass over in a more or less northerly direction. At this time the "Gang" trees, a kind of evergreen fig, which produces a low-grade rubber, are in fruit. On these the Pigeons feed as they travel, and as they flight from one to the other offer pretty shooting. Another similar movement takes place in the reverse direction towards the end of the rainy season (October), but this is a much smaller affair, less regular and includes old as well as young birds. These flights vary considerably in size from year to year. I can remember occasions when thousands would come over daily, while in other years the numbers have been comparatively small, and the short journey to the cemetery, where the best shooting usually is, not worth making. For twenty years I have known the Gambia, and I feel sure also that in the last six or seven there have never been anything like the numbers of Green Pigeon there used to be.

The breeding season of these birds begins about March, in some cases perhaps earlier, at any rate I have a note that I shot in 1909 on 3rd February a female, which dropped a fully formed egg, and I have frequently seen nests quite early in March. These are of the most flimsy possible construction, a few twigs and rootlets twisted together,

to form such an apology for a nest and situated in such an apparently precarious situation that one wonders that the single white egg ever remains in position and safety; it can nearly always be easily seen from below. The commonest site is a Tabu tree, a large-leaved ever-green, towards the extreme end of the wide-spreading branches, where the nest sways about with every breeze. About 10 to 12 feet from the ground is where one generally finds the nest, but no doubt more are built higher up and escape one's observation. I expect I have seen more nests in Commissioners' compounds than elsewhere, as such would come so directly under notice, and in such situations the hen sits very closely and never seems disturbed by the people who are constantly passing beneath her. Instinct has no doubt taught generations of Green Pigeons that in a tree immobility is their surest safeguard. When the young bird is hatched it maintains its hold on the nest (which it so quickly and so continually outgrows) by automatically gripping with its feet one of the leaf-twigs to which the nest is fixed. This clutch is quite a passive but very powerful one, and the habit of holding tight to the perch persists in young birds for long after they have left the nest. When a young one is shot in a tree it nearly always remains hung up by the feet for some time, though quite dead and the grip entirely due to muscular contraction. With old birds one may at times hang for a moment or two, with young a much longer lodgment is the rule.

Green Pigeons are essentially arboreal in their habits and haunt the higher branches of big trees, though they may be tempted to the lower ones by ripe fruit when that on the upper branches is finished. The natives say they never come to the ground even to drink, and I have never seen one there unless wounded or dead. Their food consists almost entirely of the fruit of different trees of the "bush", notably "Tabus" and "Sotos", two kinds of wild fig. In one of these when in fruit one is nearly always sure of finding a party of Green Pigeons feeding. At harvest time, ripening "Basso" is eaten as an addition to the ordinary fruit diet. This "basso" is the largest of the native millets, and is much the same as what at home we know as "Dharri". In November just before complete ripening this grain is soft and succulent and is then greedily eaten by such birds as Glossy

Starlings and the like, and at this season one frequently shoots Green Pigeons with their crops absolutely overflowing with the soft juicy grains of this corn. At other times one never finds anything in their crops or stomachs but the seeds and debris of bush-fruits.

Adult birds are rather shy and wary, but give quite pretty shooting if one gets them coming over, as often happens if large numbers of them are about and several trees are ripe. If one waits near such a tree and fires just as a party slows down to alight they offer easy shots, but flying free, their flight though straight is deceptive as to speed and wants more swing than one would think. When out absolutely for the pot, as is so often the case out here, one finds them most difficult to spot when feeding in a tree, as their colours blend so well with their surroundings and make them almost impossible to see as long as they keep still, as they do if at all suspicious. The young, in their more uniform green, are even harder to make out, but are much more restless when feeding and in all ways less wary, so when seen are much easier to shoot. They, unlike the older birds, have no knowledge of guns, and after a shot will return again and again to the same tree, in spite of losing one or more at every shot. Old ones never do this, they are away with a dash at the first shot and only return when they think all must be safe again. A habit they have, however, of perching on some big leafless tree, like the "Monkey-bread" (Baobab), to take from this post of vantage a good look round before going right away, or before on their return actually alighting on their food tree, often aids one to fill the larder and, if one finds a stand between one of their look-out trees and their feeding-place, at the same time gives good shooting. Their note, too, is a useful guide to their whereabouts. This is a peculiar one, a sort of chuckle, not easy to imitate (though some of the native small boys do it to perfection), but once heard never forgotten. It may be more or less represented thus: "Boo-who; whu, whu, whup," the last short note being accented, going suddenly up and being followed by a sharp break, after which the strain is repeated.

(*To be continued.*)

CORRESPONDENCE

BIRDS AND SUNSHINE

SIRS,—I should be very much obliged if you or any members of the Avicultural Society could, through the medium of the Magazine, give me an opinion on the following point, i.e. as to whether tropical birds like to be exposed to the full rays of the sun. I do not mean our winter sun, which one can hardly count, but sun such as we have been having for the last week for instance (14th July). Also I mean birds kept in cages in a house and placed in a window, not birds flying in an aviary. Do tropical birds, who mostly live in forests, expose themselves to the full glare of the sun for more than a few minutes? So often people have said to me "I always place my birds in the sun". Personally, I do not believe birds care for the sun, but much prefer to be in the shade. I should never think of putting my Parrots in a window with the sun full upon them, but I shall be very grateful if you can give me an opinion on this question.

E. MAUD KNOBEL.

[There is no doubt that the majority of birds do not care to expose themselves to the direct rays of the sun, but prefer shade in the heat of the day.—EDS.]

 CARIAMAS IN SUNNING POSITIONS

SIRS,—Birds which are alive and in good health are far better to observe than those which are preserved in museums or private collections for various reasons, one of which is that their movements can be seen—more especially any which are at all unusual for the genus or species under observation for the time being.

In this latter connexion a scene with two Brazilian Cariammas (*Cariama cristata*) may be worth recording.

As readers will remember, the summer of 1921 was hotter than usual in the British Isles, and one day in August of that year this pair of birds were in a position in which I had never seen the species up till then.

Strolling towards the aviary in which these birds were living in the Zoological Gardens, I found both of them stretched out on their

backs, their necks fully extended so that heads were on the ground, wings open to about half the full expanse and long legs also stretched out as the birds lay on their backs, but separated wider from one another than when standing still in normal upright position.

Both *Cariamas* had their tails spread out as they lay there, and in this upside-down (so to speak) position the white tips of most of the long quills showed up more conspicuously than when the tail is carried folded in walking, and also contrasted with the dark brown of the feathers nearer the birds' bodies. In the positions described the full heat of the sun's rays fell on to the under parts, warming the throat, breast, etc.; and both birds lay *so quiet* there sunning themselves as to create the impression to persons who might glance hurriedly at them that they were dead.

Noticing myself that the birds were breathing slowly, and also that one moved its head slightly into a more comfortable position as it lay there, I knew they were both alive and basking for pleasure in the sun's rays.

After watching them for about two minutes, I thought it would be interesting to time them and see how long they remained so; but that attempt was spoilt by an unknown stranger who wandered up and began to discourse about the birds' positions.

"Deaths from sunstroke!" he remarked to me, pointing to the birds.

"I am afraid I cannot agree," I replied.

A few seconds later the female got on to its legs, and the male followed the example of its companion, both walking about, and by so doing convinced the unknown gentleman that his diagnosis of "death from sunstroke" was quite wrong! The gentleman referred to obviously overlooked a point of importance, which was that birds which "died" as he claimed would be *not* likely to be quite close to each other—almost side by side—and in exactly similar positions.

Perhaps it may not be a rare event for *Cariamas* to sun themselves as described; but be that as it may, this was the only time up to then, and also since, when they have been seen so by the writer.

FREDERICK D. WELCH.

WAXBILLS, MANNIKINS, AND AUSTRALIAN FINCHES

By A. DECOUX

Weavers and Whydahs, which have been the subject of preceding articles, show sufficient characteristic differences to be divided into well-defined groups. It is not so easy with the birds which we still have to deal with now and which form, with Weavers and Whydahs, the large Ploceide family.

The scientific classification of these birds is still rather uncertain ; two most recent ornithological authorities on the matter, Shelley and Reichenow, have proposed two very different classifications ; both are criticisable on many points. We have not to consider here which is the best systematic order to give to these species, but as to the biological point of view, which only matters to us. We shall divide them into three groups : The Waxbills, the Mannikins, with which we shall include different relatives, and the Australian Finches.

We know well that there are objections to such a classification ; but we think that it will be found easy and useful.

I. WAXBILLS (*Estreldinæ*)

Waxbills are small birds of graceful and rather elongated shape ; their conical bills are small, short, and narrow ; their tails are more or less long, rounded, and wedge-shaped ; their wings are rather long ; the nails of their hinder toes are shorter and stronger than the others ; their plumage, generally speaking, is very much the same in males and females during the entire year.

The greater part of the Waxbills live in Africa, but a few inhabit Southern Asia. One species also belongs to Australia.

Waxbills live in open country and forest, in shrubby valleys, and even in villages, after the way of the English Sparrow, feeding upon seeds and corn as their staple diet. They are met with in small flocks, in which, most of the time, several species are present. In the breeding season males of the same, or closely related, species fight, but without much damage, and the nests are built not far from each other.

Consequently, one can keep numerous Waxbills in the same aviary, without any danger. The display of the males differs according to species, but generally the bird at the same time holds in his bill a blade of grass, which he offers to the female. Nests are more or less spherical and vary in size. They are made of dry grass and lined with feathers, sometimes hair; the entrance is a hole. With many species the cock, after coming into the nest (whether containing young ones or not), brings a feather, with which he covers the opening. Young ones are ordinarily hatched covered with down, and leave the nest between the 18th and the 22nd day after they are hatched. All, when coming out, have a particular plumage at this age. Broods follow each other at short intervals, and almost all Waxbills are extremely prolific.

Their habits in captivity are the same as in a wild state. Their diet consists of different kinds of millet, to which some aviculturists add canary seed. It is advisable to give them flowering grass, fresh or dried, and to put into their aviary wild plant seeds such as one finds in barns. A few species accept bread and milk and insectivorous mixture to feed their young ones. In the breeding season most of them become largely insectivorous, and failure often occurs when that is not taken into consideration. If they are given insects, and especially small meadow ants and their cocoons, nearly all rear their broods without difficulty in well-planted and well-sheltered aviaries, especially if provided with a variety of nesting-boxes. Almost all Waxbills are hardy, even species living in very warm countries, and they soon get used to our climate. Many have been wintered in open-air aviaries, but it is better to winter them in cold but absolutely closed aviaries, and a few species need a heated room. It is not the cold weather, however, which causes their death in most cases, but the dampness of the long nights of our winters, so it is very important to give them dry aviaries and to put on electric light in the morning and evening so that they do not fast too long.

When first imported, the different Waxbills behave in very different ways; some accustom themselves to our climate in a short time, while others remain very delicate during a more or less long period; among the last, we shall mention Cordon-bleus, the different Fire-finches, Dufresne's and Black-cheeked Waxbills. It is most important

to shelter them carefully from any change in the temperature, to get them used gradually to a convenient diet, to avoid too frequent baths and dampness in their cages. At such times it is wise to use boiled water for them, and supply live insects. Once acclimatized, they prove as hardy as the others.

We shall review the different species which have been imported alive and, when necessary, point out peculiarities in their behaviour in captivity.

Cordon-bleu (*Uræginthus phœnicotis*).—Upper parts greyish brown; face, breast, flanks, and tail bright light blue; a scarlet patch under the eye is the distinctive character of the cock; belly whitish brown. This bird, one of the prettiest Waxbills, is delicate when newly imported. A few insects are necessary to acclimatize it. It is better to winter it in a heated room.

Habitat: Tropical Africa to Senegal and Abyssinia.

Blue-breasted Waxbill (*U. angolensis*).—Similar to the above, but slightly larger, and without the red patch under the eye. The blue is more intense and covers a part of the belly. Female, similar to male, but paler. This bird is decidedly hardier than the Cordon-bleu, and, in the writer's opinion, one of the best Waxbills as regards breeding in captivity. Better wintered in a heated room.

Habitat: South Africa, Zambesi, Angola.

Violet-eared Waxbill (*Granatina granatina*).—General colour very rich chestnut brown. Violet blue cheeks; front, rump, and lower tail-coverts bright blue; tail black, with blue borders. Size a little larger than that of a Cordon-bleu. The hen is paler and greyer above, light blue below; cheeks of a lighter violet blue and no blue on the lower tail-coverts.

This Waxbill is not so rare now as it was some years ago. It is rather hardy in captivity and seems to do well in the winter in a cold glass aviary. Has laid, but not been reared, yet in captivity.

Same habitat as the Blue-breasted Waxbill.

Grey Waxbill (*Estrilda cinerea*).—Upper part dark brownish grey, lighter on the head; under parts light ashy grey, washed with pink on middle of the belly; bill coral red; a crimson stripe from the bill to the ear-coverts. Smaller than the Cordon-bleu. Hen similar,

but smaller. This is the commonest of all Waxbills, and one of the hardiest, but very seldom bred in captivity. It nested with me in 1910.

Habitat: The whole of tropical Africa from 5° to 19° latitude North.

Crimson-rumped Waxbill (*E. rhodopyga*).—Upper parts greyish brown; tail-coverts bright crimson; crimson stripe through the eye; throat white; under parts light buff lined with brown. The hen has the throat and cheeks washed with reddish brown. Very rare in captivity; imported in small numbers in 1913; has crossed with the Grey Waxbill.

Habitat: East Africa.

St. Helena Waxbill (*E. estrilda*).—The whole of the body is dark grey, lighter underneath and finely lined with brown; the breast and belly are washed with pink; middle of belly bright crimson; crimson stripe over the eye. Long and wedged tail. Size larger than the Grey Waxbill. The female is smaller, less pink, and has a shorter tail. There are numerous races of this species, several of which have been imported. They differ little from the typical bird, and have a wide distribution area over Central and South Africa. Hardy, and breeds freely in captivity.

Black-headed Waxbill (*E. atricapilla*).—Cap black; back and wing grey, lined with black; tail black; rump crimson; cheeks and throat whitish grey; belly blackish grey; flanks crimson; upper mandible red, lower black. Female similar. Has been imported once.

Habitat: Cameroon, Gaboon.

Black-cheeked Waxbill (*E. erythronota*).—Ashy grey with a pink tinge above; lower back and tail-coverts pink; tail black; under part grey, washed with pinkish. The whole of the plumage is black, which is more apparent on the wings. Cheeks and throat black. Female similar to male, but smaller. Is not very rare to-day in captivity; one of the prettiest seed-eaters one can obtain, but very delicate on arrival. Seems more insectivorous than many other Waxbills, and fears dampness. Needs keeping in a warm room during the cold months. Has not been bred yet in Europe, but has nested in an aviary in South Africa, of which country it is a native.

Vinaceous Fire-finch (*E. vinacea*).—Front, cheeks, and throat black; head grey; rest of the body vinaceous red, suffused with grey; centre of the belly light grey; tail and wings brown; sides of the breast covered with minute white spots; bill plumbeous grey. The hen has no black mask and its general colour is more greyish brown. It is a rare species, rather hardy when acclimatized; has been bred several times in France.

Habitat: Senegambia.

The Abyssinian species (*E. larvata*) is rather larger; upper part greyish brown, nearly black on the head; nape and hind neck crimson; it does not seem to have been imported alive.

Lavender Finch (*E. cærulescens*).—Pale greyish blue, lighter on the cheeks; black line over the eyes; rump and tail-coverts dark crimson. Female similar.

Habitat: Senegambia.

Black-tailed Lavender Finch (*E. incana*).—Similar to the above, but with black tail-coverts. There are three distinct varieties.

Habitat: Natal, Zululand.

The different Lavender Finches have similar habits and requirements in captivity. One has been bred in an aviary. The young ones are delicate and difficult to rear.

Sydney Waxbill (*Egingtha temporalis*).—Upper parts olive grey; front, cap, and cheeks grey; sides of the neck washed with yellow; throat and breast whitish; stripe over the eye, rump and under tail-coverts crimson; bill red; in the breeding season the flanks of the cock get tinged with slaty blue. Female similar to male. Breeds easily, but not very hardy.

Habitat: New South Wales and South Australia.

Gold-breasted Waxbill (*Sporæginthus subflavus*).—Olive brown above; breast and belly orange yellow; throat whitish grey; sides mottled with grey; a red stripe over the eye. The hen has no stripe over the eye, and her yellow is very pale.

Habitat: Senegambia.

The Southern race (*S. charkei*) is similar, but larger and has a lighter coloured breast.

Habitat: South Africa.

Both birds are hardy and charming in an aviary. They breed freely.

Orange-cheeked Waxbill (*S. melpoda*).—Head bluish grey; upper part brownish grey; rump orange red; cheeks orange yellow; under parts light grey suffused with yellow in the centre; tail and wing feathers brown; bill red. Female similar but paler. Very freely imported. Does not breed easily. Hardy.

Habitat: Senegambia, Congo.

We have to place here a charming Indian bird, the Avadavat (*S. amandava*). It differs from all other Waxbills in the seasonal change of plumage of the male; this fact reminds one of Weavers and Whydahs. The male in the breeding season is mahogany red above; tail black; head and rest of the body scarlet; flanks, wings and tail-coverts covered with white spots. In the winter the general colour is more or less greyish brown with pale yellow under parts. Such is also the female. This bird breeds easily and sings nicely. The change of colours is sometimes difficult in our climate; in such a case, plenty of exercise in an aviary is necessary to the bird.

Several local races of this species are imported; one is very small, the male of which has a black belly. These different races are still little understood and require careful study.

Habitat: India, Assam, CochinChina, Siam, Java.

Yellow-bellied Avadavat (*S. flaviventris*).—Similar to the above species, but the belly keeps a yellow colour all the year round. Rather small; bill red and black. I kept this bird from 1913 to 1916. Its habits are similar to those of the common Avadavat.

Habitat: Islands of Timor and Flores.

Green Avadavat (*Stictospiza formosa*).—Upper parts olive green, except the rump, which is yellowish; cheeks and throat yellow; breast and belly bright yellow; sides dark green, with broad white stripes; bill red. Female paler, especially in the yellow portions of the plumage. Rather hardy, but very timid; does well in aviary and has been bred in confinement on several occasions.

Habitat: Middle parts of India.

Fire-finch (*Lagonosticta senegala*).—Entirely crimson, except on the wings and tails, which are brownish; bill red; minute white spots

on the sides of the breast. Female pale brown, nearly white underneath. Very commonly imported, and delicate at first. It is desirable to put it in a cage well sheltered against cold winds and draughts, and get it used gradually to fresh ant cocoons and avoid dampness in the cage. Once acclimatized, it is a hardy bird. It is the best nester of all Waxbills, and quite easy to rear.

Habitat : West Africa, Senegambia.

Brown-headed Fire-finch (*L. bruneiceps*).—Similar to the above, but with the hind neck brown like the wings and tail.

Habitat : Tropical and South Africa.

Bar-breasted Fire-finch (*L. rufopicta*).—Front and under parts vinaceous pink ; white bars and spots on the breast ; tail-coverts and rump pink ; upper parts brownish grey ; bill red, pale at the base. Female similar, but wings browner and fewer white spots on the breast. Rather rare ; it is hardy and breeds easily. Delicate on arrival.

Habitat : Senegal, Gambia, Congo.

Dark Fire-finch (*L. rubricata*).—Hind neck grey ; back dark greyish brown ; rump and under tail-coverts dark red ; head and breast crimson, the latter with white spots ; under parts and tail black ; bill blue above, red below. Female pale, with yellowish belly. Very rare in captivity ; it is a hardy bird when acclimatized.

Habitat : South-East Africa.

Jameson's Fire-finch (*L. jamesoni*).—Upper parts brown tinged with pink ; cheeks and under parts pale pink ; a very few white spots on the sides ; middle of belly and vent black ; rump bright crimson ; tail black, fringed with crimson. Female similar, but paler.

Habitat : South-East Africa, Zambesi.

Rare Fire-finch (*L. rara*).—Upper parts, head, and breast vinaceous red ; wings dark brown ; rest of the body black.

Habitat : Equatorial Africa.

Peter's Spotted Fire-finch (*Hypargos niveiguttatus*) is a beautiful bird, larger than the other Waxbills mentioned above. Cap brownish grey ; back reddish brown tinged with crimson ; rump, cheeks, and breast scarlet ; remainder of the body black, with white spots on the sides. The female is yellowish brown, yellower on the under part,

with a few white spots. It is an excellent aviary bird, very hardy. It is found now and then in consignments arriving at Marseilles.

Habitat: Equatorial Africa down to the Equator.

Melba Finch (*Pytelia melba*).—Front, cheeks, and throat scarlet; rest of the head grey; back and wings olive green; tail blackish and red; rump crimson; breast orange yellow; belly dark grey, lined and spotted with white. The female is duller, the scarlet of the face being replaced by ashy grey; throat pale grey, streaked with white. It is a hardy bird, easy to acclimatize; has been bred only once in England. Generally, young ones are abandoned by parents after their birth. A very insectivorous species.

Habitat: East Africa and Eastern South Africa; imported birds come from the latter parts.

Red-faced Waxbill (*P. afra*).—Differs from the above in having less bright colour; the throat is grey and the belly is olive brown streaked with white. Female without red in the plumage. Very rare, but has been imported several times. Breeds more easily than the Melba Finch, and has crossed with the Aurora Finch.

Habitat: East Africa, Nyassaland, South Abyssinia.

Aurora Finch (*P. phænicoptera*).—Upper parts ashy grey; head and nape streaked with dark grey; wing, rump, and tail crimson; under parts ashy grey, streaked with whitish; bill black. With the female the streaks on the belly are neater. It is often imported and has nested many times, but the rearing of the young is not an easy matter.

Habitat: West Africa.

Red-faced Aurora Finch (*P. hypogrammica*).—Similar to the above species, but with red mark on breast; the cap is sometimes spotted with red. The hen is similar to that of the Aurora, but has the quills bordered with yellow. Occasionally imported into Germany and very rare in captivity.

Habitat: West Africa, along the Niger River.

Dufresne's Waxbill (*Neisna dufresnei*).—Cap grey; cheeks and throat black; mantle and wings dark olive green, sometimes tinged with pale yellow; rump orange red; tail black; under parts pale grey, with an orange yellow patch on the middle of the belly. Female similar,

but with no black mask. Very delicate on arrival, but not difficult to breed in captivity.

Habitat: South Africa.

The Quail Finches differ from other Waxbills in the shorter tail and long toes, adapted to walking on the ground. They are terrestrial birds, living in the long grass and nesting on the ground. Two species, with numerous varieties, have been described.

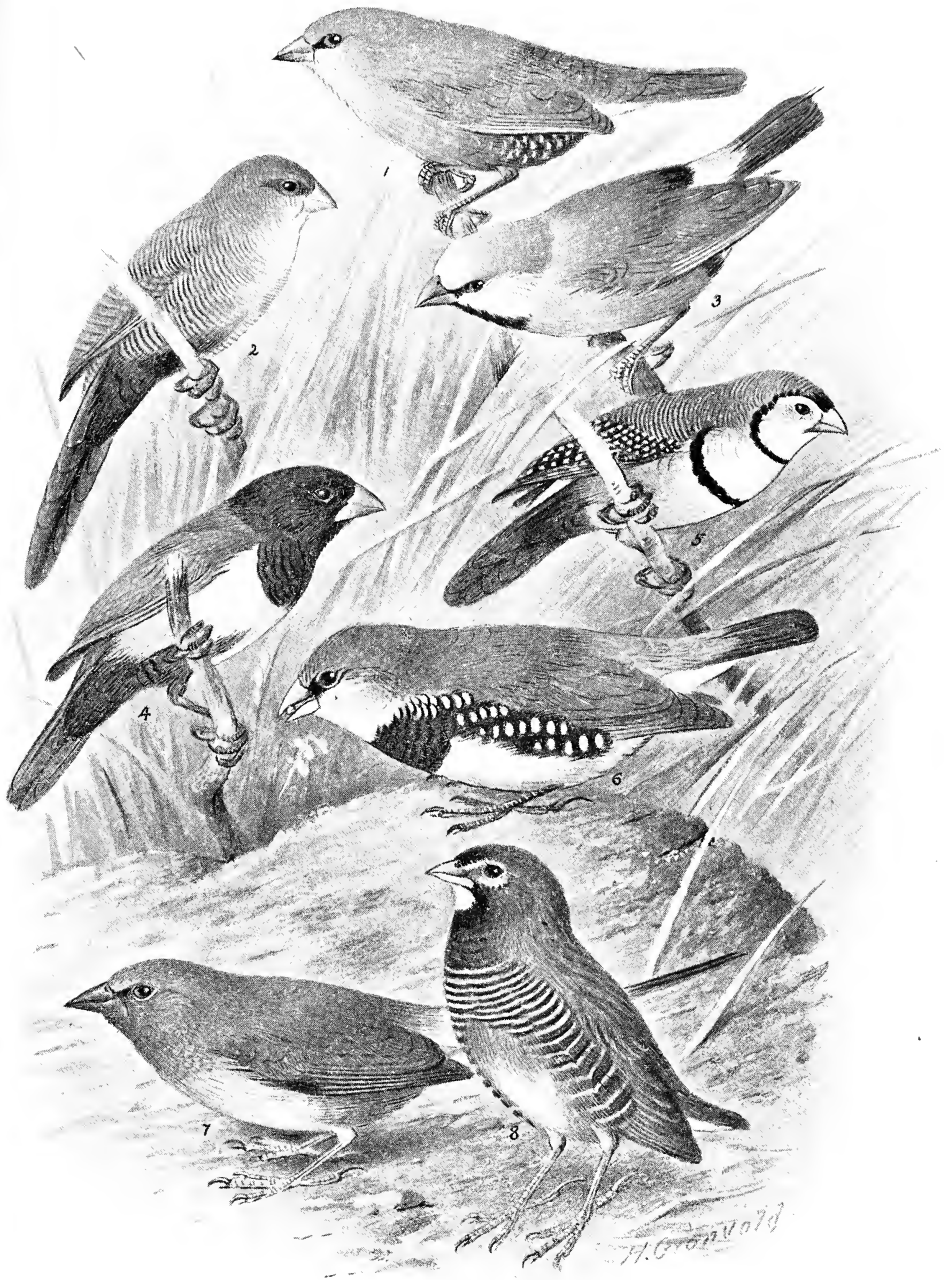
Black-masked Quail Finch (*Ortygospiza atricillus*).—Front and face black; upper parts dark brownish grey; tail very dark grey; sides very dark grey or black streaked with white; breast reddish chestnut, and vent white. Female with no black mask. Delicate on arrival. One must give them sand when they clean their feathers and feet. Fears dampness.

Habitat: Senegambia, Gaboon.

Spectacled Quail Finch (*O. polyzona*).—Similar to the above species, but slightly larger and with white round the eye; chin and lores white; females have no black on the breast. Behaves in captivity like its relative. Both have been bred without difficulty in grassy aviaries.

Habitat: South Africa.

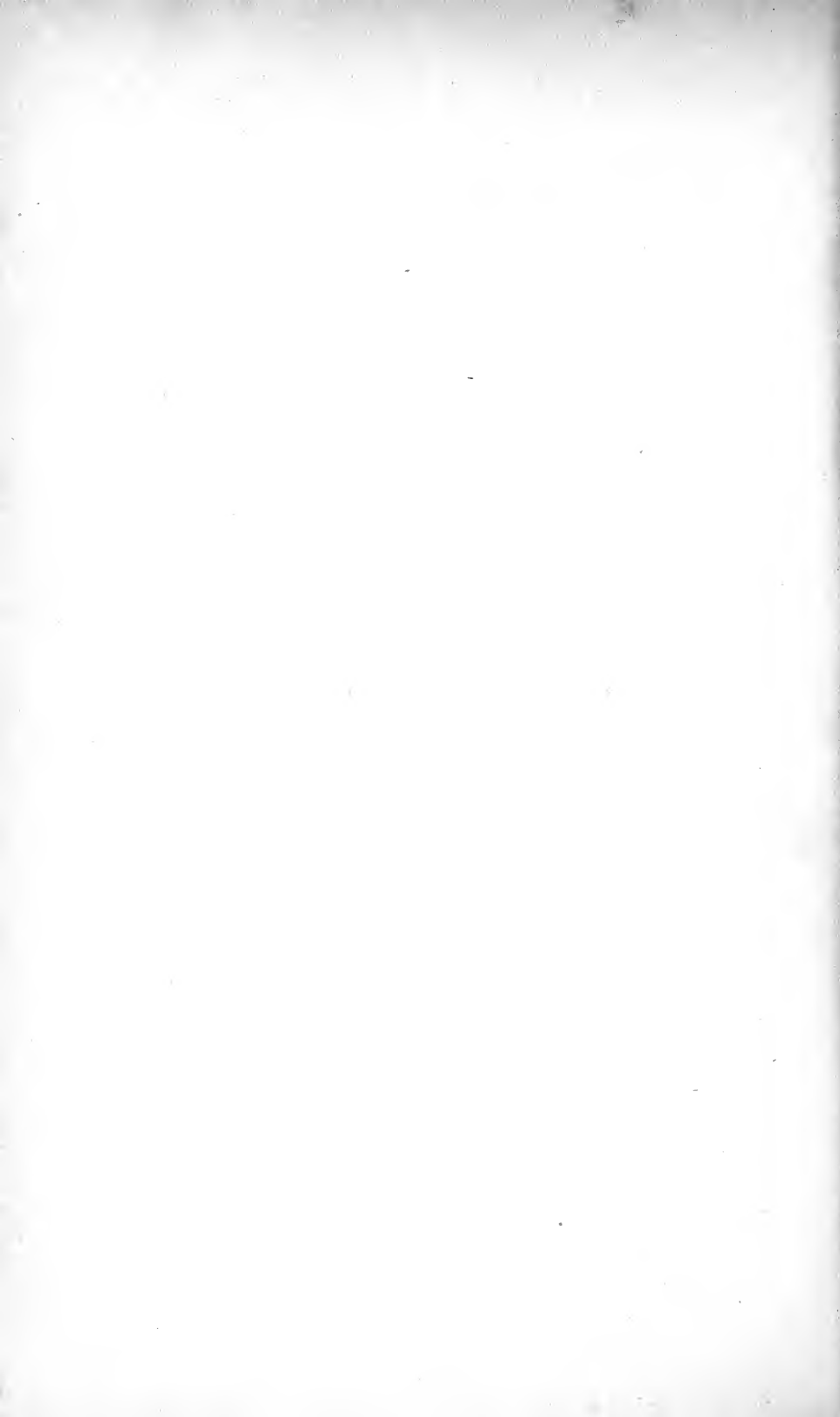
(To be continued.)



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1. *Lavender Finch.*
2. *St. Helena Waxbill.*
3. *Parson Finch.*
4. *Three-coloured Mannikin.*

5. *Bicheno's Finch.*
6. *Diamond Finch.*
7. *Pintail Nonpareil.*
8. *South African Quail-Finch.*



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BREEDING THE LILAC-CROWNED FRUIT PIGEON

By CAPTAIN H. S. STOKES

It seems that but few Fruit Pigeons have been bred in captivity, and the one in question never before in this country, and it is therefore very pleasant to be able to record a success with it in our aviaries this season.

The Lilac-crowned Fruit Pigeon (*Ptilopus coronulatus*) inhabits Aru Island, New Guinea, and the following is an abbreviated description of it from the British Museum Catalogue: "Adult male green with golden reflections; pileum rose-lilac, edged posteriorly with deep purple and surrounded with a yellow band; sides of head greyish-green; chin and throat yellowish; a patch on the middle of abdomen lilac violet; vent and under tail-coverts yellow; wings glossy green, with slight bluish tinge; quills and greater wing-coverts edged with yellow; tail above glossy green, the feathers edged with yellow towards the tip; tail below grey, bill olive green; feet purple red; irides with an inner circle red and an outer one yellow. Length 7.86 inches. Tail 2.55 inches. Female like male, but yellow of abdomen and under tail-coverts paler. Young, pileum green and no lilac-violet patch on middle of abdomen."

One pair came to us last winter, and were turned into a heated aviary with a garden flight, in which are a mixed collection of soft bills ranging from a Mynah to a Shamah, and mostly odd cocks.

From this it will be seen that no special provision was made for breeding the Fruit Pigeons, nor was the idea of it entertained. However,

the birds settled matters for themselves, and at the end of May we noticed them exploring nesting sites indoors and out. Some extra boxes were accordingly put up indoors, as the weather was bad, and they at once chose one nailed to the beam in the ceiling, fairly deep and with no cover, and filled with straw. From 6th June the cock and hen sat in turn, and never left the nest for a single moment, so that it was impossible to see the eggs. Incubation took eighteen days, and on 24th June we found the shell of the one egg laid thrown out, and were allowed by the parent bird to lift its wing and see the naked squab. On the eleventh day after hatching the young bird was sitting on the edge of the box, so we hurriedly removed an inquisitive Black-necked Grackle from the aviary and stretched a piece of sheet below the nest to catch the precious youngster if it fell over. However, this precaution proved needless, for the next day it left the nest and flew strongly across the house on to a branch. The old birds proved model parents, and firmly drove off any other bird which attempted to approach; indeed, a Bell Bird recently let out of its cage was attacked with such fury that we had to catch it up again. When about 14 days old it was interesting to see that the young bird in spite of some yellow down had already the same colouring as its parents, and, contrary to the B.M. Catalogue description, showed clearly the lilac patches on head and abdomen. These, however, seem to have disappeared later, and at the end of a month could no longer be seen. At five weeks old the young bird was quite steady and its tail full grown, and as the parents are again looking at nesting-boxes we have hopes of rearing a second young one this season.

It seems advisable to provide these birds with a choice of fairly deep open boxes filled with bents and straw, for one pair carried no nesting material of their own, and those at the London Zoo, also not troubling to make a nest, laid their egg in the middle of a mown grass patch in the Summer aviary, whence, of course, it quickly disappeared.

As regards food, we give apples and bananas cut up into small dice, soaked apricots and currants, and sponge cake floating in Nestle's milk diluted with boiling water—of this last the Pigeons have taken a large quantity while feeding their young, and they also eat a little of the insectile food provided for the other birds.

NESTING OF THE WHITE-EARED SCOPS OWL

By ETHEL F. CHAWNER

About this time last year I bought a pair of White-eared Scops Owls which had just come over from South Africa. One was a handsome large specimen, the other smaller and darker, obviously a young bird. They settled down quickly and agreed well together, but there was nothing either in appearance or behaviour to denote sex, and I felt very doubtful as to whether they were a true pair. Early this spring a broken egg was found on the floor of their aviary, doubtless dropped from the perch, but for some time nothing further occurred, and the birds showed each other none of those attentions which are customary in the breeding season. Therefore I was surprised on the 14th April to find the smaller bird most uncomfortably bestraddling an egg which she had laid on the flat top of a wooden cage, where it must infallibly roll off as soon as she moved. I may say that I had some time ago provided a choice of nesting-boxes, barrels, etc., calculated as I thought to catch an Owl's fancy, but they were not even considered. I moved the indignant mother and her egg into a place of safety, but she would have none of it, and sat on a perch looking the picture of woe. I then put the egg in a box lined with sawdust and touchwood, and tried to induce her to use this, but in vain; so, in despair, thinking that it was hopeless, I put the egg into an old enamelled iron pie-dish, in which I carry grain to the fowls, and left it, meaning to return and fetch it away. When I came back half an hour later I found Madame comfortably settled in the dish and evidently prepared to stay there. She became very fierce, and attacked without hesitation everyone who ventured near her. She was extremely quick in her movements, and always went straight for one's face. The cock confined himself to threatening attitudes and much bad language, but he would always take a mouse or sparrow from my hand and fly with it to his mate.

In all she laid four eggs, counting the first one laid from the perch, but, as is usual with Owls, started incubation at once. She sat four weeks, hardly leaving the dish for more than ten minutes in the 24 hours, and was back like a flash if anyone ventured to peep even from outside

the aviary. One egg hatched on the 19th May; of the others, one disappeared, probably addled, and one was accidentally thrown out by the hen when she left the dish one evening. It was fertile. From this time until the chick left the nest its mother attacked everybody at sight. When it was necessary to go in to feed them or remove pieces I had to protect myself by putting a waste-paper basket over my head. The chick was covered with pure white down for the first week or ten days of its existence, then it gradually became grey as the new feathers pushed their way through the down. Its eyes did not open until it was nearly a fortnight old.

Everything went well with the ménage, and the chick grew rapidly; its food was chiefly field-mice, which abounded just then; as usual, it was always ready for more, and kept its parents hard at work supplying its needs. Only the hen incubated, the cock waited assiduously on the nursery, but his duty was accomplished when he had brought in all the food which was provided. The chick left the nest on 17th June, by which time it was well feathered. There was no intermediate plumage; it passed from down to a pale replica of its parents, except that the long "ears", which are so characteristic, had not begun to grow, and its cheeks were pale grey instead of white. It did not begin to feed itself until it was nearly two months old; even now it will sit beside its mother and coax her to feed it though quite able to break up a mouse or young Sparrow for itself.

One thing rather surprised me. I imagined that the bobbing up and down and twittering which the old birds indulge in when they expect to be fed was a survival of the nestling call, but the chick did nothing of the kind, and has only just begun to develop this habit. Its hunger call was a low hissing croak.

My birds have no use for water, and it is a mystery how they keep themselves so spotlessly clean; their under-parts are positively snowy white. They very rarely come down to the ground, and *never* pick up food which has dropped even when they are hungry, though if the morsel be picked up and handed to them they accept it. The hen is fond of cockchafers and hawks them cleverly, but the cock disdains them. They are not difficult to feed, will eat mice, kittens, birds, and rabbit, but they will not touch anything that is not quite fresh.

They spent last winter in an unheated covered aviary where they are quite dry; they appear to feel damp more than cold.

The eggs were the usual Owl type, white, round, and large for the size of the bird.

THE BREEDING OF AZARA'S CONURE (*PYRRHURA CHIRIPEPE*)

By WM. SHORE-BAILY

My first acquaintance with this pretty little Conure was in Hayter's bird store in Southampton. I usually make a practice, when in Southampton, in calling at Hayter's, and one fine morning in the spring of 1922 was rewarded by finding that he had just received a consignment of Parrakeets from South America. There were several species all mixed up together, and amongst them were three or four pairs of the birds about which I am writing. Mr. Hayter did not know to what species they belonged, but was quite certain they were rare, as he had not met with them before. After a little haggling, I took away four of them. As with most of the Conures, the sexes are alike, so I was uncertain as to whether I had secured pairs. However, on being turned into an outdoor aviary with a good shelter, they agreed very well together, although they made no attempt at pairing; and I am inclined to think that they were birds of the year. After a few months, one of them died, so I was able to make a thorough examination of its plumage, etc. From this inspection, I came to the conclusion that they were Pearly Conures (*Pyrrhura perlata*), although in two or three respects they differed from the description given in Mr. Seth-Smith's book. In the autumn I took the three survivors indoors. I was now convinced that I had a true pair, as two of them were always together, and drove the third bird away when it tried to associate with them. Later in the autumn I obtained in exchange from one of our members another of these birds. It was described as a St. Lucien Conure, but it only differed from my bird in its slightly larger size, which was due undoubtedly to its age, as it was an old bird. When I turned this bird in with the others there was a great commotion, as it did its best to slaughter them, and would have succeeded, too,

if I had not opened the door of the cage and suffered them to escape into the room. After this I had to keep it in solitary confinement, and I finally lost it, I think from pneumonia. Shortly after this I lost one of the others, so I sent its body to the British Museum, asking them to name it for me, and their report was that it was Azara's Parrakeet, from the United State of Colombia, and it is probable that it is a first importation.

My two surviving Parrakeets were a quarrelsome pair, and I was much afraid that they were both of one sex. However, I gave them a nest-box, which they promptly occupied, and for the next three or four months they were little seen. Periodical inspections of the nest-box revealed no eggs, and I was convinced now that I had two males, especially in view of their quarrelsome behaviour; so when I turned them into an outdoor aviary in the spring, I had little interest in their future career. However, on going over the aviaries on the eve of my holidays at the end of May, I chanced to look into their nest, and to my surprise found that they were sitting on five eggs. So I left for my holidays with the hope that one more success would reward our efforts in the Boyers House aviaries. On my return, on 22nd June, the hen was still sitting, but two days later a single young one hatched out, the other four eggs being infertile. This makes the incubation period about 30 days. The young, when first hatched, was quite naked, and remained so for nearly a fortnight, when the feather areas began to show. Feathering was a slow process, and there seemed little difference on my weekly inspections. Its body, however, grew well, and it was at five weeks old nearly full-grown. At this time its wing and tail feathers and a small patch on the top of the head were about all the feathers one could see when looking down on it from above. On 7th August I had a visit from our member Dr. Amsler, and we again inspected the bird in the nest, as well as it would allow us to do so. The next day it had left the nest, and there was great excitement in the aviary. Although its back was still quite bare of feathers and covered with fluff only, it was quite strong on the wing. At night it retired to the nesting-box. On 10th August I had the pleasure of a visit from our editor, Mr. Seth-Smith, and was able to show him both the parents and the young bird. At the time of writing, 28th August,

the young bird, although not yet fully feathered on the upper part of back, is quite independent of its parents. It is very amusing to watch it holding a big apple, of which it is very fond, in its claws. It would, I think, make a nice pet if kept in a cage.

THE ROMANCE OF A TROPICAL FOREST

By JAMES B. HOUSDEN

(Continued from p. 124)

Before my first trip into the forest, I was advised by my friends to watch for two things, "Crooks and Rattlers." Although I met with some strange people in the forest, I was always (as an Englishman) treated with the greatest courtesy, whether by Indian, Mexican, or Negro. Of Rattlesnakes I saw some very large ones, but not in the forest.

I was very anxious to see my first large snake in its native home. One morning I followed something moving quickly through the grass. I followed it for some distance, and then to my astonishment found my snake was a stray chicken, running away. Soon afterwards I had my wish gratified. In the thick part of the forest I had found a new nest with six beautiful blue eggs. I was trying to locate the owners of the nest, when quite suddenly just in front of me a large snake appeared, raised its head, and began moving it from side to side. I hardly know who was the most surprised for the moment, the traveller from across the water or the snake; I am afraid the former. I had only my walking stick to protect me, so stood perfectly still and watched this beautifully coloured dark snake. I moved slowly backwards, and was glad when I saw the snake making for a thick part of the jungle.

At another time I was with my nephew in another part of the forest, a beautifully wooded part covered with flowers, which reminded me of a country park at home; this extending for 125 miles to the Gulf of Mexico. We had just found in the long grass a dead cow. I was watching for the large flocks of Turkey Buzzards and other birds of prey that I knew would soon be there. (It was interesting to watch a large flock of Turkey Buzzards and Californian Vultures. The habits

of both species seem alike, and they often feed together on the same carcass.) While watching, my guide suddenly jumped back, and called out, "Look out, Uncle"; he had nearly trodden on a very large and beautifully marked snake. We watched it glide away into a thicket, and there join another snake of the same species.

There are two bird shops in the city of San Antonio, one kept by a Mexican; as the law prohibits trapping native birds, his stock consisted of canaries and a few Australian birds only. He advertises on his business card, "20,000 snakes shipped annually." Mexicans capture these snakes.

A friend of my brother's was riding in one of the street cars one day, when a Mexican came in and laid a sack on the floor which soon began to move. Said the friend to the owner of the sack: "Some live chickens in the sack?" "No," the man whispered, "guess I've half-dozen rattlers, taking them down to the bird shop." Our friend said that when he saw the sack move again he quickly changed his seat, and felt like rushing out of the car.

Although not "bird news", I should like to mention one other thing about snakes. There is a very remarkable show place in the city of San Antonio. Called the "Buckhorn", it was formerly a saloon, now a curio store. There are a great number of large pictures on view, viz. Indians, cowboys, deer, American Eagle, various flags, and others. These pictures are made with thousands of rattles of the rattlesnake, quite a unique exhibition.

During the three months I spent in these forests I met with many beautiful birds and their nests. One of the most beautiful was the Mangolia Warbler, called locally Black and Yellow Warbler; another of the sixty species of Warblers, known in the Southern States as the Bay-breasted Warbler, builds a beautiful nest in the swampy woods, the eggs being reddish-brown speckled on the larger end. The Black-neck Stilt breeds in abundance in the swamps. The Black-throated Bunting, locally called "Dickcissil", has a nest of beautiful blue eggs. The Bartram Sandpiper, locally known as "Quailey", is one of the prettiest of twenty-five species.

I have seen Scaled or Blue Partridges and the Bob White Partridge with the Virginian Nightingales feeding with the fowls in the chicken-

run. The Bob White takes its name from its call-note, and lays from fifteen to twenty pure white eggs; these two Partridges' habits seem exactly the same. The Browned Grackle, often called "Crow Blackbird", is very plentiful.

The Vermillion Flycatcher is a most beautiful bird. The handsome males of this species have, during the mating season, some very interesting habits. One of these is that of poising in the air, some twenty or more feet above the ground; when fluttering their wings and elevating their crests and the feathers of their body and tail, they repeatedly utter sharp and loud twittering notes and snap their mandibles together as if in the act of catching insects.

Of the many feathered songsters, the diminutive Cerulean or Blue Warbler, is one of the most beautiful and striking, especially the male, in his azure-blue back and pure white breast.

The Mexican Mocking-bird, another good songster, is known as "the bird of 400 tongues", as his music is so often an imitation of that of other birds.

(*To be continued.*)

THE GAME-BIRDS AND PIGEONS OF THE GAMBIA

By DR. E. HOPKINSON, C.M.G., D.S.O., Travelling Commissioner,
Gambia

(*Continued from p. 187*)

The Mandingo name for the Green Pigeon is "Puto-puto", and in some parts of the country the young are given a different name, "Této-préto." For a long time I thought that we had two species here, but now am almost certain that what I thought was a second is only a stage between the all-green plumage of the red-beaked young and that of the yellow-breasted adult. The full dress is probably not obtained till the bird is more than a year old: at any rate, I have seen birds in the intermediate plumage nesting and believe that they may do so also in that of the earlier stage.

The following is a description of an adult: The whole head, neck, throat, chest, and sides of chest greenish grey, sharply defined

in front against the upper margin of the yellow abdomen and against the olive of the mantle behind. The face and forehead are feathered right down to the beak and cere; there is no bald part. Back and rest of the upper surface, including the inner wing-coverts and upper tail-coverts, a light olive green. On the primary coverts is a clearly outlined patch, an inch or so in diameter, of purplish mauve. The border feathers of the whole upper wing-coverts are blackish grey, each feather bordered externally with lemon yellow, to form a narrow transverse bar of this colour across the wing. Of the flight-feathers the primaries are uniformly grey above, the secondaries grey with narrow lemon-yellow outer margins. The under surface of the whole wing, including the under wing-coverts and axillaries, is a beautiful grey blue. The sides of the body and thighs are French grey. The whole abdomen is bright golden yellow, the bird's most conspicuous feature fading into pale blue near the vent. The tail-feathers are above slaty blue, the terminal half-inch of each paler than the rest, below black with pale grey ends. The under tail-coverts are red-brown, more or less mottled or tinged with pale fawn or white, and consist of elongated pointed feathers. The bill is bluish-grey; the cere dull purplish; the legs, which are feathered nearly all the way down the tarsus, are yellow ochre, exactly the colour of good pie-crust. The iris is magenta with a mauve blue inner ring. Length $12\frac{1}{2}$ inches, i.e. about a third smaller than an English Wood-pigeon.

The *young* differ considerably from the adults. They are distinctly smaller and entirely lack the yellow breast, this part and nearly the whole of the plumage being green; the shoulder patch, too, is much smaller and a much paler duller mauve. The legs are as in the old bird, but the bill is pinkish grey with a sealing-wax base and cere. The iris is brown.

In the intermediate or semi-adult plumage, to which I have referred, the breast is yellow, but the patch is much smaller and paler than in the adult, and the rest of the plumage, both green and mauve, is altogether duller. In these birds the bill is pale horn-colour in life but turns blue-grey after death, and there is no wax-red base or cere. The iris is entirely magenta without any blue inner ring.

I have occasionally tried to keep these birds alive in confinement, but have never had any success, though one rains I remember there were three in Bathurst which had been taken from the nests and which lived for months at any rate. They were fed chiefly on well-boiled sweetened rice, and never had the chance of getting any of their natural food, the bush-figs. Those I have had I could never get to even look at rice or anything of the sort. They would eat readily ripe figs. etc., but the difficulty of providing a constant supply of this food soon put an end to the experiment. Others, however, have had better fortune, for I remember seeing African Green Pigeons at least three times in the Zoo, and sullen-looking uninteresting birds they appear to be in captivity.

As food, Green Pigeons are excellent, always fat and tasty, but like anything else one gets too much of, are soon tired of. I should not like to say how many I must have eaten in my time, but I know that the saying "No one can eat a Pigeon a day for a fortnight" has no meaning in the Gambia. Of Pigeons of one sort or other, two or three a day are more like the Protectorate chop-routine, and that too for months on end. If they do not appear as roast, stew, etc., they are sure to have gone into the soup. The skin when cooked is yellowish-green and the bones bright yellow.

THE GUINEA PIGEON (*Columba guinea* Linn.). 1766. "Guinea"
Range.—W. Africa, Senegambia, to Nigeria.¹
References.—Sw. BWA. ii, 212; HL. i, 69; *Ibis*, 1905, 359.

This, the largest Gambian Pigeon, is commonly called here the "Rhun Pigeon" because it is only found in those districts where the tall bulbous-trunked Rhun Palms (*Abyssus*) grow. On these, among the stalks of their huge fan-shaped leaves, the Guinea Pigeons roost and nest. They are, therefore, only locally distributed in the Gambia, but where found, are still not uncommon, though near wharves and "factories" they are certainly less common than they were ten to fifteen years ago, and during this period these places have increased enormously in numbers and size. These Pigeons, unlike most of our others, seem easily frightened by the near neighbourhood of man,

¹ The eastern race, *C. guinea longipennis* (Rchw.), ranges from N.E. Africa to Kilimanjaro.

although they are never much sought after by gunners, for their flesh is dry and tasteless at its best, and at certain times almost uneatable. One never sees them in flocks even where they are common, but in pairs or at times parties of never more than six, probably an old pair and two nests of young, as these remain with their parents for some time after leaving the nest. Such a pair or party keeps within comparatively narrow limits except when flying to and from water. With them and with the Rhun Palm is commonly associated one of our Grey Hawks (the Rufous-necked Merlin, *Falco ruficollis*, I think), which also nests in these palms and which appears to live in perfect peace and harmony with the Pigeons, even to the extent of a pair of each making use of the same tree for breeding purposes.

The flight of these Pigeons is comparatively slow and accompanied with frequent wing-beats as a rule, though at times when flying to water they put the pace on and fly more strongly. They can often be seen wheeling slowly about the tops of the palms, much as tame Pigeons do about the house-tops at home.

Their note is a rapidly repeated "Koo-ku-ku-ku", the later coos getting shorter and shorter and following one another more quickly.

They do quite well in captivity and are fairly commonly imported, generally under the name of *Triangular-spotted Pigeon*, but here they are rarely caught by our people, few of whom are either real hunters or keen bird-catchers. Their Mandingo name is "Kallawàri".

The most noteworthy features of this bird are the bifurcated neck-feathers, the white triangular wing-spots, and the striking contrast between the clear grey of the back and the maroon-brown of the wings, etc.

An adult may be described as follows: The head, whole back including the upper tail-coverts, and the under surface from chin to vent are a beautiful clear ash grey. A broad collar of chestnut and white feathers, each bifurcated at its end, surrounds the neck. The scapulars and adjacent part of the wing-coverts are uniform maroon brown, the median coverts maroon brown with a triangular white mark at the end of each feather, the lowest row of coverts and those near the outer edge of the wing are grey with similar white tips which diminish in size from within outwards.

The quills are dark grey both above and below, and the under wing-coverts ash grey like the breast. The tail-feathers are ash grey, faintly banded once with darker grey and broadly tipped with black. The bill is lead-coloured, the legs pink in front, dirty flesh-colour, as are also the toes behind. The iris is dull pale amber. The large bare circumorbital area is purplish crimson. Length varies from 14 to 15 inches according to the age (and perhaps the sex) of the bird.

The young resemble the adult except that the plumage is generally duller and the contrasts less marked, while the tail-feathers are definitely brown tipped with darker, instead of the grey and white of the old bird.

THE RED-EYED DOVE (*Streptopelia semitorquata erythrophrys*)

Turtur erythrophrys Swainson. 1837

Range.—West Africa; Fernando Po (C. Grant, *Ibis*, 1915). C. Grant (loc. cit.) recognizes three races of *S. semitorquata*. These are in order of size, the first the largest—

S. s. semitorquata. *Turtur semitorquata* Ruppell, 1835, N.E. and E. to S.E. Africa.

S. s. erythrophrys (Sw.), W. Africa and F. Po.

S. s. shelleyi, Salvadori, 1893, "Niger."

References.—Sw. BWA. ii, 207; pl. xxii; C. Grant, *Ibis*, 1915, 42.

The "Black Pigeons", as these birds are generally called here, are very common in the Gambia and numerous nearly everywhere and at all seasons, except for about the first two months of the dry season, middle of October to middle of December. During the groundnut season (Christmas onwards) they are especially plentiful and feed largely on these nuts, which they swallow without cracking the shell, their gizzards, I suppose, dissolving what their comparatively weak beaks cannot break. At other seasons they feed in the corn and rice fields, and when nothing else is obtainable, as in the rains, on the different berries and fruits of the bush. At the beginning of the rains, June or July, largish flocks appear in Bathurst, all travelling more or less northward and following the similar but larger flights of Green Pigeons. From this time till about the end of the rains one sees but few, and I

think that a good many must leave us for this season. At other times, however, they are strictly resident birds.

In their ordinary daily habits, too, they are among the most regular of birds. In certain places one is practically sure of finding them every day at one particular hour, while morning and evening they go almost to the minute to drink at their favourite watering places. On these occasions one notices that they usually precede the other smaller Doves and are much quicker over the business than they are. The bird arrives, settles on a tree, preferably a dead one, near by, and surveys the surroundings. If all seems well, down he comes to the water, hovers for a moment only before alighting, and then settles and rapidly drinks his fill. In half a minute at the outside he is satisfied and at once away. There is no pottering about before approaching the water, taking a peck here and a peck there, and then, when the water is at last reached, taking a sip here and there and moving from place to place, as is the way with Ringnecked Doves. Another interesting thing about their drinking habits is that they are apparently quite satisfied with (if not actually fond of) brackish water. They come down in the evening in many places to the pools among the Mangroves and certainly drink from such. At one or two places this habit provides as good pigeon-shooting as one wants. One place where it is particularly good is Kafuta. Here the water in the creek is almost quite salt, almost more than brackish, yet the "Black Pigeons" come in large numbers every evening to drink there. The creek is fringed with tall mangroves, and as the birds come over these flying their very best they give great shooting. Another place which attracts numbers of "Black Pigeon" is a line of slightly brackish lagoons among the coastal sand-dunes near Tujureh, and I know of others, but these two are, I think, far and away the best, and certainly the most certain, providers of sport.

Taken altogether, our Pigeons and Doves provide quite good shooting when one can get them properly fighting. The "Black Pigeon" under these circumstances is probably the easiest of all to hit, as his flight is nothing like as fast as that of the smaller Ringneck Dove; and too he generally flies straight, whereas the latter not only goes about twice the pace but twists and turns if alarmed or

apprehensive. The fastest of all, however, is the migrating Turtle-dove, which moves like a bullet and twists like a Snipe, but these are only to be found in a few places and on a few days in each year. They do not, like our resident species, provide a regular supply either of sport or of food. From the latter point of view I like the Ringnecked Dove best, and then either the Green or the Black Pigeon, bracketed equal: sometimes I think one the best, sometimes the other. Just before the rains the flesh of the "Black Pigeon" is often very bitter and unpalatable, apparently due to the fact that they are then largely feeding on "Hira" fruit, small bitter berries of a small swamp-side tree. At other times, however, Pigeon enters largely into the Protectorate officials' menu, and they are pretty good evidence that there is nothing in the old saying "a man cannot eat a pigeon every day for a month". With most of us here in the Gambia Protectorate (the "bushmen" as the pampered house-dwelling headquarters people call us) very few days pass from November to June without Pigeon (or Pigeons) appearing on the table in some form or other.

These Pigeons make the usual ramshackle pigeon-nest in small trees and thorny shrubs, or in those places where a certain kind of Dwarf Palm grows in clefts where the leaf-stalks branch out from the main trunk. They are usually about 12 feet from the ground. Two white eggs are the clutch. The nesting season, I think, is from about March till July, that is, during the end of the dry season and well over before the heavy rains commence.

The Mandingo name of this Pigeon is "Bita-fin", from the note, which is syllabized by them as "biti, biti, biti-finn", and from the colour (fin = "black"). The more imaginative among them make a story about the call, and say that the cock is always scolding at his wife because her extravagance is always bringing him to court, and, to their ears, he says "lung-o-lung futa kiti, lung-o-lung futa kiti; Talata nongkong te'mfe" (in English, "every day the court is ready; by Tuesday I haven't sixpence"). This in print does not, I must say, look very promising as a rendering of a Pigeon's note, but pronounced as the natives do in a sort of throaty whisper, it is quite suggestive of the call, though not so actually like it as the "Bita-fin" phrase, or as is the syllabization, which appeals most to my ears: "Too-too: tutta-

tutt-too." In addition to this call, they also have a shorter sort of throaty chuckle. This the natives say, however, is that of the hen: her laughing answer to her husband's complaints. I do not know whether this is really so or not.

The following is a description of an adult shot in March. Crown and whole head blue grey; a half-collar of black on the neck; back dark grey; wing-coverts slaty, darker externally; flights dark brown with narrow pale edges; tail dark grey, almost black, all the feathers except the central pair tipped with bluish white, the area of white increasing from within outwards. Sides of face and neck pale grey washed with purplish pink, chin almost white; rest of under surface slate grey washed with pink on the chest and sides and becoming bluer on the belly; under surface of wings pale grey. Irides hazel. Eye-lids and bare patch in front of eye dull crimson. Bill dark grey. Legs purplish red. Length 13 inches.

From about April onwards a great many of the "Black Pigeons" one gets differ considerably from the above description of a typical Gambian example. These when on the wing look distinctly paler than the ordinary bird, and have not any proper claim to the epithet "black". In the hand too one sees that they are a much lighter bird, in which the upper parts are a much paler grey, almost a French grey, and the crown a bluer and brighter shade of this. The eye-lids and bare eye-patch too are fuller and a much brighter crimson. At first I thought we had two distinct species here, but now feel nearly sure that these lighter examples are the oldest birds, for one often gets a bird with plumage intermediate between the dark and light phases.

In young birds the upper parts are washed with brown, and the feathers of nearly the whole body have broadish pale edges. They are also distinctly smaller than the adults.

THE RINGNECKED DOVE (*Streptopelia vinacea*)

Columba vinacea Gmelin. 1788

Range.—West Africa, Senegambia to Loango; N.E. Africa (HL.).

The Ringnecks are by far the commonest Doves in the Gambia, and are found everywhere in large numbers—on the farms round the towns and in the rice-fields and the swamps in flocks of hundreds,

and in smaller numbers throughout the bush. They nest in low bushes in the most conspicuous and apparently dangerous situations, making a typical dove-nest, a scanty collection of small sticks, rootlets, and grass most flimsily flung together. Although so apparently reckless in their choice of nesting sites, this cannot, to judge from their numbers, have ever had any harmful effect on the race as a whole, and no doubt the fact that they usually select thorn-bushes, or if not actually thorns, bushes situate in the midst of thorn-clumps, has been their saving. African thorn-bush, "them bad prickle-places" as the boys call them, are quite enough to stop idle wanderers among them, especially in the rains, when their nature is hidden by leaves and long grass.

"Jekkitiao" or "Jettero" is the Mandingo name of this Dove, or more generally "Purà", the name for all or any Doves, which is often specifically used for this as being the commonest, but "Jettero" is its proper specific name and is derived from its note, a tri-syllabic "coo" which is supposed to resemble the word "Jettero". My own boys go one better than this, and say it is always sick and calling for medical assistance: "Doctor-oh, doctor-oh."

(To be continued.)

NOTES

By MRS. CURREY

WAGTAIL AND WINDOW.—I am very glad to have it confirmed in the June number of the *Avicultural Magazine* that it was probably his own reflection our little friend the Wagtail was attacking at the window. This suggestion had been made, but was scouted as an impossible one, that a bird should go on hammering at a window practically unceasingly for more than six weeks. The sequel is so curious that it is worth mentioning. After the six weeks we left home for a short time, and on the day we went the Wagtail ceased his visits to the window, and has not since renewed them!

A ROOK AND A LITTLE OWL.—A little incident in bird life that occurred a couple of months ago may be worth recording. We chanced to be in a field near the property of Nonsuch Park, where a man was watching some horses grazing. Suddenly a loud cry, exactly like

that of a child in pain, sounded from a high elm near. It was repeated, and a third time, and I noticed a rook from a rookery close by flying straight to the elm. Again the cry sounded, then all was still. "What was that cry?" I asked. "There must be a child hurt!" "Oh no!" answered the man, "that's a Little Owl screaming because the Rook's after him. The Rooks wage war on the Little Owls, and the little silly always lets his enemy know where he is by crying out!" I never heard of this before, and wondered if it were a fact. Poor Little Owl!

A FAMILY PARTY.—One afternoon at the end of June I chanced to be walking along the public footpath leading over the fields of Ewell Castle. I had just gone through a gate, on the left of which is a little plantation of bushes and a tree or two, when suddenly a hen partridge started up at my side and ran almost across my feet towards the plantation, then tumbled over, dragging a broken wing, and stumbling with a lame leg, uttering terrified cries. At first I thought the bird was really hurt, as it seemed so helpless, and went after it. Her cries called her mate, who, with outstretched neck and loud cries, came rushing up to the bushes where the hen was hiding. Suddenly he saw me (I was standing still to watch), and in frantic excitement made off, running and flying up the field to a bed of nettles, followed by the hen, who now ailed nothing. I then turned off the path at right angles, when, whish! out from under my feet came a covey of about nine chicks, who scuttled off into the next field, uttering their little cries. The parents meantime remained perclus in their nettles, of course with both eyes wide awake as to the fate of their young! I was so sorry to disturb the little family party, but why choose a public path to brood close to in the sunshine!

WHEN motoring over the Hog's Back on 10th June, a little Hawk suddenly swooped down from higher regions, and remained hovering for quite a minute or two at the height of about five feet from the grass by the wayside, before it pounced on its victim. It was quite unconcerned by our presence, for it was only a couple of yards away!

CORRESPONDENCE

RED-CAPPED PARROTS

SIRS,—I received from Mr. Rogers in the beginning of August two pairs of Red-capped Parrots (*Pionopsitta pileata*), of which species a coloured plate was published in the Magazine of October, 1905, from a painting by H. Goodchild. I have seen none since then until now, and I rather believe none have been imported. It is a charming species, quiet and gentle. One of the males I have now will sit on my hand, allowing me to take him *in* my hand from the cage. The rich green of the whole body with the blue edging to the shoulders and the cherry-red cap, make a fine display of colour. I fancy my four birds are members of one brood, and are evidently young. The species is much the same size as a Senegal Parrot, or Meyer's.

There are at least seven other species of the genus *Pionopsitta* in South America.

The Red-capped is a native of South-east Brazil and Paraguay. *P. pulchra* sounds attractive in West Columbia and North-west Ecuador. Also *P. pyrrhops* (Red-faced Parrot), West Ecuador. There are so many species of Parrots in South America which no aviculturist has ever seen alive, for instance, the members of the genus *Urochroma*.

HUBERT ASTLEY.

COLOUR-FEEDING

SIRS,—Birds that lose their colour in captivity, such as Bullfinches, Red Cardinals, Sepoy Finches, etc., should be fed on a good "colour" food during the moult, and for a few weeks before the moult sets in. A Red Cardinal and a hybrid Hooded Siskin and Canary that I have are brilliant owing to this food. The Cardinal is in a cage and I never saw one of a brighter or more glowing colour. The food not only works this result, but is also strengthening at a period when the system is weakened.

HUBERT ASTLEY.

WAXBILLS, MANNIKINS, AND AUSTRALIAN FINCHES

By A. DECOUX

(Continued from p. 198)

II. THE MANNIKINS

A. *Spermestes*.—The Pied Mannikins or Nuns of the genus *Spermestes* have strong and rather long bills, short wings, short and rounded tails, legs and feet rather strong, long and slim nails. They are not so graceful as the Waxbills; their size is rather larger, their hues darker and duller, grey, black, brown, and white being the dominant colours of their plumage. Males and females are similar. These birds build nests similar in shape to those of the Waxbills, but larger and more shapeless. Their eggs are white. Young ones are fed partly on insects, partly on seeds half digested in the crops of the parents. They are less mischievous than Waxbills, and consequently need less care and attention during the breeding season. In confinement they often succeed in rearing their young on insectivorous food, bread and milk, and seeds softened in water. Most of the Spermitine Mannikins are very apt to breed in captivity. Unfortunately they are disagreeable companions, chasing and bullying weaker birds in the nesting season and sometimes killing them. With stronger birds they are more peaceful, and as they are very hardy, most of them being capable of living in an open aviary all the year round, many aviculturists are keen on them. They seem to be, however, less popular than Waxbills and Grass Finches.

They all inhabit Africa.

Bib Finch (*Spermestes nana*).—Front and throat black; head, back, and wings earthy brown; tail black; underparts grey, mixed with brown on the belly. Size of the Grey Waxbill. This little bird is not rare; much appreciated for its small size and the ease with which it breeds in aviaries.

Habitat: Madagascar.

Rufous-backed Mannikin (*S. nigriceps*).—Bill grey; head, neck, and throat black; belly and vent white; back and wings chestnut; sides

of the body black, lined with white; quills and rump black, spotted with white; upper tail-covert and tail black. Size of the Common Mannikin. This fine bird is rather rare, but breeds freely in aviaries; it is not a bully to other birds.

Habitat: East Africa, Natal.

Black-backed Mannikin (*S. poensis*).—Bill black; similar to the above, but its back and wings are black, instead of chestnut. Very seldom imported, it has not been bred yet in confinement. It is a hardy and a good-tempered bird.

Habitat: West Africa, Cameroons, Angola.

Two-coloured Mannikin (*S. bicolor*).—Similar to the above, but with no white spots on the wings and rump, and a grey bill. Not common in captivity; breeds well, and is not too quarrelsome in a large aviary.

Habitat: West Africa.

Bronze or Common Mannikin (*S. cucullata*).—Bill grey; head and throat black; underparts white, mottled with grey on the flanks; wings and back brown, with glossy black shoulders; tail black; rump and tail-coverts buff, mottled with blackish brown. Very commonly imported and hardy, it is rather a bully in the aviary, and breeds well.

Habitat: Senegambia, Congo.

Magpie Mannikin (*Amauresthes frigilloides*).—Head and neck black; back and wings dark brown; tail black; underparts white, with the sides of the body mottled with buff and black. Bill very long and strong. The size of a Goldfinch. Commonly imported, it breeds freely, is very hardy and bullies other birds terribly.

Habitat: West and East Africa.

B. *Munia*.—The Chestnut Mannikins of the genus *Munia* and related genera have thick bills, exposed and rounded nostrils, short wings, tail either rounded or sharp, feet strong, with well-developed nails. These birds live in more or less big flocks, among long grass and reeds. Their nests are covered and very large. They feed entirely on seeds and vegetable matter. The young ones are fed by regurgitation, and even the first days of their life are never given any animal food.

In opposition to the *Spermestes*, they are extremely peaceful and sociable in aviaries; but they are less inclined to nest. They are not so hardy and need some protection from the cold in winter. In most of

the species male and female are difficult to distinguish. These birds are met with in the south of Asia and neighbouring islands ; three are found in Africa and three in Australia.

Spice Finch (*Munia ponetulata*) is chocolate-brown, darker on the head ; belly without buff ; breast and sides of the body mottled with brown and white. Commonly imported, this bird seldom breeds in captivity, but proves hardy.

Habitat : India, Ceylon.

Many subspecies of this bird, *M. topela*, *nisoriaundulata*, *subundulata*, are found in neighbouring countries, and differ slightly in the mottling of the breast and flanks. Many are imported.

Striated Finch (*Uroloncha striata*), Sharp-tailed Finch (*U. acuticauda* and *U. melanopygia*).—These three birds differ little from one another. Their general colour is dark-brown above and white below ; head black ; according to species their plumage is more or less striated. These species are interesting in that one of them, probably *U. acuticauda*, is the ancestor of the following bird, which has been obtained by selection by Japanese aviculturists several hundred years ago.

Bengalee (*Munia domestica*).—Exists in three varieties. One is white all over, and the finest and rarest race ; the second one is white, irregularly marked with isabelline buff ; the third one is white, marked with chocolate-brown. Bengalees do not do well in aviaries, but are charming in a cage or a bird-room, where they breed freely. They prove very useful as step-parents of different Grass Finches.

African Silver Bill (*Aidemosyne cantans*).—Light-brown above, darker on the wings ; very pale buff, nearly white, below ; quills and tail blackish ; rump and upper tail-coverts blackish ; bill silver-grey. Very commonly imported ; breeds freely.

Habitat : West Africa.

Indian Silver Bill (*A. malabarica*) is similar to the African species, but is of a darker brown above and has pure white rump and upper tail-coverts. Same habits in captivity.

Habitat : India, Ceylon.

Cut-throat or Ribbon Finch (*Amadina fasciata*).—General colour brownish-grey, lighter underneath, mottled and spotted with blackish-

brown. The cock has a red collar on the throat from ear to ear which the hen lacks. It is a free breeder in captivity, but bullies weaker birds. There is a slightly different variety in Abyssinia (*A. f. alexanderi*), and another one in East Africa (*A. f. meridionalis*). The typical species lives in West Africa and is commonly imported.

Red-headed Finch (*A. erythrocephala*).—Size much larger than the above species, which it resembles, but the male has the whole of the head crimson and no collar; white scales on the breast. This bird has often been bred in captivity. I noticed it is inclined to live in society. It often lays unfertile eggs in confinement.

Habitat: South Africa.

Java Sparrow (*Munia oryzivora*).—Size of a Sparrow, with a big pink bill; head and throat, quills and tail black; cheeks white; rest of the body slaty grey shaded with pale vinaceous grey; belly white. Males and females are similar. It is a common bird in the bird-shops, though less so than before the war. It is rather peaceful in captivity, but seldom nests. Rice is a necessary article of its diet.

Habitat: Java, Sumatra; introduced into many tropical islands and countries. A pure white and very handsome variety has been obtained by selection. The white Java Sparrows breed more easily in aviaries. Unfortunately a good many of the young ones go back to the coloured type.

Chestnut Mannikins have a general chestnut brown colour; males and females are similar. There are many species, the following having been imported in more or less great numbers:—

Black-headed Mannikin (*M. atricapilla*) is of a uniform chestnut-brown, with black head, neck, and belly; bill silver-grey.

Habitat: Himalaya, Middle India.

White-headed Mannikin (*M. maja*).—Similar to the above, but with white head and neck, tinged with buff.

Habitat: Sumatra, Java, Malacca.

Black-throated Mannikin (*M. furruginosa*).—Similar to the above, but with a large black bib extending to the upper breast. It is less frequently imported.

Habitat: Java.

Three-coloured Mannikin (*M. malacca*).—Similar to the Black-

headed, but slightly larger and having the breast, upper chest, and sides of the body pure white. Less common in captivity.

Habitat: India, Ceylon.

All these Mannikins have similar habits. They are very peaceful and timid in captivity. Hardy enough to be wintered in a cold, closed aviary, they seldom nest, though the two commonest species have been bred several times.

The Australian Mannikins (*Donacola*) are just as good aviary birds as the commoner Indian and African species, but they are more active, and two of them breed easily in captivity; rather delicate when first imported, they prove very hardy when acclimatized.

Chestnut-breasted Finch (*Donacola castaneithorax*) has a grey bill; throat and cheeks black; crown of head and nape grey, streaked with dark brown; wings and back chestnut brown; tail ochreous yellow; under tail-coverts black; belly white, separated from the pale chestnut breast by a black line. Female similar, but duller.

Of the three *Donacola*, this species is the least free breeder; it has, however, been bred several times. It has a peculiar voice.

Habitat: Queensland, New South Wales.

Yellow-rumped Mannikin (*D. flaviprymna*).—Resembles the preceding species, but has a silver-grey crown and the whole of the underparts pale buff, almost white on the throat. The hen has a more slender bill. Very much inclined to nest in aviaries, very hardy and peculiar looking, it is seldom imported. Many came in 1913 and 1914, none since.

Habitat: North and North-west Australia.

Pectoral Finch (*D. pectoralis*).—Bill grey; cheeks and throat black, surrounded with buff; nape ashy grey; the remaining upper parts darker grey; tail dark brown; rump light grey; breast mottled white and black, as well as a narrow line on the flanks; belly very pale grey. The hen is paler and not so white on the breast. It is a very pretty bird, hardy, and long-living.

Habitat: North-west Australia.



RUFUS-NECKED WEAVER
(*Hyphantornis cucullatus*)

MADAGASCAR WEAVER
(*Foudia madagascariensis*)

DINEMELLI WEAVER
(*Dinemellia dinemelli*)

LITTLE MASKED WEAVER
(*Sitagra luteola*)

PYRENESTES WEAVER
(*Pyrenestes ostrinus*)

THICK-BILLED WEAVER
(*Amblyospiza albifrons*)

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OCTOBER, 1923

THE BIRDS AT CLÈRES IN 1923

By J. DELACOUR

The spring and summer of 1923 must be considered as one of the most detestable breeding seasons that we have experienced for many years, at least in Normandy. After some very hot days at the end of April and the beginning of May we had dreadfully damp and chilly weather. Even in the middle of the summer nights were often quite cold, the thermometer falling below 40 degrees at certain times. The result of such a temperature was either to prevent birds laying or to stop them when they had commenced, then to cause the death of many young or newly imported birds; cases of pneumonia were unusually numerous.

I bred no Rheas at all; the three pairs (four white and two grey birds) left together in the park produced over one hundred eggs, most of them unfertile; the males were continually fighting and never attempted to sit; I have since put each pair into a separate field and hope to be more successful next year.

In the spring a few Cranes were added to my collection: three white Asiatic and three European, sent from Calcutta by Mr. David Ezra; a pair of Crown Cranes from Sudan, through the London Zoological Society; these (*Balearica cecilia*) are very similar to the ordinary West African Crown Crane, but rather smaller, darker, and with redder cheeks.

Manchurian and Stanley Cranes proved troublesome in the spring, swimming over the lake to the islands where most of the Ducks nest

and destroying the eggs. They were all the worse for it, as one Manchurian and one Stanley died in two days, very likely poisoned by some bad eggs. Another year I shall fence with low wire these islands so that Cranes cannot get to them and Ducks can get under.

None of the Cranes mated properly, though a few eggs were laid by odd Manchurian and White-necked. The pair of Sarus behaved strangely. The full-winged male was very anxious to breed, and got much interested in Rheas' eggs. I was afraid he would disturb the Rheas, so caught the hen and put her in a large field, in view of the park, fenced by a hedge. I thought the male would soon join her and that the pair would settle there. At Brinsop Court, Mr. Astley's Cranes are kept in similar fields and never escape. Such was not the case here; the hen Sarus was out in the country ten minutes after. The male took his flight several times, but never alighted anywhere but in the park, though he was continually calling to the female. After several days the hen was caught and put into the park again. Shortly after the cock Sarus selected a Rhea's eggs and steadily sat for some five weeks; the hen took no interest in it. I removed the eggs, which were clear; a few days after he started incubating another, which I also removed after a few weeks. Had they been fertile I am sure he would have hatched them, and it would have been most amusing.

I had bred some Screamers in 1922; unfortunately the breeding female died in the winter. I have replaced her by a full-winged one, but no breeding took place this season.

The Blue Porphyrios (Indian and African) live well in the park, although some Indians died in the winter through frost-bitten toes; many are full-winged. They are rather timid, and often keep far from the water; they behave quite differently to our native Moorhens.

Two Trumpeters, one grey-backed and one ochreous-backed, arrived in the summer and have been so far kept in an aviary; I intend letting them out next spring. Pairs of Pink Chilian and Red Mexican Flamingoes were added to the little flock of eight ordinary pink ones. They had to be taken in every night during the early summer on account of the cold, which killed a Chilian female.

Ducks have done fairly well, although many species did not lay, or laid at unusual times, upset by that extraordinary temperature.

Anyhow, over one hundred were bred, including Yellow-bills, Spot-bills, Gadwall, Carolina, Chilian, American, and European Wigeon, Chilian Pintails, Pochards, Wild Muscovies, and White-faced Tree Ducks. The latter were bred for the first time in France ; one nest was found in June, and another one in August, with twelve eggs, out of which twelve ducklings came out under a hen ; all did very well until a fortnight old, when a savage *Spicifer* Peahen slaughtered half of them. The other six were reared successfully.

Bahamas and Cinnamon Teal were hatched, but crushed by clumsy hens ; it is curious that such accidents always happen to the rarer species. This was also the fate of three Ross's Snow Geese.

The Ashy-headed Geese have reared four young ones this year, which brings my little flock of these charming birds up to eleven. I have exchanged them with the Duke of Bedford so that our birds do not become too much inbred.

Some nice Ducks came to me during the year ; two consignments from India, including Fulvus and Javanese Tree Ducks, Comb Ducks, Crested and White-eyed Pochards, and, above all, a delightful pair of Cotton Teal, the only ones in Europe, since those that Mr. Astley kept for some nine years have disappeared. They have quite settled down in an aviary, and I hope they will live long. Another lot of Ducks arrived from South America, including several pairs of Bahama, Red-billed, Grey-breasted and White-faced Tree Ducks, Rosy-bills and Brazilian Teal ; among the Rosy-bills is a curious bird, very much like a female Rosy-bill, for which I mistook it at first, but more slender, of a uniform dark brown with white on the face and foreneck and a blue bill ; undoubtedly a hybrid, but between Rosy-bill and which species ? I suspect White-faced Tree Duck.

From Abyssinia I received a curious pair of Yellow-billed Ducks ; they are decidedly smaller, darker, and less mottled than the South African bird, and I think belong to some undescribed subspecies. I intend to make it clear as soon as I can. In the meantime I hope they will breed next spring.

Nothing extraordinary happened with gallinaceous birds. In spite of the weather, nearly one hundred were reared, among which were *Spicifer* Peafowls, Wild Turkeys, *Bankiva* Junglefowls, Monauls,

Cabots Tragopans, as well as common species. In the spring I procured a nice pair of Argus and one of Noble Pheasants (or Bornean Fire Backs), which arrived just in time to replace my two hens of that species, both of them having been killed by the cock the same morning in March. I need not say that such an awful "Barbe-bleu" was quickly sent away!

At the same time I received a lovely Java Jungle cock, while Mr. Astley took another one that arrived at the same time. My bird was quite adult and absolutely beautiful. I put with him a hen Yokohama Bantam; the Jungle cock was in breeding condition, and three hybrid chickens were hatched; but quite suddenly the cock caught pneumonia during a cold night and died in two days. Two of the little hybrids are now two months old, and I hope they are safe; I believe they are pullets, and if all goes well I will send them to Mr. Astley to mate them to his pure Java cock, and so try to breed back to the species.

During the collecting trip which I am about to undertake in the Far East, I hope to bring back a good number of interesting Pheasants and improve the European stock which has been greatly reduced in number of birds and species since the war.

I always keep numerous Doves, in aviaries and at liberty. A good many young ones were bred this year. At liberty, Australian Crested, Half-collared, Senegal Palm, Chinese Tigrine, and common Doves nested several times. They always increase enormously. But in the winter Owls kill quite a lot and others are chased away by the old breeding pairs, so that, in the spring, I am left with three or four pairs of each species only. Crested Doves seem to hold their own in spite of the Owls, and I never found that any had been taken by them. Brown Owls are generally the culprits.

In different aviaries the following species reared their broods successfully: Diamond, Bar-shouldered, Peaceful, Scaly, Martinique (*Zenaida*), Chinese Tigrine, and Madagascar. The two last named were sent to me from Mauritius, where they had been acclimatized, and they have bred within two months of their arrival.

Not mentioning Budgerigars and other common species, the only Parrakeets which succeeded in rearing young ones were the Crimson Wings, which bred a nice pair. They used the long "grandmother's clock" nesting-box.

The Parrots at liberty are doing very well ; they spend the winter outside without any shelter and fly all over the place. I have the following kinds : Blue and Yellow, Green and Red, and Military Macaws ; Rosy Cockatoos, Yellow-headed and White-fronted Amazons, Blue-headed Pionus, Black-headed Caique, Senegal Parrots, and Alexandrian Parrakeets. I also had a lovely Crimson-wing cock from Lord Tavistock. It unfortunately grew too fond of fruit and went to the cottagers' orchards in the village ; the result was that I found it one day shot in the wing. It has quite recovered, but I don't dare to let it out again.

I have very little to say about my smaller birds ; very few have bred this year. I still have some old cage-birds, such as my amusing talking Common Mynah, Indian Pitta, White-starred Bush Robin, Bicolour Cossypha, Brown-back Robin, Amethyst Starling, Roller, Giant Barbets, etc., to which were added last spring a nice Abyssinian consignment : Perlated Barbets (*Trachyphonus margaritatus*), Superb Spreos (*Spreo superbus*), magnificent Glossy Starling—blue and green above, chestnut below, with white chest and vent ; Dinemelli and Black-bill Mahali Weavers, Wattled Starlings. I should also mention a pure white Blackbird, a Lutino Blossom-head Parrakeet, and a delightful little Pigmy Blue Grosbeak from Mexico (*Cyamcompsa perellina*).

In October I shall leave for the East, and after some weeks in India, Ceylon, and the Malay States I hope to begin collecting both dead and live birds in the wilderness of North Annam, which is practically unknown at this point to me, and on my return, next summer, I shall tell our members what I could find in the country of the Reinhardt's Argus and Edwards' Pheasant.

BREEDING THE BENGUELLA SPARROW

(*PASSER JAGOENSIS BENGUELLENSIS*)

By W. SHORE-BAILY

This rarely imported bird is the largest of the Sparrows that I have kept, exceeding in size even that handsome bird the Cape Sparrow (*Passer arcuatus*).

My birds came to me, as I think I have mentioned in a previous article, as Mahali Weavers, but as at the time I had a handsome cock Mahali in my aviaries I knew that they could not belong to this species. I am indebted to the authorities at the British Museum for naming them properly. Very early in April they went to nest, using the same box, and in fact the same nest, in which the Cape Sparrows brought off a troop of young last year. As it was so early in the season I removed the eggs, which were similar to our own Sparrow's eggs, for my own collection. The hen quickly went to nest again, but the eggs proved to be infertile. About this time we had a lot of cold east winds, which affected the fertility of the eggs of most of the birds. After these two failures they took a rest, but went to nest again whilst I was on my holiday, for on my return I found two newly hatched young. These did fairly well, the old birds feeding them on any insects I could supply, as well as on bread and milk. They were a long time in the nest, probably three weeks, and when they left, took shelter in the thick cover, so that I did not get a good view of them. I could see that they did have a good deal of white on the wings and tail.

After a few days, the old birds ceased to come for insects and the hen started laying again, so I concluded that the young were dead, but I failed to find their bodies. They were probably taken by a beast of a rat that I found later on in the aviary.

Twelve days later, on 25th July, three young Sparrows were hatched. I now began to give the parents gentles as well as mealworms. I fancy that mealworms alone are too fattening. The old birds fed them very well, but a week later there were only two left in the nest, and a few days later one of these disappeared. The survivor now had a much greater chance, as it got all the insects its parents could catch, as well as those that I supplied, and I expected to see it on the wing at any time. However, I suppose that it found its nest comfortable as it did not leave it until 15th August, just a week later than a Grey Singing Finch that was hatched on the same day.

Two days before this I had the pleasure of a visit from Dr. Hopkinson, and we took the young bird from the nest and examined it. He says that he has not met with it in Gambia. It differed considerably from

either of its parents. Crown of head, nape and back greyish brown, ear coverts blackish brown, a similar coloured spot on throat, under parts dirty white, wings white save for the tips of flights, and a narrow brown bar across the coverts, tail brown with a broad white bar. I fancy that the colour of wings and tail must be abnormal, although two out of the three young Cape Sparrows I reared last year were very similarly marked.

I had the pleasure of showing the old Sparrows to Mr. Seth-Smith on the occasion of his recent visit, and I understood him to say that so far as he could remember they had not had them at the Zoo.

The following is a description of the adults: Cock, crown of head, neck, back, and rump rich chestnut, streak above eye, cheeks and sides of throat dirty white, streak behind eye, chin and throat black. Hen, duller, greyish brown on head and back instead of chestnut, and the throat spot not so dark.

My young one is, I am afraid, a male, but time alone will show. It looks very pretty in flight with its white wings, and not unlike a Snow-Bunting.

PESQUET'S PARROT

By DR. E. HOPKINSON

These notes are prompted by Mrs. Burgess's account, in last year's volume, of her bird, that originally imported in 1919 or 1920 by Lord Tavistock.

As to its name, according to the Catalogue its first was *Psittacus pecquetii*, Lesson, 1831, June; *Psittacus pesquetii*, Lesson, 1831 (later). *Dasyptilus pecquetii* with a *c* is therefore strictly correct.

Except for Lord Tavistock's bird, has this Parrot ever been imported since Lord Derby's time? That there was a living specimen in the Knowsley Park collection about 1840 is, I think, certain, though the bird does not appear in the list of the collection published in 1851. My chief authority for this, as on so many other avicultural matters, is Russ. In his Parrot volume (p. 641) he commences his account of the "Borstenkopf Papagei" (= Bristly-headed Parrot) as follows:—

"... was first described and illustrated by Lesson in 1831" from a

single specimen in his possession ; a second bird which was then living in Lord Derby's collection at Knowsly Park . . . was painted by Lear and later on Bourjot figured another example from the Massena collection."

The Lesson and Bourjot specimens were, of course, skins, but Russ definitely says "living" in reference to the Knowsley bird. The painting by Lear, which Russ mentions, is probably the plate in the Parrot volume of Jardine's *Naturalist's Library*, 1843 (*Nat. Lib.* xviii, 160, pl. 17). This illustration was made, the letterpress informs us, "from a specimen in the collection at Knowsly Park." Does this mean "living in" the collection! It must, unless Russ's "lebend" is an error. In Lear's illustrations of the Parrots this species is not included.

The remainder of Russ's account includes a full description of the plumage and quotations from the few writers who had seen the bird in nature, commencing with a Dr. Bernstein (1863), who had seen a living specimen at Ternate, which at first he thought to be a cross between a Lory and a Black Cockatoo, and concluding with a note that about 1875 Dr. Meyer kept two for many months, but which unfortunately both died before the time came for his return to Europe.

In Reichenow's *Plates of the Parrots* (1878-83, pl. 18) he says: "lebend ist er noch nicht zu uns gekommen" (that is to Germany).

Except once as a temporary guest (Tavistock's bird), the Zoo have never had it nor can I find any record of its ever having reached any other collection. In Neunzig's new edition of Russ (1921), this Parrot is not even mentioned, about the only omission of a species having any claim to admission, which I have so far found in this useful and all-embracing work.

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THE GAME-BIRDS AND PIGEONS OF THE GAMBIA

By DR. E. HOPKINSON, C.M.G., D.S.O., Travelling Commissioner,
Gambia

(Concluded from p. 215)

In general appearance and size these Doves resemble the common cage-bird the "Barbary", except that they are much darker. Like it they have the same black ring round the hinder three-quarter of the neck, but instead of the pale fawn of the cage-bird their general colour is dirt brown above fading into paler buffy brown below until pure white is reached at the vent and under tail-coverts. The crown, nape, throat, and breast are suffused with a delicate pale vinous shade. The wings are brown, a slightly paler shade of the back-colour. The upper surface of the tail is grey with the terminal half-inch or so of each feather white or whitish, except the two central ones, which are dirt-brown like the wings and have no white ends; the under surface is black with broad white feather-ends. The bill is black, the feet dull crimson, and the iris dark brown. Length 11 inches. The young resemble the adult except that there is more uniformity in the colour of the plumage and no vinous tinge on the head, etc.

TURTLE DOVE (*Streptopelia turtur*)

Columba turtur Linn. 1758. "England"

Range.—Breeds in Europe, Western Asia, and North Africa . . . also in Madeira and the Canaries . . . In winter it is found in North and North-East Africa. B.O.U. Hand List, 1915.

Although the Gambia scarcely comes within the winter range as given above, the Turtle Dove is certainly a Gambian bird, a winter visitor, staying with us as a rule only a few days on its northward journey and being most local in its haunts.

As no description of this well-known dove is called for, a reproduction of the notes may take its place.

I knew this Dove in the Gambia long before I knew they were Turtle Doves, and at one time had a wild idea they were hybrids. At that time I had only handled one and had not recognized it, but

later on it struck me that they must be Turtle Doves. About 1910 I sent some wings (and later a skin or two) to the British Museum, where they were identified as young Turtle Doves.

11th February, 1912. Ida, South Bank Province. These Doves are very numerous on the dry swamp near the landing place—nearly as plentiful here as the common Ringneck Dove. On the wing they look larger than these—the wings and tail conspicuously longer; the latter, too, shows much more white. Their flight is much quicker and more dashing.

1916. Turtle Doves are plentiful for days together at Ida, generally about February. They provide good but difficult shooting, as they fly very fast and anything but straight. Another place in the South Bank where I have had good Turtle shooting is Jarreng. Here on two or three occasions they have been coming over in flocks in the late afternoon, all flying north and very high up. This year it was on 1st May that I saw them, but in previous years it has been earlier: March or April. These Jarreng birds are all evidently definitely on their journey to Europe. At Ida, on the other hand, one finds them resting or loitering on the road, staying for days at a time; it may be weeks, but my movements always prevent me staying long in any one place. Here one sees them feeding on the ground with the Ringneck Doves during the day, but the time for good shooting is the evening, when they are flying from water to roost. They come through and over the low thorns and other scrub at a tremendous pace, zigzagging and swerving all the time. Most satisfactory shooting, especially if one is hitting them.

1918. This year I was at Ida the day they arrived, 12th February. On the 11th there were none, but during the following days their numbers increased, though they never became as numerous as they were last year about the same date.

I see occasional Turtles at other places, and in the South Bank, Province Ida, in February or March, and Jarreng, as passers-by rather later in the year, are the only places where I have found them in any number.

I have also seen occasional examples elsewhere in the Protectorate, but the chief thing about them in the Gambia is how locally they

distribute themselves and how constant as to time they are in their arrivals at the places they select as rests.

9th April, 1918. Jappini. Quite a number of Turtles to-day on the swamp here. Shooting "Black Pigeons" this evening at the cattle wells I dropped a Turtle Dove, and then saw that quite a lot were about, coming for their evening drink with the other Pigeons. Three days before I was shooting at the same place: not a Turtle Dove was there. I got six "Black Pigeons" and neither saw nor shot a Turtle. They have evidently just arrived. This adds another to the South Bank Turtle Dove places.

1920. Since I have been in the North Bank Province I find Turtle Doves numerous in similar places and at the same seasons as in the South Bank.

SENEGAL DOVE (*Stigmatopelia senegalensis*)

Columba senegalensis Linn. 1766. "Senegal"

C. Grant (*Ibis*, 1915, 44) recognizes three races:—

Stigmatopelia senegalensis senegalensis (Linn.), West, East, and South Africa; Arabia (probably).

S. s. aegyptiaca. *Columba aegyptiaca* Latham, 1790, "Egypt." Egypt and Palestine.

S. s. sokotrae, C. Grant, 1914, ". . . Sokotra."

References.—HL. i, 80; Dresser, B. Europe, vii, pl. cccclxv; Stark and Sclater, BSA. iv, 172; *Ibis*, 1915, 44.

These graceful brightly coloured Doves are in the Gambia essentially village birds. They frequent the yards and the immediate vicinity of the towns and villages, finding most of their food at the corn-beating places and rubbish heaps, and getting their water from the jars and coolers in which it is kept. Hence their usual Mandingo name, "Dumbukang-Purà," which means "Jar-rim Dove", and is (as far as Gambia is concerned, at any rate) a far more suitable name than "Palm Dove", as they are usually called in books and dealers' advertisements.

Their nests are nearly always in the thatch of huts or the flat-roofed grass shelters ("Kwiangs"), under which we all pass as much of the heat of the day as possible. Less often they lay in the forks of

large trees and occasionally select smaller ones, such as oranges or limes, in which they make the ordinary flimsy platform, which suffices most Doves' nesting needs. Nearly always the breeding takes place in the immediate neighbourhood of man and his dwellings, and in most places they still (in spite of the advance of civilization) enjoy absolute immunity from pillaging boys, as the guests of the community and under the protection of old customs.

One hardly ever sees any number together; they are practically always in pairs and are apparently the most constant of mates. They have two distinct notes, one a coo the other a sort of chuckle.

In size they are rather smaller and altogether slimmer birds than the Ringnecks, $10\frac{1}{2}$ as against 11 inches. The plumage is greyish pink above washed in places with chestnut; the flights are dull brown, the wing-coverts rufous internally, grey externally. The upper tail-coverts are dark grey, the tail grey, the two central feathers very dark, almost black, the others paler and tipped with white, the white tips being larger on the under surface than on the upper. The chin, throat, and upper breast are vinous, and round the sides and front of the neck is a collar of bifid black feathers, which are tipped with reddish mauve. The vinous of the chest fades into white on the belly and under tail-coverts. The above applies to the male. In the female the pattern is similar, but the colours are paler and less distinct, while in the young they are still more so with the greater part of the plumage washed with brown.

The iris is brown, the eye-lid dull red in the adult, grey just tinged with reddish in younger birds. The bill is slate-colour tinged with purplish, the legs dark dull red.

RUFIOUS-WINGED DOVE (*Turtur afra*)

Columba afra Linn. 1766

Range.—Tropical Africa. Two races are found in West Africa (C. Grant, *Ibis*, 1915):—

(i) *T. afra afra* (blue-spotted); West Africa.

(ii) *T. afra chalcospilos* (green-spotted); Tropical Africa generally.

References.—Stark and Sclater, BSA. iv, 180; Sw. BWA. ii, 210; HL. i, 83; *Ibis*, 1908, 434; 1912, 34, pl.; 1915, 19.

This Dove is (or was) commonly known among dealers as the "Emerald Dove", but this is a bad name (except, perhaps, for advertisement purposes), as it is based on the metallic spots to be found on the wings. There are two distinct races of this Dove, both of which inhabit West Africa, and in one the wing-spots are green, in the other blue. In the first, the green-spotted (*T. chalcospilos*), the spots are described as metallic golden-green, but even these are not at all suggestive of an emerald, while in the other race (*T. afra afra*) the spots are dark metallic blue—sapphires, perhaps, but not having the remotest resemblance to any green gem. All the birds I have handled in the Gambia have had blue (not green) spots. The epithet "emerald", too, can only cause confusion between this species and the "Emerald-" or "Green-winged Doves" (*Chalcophaps*) of the East.

They are common throughout the Gambia, where they are commonly seen in pairs in the bush, and are much more birds of the uncleared parts than of the cultivated areas round the towns. They spend much of their time on the ground, where they obtain their food, mostly grass-seeds and the like, but roost in bushes and low thick trees. They are very tame and usually will not rise till one is close to them, when they get up with a loud very Partridge-like wing-whirr and fly off with a rapid darting flight and a flash of rufous red as they spread their wings. Their note is a quadrisyllabic "coo", which is commonly translated into the words "better-go-home, better-go-home", a very accurate rendering, but one which can be very irritating when one is coming home after an evening with the gun which has been chiefly marked by a series of bad misses.

These Doves are easily caught and do well in captivity.

Description.—Length $8\frac{1}{2}$ inches, tail comparatively short. The whole crown clear blue grey, the forehead, lores, and chin white, shading into the grey of the crown. Rest of upper surface a rather mealy grey brown crossed on the rump with two bars of much darker (sepia) brown. The wing-coverts like the back, some of the postero-internal ones marked with one or two circular dark metallic blue spots. The flights are above burnt sienna brown, the outer two having sepia outer webs; in the next three (about) the edges of the outer webs and the ends are sepia, but the remaining feathers are only tipped with

this colour. The lower tier of the primary coverts are burnt sienna, like the flights, and tipped and edged with sepia. The under wing-coverts are burnt sienna, but not such a clear shade as that above, and the under surface of the flights is grey brown, each feather tipped with sepia. The upper tail-coverts are like the back, a few of the lowest ones being tipped with darker brown.

The tail has the upper surface bluish grey broadly tipped with black, except the central pair, which are dark grey brown tipped with black, and the outer pair (one on each side), in which the proximal halves of the outer webs are white. The under surface of the tail is black, the outer feather on each side being marked as above with white.

The chest and under parts are pale vinous fading into white on the belly and under tail-coverts.

Irides dark-brown; eye-lids slate grey. Bill brown washed with purple. Legs purplish brown.

CAPE OR MASKED DOVE (*Oena capensis*)

Columba capensis Linn. 1766. Cape of Good Hope

Range.—Tropical Africa; Arabia; Madagascar.

References.—Sw. BWA. ii, 211; Stark and Sclater, BSA. iv, 174; HL. i, 83; *Ibis*, 1915, 45.

This well-known long-tailed little Dove is common in the Gambia, though not all are permanent residents, for during the rains one sees comparatively few of them. From November to June they are plentiful, and found either in pairs or (at the beginning of the season) in small parties, one cock and two or three hens (or ? young birds). They frequent the open country, the cleared cultivated areas round the towns especially, and find their food, millet grains, grass, and other seeds, on the ground on which they walk, or rather run, about very rapidly. In the air their flight is very fast and arrow-like—and as a matter of fact, when on the wing, they look like big arrow-heads. They are not so easily caught as other Doves, but do very well in captivity and have been bred. With confinement, however, all their natural sprightliness disappears and they become dull, over-greedy birds, disinclined to move, except to the food-tray.

Their Mandingo name is "Moro Pura" (= Mahomedan Dove).

The sexes differ in plumage. In the male the front of the head, the chin, throat, and upper breast are black, the rest of the head, neck, and upper wing-coverts French grey; the back is pale brown, while across the rump are two dark brown bands separated by a dirty white one. The wings are brown, edged with black, with a patch of metallic blue on the outer webs of some of the inner feathers. The upper tail-coverts are dark grey, the tail-feathers black with grey bases. The lower breast and belly are white, the under tail-coverts black, as is the angle of the wing; the under wing-coverts are brown. The iris is brown, the bill purplish brown tipped with yellow, the legs dull crimson. Length 10 inches, of which the tail forms nearly half. The female has no black mask, the forehead and throat being greyish-white, the crown and nape brown like the back; the bill is dark brown without any yellow tip, and the feet much less red than in the male. The young resemble the female.

BREEDING THE WHITE-CAPPED TANAGER

Monsieur Decoux writes: The past season has not been at all good for birds; I have very few young ones. My best success this season has been the breeding of the White-capped Tanager (*Stephanophorus leucocephalus*). These Tanagers are very charming in an aviary.

CORRESPONDENCE

A PARTY OF WOODPECKERS

SIRS,—While staying at a house in Liss in mid-August last, we saw one day a very remarkable sight on the lawn which abuts upon a wood. The Great Green Woodpecker, the "Yaffel", often roams the lawn for worms, sometimes near the house, but I never remember seeing more than a pair, and usually only one at a time, in a garden in the country.

On the afternoon of which I write our friend with the green coat appeared as usual, busy worm-hunting. A Yaffel's cry came from the wood and soon the hunter was joined by his mate. Then a third,

obviously a cock bird, came flying from a tree in the opposite direction, and a little scuffle ensued. Then out of the wood came another, a young bird, which went up to the pair and was fed by them, and a fifth, also a young one, came from the wood and joined the party. But the harmony that had existed before among them was now rudely broken! Two cock birds—I think No. 3 and one of the two young ones—engaged in a fierce aerial battle close to the house, and so absorbed were they in their warfare, that they took no notice of me as I stepped cautiously out of the house, only a few yards away, to watch them closer. One, either No. 3 or a young cock, had evidently a bad temper, for, when he was tired of fighting, he “went” for the other three, but no more battles ensued, only the usual rude greeting common to birds and beasts expressive of “Who are you?” and “I’m as good as you”, which may or may not lead to a combat.

Finally, a Yaffel’s cry sounded from the wood, and off they all flew, one returning later to secure another part of the lawn near a little spring, where worms were no doubt plentiful, but which of the five he was I could not tell. It was most difficult to “spot” the different birds when the party was assembled on the lawn, as their green coats so exactly resembled the colour of the grass, and their movements were so very quick.

KATHARINE CURREY.

PUGNACIOUS PIED WAGTAILS

SIRS,—In the AVICULTURAL MAGAZINE, p. 131, Lord Tavistock, when referring to the case mentioned by Mrs. Currey, on pp. 105–6, states, “the Pied Wagtail is very pugnacious to its own kind when breeding,” line 20; and there seems to me *no* doubt that his lordship’s diagnosis that the bird is “engaged in fighting his own reflection in the glass” is correct.

It may interest some of our members to mention scenes witnessed here in North Kent during 1918, an account of which was recorded at the time in a notebook of mine, because they showed that in addition to their own species these small birds will attack birds larger than themselves—certainly when young are in the nest.

In this village there is an old cottage with heavy thatch on the roof;

and as the thatch was in bad condition there were several holes in it where Starlings have nested since 1912, to my knowledge.

During the summer of 1918 a pair of Pied Wagtails took possession of one of these holes in the thatch, their young being hatched in August ; and one day I saw the cock bird chase a Starling away from the neighbourhood of its nest, pursuing it in aerial chase for about thirty yards, pecking at it as the Starling flew ; and this was repeated twice (to my knowledge) during the next two days.

After chasing away the Starling, it was comical to see the display given by *both* Wagtails along the roof of the cottage, they running to and fro in evident excitement with very vigorous wagging of tails—presumably celebrating the victory over the Starling.

In the three scenes above mentioned, *all* the fighting was done by the cock Wagtail (thus supporting Lord Tavistock's remarks which imply that cocks are the more pugnacious), the hen Wagtail being "in reserve" and only a spectator of the fights. As the Haileybury College Natural Science Society is one of our members, a scene witnessed as a boy there may be of interest to them—the memory of it having stuck in my head because it was comical at the time to watch.

One side of the swimming-bath, as it then used to be, was the spring-board, off which the boys used to take "headers" into the water, the high-dive being on the opposite side ; and near the former two Wagtails built a nest, all going peacefully. But one evening a rival Pied Wagtail came to hunt flies, gnats, etc., near the surface of the water, it being evidently a cock, because it was at once attacked by one of the pair nesting.

These two rival birds then fought a series of battles over the surface of the water between spring-board and high-dive, being *so eager* to fight that they took *no* notice of the College boys coming splash into the water, sometimes within a foot or two of them off the spring-board on one side and off high-dive on the other side. It is satisfactory to add that this Wagtail's nest was *not* disturbed by the few boys who knew its exact position.

FREDERICK D. WELCH, M.R.C.S.

A PUBLIC AVIARY AT HUDDERSFIELD

SIRS,—Mr. Albert Hirst, of Longwood, Huddersfield, a member of the Avicultural Society, has presented a magnificent small birds' aviary and birds to the Ravensknowle Park, Huddersfield. It is divided into three sections, the first containing Waxbills and small Finches, the second contains Cardinals, Weavers, and larger Finches, and the third Parrakeets, Parrots, and Lovebirds. This being the first public aviary in Huddersfield, it is creating great interest and already drawing large numbers of visitors.

G. BEEVER.

WAXBILLS, ETC.

SIRS,—With reference to the "special articles" now appearing in the AVICULTURAL MAGAZINE, it seems to me that it would be of general interest as well as increase the value of the articles themselves, if members would in cases where their own experiences differ markedly from those expressed by the writers concerned, let us have the benefit of their own views. It appears to me that in this way a much wider, more exact and comprehensive knowledge of the best and most up-to-date methods of treatment of the various species dealt with will be gained. As every aviculturist of any experience knows very well, it is extremely dangerous to generalize on the behaviour, habits, or treatment of any species from the possession of one or two individuals. Now it is quite obviously impossible for any single private aviculturist, no matter how experienced he may be, to have kept more than at most two or three examples of some, at any rate, of the species of which he writes, added to which, as many of these articles are written by distinguished foreign aviculturists living often under climatic conditions differing widely from our own, the danger of drawing conclusions from such writers is self-evident enough. It is, in fact, mostly in this very connexion that I myself would like to make a few observations on the otherwise very informative and interesting paper by M. Decoux, which appears in the August number of the AVICULTURAL MAGAZINE. Several statements appear in this article which do not, I feel sure, coincide with the general experience of aviculturists in this country, however much they may be true when applied to the comparatively genial climatic conditions

under which the writer is fortunate enough, doubtless, to reside. Yet, on the other hand, I must confess that I have never found it necessary to illuminate my aviaries or bird-rooms during the winter with either electric or any other light, even in the case of such birds as Yellow-winged Sugar Birds and various small Tanagers, nor do I think it is of the slightest advantage to do so, unless, of course, one has the misfortune to dwell in London or some other large and murky city where perpetual gloom reigns not infrequently for days together. Of the Cordon-bleus, Dufresne's Waxbill, Black-cheeked Waxbill, and Firefinch, he writes, that though rather delicate when first brought over, "once acclimatized, they prove as hardy as the others." This, and I think most experienced people will agree, is a statement which requires a considerable helping of salts to enable one to swallow. The fact being that anyone foolhardy enough to act literally upon this advice and turn Dufresne's and Black-cheeked Waxbills, or even Cordon-bleus, no matter how acclimatized, out into the usual type of wilderness aviary during the months of December, January, February, March, and April, might deem himself unusually fortunate if he did not lose *at least* 50 per cent, say, of the latter and 80 per cent of the two former species. I am also surprised to observe that the Violet-eared Waxbill is classed as "rather hardy" and it is affirmed "does well in cold glass aviary". Now a more unsuitable situation than a cold glass aviary, by which term an ordinary greenhouse is presumably indicated, for any Waxbill, let alone Violet-ears, cannot readily be imagined. As a fact, I believe that most people of experience in these matters will agree that Violet-ears are decidedly delicate when first imported and usually arrive in bad condition. They need a lot of careful watching for the first two or three months, and even when acclimatized I should never term them hardy, and would not much fancy their chances if left out in a garden aviary during the winter and early spring months. I am personally quite convinced that one of the great secrets of success with Violet-ears is a daily ration of live food, which item is far more important for the welfare of this species than as advised by M. Decoux in the case of the Cordon-bleu, which, in fact, will get along very well without it, though I like to supply some when they are nesting. I have a pair of Violet-ears now which I purchased in 1920, and though they have been,

and are at the present moment, usually in faultless condition and plumage, yet there have been times when they have caused me a good deal of anxiety and only the greatest care and attention has brought them safely through. I always take them indoors under cover before the end of October, and sooner if the weather breaks earlier, and though they do very well in an unheated room, I am quite certain that, like Cordon-bleus, which in many respects they closely resemble, they would never stand the continued damp and chill of an English winter in an outside aviary exposed to all the elements. It is a charming species and quite my favourite amongst the Waxbills, but certainly need, and are assuredly worthy, of special care and attention, especially during the winter months. My birds are delightfully tame, and will take mealworms from my fingers without the least hesitation whilst flying at semi-liberty in a fair-sized garden aviary, which they share on the whole very peaceably and happily with a varied assortment of little foreigners. Cordon-bleus, as one might expect, alone appear to be rather dangerous associates for them, and with this species there is constant warfare. Should one wish to associate the two species, therefore, and they certainly form a charming contrast to each other, it is, I think, best to turn in the Violet-ears some weeks before introducing the Cordons, and even then a close watch should be kept on both. My pair have nested every year, usually first about the beginning of June or end of May and later about the middle of September, but did not actually lay till last year, and then nothing came of it. The hen alone appears to incubate, but the cock is usually in close attendance to keep off trespassers. The cock it is, however, anyway with me, that appears to do all the actual collection of materials for the nest. This season they have shown no disposition whatever to go to nest, until quite recently about the end of August, when a nest was rapidly constructed and the hen is now incubating, but unhappily in a rather exposed situation, and I fear the chances of a successful and happy ending to the venture are very slender. On all former occasions they have nested within the shelter. My Lavender Finches have for the first time in my aviaries raised a single youngster, the only one which hatched out of a clutch of three white eggs. This bird is now strong on the wing and has been transferred to another aviary. To return to my

“montour”. I note with surprise that Dufresne’s Waxbill is stated to be “not difficult to breed in captivity”. But who has ever bred it, and where has it been bred? A diligent search at all events has failed to reveal any published record of its having been bred either in this country or even on the continent, so one may be pardoned for doubting whether this statement is even approximately accurate. Personally, I have only once possessed a pair of this species, and though they did actually go to nest the hen unhappily met an untimely fate at the bill of some other bird after depositing a single minute egg. I consider this species to be exceptionally delicate. Again, Quail Finches are described as “bred without difficulty”, and though in this instance my own experience tends to confirm this statement, I cannot suppose that such is actually the case, seeing that with the exception of an account of their having been bred after many failures by Mr. R. Phillipps a decade or more ago, I can find no other record of their having been bred in this country except that which I sent to our contemporary, *Bird Notes*, last year. Whilst on the subject of these rather fascinating little birds, it may be of interest to record that I have succeeded this season in obtaining hybrids for the first time so far as I am aware between the Common and Black-faced varieties. I hope that such criticism as I have found it necessary to make on M. Decoux’s otherwise very valuable article will be taken in the same friendly spirit in which it is made.

G. E. RATTIGAN.

THE FOOD OF THE CHOUGH

SIRS,—There is just a small point I should like to make concerning Mr. Meade-Waldo’s article on the Crow tribe. He states therein, when writing of the Chough, that these birds are *not* flesh-eaters, and one gathers the impression that the writer considers flesh to be detrimental to the welfare of this species. Such, however, is most certainly not the case. As a confirmation of this opinion, I may instance the fact that one of the finest Choughs I ever saw in captivity, and which has won and is still winning innumerable prizes all over the country on the show bench, has been fed since it was acquired by the late owner as a nestling on a staple diet of finely chopped raw meat, with about half a dozen mealworms or other insects added daily as a titbit. This bird is now

9 years old and is in the most glorious health and condition ; nor, the late owner informs me, has it ever been sick or sorry in its life. The owner, I may mention, was my aviary attendant, and until recently it has been housed amongst my own birds for a period extending over some twelve months, so that I have had ample opportunity for keeping it under close observation.

G. E. RATTIGAN.

A RARE-FEATHERED FIREFINCH

SIRS,—There is now in one of the cages, which I am glad to see have replaced the fancy aviary at the east end of the Small Bird House at the Zoo, a colour variety of the Common Firefinch, which I caught in Gambia this year. Instead of the normal red, the general colour is fawn (or cinnamon), with pink tail and forehead and a few white flight-feathers.

Oddly enough, I have previously had two other colour varieties of the Firefinch from the Gambia, but these were bronze-coloured, not fawn. One, at least, of these ended his days in the Zoo. Russ, in his *Die Fremdlandischen Stubenvogel* (p. 668), describes two “Bronze Firefinches”, which he had seen and which, he says, were named after him “*Aegintha russi*” by Reichenow. Except that Russ considered his birds to be varieties of *L. rufopicta*, not *senegala*, his description exactly agrees with my two bronze birds. The fawn-coloured variety, the subject of this note, is the first I have seen or can find record of, but Firefinches with patches of white in the plumage are about as common as are similarly marked Sparrows in England.

E. HOPKINSON.

THE NESTING OF THE LILAC-CROWNED FRUIT PIGEON

SIRS,—I am writing a few lines to give my experience of breeding the Lilac-crowned Fruit Pigeon, particularly as regards its nesting-place, although I have not so far met with complete success. One of my pairs, after examining several baskets and boxes placed all over a large outdoor aviary, finally arranged a few leaves at the foot of a holly-tree and laid one egg there, which was taken by a Black Tanager after two days. They soon went to nest again on the ground under

a thick laurel bush, and sat for about nine days, when the egg was again taken. After a short interval a fresh site was chosen, still on the ground, under another laurel a short distance away. This time they hatched, and fed the young one for quite a week. I had to go away from home then, and though my man reported the young one was alive three days after I left and he had seen its head under the old bird, I could not see any sign of it on my return home. Some weeks later another site was selected some distance from any of the previous ones on the ground at the foot of a stout elder-tree. I cannot be certain that the same pair have nested each time, but at all events, with plenty of choice, the ground has been selected every time as in the Zoo, but they have chosen a well-sheltered place in my case. The nest has been little more than a few leaves drawn together, though in the case of the first nest the cock pulled some old bits of dead hops and carried them to the nest. They had the choice of nesting in the large bird-house, where there were several boxes and where they had perched at night all winter, but preferred to go outside. Before they nested they used to dash up and down the aviary to its full extent at a great speed.

HERBERT BRIGHT.

REVIEW

CIRCÈ'S WORSHIPPERS. By FRANK FINN, B.A. Selwyn & Blount, Ltd. Price 1s. net.

We have much pleasure in reviewing our friend Mr. Finn's collection of poems. Hitherto, we had known him as a clever and accomplished naturalist, capable of writing most instructive books on that subject, but never was there any suggestion that he possessed the poetic gift. *Circè's Worshippers* has, however, shown that he is equally capable of conveying his thoughts in verse.

There is undoubtedly room for a great deal more of this type of poetry. We have, it is true, read a fair amount of poetry dealing with the habits and feelings of animals, but it has seldom been written by a man whose knowledge of rhyme and rhythm equals his knowledge of science.

We are, therefore, quite confident that all who appreciate the beauty of wild life will join us in welcoming this new development of Mr. Finn's talent and hoping that we shall soon see some more verse by the same author.

THE SOCIETY'S MEDAL

Accounts have been published of the breeding in captivity of the Lilac-crowned Fruit Pigeon, the White-eared Scopo Owl, Azara's Conure, and the Benguella Sparrow, and these are believed to be the first cases of such birds breeding successfully in the United Kingdom. The Council will consider these cases with a view to possibly granting medals, and it is hoped that any member or reader who may know of a previous instance will at once inform the Editors.

BREEDING CRIMSON-FINCHES AND DIAMOND SPARROWS

The following letter to Mr. Seth-Smith may interest our members. Mr. Moody is bird-keeper to the Hon. Mrs. Winn.

DEAR SIR,—I thank you very much for your letter and advice. I lost a young Crimson Finch last year at three months' old, and I am certain it would have been alive to-day, but—alas! I gave it very few insects. I have at present a young Crimson Finch flying in the aviary, fellow to the one I sent to you, almost two months old, and it seems in the pink of condition so far, and no doubt if I give plenty of green-fly, etc., as you have advised me, it will live. I have not bred many birds this season with success, only Diamond Sparrows, and last season I bred 1 Cut-throat, 1 Zebra Finch, 13 Java Sparrows (9 white, 4 grey), and 13 Diamond Sparrows.

As regards Waxbills, of which I have 14 or 15 pairs—Orange-cheek, Violet-eared, Avadavats, etc., I have not seen an egg at all. You see, I have done the best with the Diamonds, and these have always built their nests in the twiggy branches I have fixed up. Thanking you again for your kind advice,—WILLIAM MOODY.



DESMAREST'S TANAGER
(*Calliste demaresti*)

BLUE-WINGED TANAGER
(*Calliste cyanoptera*)

VENEZUELAN GOLDEN TANAGER
(*Calliste arthusi*)

THE AVICULTURAL MAGAZINE

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THE CRIMSON AND BLACK SHRIKE

By DR. M. AMSLER

Early in September I obtained from Chapman's three Shrikes, which I believe are new to aviculture; they are so extremely handsome that I think they are worthy of description. Through the kindness of Miss Knobel, who went to the British Museum for me, I have been able to identify the birds as *Laniarius atrococcineus*, the "Crimson and Black Shrike". They are South African birds. Beyond this I have no idea of their habitat, but should imagine they come from tropical Africa, or, at any rate, from some low-lying region, as they appear to feel even slight falls in temperature. These birds are about the size of a Grey Shrike, they are slim, graceful, and very active; and, as would be expected, highly insectivorous: in fact, I had a good deal of difficulty in "meating" them off. On the voyage they had been largely fed on dried locusts, an unattractive and rather smelly diet.

The head, back, tail, and wings are a glossy and intense black, but there is a pure white wing-bar running from the point of the shoulder to the tip of the wing. The throat, breast, and under parts as far as the vent are a vivid crimson-scarlet. On close inspection the iris is seen to be a dark mauve colour.

Some new feathers have recently appeared on their breasts and show no deterioration in colour; so I hope this is not one of the species in which red is not a lasting colour.

I have lost one of my birds, but the remaining two look like a true pair. They are identical in colour, the hen being perhaps a trifle the smaller, and often calls to her mate for food. The young, I understand, have the breast a mottled brown instead of crimson.

A YOUNG GREY PARROT

By BEATRICE COOK

Seven years ago a friend gave me a grey Parrot. She was called Joe, and always considered a male bird. She had plucked her breast quite bare, so I let her out of her cage every day, and in a few weeks all her feathers had grown again, and she has never resumed her bad habits. She would wander round the room, and at last took a fancy to a bookcase. We gave her logs of wood and newspapers in the drawer to keep her amused; also because she was rather destructive to the furniture. She would spend hours in the drawer biting these logs and papers and formed a sort of hollow place in the chips, where she laid two eggs. A year after this I had a present of another Parrot called Polly, a very fine bird, always supposed to be a hen, and a splendid talker. I thought they would be good friends, but on letting them out together they fought so savagely that I was afraid Polly would be killed, and we had to separate them. After that we did not let them out together for some time, but gradually they became more reconciled, and would come on the table together and eat nuts out of a box, although at that time they frequently quarrelled, and someone had always to be in the room to see fair play. After a time Polly joined enthusiastically in the nest-making. They made nests sometimes in the old bookcase and sometimes in a square wooden box, and Joe laid eggs usually three times a year in April, June, and October. She sat on them, but I think they were not fertile. Polly would take his turn at sitting, but often used to eat the eggs. Altogether thirty-eight eggs have been laid. We had no thought of having a young Parrot, because we believed them to be two hens. In June this year they made a nest in the bottom cupboard of the bookcase and three eggs were laid, and after four weeks, on

8th July, a little Parrot was hatched. The maid heard queer little sounds coming from the nest, and on looking in, we could scarcely believe our eyes when we saw a real little Parrot about an inch and a half long. He was pink and had a little white fluff, which disappeared in about three days, leaving him quite bare. The parents both fed him, turning him on his back to do so. He made a curious noise, something like the squeaker of a doll, and his voice seemed to change every few days. His parents were delighted with him, and the father would roar with laughter when he looked at him. He grew very rapidly and was a very bright pink in colour, afterwards turning rather grey. At a fortnight old a little grey fluff appeared on his back, and you could see the beginnings of feathers on his wings. His eyes opened on 23rd July. He seemed very strong and developed a big black beak, and when a month old was about 5 inches long. We called him George, and he was a great delight to us all while he lived, but about the 1st of August he did not seem so well and he died on the 3rd. Perhaps I did not know how to treat him. When this bird was dead he weighed a quarter of a pound. His father is 34 years old and his mother 21. After his death, the parents at once commenced making a fresh nest, and in September two more eggs were laid, and the hen is now sitting again.

So there may be other little Parrots some time, and I hope we may be able to succeed in rearing one, but however many we may have none will ever take the place of little George.

[The very interesting event above described took place at a house in Finchley, London, N.W. We hope that Miss Cook will be completely successful next time.—EDS.]

CORRESPONDENCE

FIELDFARES IN SUMMER

SIRS,—I thought the following might be interesting to some of your readers. This summer I was going very frequently to some meadows near the Lea canal to read, and I was surprised to notice every day through the summer some Fieldfares. I recognized them

by their somewhat harsh note, their large size, and their habit of feeding in loose flocks.

I consulted two authorities, viz., Bowdler Sharpe, *Birds of Great Britain*, and Messrs. Whiterby & Co.'s *Handbook of British Birds*, 1920, and could not find recorded that any remained all through the summer. I also noted through my fieldglass one feeding another. They became fairly tame and remained till the gunmen came round in September, when some were shot and the rest frightened away. I saw one of these poor birds being shot at a distance, but I had no power to interfere.

S. TOMLINSON.

WAXBILLS, ETC.

SIRS,—With reference to my letter, "Waxbills, etc.", appearing on page 240 of the October issue of the AVICULTURAL MAGAZINE, there are one or two printer's errors which I will be glad if you will kindly correct in the next issue.

On page 241, line 13, "a considerable helping of *salts*" should, of course, read "*salt*", without the "s". On page 243, line 1, "Montour" should read "Moutons".

G. E. RATTIGAN.

THE TANAGERS

By J. DELACOUR

The Tanagers form one of the most beautiful families of the American birds. By their bodily forms and the robustness of their bills they resemble the Weavers, and above all the Finches; their frugivorous and insectivorous diet and the brilliant colouring of the majority of them, however, distinguishes them at once. But the most pronounced characteristic they possess is a small tooth at the termination of the upper mandible. But the difference between the Finches and the Tanagers is insignificant, and certain genera are classed side by side in the two families. All the Tanagers inhabit the Tropics, but several migrate to the temperate regions for the nesting season. Sometimes the two sexes resemble each other very closely; sometimes the male only is clothed in beautiful plumage. In several species these males wear an eclipse plumage part of the year. Certain of the most brilliant genera, such as *Rhamphocælus* and *Calliste*, are often imported and become the favourites of many amateurs. Few birds, for example, are clothed with more magnificent colours. They are not, however, too easy to keep in good health, and they need warmth during the winter.

In their natural state the Tanagers frequent the woods and the forests, and subsist on fruits, berries, and insects. The greater number of species are very numerous, certain kinds even frequenting the gardens and suburbs of the towns and make one of the attractions of the countries where they dwell. I have had the opportunity of observing and capturing a fair number in Venezuela and Guiana.

They are usually easy to catch with bird-lime or traps, and they soon become accustomed to a cage. They are easily fed, but I have found the best diet to give them consists of different fruits, above all bananas and papaws, and sweetened bread and milk; insects and a little insectivorous food must be added.

It is interesting to observe how the neighbouring species differ in their habits; some kinds are nearly entirely frugivorous and others practically insectivorous. The greatest difficulty one has to encounter in bringing over the Tanagers to Europe is in keeping

them dry and clean. These birds, like all the frugivorous species, are constantly bathing, their plumage becomes soiled and sodden, and, being unable to dry it, they eventually die. Great care must be taken to put only a little water in each cage and to keep them very clean, and also to wipe the birds themselves each time it becomes necessary. A cage with a grill fixed above the floor is the most satisfactory, as the birds are unable to soil themselves as they would in an ordinary cage. In captivity in Europe these birds divide themselves into three groups, the large Tanagers (*Saltator*, *Tachyphonus*, *Rhamphocælus*, etc.), which are robust, living as well in aviaries as cages and needing only an insectivorous and frugivorous diet, with a large proportion of fresh fruit. The smaller birds (*Calliste*, etc.) require a more careful diet and do better in cages. I have kept for some time these little Tanagers and fed them with a little insectivorous food, plenty of bread and milk, and fresh fruit. But to be successful one has to keep them on a more varied diet. Each group has its one or more difficult species, for which a satisfactory diet has yet to be found. In some species individuals appear to be in good condition, but are liable to drop off suddenly with apoplexy. Others mope and do not live through the moult. M. A. Decoux, who owns a number of Callistes, writes as follows:—

“It appears that we are still ignorant as to what diet best suits the Callistes. Dealers give them a paste of potatoes and hard-boiled eggs, of which all amateurs are well acquainted. This paste is good for large birds such as Blackbirds or Starlings, and even for *Rhamphocælus*, on condition that one does not allow them to miss fruit and alternates it with a diet of bread and milk; but it leads the Callistes to certain death. They grow too fat, and die of a disease of the liver. This organ becomes enveloped in fatty tissue, and little by little fills up the abdominal cavity.

“A couple of Festive Tanagers (*C. festiva*) which I once kept were put on to the same diet as the Quit-quits, that is to say, a food composed of Mellin's Food, honey, and milk. This diet, which is well suited to the Quit-quits and thanks to which they have nested in captivity, is only moderately good for the Callistes.

“My Festive Tanagers remained very beautiful during the first

summer. The autumn moult was painful to both birds; the female finished moulting, but the male, on the contrary, lost his last wing feathers in November and they never reappeared. He died in January, still happy despite his infirmity, which prevented him from flying. It was evident that some indispensable item of diet had been omitted.

“The female was seized with the same complaint in March; in May she could no longer fly. I then added to crumbled biscuit an equal quantity of fresh ants’ eggs. She recovered gradually, and appeared most beautiful. The following December the same bad moulting reappeared, and this time it was impossible to save the bird, which (no doubt due to the absence of ants’ eggs) died miserably.”

The *Callistes* seem to be more essentially frugivorous than the other Tanagers, and I have thought for a long time that a great quantity of fruit produced fatal diarrhoea in these birds. I have lost several examples of *C. fastuosa* and *C. tricolor* in this way, but I now think that the fruit is only injurious if unripe or not fresh. The acid oranges of the first months of winter are evidently bad for these birds. Bananas appear to be harmless, and I believe that one can give a considerable quantity without any ill effects. They are evidently the best kind of fruit for these Tanagers. Grapes, figs, and apples, which some of the *Callistes* do not care for, are also to be recommended. Grated carrot, mixed in equal parts with the soft food, appears to be wholesome for the smaller Tanagers. It was with a paste made of grated carrot, ants’ eggs, dried flies, and grated biscuit that I fed my *Callistes* from Brazil, supplemented with bananas, which they were very fond of, and a little honey.

Dr. Russ gives different recipes for food for the smaller Tanagers. Here are some that are worthy of trial:—

1. Biscuit, dry ants’ eggs and poppy flour, two parts of each; powdered sugar and bullock’s heart cooked and minced, one part. Mix all well together and work with a little water to moisten the mixture. In addition to the above a little honey should be given in a small cup.

2. Powdered biscuit mixed with a little powdered sugar and some fresh ants’ eggs, moistened with water, and in addition seasonable soft fruit.

3. Cooked rice mixed with sugar and ants' eggs. Fruit.

I have tried to feed *C. fastuosa* with very sugared rice such as is served at table. The birds refused this very sticky food, which they had considerable difficulty in swallowing. I believe it would be better to soften the rice in hot water, but to take it away from the fire before the cooking was finished and to then soak it in hot milk before giving it to the birds. The grains remain whole if done in this way.

An amateur wrote to me that in Brazil all the insectivorous or frugivorous birds of the country were fed upon black beans, cooked in water, and fruit. I doubt if this food would be good for the Callistes.

I will give finally a recipe for a food suggested by Mr. Townsend, a specialist in Tanagers, which appears to be excellent. This is composed of powdered Spratt's biscuits and ants' eggs, soaked in enough hot water to moisten the mixture, with silkworm chrysalises and some flies mixed with grated carrots or chopped lettuce. Living insects are greatly appreciated by all the smaller Tanagers. All the Callistes, with the exception of *C. festiva*, eat with delight the two mealworms that I give them every two days. Spiders are to them the most welcome. Chiapella speaks of a Tanager whose health was re-established thanks to spiders that were given daily. House flies are eaten freely by the Callistes. These Tanagers do not live so long in captivity as many of the others. I confess that I have rarely kept any of them for more than two years, although I have had individuals of *C. fastuosa* and *C. tricolor* that have lived in a cage for five years. M. de Lager wrote to me some years ago that he had kept these birds even longer than this. A Paradise Tanager which came from Hamburgh lived for three years, then died suddenly, as is the habit of Tanagers.

I have noted that in a cage Tricolors become brighter after each moult, but have not discovered the cause.

The Tanagers construct their nests in the form of cups, and lay spotted eggs.

It was in France that Callistes were first bred, M. Ollivry having bred *C. tricolor* near Nantes, and he gave the following details:—

“In the first days of June these Tanagers commenced to build their nest placed in a little basket hung on the wall of their aviary. It was made of blades of grass, roots, and tow, of about the same

depth as that of a Chaffinch. The female laid three white eggs speckled with brownish-red spots and of the size of those of the Sparrow, but rounder in shape. Incubation was long. It is true that the weather was bad, and that the female incubated alone and did not sit well. At last, at the end of about twenty-two days, I decided to look in the nest, and found there two young ones, a third being dead in the egg. They may have been hatched for five or six days. Their red skin was covered with long, black down, and the lower mandible bordered with yellow skin.

“ For the first few days the female did not leave the nest, the male bringing food to her, which she gave to the young birds. This consisted of maggots and chrysalises and soft food, of which ants’ eggs were preferred.

“ They stayed for at least thirty to thirty-five days in the nest, and when two to two and a half months’ old they were still being fed by the parents. Their growth was slow and it was not until the following spring that they showed their brilliant colours. The first plumage was less brilliant than that of the adults, but they were already very pretty birds. The two young were a pair, and both were entirely green, the male much brighter than the female.”

M. de Lacger has also had the Tricolor nesting in his aviary in the Tarn, and, if I am not deceived, he has also bred some young of *C. fastuosa*.

Amongst the larger species Saltators, Black Tanagers (*Tachyphonus melaleucus*), Blue (*Tanagra episcopus*), and Palm (*T. palmarum*) and Magpie (*Cissopsis leveriana*) and Scarlet (*Rhamphocælus brasiliensis*) have nested in aviaries, besides which, last year, the Duchess of Wellington bred in England the Ornate Tanager (*T. ornata*) and wrote an account of the event in the AVICULTURAL MAGAZINE. In the same year a pair of White-crowned Tanagers nested in M. Decoux’s aviaries in France.

One sees from the preceding that if these Tanagers are not exactly free breeders in captivity, one can obtain with them some good results. In any case their beautiful colours and graceful forms, though simple, are a source of joy to the amateur possessing them, and are well worth taking trouble with.

We will first refer to the larger species, which are not especially interesting as cage-birds, but which are not difficult to keep and are even inclined to breed in captivity. They are allied to the Finches, and are sometimes classed amongst them. We mention first the Saltators, which resemble the Grosbeaks, their shape being that of a Cardinal and their food partly grain.

The Great Saltator (*Saltator maximus*) inhabits America from Panama to the south of Brazil. It is olive green above and fawn-coloured below; the head is ashy-grey with whitish eye streaks, the chin being white bordered with black on each side, the throat fawn-coloured, and the bill blackish.

The Allied Saltator (*S. Similis*), from the south of Brazil and the Argentine, is grey above, fawn underneath, with a white throat lined with black. The *Saltator grandis*, of Mexico, and *S. olivaceous*, from Venezuela, resemble the last named.

The Orange-billed Saltator (*S. aurantivrostris*) is ashy-grey above and fawn-coloured below, the sides of the head and throat black, and a band of white above the eye, collar on the throat black, and bill orange. This species inhabits Uruguay, Paraguay, and the Argentine, and is often imported.

The Black-necked Saltator (*S. atricollis*) is ashy-brown above and yellowish-white below, with the head, the throat, and the back of the neck black, the bill orange. It inhabits the south of Brazil and Bolivia.

The Tanagers of the genus *Schistochlamys* are less like the Grosbeaks than are the Saltators, the bill being more slender.

The *S. capistratus*, from the south-east of Brazil, is grey with black wings and tail, the under parts rosy yellow.

The *S. atra* is found more to the north, as far as Colombia and Trinidad, and resembles the last, but has the lower parts pale-grey; the half of the head and the throat to the middle of the chest is black. These birds in form resemble the Saltators.

The Magpie Tanagers (*Cissopsis*) are more appreciated by amateurs. They are strong birds, with long tails, the plumage being white, the head, neck, chest, tail, and wings being glossy black, and the eyes yellow. Two kinds have been imported, *C. leveriana*, from the north, and

C. major, from the south of South America. These are excellent birds for aviaries and generally free-breeders.

The *Psittospiza riefferi* resembles in form the Saltators, and is a magnificent bird from Colombia and Ecuador, grass-green, with the sides of the face, the chin, and the abdomen nut-brown. The bill orange and the feet yellow. It figured in the superb collection brought from Ecuador by Mr. Walter Goodfellow for Mr. E. J. Brook.

The *Diucopis fasciata*, from the south-east of Brazil, has also been imported. Smaller than the last, it is a dull bird, grey above, with white underneath, with black and white wings and a black face. *Arremon aurantiivrostris* is blue-green, with the head marked with black and white bands and a yellow bill.

The *Buarremon* are also of deep colours, but are more elegant, especially the *B. brunneucha*, of Central America. It is olive-brown, with bright, nut-brown crest, the sides of the head and a collar circling the otherwise white throat, black; the forehead also is black, with small white spots.

Chlorospingus ophthalmicus, from South Mexico, belongs to a genus of Tanagers, with many species smaller than the preceding. It is olive-green above, with the top and sides of the head deep maroon and a white spot behind the eye. The under parts are yellowish, with the throat and half the belly whitish.

Lamprotes loricatus is a robust black bird, with the middle of the throat and the breast red. It inhabits South-East Brazil.

Trichothraupis quadricolor, from South Brazil, is olive-grey above, with a large yellow top-knot (crest on the head); the sides of the head, the wings, and the tail are black, the wings being marked with white. The hen has no head-crest.

The Black Tanagers (*Tachyphonus*) are handsome birds with sombre plumage, black predominating in the males, reddish-brown in the females. They are birds of strong flight and breed tolerably readily in aviaries, nesting in the bushes. The eggs are white, spotted with dark brown.

Tachyphonus rufus, reaching a length of nearly 7 inches, is often imported. The male is shiny black, with white shoulders; the hen is reddish all over. This species has a wide range in Central

and South America, from Costa Rica to South Brazil. In Venezuela and Guiana I have seen and captured it round human dwellings.

T. luctuosus, although less common, inhabits the same regions as the last, and closely resembles it, the male differing only in its smaller size, being about 5 inches in length. The female, on the other hand, is olive-green, with the head grey and the lower parts yellowish.

T. cristatus, a beautiful but rarely imported species, occurs in the northern countries of South America. The male is black with a long orange-red top-knot, the rump fawn, the shoulders white, and a fawn streak on the throat. The female is reddish-brown.

T. surinamus, inhabiting the same districts, is black with a median golden fawn stripe forming a crest on the head, the rump tawny, and the shoulder white. The female is olive-grey above, pale-tawny below. Of this somewhat rare species I brought home two males, captured at St. Laurent-du-Maroni, in French Guiana.

T. coronatus, differing only from *T. rufus* by the presence of a red stripe on the head of the male, is often imported from South-East Brazil.

The Red Tanagers (*Pyrranga*) are migratory birds, three of the species stretching into North America in the spring. They are distinguished from other Tanagers by the seasonal change of colour in the males, which are brilliantly coloured in the summer, assuming in the winter the generally olive-green tints of the females.

P. aestiva ranges from Peru into Central America, passing the summer in North America. The male is rosy-red and is about the size of the Black Tanager. *P. saira*, of South-East Brazil, is a brighter rosy-red than the preceding. *P. rubra*, which passes the summer in the eastern states of North America, is scarlet, with the wings and tail black. *P. ludoviciana*, inhabiting the western states of North America, is yellow, with the head and throat tinted with red, the tail black, the back and wings black barred with yellow. *P. rubriceps*, of Colombia, differs from the preceding only in having the head, nape, and breast scarlet. *P. leucoptera*, of Central America, is scarlet with the forehead, the area round the eyes, the lores, the chin, and the tail black, the wings being black, with two white bars. It is smaller than the previously mentioned species. *Phlogothraupis sanguinolenta*, of Central

America, is dull black, with the back of the head and of the neck, the breast, and the tail coverts scarlet. The male and female are alike in colour.

The Tanagers of the genus *Rhamphocælus* are distinguished by the large size of the beak and the silvery colour of the mandible; the males are red and black or yellow and black. The Scarlet Tanager (*R. brasilius*) is well known as a hardy and lively aviary bird. Equalling the Black Tanager in size, it is a magnificent deep red, with the wings, tail, and thighs velvety-black, the female being reddish-brown. It occurs in South-East Brazil. The Jacapa Tanager (*R. carbo*) resembles the preceding, but is very deep-scarlet, almost black in places. It is a common species ranging from Colombia and Venezuela to the centre of Brazil. I captured large numbers in my garden at St. Laurent-du-Maroni. In the aviary they thrive well from the first on fruit and bread and milk, but were very quarrelsome, and I only preserved about 60 per cent. It is not so hardy in an aviary as the Scarlet Tanager. *R. dimidiatus* is not so common. It occurs also in the northern parts of South America, and differs from the preceding species by the bright red colour of the posterior part of the back and belly. A third species, *Rhamphocælus icteronotus*, from Ecuador, was imported for Mr. Brook. It is black, with the posterior part of the back and the rump clear yellow. This bird, presented in due course to the Zoological Gardens in London, lived nearly two years in captivity.

The genus *Spindalis* forms a small group of Tanagers peculiar to the West Indies. The males are bright orange, with black and white marks. Pretre's Tanager (*S. pretrei*), from Cuba, is about 6 inches long. The male has the back olive, the breast, rump, and collar orange, the wings and tail marked with black and white, the head black, with a white band above and below the eye, and the throat yellow. The female is olive-grey. This species lives well in captivity, but is very rarely introduced. A second species (*S. zena*), from the Bahamas, has also been imported.

The Blue Tanagers of the genus *Tanagra* are often seen in aviaries. They equal the Red and Black Tanagers in size, and are equally hardy in captivity. They are extremely common in their native haunts, even in the middle of cities. The male and female are almost alike.

The Archbishop Tanager (*T. episcopus*) is clear bluish-grey, tinted with mauve on the rump and breast; the feathers of the wings and tail are blackish, fringed with pale-blue, and the shoulders are bluish-white. The female is slightly duller than the male. This species lives in Guiana. In Central America, Colombia, Venezuela, Ecuador, and Peru it is represented by the Blue Tanager (*T. cana*), which differs from it only by its bright violet-blue shoulders. There are also many local varieties. *T. cyanoptera*, of South Brazil, the Argentine, Paraguay, and Bolivia, resembles the preceding, but is larger and has a greenish tint on the head. *T. sayaca*, of Eastern Brazil, is distinguished by the greenish tints of its wings and tail.

The Palm Tanager (*T. palmarum*), ranging from Southern Brazil to Central America, is olive-green with the wings and tail black. It is not rare in aviaries.

The Ornate Tanager (*T. ornata*), inhabiting South-East Brazil, is equally common. It is olive-green below, the head, throat, breast, and flanks are slaty-violet-blue, the shoulders are yellow, and the rest of the plumage blackish-grey. In Venezuela I caught and kept for some time, but did not bring alive to Europe, specimens of the magnificent species *T. olivicyanea*, which is golden-green above, bright blue below, and on the head. In *T. bonariensis*, of the Argentine, the wings, tail, and head are blue, the area round the eyes, the lores, and the back black, the rump and the under parts orange. The female is greyish. Finally, *T. darwini*, from Ecuador, Peru, and Bolivia, differs from the preceding in being a little smaller and in having the neck blue and the back olive-green.

The species of the genus *Compsocoma*, living at high elevations, rank amongst the most beautiful of all Tanagers. I came across one of them in the great forest of the mountains of Venezuela; and never shall I forget the sight of this splendid blue and yellow bird in the marvellous tropical foliage. It was *C. sumptuosa*, a species imported with *C. notabilis* from Ecuador by Mr. Goodfellow. The former, which also inhabits Colombia and Peru, measures about 10½ inches, and has a relatively short tail. It is black above, with green tints on the rump; the black wings and tail are edged with bright blue; on the black head there is a yellow band running from

the crown to the neck, and the under side of the body is clear yellow. *C. notabilis*, from Western Ecuador, is olive-yellow above, the wings and tail black edged with blue and the shoulders greenish-yellow, the rest of the body being coloured as in *C. sumptuosa*.

Buthraupis cucullata, like the two preceding species, has been imported from Ecuador. It is a large bird, with the upper parts purple blue, the head and throat black, and the belly yellow. With it was brought *Pæcilothraupis lunulata*, which is a little smaller, black above, with the rump and wing coverts white, a red spot on the ears, the throat black, and the under parts red.

The White-crowned Tanager (*Stephanophorus leucocephalus*), which occurs in the Northern Argentine and neighbouring districts, is a splendid aviary bird, too rarely imported. It is very dark blue, the upper side of the head being silky-white, with a small red crest on the forehead.

We now come to the small Tanagers, which, as we have already said, require more care in captivity than the larger species. Nevertheless, one can keep them for a long time, and even have the satisfaction of seeing them nest.

The most numerous group, and also the most beautiful of all the family, is the genus *Calliste*.

The species of the Callistes are small birds about the size of a Linnet and smaller, with a tail of medium length and a beak almost conical but weak.

The species most frequently imported, such as the Tri-coloured (*C. tricolor*) and Six-coloured (*C. fastuosa*), are best known to aviculturists, and excite the admiration of everyone. The plumage of the genus *Calliste* is, indeed, most beautiful; green, blue, and yellow in richest tints are the dominating colours, and the feathers have an appearance of brilliant silk, which is altogether peculiar to these birds; in fact, the Callistes are counted amongst the most beautiful birds in creation.

Generally, the females resemble the males, but are less brilliant. I have observed and captured several species in Venezuela and Guiana. They come readily to the trap. One always meets with them in wooded districts, and for the most part in mountainous country. I have

only seen *C. paradisea* and *C. punctata* in the low country in Guiana and *C. cayana* in Venezuela. They move vivaciously amongst the branches, reminding one of titmice ; one often finds them in company with Quit-quits, *Dacnis* (Sugar-birds), etc., and they habitually flock together, and a tree covered with berries frequented by one of these flocks is an unforgettable sight.

The Callistes include almost a hundred species, all magnificent, which can be divided into groups according to the similarity of their plumage.

Some thirty species have been imported alive to Europe.

The Paradise Tanager (*C. paradisea*) of Guiana, which is one of the most lovely of the genus, must have a front place. A bird of fairly stout build, it has the nape, the upper back, the tail, and the wings, black ; the shoulders, throat, belly, and all the under parts, silky and shining turquoise blue ; the lower back, yellow, merging into bright red towards the top ; the head, golden green, and black round the beak.

C. yeni, which is found more towards the west, does not differ from the above except that the lower back is entirely red. These species are rare in captivity.

The following group includes the species more often met with in captivity.

The Six-coloured Tanager (*C. fastuosa*) is very beautiful. The head, nape, and upper back, blue, washed with silky green ; round the beak, the breast, middle back, and tail, black, with blue reflections ; wings, varied with black, blue, and yellow ; the under-body, deep blue, passing into clear blue on the front ; all the lower part of the back and rump are bright orange-yellow.

This species is one of the hardiest of the genus. It inhabits the neighbourhood of Pernambuco (Brazil).

The Tri-coloured Tanager (*C. tricolor*) is the "Septicolor" of the dealers, and is a more slenderly built bird than *C. fastuosa*. It is the most frequently imported of any, and inhabits South-East Brazil. Its colouring is very varied : round the beak, breast, a band on the shoulders, wings, and middle of tail, black ; head, sea-green ; mantle, golden-green ; wings, varied with black and greenish-gold, with cobalt

blue shoulders ; under parts, bright blue, merging into green below ; back, orange.

The Festive Tanager (*C. festiva*) is smaller than the foregoing species ; its colouring is grass-green, with black round the beak and on the back and shoulders ; the tail and wings are varied with green and black ; the top of the head and the throat, bright blue ; the cheeks and back of the neck, bright red. It inhabits South-East Brazil, and is often imported, but is delicate in captivity.

The Yellow-breasted Tanager (*C. thoracica*) inhabits the same region as the preceding species, but is less seldom imported ; it is a clear green spotted with black, and it has black round the bill. The forehead and round the eyes, blue ; throat, breast and shoulders, golden-yellow, the latter spotted with black, and a black spot on the throat.

The following group is composed of the spotted Callistes, which are less brilliant than the preceding species, but also very lovely, and are less seldom imported.

The Spotted Tanager (*C. guttata*) is very abundant in all the north of South America ; it is green above, more golden on the head ; under parts, white, tinted with bluish-green ; the whole spotted with black, except the wings, the base of the back, and the tail.

Mr. Goodfellow has imported from the Equator another species of the same group, *C. ruficularis* (Red-throated Tanager), which differs principally from *C. guttata* in the blackish top to the head and the reddish-brown throat.

We find next the Golden Callistes, in which a very silky golden yellow and reddish orange-brown prevails. They are magnificent birds, but rare, and not abundant in their native country.

Three species have been imported alive, two by Mr. Goodfellow (*C. aurulenta* and *C. icterocephala*) and the third (*C. arthusi*) by me. They resemble the Festive Tanager in form and style.

The Golden Tanager (*C. aurulenta*), of Colombia and the Equator, is golden-yellow, with wings, tail, and nape of neck marked with black ; tail, beak, and cheeks, black.

C. arthusi is of a rather stouter build, and inhabits the mountains of Venezuela, where I captured it. Tail, cheeks, and base of bill,

black; wings and back, golden-yellow marked with black; rump, head, and tail, golden-yellow; under parts, reddish chestnut.

The Yellow-headed Tanager (*C. icterocephala*), which is found from Costa Rica to the Equator, is golden-yellow, marked with black on the wings and back, the wing feathers having green edgings; the throat, silvery-green; a band of black from the beak to the nape.

Amongst the yellow *Callistes* which form the following group, pale yellow or pale green prevails; the top of the head is yellow or chestnut. They are imported fairly often, and some of the species, although they have not the rich silkiness of the preceding groups, are very striking in their beauty (*C. melanonota* and *C. pretiosa*).

The Chestnut-headed Tanager (*C. vitiolina*) has been imported by Mr. Goodfellow from the Equator. It is silvery sea-green, with a chestnut crown, greyish throat, and a black band from the beak to the neck passing through the eye.

The Cayenne Tanager (*C. cayana*) is found from Guiana to Peru, and is common everywhere and often imported. Its colours are rather washed out: crown of head, chestnut; back, pale yellow to sea-green; tail and wings, bluish-green; under parts, creamy; cheeks and around the eyes, black; throat and breast, bright greyish-blue.

The Yellow Tanager (*C. flava*), of South-East Brazil, is fawn-yellow: the wings and tail are black, edged with sea-green; between the eyes and the beak, the throat, breast, and middle of the abdomen, black. The female, however, is decidedly different, having the back pale green and the cheeks and breast greyish.

The Chestnut-backed Tanager (*C. pretiosa*) is much prettier than the preceding species, and slightly larger. It has the head, neck, and back a fine coppery-chestnut; the lower back and rump, pale yellow; the throat, breast, and abdomen, sea-green; tail, black, edged with blue, as are also the wings, of which the lesser coverts are yellow; a black line runs from the beak to the eyes. The female is much less bright, and has the under parts dull green. This species inhabits South Brazil and Paraguay.

The Black-backed Tanager (*C. melanonota*) is only to be distinguished from the Chestnut-backed (*C. pretiosa*) by the back being black. It

also inhabits South Brazil. These three latter species are rather rare in collections of live birds.

The Chestnut-headed Tanagers are also seldom imported. Their colouring is grass-green, more or less tinted with blue, and the heads are coppery-chestnut.

The Desmarest Tanager (*C. desmaresti*), of Venezuela, is sometimes imported. It is plain brownish-green, with the head and thighs coppery-red.

C. gyroloides has also been imported: a species found from Costa Rica to Bolivia, and differs from the preceding one in the breast, abdomen, and rump being tinted with blue and the head chestnut, bordered at the back with a yellow collar.

The Blue-and-black Tanagers have those colours on the upper parts, the under parts being white or pale yellow. They are rarely imported, and recall in their style the Six-coloured and Golden Tanagers.

The Brazilian Tanager (*C. brasiliensis*) is of robust form, with black face, back, wings, and tail; the flanks are marked with blue and black, the lower breast is white; the rest of the plumage is cobalt blue, slightly silvered. This species lives fairly well in captivity.

Vieillot's Tanager (*C. vieilloti*), of Trinidad and the neighbouring portions of the Continent, *C. media*, *C. flaviventris*, and *C. boliviana* differ chiefly from the former species (*C. brasiliensis*) by their yellow instead of white under parts.

I have captured the Scaly Tanager (*C. nigriviridis*) in Venezuela; a superb bird, having the sides of the head and the back black; the other feathers of the body are black at the base and blue-green at the extremities. Mr. Goodfellow has also imported this species from the Equator, at the same time bringing the following:—

The Blue-necked Tanager (*C. cyanocollis*), which is black, with the wings and rump marked with bright green, the head and neck vivid blue.

C. cyanopygia, which differs from the preceding species in its blue rump.

C. ruficervix is blue, spotted above with black, with a black mask, and an orange-chestnut spot at the nape of the neck, pale blue beneath, and a yellow abdomen.

C. labradoroides is brilliant bluish-green, marked with black on the wings and tail, with the back of the neck and nape black; shoulders vivid blue.

C. lunigera has the upper parts and sides of the head orange-yellow; lobes, two spots on the sides of the head, the nape, back, shoulders, tail, and wings, black; rump and breast, green. The under body, bright russet-green.

C. argentea is silvery-grey, with the head and breast black; the throat and cheeks, golden-yellow; wings and tail, black, edged with bluish-grey. To conclude, I will describe two species of the Calliste group, with black heads, which have been imported.

The Blue-winged Tanager (*C. cyanoptera*) arrives at rare intervals from Venezuela. I captured it and brought back several examples. It is a lovely bird, with a black head and neck; the feathers of the wings and tail are black, broadly edged with blue; the rest of the body is a very pale silvery yellowish-green. The female resembles her mate, but her colouring is less bright.

Lastly, the Black-headed Tanager (*C. atricapilla*), which I found in abundance in North Venezuela and imported to France. This bird has the upper parts of the body silvery-blue; wings and tail black, marked with greenish-blue; under body, blue; crown of head, black; cheeks, neck, and breast ornamented with black feathers, broadly terminated with silky green. The female is sea-green, with the top of the head bluish; the throat and the breast are as in the male, but duller in tints. In these preceding descriptions it is difficult, I fear, to represent truly these lovely and much admired Tanagers, but the reader will no doubt be able to identify the birds which he might possess.

Related to the Callistes are several other species of small Tanagers, of which one has sometimes seen some rare representatives in collections. Most of them have been brought by Mr. Goodfellow from the Equator.

Procnopis vassori, from the Equator, is also found in Venezuela, Colombia, and Peru, and is entirely deep blue.

Pipridea melanonota, found from Venezuela to Paraguay, is violet-blue, marked with black above and clear yellow beneath.

Iridophanes pulcherrima, of Colombia and the Equator, which has for long been classed amongst the Sugar-birds, is black above, with a pale yellow collar on the nape; back, pale green; wings and tail, black, edged with blue; under body, silvery-green.

Chlorochrysa phænicotis is brilliant green, with a spot of coral red on the head; in front and under the eyes, yellow, the same colour being seen on the lesser wing-coverts. The species is found on the Equator.

Another group of small Tanagers is more often met with in collections. These birds are distinguished from the Callistes by their finely formed bills.

The Blue-bellied Tanager (*Tanagrella velia*), which inhabits Guiana, is black above and bright blue beneath, as well as on the forehead, sides of the head, and rump; the lower back is silvery-green, and the centre of the abdomen is chestnut.

The Green-crowned Tanager (*T. cyanomelæna*), of South-East Brazil, differs from the preceding species by the presence of a silvery-green patch on the forehead and crown.

We have now only to mention the members of the subfamily of Euphonias, or Organists, to complete our description of the Tanagers.

These birds are distinguished from the others by their short beaks and tails and thick-set heads. They are very common in their native countries, where they are often kept in cages on account of their agreeable voices. But they are rather difficult to keep in good health, at least in Europe, and I consider them to be the most delicate of all the Tanagers.

Pyrrhuphonia jamaica is grey-blue, varied with yellow, and has been rarely imported.

The Euphonias, or Organists, are very numerous; a dozen species have certainly been frequently imported. They may be divided into several groups, of which the first are those with the blue top of the head.

Euphonia chalybea, of South-East Brazil, is bluish bronze-green above, yellow breast, the throat as on the back.

E. musica (the Organist) is the St. Dominique species named by Buffon, which appellation has been applied indiscriminately to

the other members of the family. The male is blue-black above, orange-yellow below, and also on the forehead and rump. The top of the head is decorated with clear blue; the throat is black. The female is olive-green, with blue on the thighs. This species is very rarely imported, but one sometimes sees the Black-necked Euphonia (*E. nigricollis*), which is found from Colombia to Paraguay and Peru. I brought it from Venezuela, and it was very common in the Caracas bird market. It differs very slightly from *E. musica*.

E. elegantissima, of Central America, is distinguished from the preceding species by the orange-chestnut tint of the under parts and a deep chestnut band on the forehead.

The Yellow-fronted Tanager (*E. flavifrons*), of the Lesser Antilles, is different. The colouring is olive-green, with the thighs and nape blue; the forehead yellow, bordered with black. The female is somewhat paler. In the second group of the Euphonias, the top of the head is yellow or red, and the throat is black. Of this group, the Orange-crowned Euphonia (*E. saturata*) has been imported. It is purplish-black, with the crown of the head, breast, and under parts bright yellow. The female is deep olive-yellow.

The White-vented Euphonia (*E. olivacea*), which is found from Guatemala to the Amazon, has only a broad band of yellow on the forehead.

The species of the third group are the least known. They have the forehead and all the under parts yellow. The females are olive-green, but more yellow or whitish underneath.

The Violet Tanager (*E. violacea*) is frequently imported. It has a little white on the wings and the black of the plumage has violet reflections. It is found in the Guianas and South-East Brazil.

The Shrike-billed Tanager (*E. lanirostris*), which inhabits Panama and the Amazon country, is also often imported, and is distinguished by the reflections being blue.

The Yellow-headed Tanager (*E. hypoxantha*), of the Equator and North-West Peru, has been brought to Europe by Mr. Goodfellow. All the top of the head is yellow.

In the fourth group of Euphonias the throat and upper body are black.

The Chestnut-bellied Tanager (*E. pectoralis*) inhabits South-East Brazil and Paraguay, and has the under parts deep chestnut, with two tufts of yellow feathers on either side of the breast.

The Cayenne Euphonia (*E. cayennensis*), of Guiana and North-East Brazil, is all black with two yellow tufts on either side of the breast.

The genus *Chlorophonia* is not distinguishable from that of *Euphonia* except in the general colour of bright green. Members of this genus are often imported, but they are still more delicate in captivity. It seems that nearly all the species have been imported alive into Europe, but there is some confusion on the subject.

Chlorophonia viridis has the back and round the eyes blue; the wings and tail, black, edged with green; the abdomen, yellowish-green; the rest of the body brilliant green. The female resembles her mate, but her tints are much more subdued.

The Long-winged Green Tanager (*C. longipennis*), of the Equator, only differs from the preceding in the abdomen being of a still brighter yellow.

The Yellow-fronted Tanager (*C. frontalis*), of Venezuela, is green with a blue collar on the nape of the neck and the same colour round the eyes and on the rump; the forehead and abdomen are yellow. The female is almost entirely green. I brought this species to France. It is very common near Caracas.

C. occipitalis, of Mexico, is green, with a blue patch on the head; the under parts green and yellow, and a chestnut line under the belly.

Next to *Chlorophonia*, one can mention the genus *Procnias*, which has been divided from the Tanagers into a separate family (*Procnia-tidæ*), of which there are two species. These birds are distinguished from true Tanagers by their small and flattened beaks, the large "swallow" of the throat, and the very long wings. Furthermore, they nest in hollows of trees and banks, whilst the Tanagers build cup-shaped nests.

Procnias occidentalis, the western Swallow Fruit-eater, is a superb bird of some six inches in length. The male is turquoise blue, with the forehead and sides of the face and throat black. The female, as lovely as the male, is brilliant green. This species has been rarely imported. I kept a female in captivity for some time at Caracas,

which was fed like the *Callistes* and was especially fond of small berries, but the species is difficult to maintain in a cage. It inhabits Colombia, Ecuador, Venezuela, Trinidad, Guiana, and West Brazil.

The other species is *P. cærulea*, the Swallow Fruit-eater of East Brazil, Paraguay, and Argentina.

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THE ROMANCE OF A TROPICAL FOREST

By JAMES B. HOUSDEN

(Continued from p. 207)

In my rambles in the forest I was on several occasions followed by a pair of birds. I could always hear their note, but only once caught a glimpse of them, a pair of brightly coloured birds something like the Nonpareil. As no one seemed ever to go into certain parts of the forest—I proved this by losing my walking-stick and finding it again—I hardly know if these little bright-plumed birds were singing their little song of welcome or protest to the stranger: I am afraid the latter. They were always there with the same song, and it was certainly a little inspiration to the writer on one or two occasions when he could not find his way out: it was strange, without a compass, one nearly always works in a circle. I found this out by finding an American Mocking-bird's nest with three eggs of peculiar shape and strangely marked. I came to this nest three times that morning.

There were many beautiful small birds of prey, such as the Red-shouldered Hawk, locally named the Chicken Hawk, which feeds chiefly on squirrels, rabbits, mice, moles, and lizards; the American Sparrow-hawk, the southern variety, a very beautifully marked bird, which feeds chiefly on the Horned Larks, Longspurs, and Song Sparrows, and several others.

When at New York Zoological Park, I was advised when I reached the Southern States to look out for some beautiful Flycatchers, especially

the Fork-tailed Flycatcher, which is often called the Texan Bird of Paradise in South-West Texas, and is also known as the Scissors-tail. This Flycatcher winters in Central America, some remaining throughout the year by the shores of the Gulf of Mexico, moving about in small flocks.

I was walking along one of the roads looking for new birds when I saw a pair of Fork-tails coming towards me. I was fascinated at the first sight of these lovely soft-plumed birds with long tails, their flight being most graceful, the long outer tail feathers opening and closing at will; these settled near me on a telephone wire, in front of a small wooden house on one of the plantations, and they looked very beautiful in the brilliant sunshine.

In front of the house, behind a lovely bank of roses and other flowers on the gallery (verandah), I saw someone watching me. It certainly must have looked strange, to see a stranger with a slouch hat in shirt sleeves apparently gazing at the sun. There is a large institution belonging to the city a few miles away for the mentally defective. I quite think that lady at first thought I had taken French leave from that institution. After a few minutes a voice called out: "Say, are ye looking for summit, Saar." I replied I was a stranger admiring some of their beautiful birds. When she found I was an English visitor she asked if I would like to see their Mustang horses. She took me over the plantation where I saw a large number of poultry. I had been kept awake at night by the singing of several Mocking-birds: these often sang at midnight. I had also heard the distant barking of a number of dogs. I found here it was a pack of bloodhounds, the descendants of a pack formerly used for hunting runaway slaves, now used for coon-hunting. These dogs have the run of the premises at night, and I was told no midnight visitor, either white or coloured, ever called at their plantation.

The Scissors-tail builds a bulky nest, usually in the mesquite, honey locust, mulberry, pecan, and magnolia trees. Rarely molested, they become quite tame and two broods are often raised in a season. I saw a large number of these beautiful birds. I was visiting a house on the other side of the city, and while sitting outside on the gallery I noticed several pairs of these birds flying in and out of a large mesquite-

tree on the open prairie. My host informed me that these birds were a nuisance. They had settled in a tree adjoining his house, but made so much noise at night that he had to get up and with a long pole hustle the birds away. To me their appearance was most pleasing when fluttering slowly around the tree uttering their twittering notes, "Spee, spee." My host seemed greatly amused when I told him if it had been possible how much I should like to have such a "nuisance" near my house in the Homeland.

Many beautiful birds are to be met with in great numbers: the little Blue Heron lives in rookeries in the cypress swamps of the Southern States. They are locally known as "Bobby" and "Blue Egret"; the White-faced Glossy Ibis, a very beautiful bird, swarms by thousands in some localities along the banks of the Rio Grande river; the Downy Woodpecker is often seen in company with the White-breasted Nuthatch and the Brown Creeper; the Savannah Sparrow winters in Mexico; the Fox-coloured, Harris, Vesper, and Chipping Sparrows, Redwing Blackbirds, Great-tailed and Brown Grackles are all very plentiful. The Orchard Oriole is a beautiful sweet-voiced singer, its nest being an interesting piece of bird architecture; green grass-blades are twisted and wrapped and interwoven with the skill of a lacemaker. An old lady, being shown one of these beautiful nests, asked the question: "Is it not possible to teach these clever little birds to darn stockings?"

The Black and White Creeping Warbler is a beautifully marked bird. The Nonpareil (another local name, Painted Finch) is very numerous in Louisiana, especially about the city of New Orleans. I found them in abundance in South-West Texas and New Mexico, also the Bobolink, locally known as the Rice- or Reed-bird.

I found the English Sparrow everywhere on my long journey, with one exception, a western ranch in the Rocky Mountains. It was first introduced into the United States at Brooklyn, New York, in the years 1851 and 1852. The trees in the parks were at that time infested with a canker-worm, which wrought great injury, and to rid the trees of these worms was the mission of the English Sparrow.

The birds are considered quite a pest in most places, as they drive away the native birds. They seemed rather larger and brighter in

colour than our birds at home. I found a nest in a small gate-post, the pair having had several nests; in the last I saw, the young had been killed by red ants. I found a nest at the edge of the forest, beautifully built with entrance near the bottom. A young man who was with me, as he could not climb the tree, cut it down against my wish, and to my surprise I found it was an English Sparrow's nest with eggs. They build a very substantial water-tight nest, which is needed against the tropical storms.

While travelling on the Southern Pacific Railway near the Rio Grande river, on the border of Mexico, we stayed for a few minutes at a small depot. In a clump of trees near I could hear a great chattering noise. I crossed the track, and found a large colony of English Sparrows and dozens of nests. Our Sparrow is disliked for driving away the native birds, yet I believe he does a great deal of good and has some friends in the Far West. I came across a poem, the author of which was, I believe, a cowboy:—

THE ENGLISH SPARROW

“ You may talk about th' nightingale, th' thrush, 'r medder lark,
 'R any other singin' bird that came from Noah's ark;
 But of all feathered things that fly, from turkey-buzzard down,
 Give me the little sparrer, with his modest coat o' brown.

“ I'll admit that in th' spring-time, when th' trees 're gettin' green,
 When again th' robin red-breast 'nd th' bluebird first 're seen;
 When the bobolink 'nd blackbird from th' southland reappear,
 'Nd the crow comes back t' show us that th' spring is really here—

“ I'll admit that in the spring-time, when the groves with music ring,
 Natur' handicaps th' sparrer; he was never taught to sing;
 But he sounds th' Maker's praises in his meek 'nd lowly way;
 'Nd tho' other birds come back at times, he never goes away.

* * * * *

“ Th' sparrer's never idle, fer he has t' work his way;
 You'll always find him hustlin' long before th' break o' day,
 He's plucky, patient, cheerful, 'nd he seems t' say t' man,
 I know I'm very little, but I do th' best I can.

“What more can you ’nd I do than t’ always do our best?
Are we any more deservin’ than th’ ‘little British pest’?
So, when you talk of ‘feathered kings’ you’d better save a crown
Fer the honest little sparrer, with his modest coat o’ brown.”

NOTES

By H. L. SICH

I have found Dufresne’s Waxbill quite as hardy as any other species, and more inclined to nest. Only having had two pairs, the first soon died. I replaced them, and in 1922 they went to nest, but being disturbed by me, they deserted. They nested again almost immediately, and when I had to take them indoors, as it was October, the hen was incubating five eggs, two of which contained young birds. This year they went to nest at the end of May, but on turning suddenly cold the hen died from egg-binding. My hen Indian Silverbill did the same.

My aviaries only being fit for use in the summer, I have to keep my birds indoors from October to the end of May, at Chiswick. When I first began to keep foreign birds I used to cover up the cages at night and often found a Waxbill or two dead in the morning. As soon as I gave them a light to feed by somewhere between 7 and 10 p.m., the deaths ceased. I am perfectly certain that a Waxbill cannot stand sixteen hours’ fasting. A larger bird can do so, though it may not be good for it. What they do at the Small Bird House at Regent’s Park I do not know: the light may last longer there.¹ Another thing I find is that when in a cage—mine are box cages 36 by 16 by 15 inches—after a moult in February or March, my Waxbills do not get their plumage properly until they get out of doors, partly owing to their pecking one another through having no other employment. My hen Dufresne’s was nearly naked, but yet she nested three times, which says much for the hardiness of the species.

This year I tried to breed some birds in cages, but only succeeded with Ribbon Finches; they brought out three young, two hens and

¹ Artificial light is used on winter nights.—ED.

a cock. They threw out one young bird, *alive* not *dead*. I put it back again, and found there were five young altogether; when they finally left the nest I failed to find the others anywhere; where they got to is a mystery.

I next tried a pair of African Fire-finches, only getting broken eggs in the sand tray. Turning them out in a small aviary they half-reared one young bird, but deserted it, probably being frightened by my going inside to try and catch up some other young birds which were interfering with another nest.

When I bought them the cock had only a small patch of red feathers on the breast. I watched the colour gradually spreading over the whole of the under parts, yet I never found a feather on the sand tray or the floor of the room. So I must conclude that a feather once produced can change from a dull to a brighter colour. As Fire-finches are cheap I recommend those who doubt the fact, and there seem to be many, to try the experiment; it will not take more than six weeks.

I also tried Long-tailed Grass-finches in a cage, with exactly the same result, except that they failed to hatch in the aviary.

The only birds reared in my aviaries this year are four hybrids from an Indian Silverbill male and Zebra Finch female. There were two nests, the first contained four, but one died after leaving: it could not fly, and died one night from cold, not for want of being fed. The second nest only produced one; there were two others and eggs in various stages of incubation, but as the three young of the first brood slept in the nest the whole time till I caught them up, it seems a wonder that any survived. The first three seem to be cocks, and the last a hen. I shall try my luck with them next year with hen Zebra Finches if all goes well.

The young birds are Silverbill in shape and song. Their tails are marked like the Zebra Finch, with the white mark by the eye. Their bills and feet are lighter than the Silverbill. Their throats and the upper part of the breast is spangled, more like the markings of the Spice Finch than the bars of the Zebra Finch. The rest of their under parts are white; there are none of the bright colours of the cock Zebra Finch so far. They must be about three months old now.

FEARLESSNESS OF KINGFISHERS

By KATHARINE CURREY

The land on which the village of Ewell in Surrey was built is full of springs. One of them was enclosed and railed in for the benefit of Queen Elizabeth, whose wonderful complexion, so it is said, was chiefly due to the use of this water for washing her face. Hence the name "Ewell", or, as it used to be, "St.-ye-Well." The present main road to London is bridged over what used to be a shallow stream with stepping-stones, the water flowing on down the village where it forms the little Hogsmill river. The old road to London made a detour to avoid the stream leading round the old Churchyard, where the fine flint tower still stands, a relic of past centuries.

The footpath along the present main road is flanked by a low wall, over which one can look into the pool below, where the stream has its source, bounded by ivied banks, with trees. It might well be named the Silent Pool, so sheltered is it from winds, and the water, of wonderful clearness, remains unruffled by the numerous little springs that bubble out of the sand and chalk. A few days ago, as we were walking along the path, we stopped to look over the wall into the water. Suddenly a beautiful Kingfisher darted out of the bank, flashing like a jewel in the bright sunshine, and flew over the water to an ivy-covered tree. A policeman standing near told us that numbers of Kingfishers live in the bank, and that when he has been on duty at that spot at daybreak, he has watched them from a corner of the wall catching minnows that swarm under the banks. "He drops like a stone into the water," he said, "and never misses his prey," adding that he had seen the birds catching and spearing larger fish, such as spotted trout and perch, but after stabbing their unfortunate victims, they are left to die.

As Ewell is only 13 miles from London, and the main road by the pool is the noisiest and most frequented part of the village, it seems very extraordinary that a Kingfisher—a shy bird, loving seclusion—should elect to live in such a spot!

It probably was one of these inhabitants of the pool that one day, some time ago, paid us literally a "flying visit", entering the dining

room window while we were at luncheon, and circling three times round the table, then perching on a side table to recover breath before making good his escape. As he sat panting on the table, I hastened up to him, when he darted to the window, where I caught him, and of course set him free, after he had been duly admired. He dashed off over the garden to the field below where there is a pond, but no fish in it, and as I never saw a Kingfisher there, probably his home was in the banks of the pool.

CORRESPONDENCE

SPOTTED FLYCATCHERS

SIRS,—I wonder if your readers have seen any extraordinary numbers of Spotted Flycatchers that have been about this summer. There was quite a little flock of them in our garden, taking up their position on every available point of vantage to hawk flies. On one, a stone "tulip-bowl" at the end of a stone balustrade, a pair, and often more, would keep watch, others chose an old juniper stump, others a garden seat, and others were busy on an old yew-and-box hedge searching for insects, quite regardless of the efforts of the Sparrows to drive them away. Every day they appeared, and remained as long as the flies lasted.

KATHARINE CURREY.

ROOKS AND THEIR WAYS

SIRS,—Where do the inhabitants of a rookery go to after the young have flown? During the autumn and winter they only occasionally return to the trees bearing their nests, and usually before a storm, when they circle about as if they were threading the mazes of a dance, cawing, and chasing each other, then perching on the tops of the beeches near their nests, before assembling to take flight. Do Rooks migrate from one rookery to another for the winter? If not, why should they desert the old rookery, and only return to rebuild their nests?

KATHARINE CURREY.

TAWNY OWL TAPPING ON WINDOW

SIRS,—When the account of the Wagtail pecking at a window was published (page 105), I was reminded of a case told me by my sister-in-law of an Owl behaving in a similar manner, and at my request she has sent me the following account of the incident :—

“ Whilst living at Orchard House, Blackheath, London, S.E., from September, 1916, to September, 1917, an Owl used to come in early morning, between 6 to 6.30 as a rule, and tap with its beak on the glass of the window of the bedroom. On the first occasion when I heard the noise I thought it was a person knocking on the door of the room, but on going to open it found no one there. As the noise was repeated in a minute or two, I then went to the window and there discovered an Owl outside, sitting on the window ledge. The Owl returned next morning to the same place, and used to visit and tap at the window practically every morning, after which it flew away to a tree at the end of the garden, where there were also some other Owls. Only one Owl used, however, to visit the window ledge, apparently the same one time after time. The walls of the house were covered with ivy, which hid many Sparrows' nests; perhaps the Owl used the ledge as a point of vantage, and whilst waiting there saw his reflection in the glass and attacked it, thereby causing the knocking.—ADA S. SHORT.”

The Owl, from description given me, was a Tawny Owl—a species which, to my knowledge, is common in that neighbourhood.

FREDERICK D. WELCH, M.R.C.S.

November, 1923.

CHANGE OF EDITORSHIP

Members of the Avicultural Society will remember that in July, 1920, Dr. Renshaw resigned the Editorship of the MAGAZINE, and at the special request of the Council Messrs. R. I. Pocock and D. Seth-Smith consented to act as joint Editors for the time being, or until another Editor could be appointed. They do not feel now that they can devote the necessary time to this work, and it is with great pleasure that the Council are able to announce that the Marquess

of Tavistock has most kindly undertaken to become Editor from January, 1924. Lord Tavistock is an aviculturist of very considerable experience, and it is felt that in his hands the MAGAZINE will be conducted in the best interests of true Aviculture. Members are asked to help him as much as they can by providing "copy." All who keep birds should have something to write about for the benefit of their fellow members.

From now onwards all communications intended for publication in the MAGAZINE should be addressed to The Marquess of Tavistock, Warblington House, Havant, Hants.

THE SUGAR BIRDS

By J. DELACOUR

The family of the Sugar Birds (*Cærebidæ*) approaches that of the Tanagers in relationship. They inhabit the same regions, and often associate with one another.

Like the Tanagers, the Sugar Birds are frugivorous and insectivorous, but they also sip the nectar from the flowers where they search for tiny insects. In this mode of feeding they are nearer to the Sunbirds of the Old World, of which the greater number of them are also similar in form. All the Sugar Birds are small, the tails fairly short; the beaks fine and often long and curved; the tongues show a division at the extremity. Their nests are purse-like.

I have often watched Sugar Birds in their native haunts, either in the West Indies or in Venezuela or the Guianas. They frequent bushes and undergrowth in gardens and forests, often in company with Tanagers. They are very attached to the spots where they are found, and are easily captured in traps or with bird-lime.

Sugar Birds live well in captivity, either in cages or aviaries; and one species, the Yellow-winged (*Cyanerpes cyaneus*), has bred. They must have warmth in winter. They can be kept on the food given to the small Tanagers, but the best results are obtained with the mixture of Mellins' food, honey, and milk, with an addition of fruits, such as grapes, oranges, etc., and sponge cake can be put in the liquid.

Sugar Birds are for the most part much less delicate than the small Tanagers.

The Sugar Birds classed under *Cæreba* have all the same characteristics. They are very small birds with long curved bills, and are black and yellow, the sexes being alike in colour. They are found in the West Indies and in tropical America, and are especially fond of gardens.

The Yellow Sugar Bird (*Cæreba luteola*), which is sometimes imported from Venezuela, is the size of a Wren. It is black, with the rump and under parts bright yellow; eyebrows, white; throat, greyish. The wings are marked with white. Once acclimatized, this little bird

is very hardy, and will live well during the summer in an outdoor aviary.

The Martinique Sugar Bird (*C. martinicana*) was imported for the first time to France in 1913 by the late Marquis de Ségur, and I also brought some over in 1922. This bird only differs from the preceding species in being slightly larger; the edge of the bill, red; the chin and sides of the throat, black with the centre white.

The Sugar Birds of the *Cyanerpes* group are coloured in brilliant blues. The males of some species have an eclipse plumage, and then resemble the females for half the year. They are forest-loving birds; in Guiana I saw two species. The Yellow-winged Sugar Birds kept together in large numbers amongst the lower trees of the secondary forest, where they fed on berries. In February the males were in full colour, and it was a marvellous sight to see them flying about displaying the bright golden yellow on their wings. The Blue Sugar Birds, on the contrary, live in the forest proper, in small flocks amongst the higher trees.

The Yellow-winged Sugar Bird (*C. cyaneus*) is a superb royal blue. Round the eyes, the upper back, the tail, and the wings, velvet black. The flight feathers are bright golden yellow on the inner webs; the crown of the head is bright, silky, turquoise blue; legs and feet, red; the beak long and slightly curved. The female and the male in eclipse plumage are dark green with whitish eyebrows, and the underbody bright green striped with greyish brown. This species is found from Southern Mexico to Brazil.

The Purple Sugar Bird (*C. cœrulea*) is less frequently imported. Its colouring is a fine violet-blue, except for the lores, throat, wings, and tail, which are black; the legs and feet are yellow, and have the appearance of wax. The female is rich green above, with chestnut throat, the under parts being pale yellow striped with dark green.

The Purple Sugar Bird is slightly smaller and more thick-set than the Yellow-winged. The species is found in the north of South America as far as the Amazon and Peru.

The Shining Sugar Bird (*C. lucidus*) is rarely imported. It inhabits Central America. It only differs from the preceding species in its rather more robust form, and in the colour of the violet-blue being brighter.

The Black-headed Sugar Bird (*Chlorophanes spiza*) is imported fairly frequently. The male is a beautiful bird of an emerald green, slightly washed with blue; the crown and sides of the head, black; beak, yellow and black; legs, black. The female is entirely beautiful grass-green. This species measures 13 centimetres, and it is found from Guatemala to South-East Brazil. It lives well in captivity.

The Blue Sugar Bird (*Dacnis cyana*) is rather smaller than the preceding species, and its beak is shorter. The male is sky-blue, with the forehead, lores, throat, upper back, wings, and nape, black; legs and feet, flesh colour. The female is brilliant green, with a blue head and grey throat. These birds are often imported, and in France are sold as "Fauvettes bleues", or "Fauvettes Vertes", according to their sex. They are more delicate in captivity than the preceding species. They inhabit South Mexico down to Brazil.

Dacnis nigripis has also been imported, but does not differ from the preceding species except that the legs are black and the tail is shorter. It inhabits South-East Brazil. Mr. Goodfellow imported from the Equator a species of the genus *Diglossa*, which is a rather larger bird, the tail is longer, and the beak, which is fairly short, is thicker and slightly hooked. *D. personata* is lapis lazuli blue with black wings, tail, face, and throat.

Apparently this species is not difficult to keep, and is very attractive. Mr. Astley had one which was in beautiful condition, but which most unfortunately escaped through an open window in mid-winter, when thick snow had fallen, and was never seen again. This species is extremely active and quick in movement.

FOOD FOR THE SMALLER TANAGERS

By Captain G. E. RATTIGAN

Perhaps my experience of the food and treatment of the smaller Tanagers, though it only relates to the commoner species (Superb, Tricolour, Copper-headed, and Festive of the genus *Calliste*, and the Violet and All-green, *Chlorophonia viridis* of the *Euphonia* group), may be of some interest. Now, although I can only claim to have kept the above species, yet I can find no reason to suppose that a diet suitable to all the above-named would not be equally satisfactory or give as good results if applied to any other member of the genus. In my opinion, the cardinal error in most food mixtures is, in the first place, the inclusion in them of dried ants' eggs and dried flies. I have not found that either of these ingredients is of the least value as a food for the Callistes; in fact, the last-named is positively harmful because sooner or later it sets up digestive troubles. As regards fruit, bananas may appear to be harmless, but I am satisfied myself that they are not. True enough it is that both these Tanagers, and even more so Violet Tanagers, are passionately fond of this fruit and will, if allowed to do so, fairly gorge themselves upon it. Bananas, however, are very fattening, and the consequence is that birds allowed to over-indulge themselves in this fruit become rapidly over-fat and finally die suddenly, as M. Delacour has stated, the cause of death being sometimes fatty degeneration of the heart and sometimes apoplexy. Orange, if fed in conjunction with a non-milky diet, I should regard as harmless, or even beneficial, but as the acid of the orange does not mingle amicably with milk, it is obviously asking for trouble to supply oranges to birds being fed upon any diet of which milk forms an important part.

ARTIFICIAL HEAT

I have never found this necessary except in the case of newly imported birds. I have kept, and am in fact actually keeping at the time of writing, Superb and Copper-headed Tanagers, and, perhaps what might be considered more surprising, a Purple Sun-bird and Yellow-winged Sugar-bird throughout all last winter and all the present

dreadful weather in a room entirely devoid of any kind of artificial heating, and birds healthier or in more perfect condition it would be impossible to find. Of course, it is possible that in districts where prolonged periods of very low temperature are frequently experienced it might be found necessary to supply sufficient heat to just keep the frost out of the room, more especially at night. Sick birds or birds which show the least sign of going off colour, must, of course, be promptly removed to warmer quarters. The greatest care must also be exercised to keep the birds from all possible draughts, no matter how slight, and cages should always be covered up at night. These birds are extremely susceptible to affections of the lungs, and once the lungs are even slightly affected all hope of saving the bird may as well be abandoned at once, no matter how strong and healthy it may otherwise appear to be. For the benefit of all those who may be in doubt as to the suitability of the diet they are at present employing, or of anyone who may care to give it a trial, I can from personal experience heartily recommend the regime I follow, and providing only this is intelligently followed it will certainly surprise me if the least difficulty is experienced in keeping these birds for years in perfect health and condition. It will be as well first of all to stress the fact that all these birds are very active, and plenty of exercise is absolutely essential to keep them any length of time in really fine condition. If caged, therefore, large cages are most necessary. My own birds are caged from the time of the first patch of bad weather in September till the following May, when they all, including the Sun- and Sugar-birds, are turned into a fair-sized outdoor aviary. Now as regards what I consider a really satisfactory staple diet, the following is my own recipe and is exactly the method applied in feeding my own Tanagers.

SUMMER DIET

Except on Tuesdays and Fridays the following : In order to indicate as clearly as possible the ratio of foods used, I will for demonstrative purposes utilize an ordinary milk measure such as is easily obtainable anywhere. Fill the measure up to the line marked 6 oz. with Spratt's cod liver oil food, empty out the food and pour into the measure milk up to the point or line marked 4 oz. This will give you the proper proportions

of food and milk required. Take half table-spoonful of pure honey (an even tea-spoonful is sufficient in summer), add this to the milk, and boil till the milk foams up, when pour rapidly over the food and mix well with the hands or a knife. It is now ready for use. Alternatively on the days mentioned above supply, in lieu of cod liver oil food, Spratt's cage-bird food and treat exactly as before.

WINTER FOOD

Prepare food exactly as for summer, but to the above quantity of food add half an apple chopped very fine and well mixed in with the food, and about a dessert-spoonful of grocers' currants soaked for twenty-four hours previously in cold water. On days upon which cage-bird food is supplied, add a tea-spoonful of Mellin's food to the milk before boiling.

FRUIT

The best winter and all-round fruits are apple and pear in the order named. Many Tanagers, in fact most, may refuse apple at first, but it is an easy matter to get them on to it. Sweet grapes are also excellent, but rather an expensive luxury, at times. Banana may be given as a *change*, but not as a regular item of diet. During the summer cherries, figs, plums, and later, blackberries, are all most excellent. Privet, elderberries, and berberries are usually much appreciated, and are all very good. Green-peas are also liked sometimes.

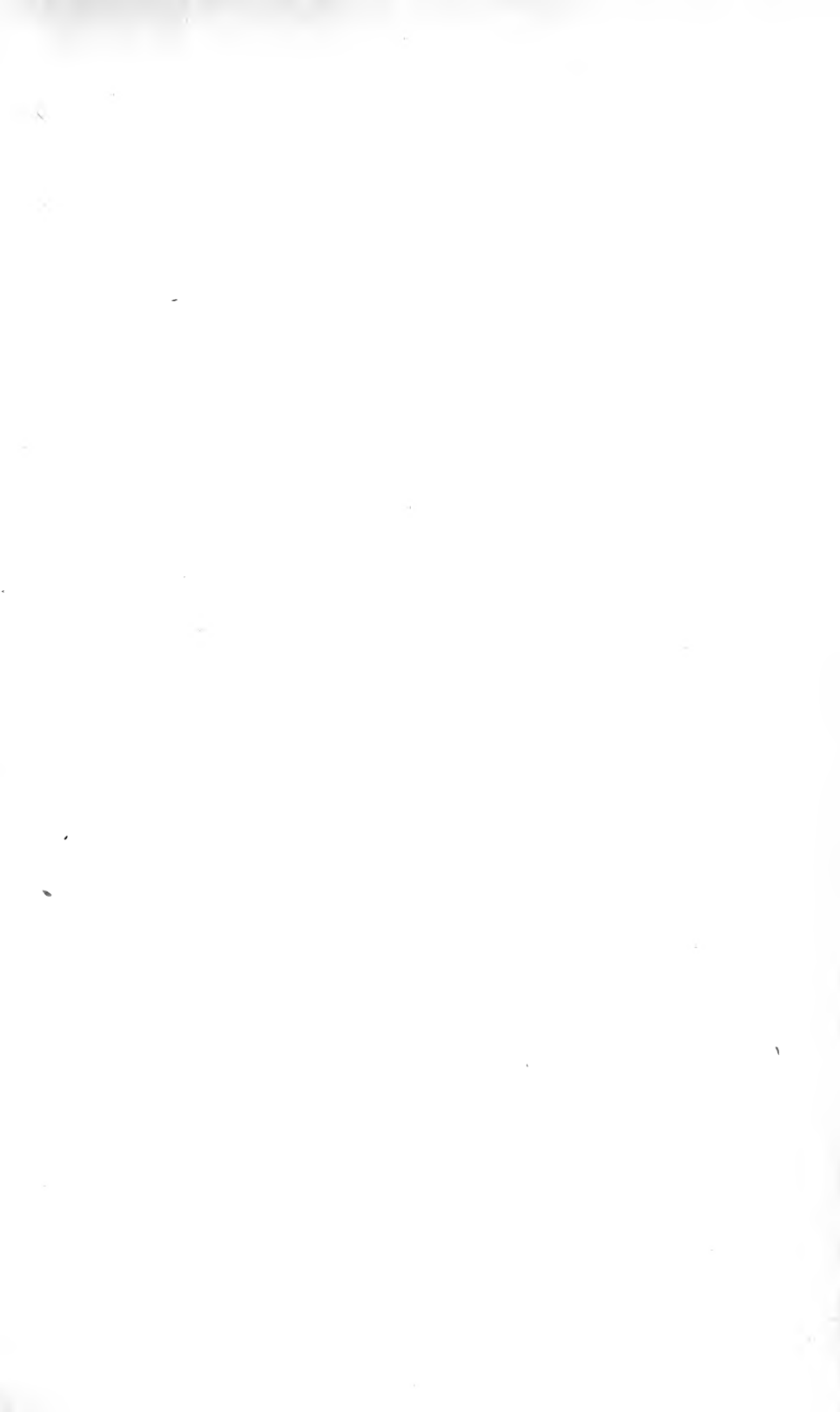
MEALWORM RATION

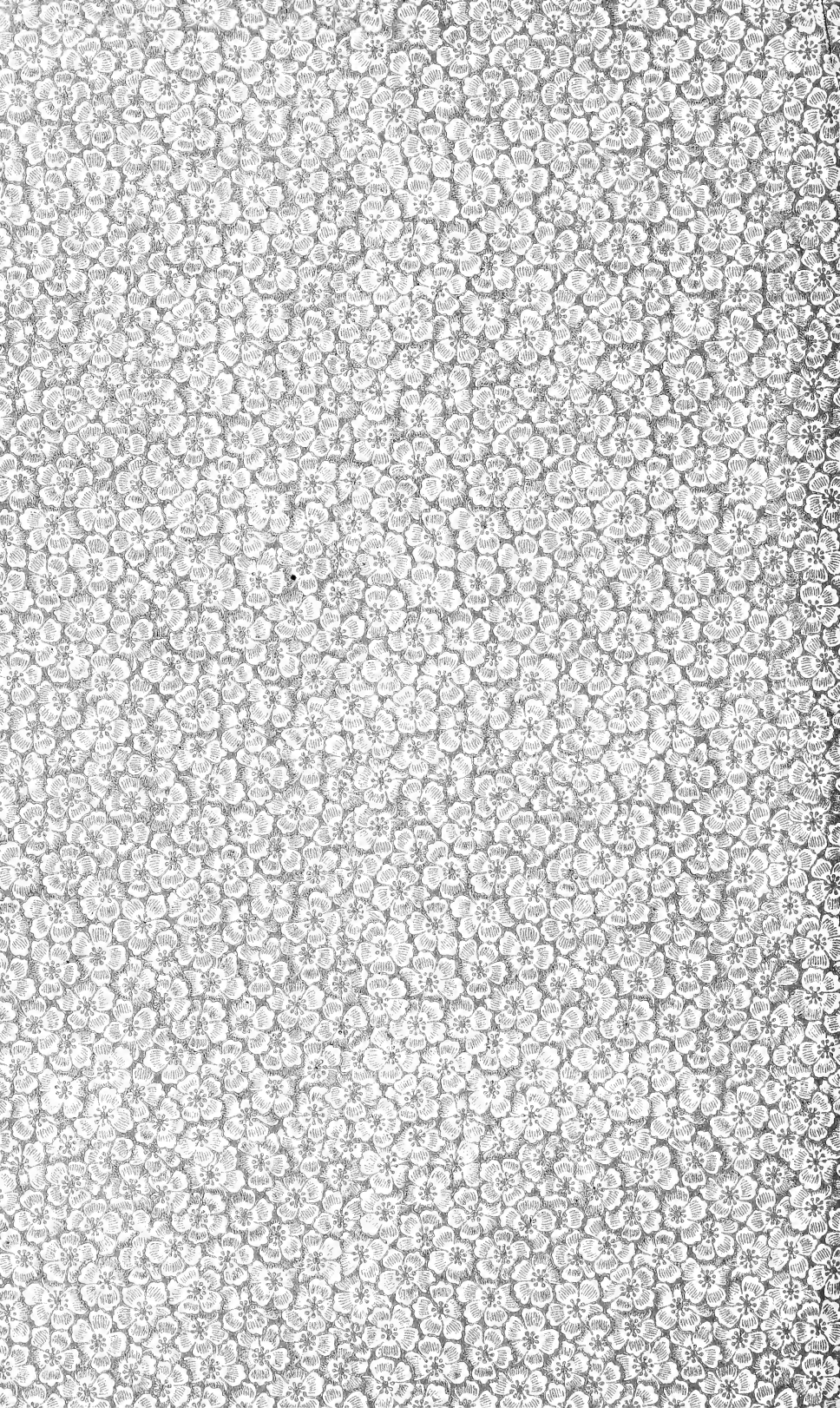
Two mealworms per day per bird are beneficial, and keep the birds attractively tame if given always from the fingers.

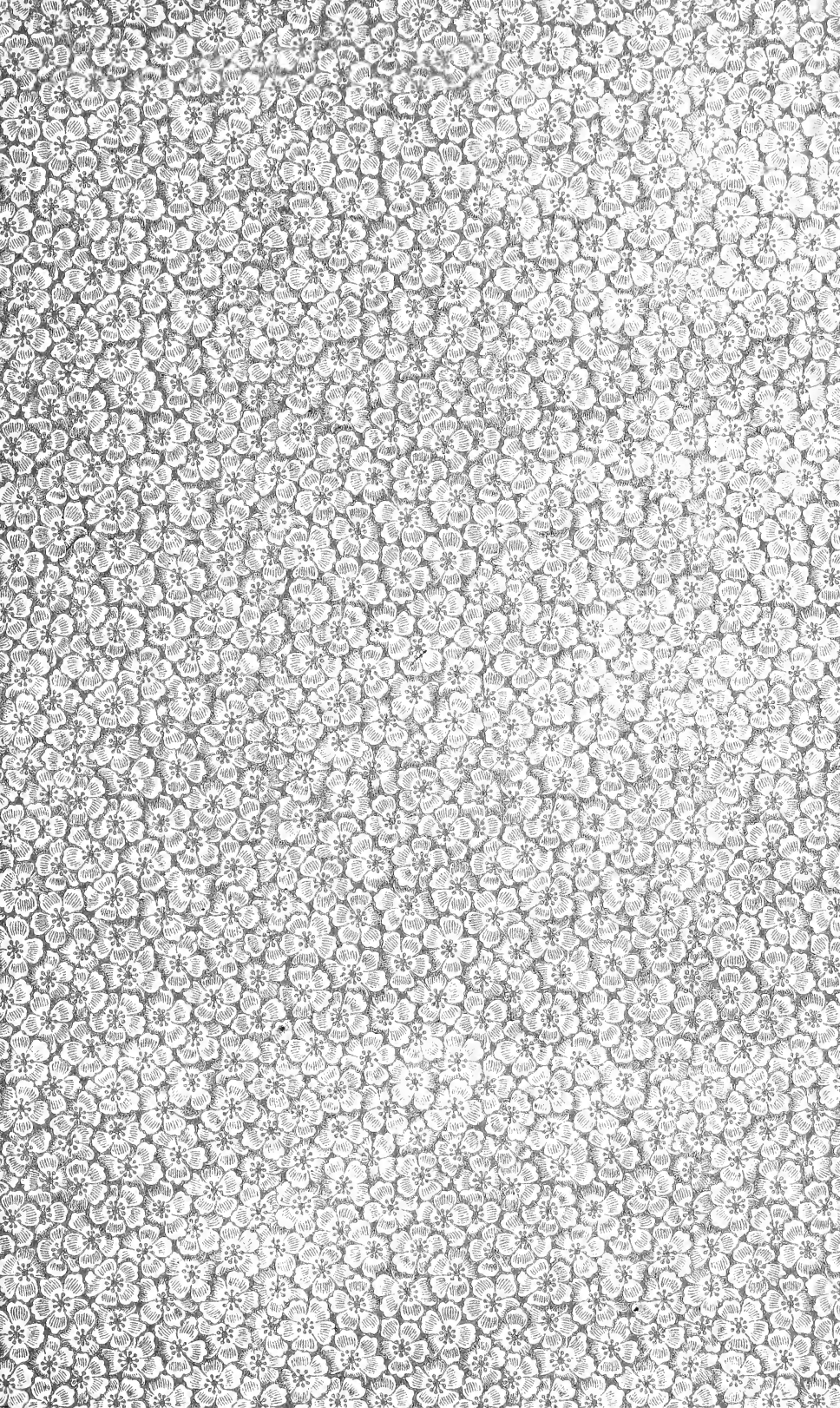
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