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# BULLETIN

OF THE

# BRITISH ORNITHOLOGISTS' CLUB

BRITISH MUSEUM
NATURAL HISTORY

EDITED BY

DR. JEFFERY G. HARRISON

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**Volume 74**

**1954**

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PRICE TWO SHILLINGS AND SIXPENCE

# PREFACE

A FULL PROGRAMME of nine meetings was arranged for 1954 and nine Bulletins issued. The flow of papers for publication has shown a most satisfactory increase and this volume with 112 pages is the largest for some years. It is gratifying too, that the scope of papers has tended to be more balanced, the increase being mainly in European, Asiatic or general ornithological topics, with some welcome support from American ornithologists. At the same time, the steady output of African material has continued.

Early in 1954, the Committee agreed to increase the number of free Bulletins to contributors to a maximum of twenty-five and to bear the cost of one black and white line block per article. It is hoped that this will encourage contributors still further.

The numbers attending the meetings were as follows: Members of the Club, 273; Members of the B.O.C., 59; Guests, 89; Guests of the Club, 3; Total, 424; Mr. R. P. Bagnall-Oakley, and Dr. and Mrs. K. H. Voous were the guests of the Club.

Mr. C. N. Walter has again kindly prepared the List of Authors for the volume. The Editor would also like to thank the Caxton and Holmesdale Press for their splendid co-operation, which is reflected in the earlier publication dates in recent months.

JEFFERY HARRISON.

*Sevenoaks, December, 1954.*

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1912 ALEXANDER, H. G., 144 Oak Tree Lane, Selly Oak, Birmingham 29.
1948 ALLISON, S., 58 Alfreton Road, Nottingham.
1952 ATKINSON-WILLES, G. L., Elsenwood, Portsmouth Road, Camberley, Surrey.
1953 BAGNALL-OAKLEY, R. P., Brinton Hall, Melton Constable, Norfolk.
1948 BAK, F. A., 46 Holmfield Road, Leicester.
1947 BAND, R. M., 2a Crescent West, Cleveleys, Nr. Blackpool, Lancs.
1910 BANNERMAN, D. A., M.B.E., M.A., SC.D., F.R.S.E., F.Z.S., F.R.G.S., H.F.A.O.U. (*Editor*, 1914–15; *Hon. Secretary*, 1918–19; *Hon. Treasurer*, 1918–19; *Committee*, 1922–25; *Chairman*, 1932–35; *Vice-Chairman*, 1939–1940); Boreland of Southwick, by Dumfries.
1933 BARCLAY-SMITH, Miss I. P., (*Committee*, 1941–44), 51 Warwick Avenue, London, W.9.
1951 BARLOW, Comdr. T. E., R.N., Boswells, Wendover, Aylesbury, Bucks.
1935 BARNES, Mrs. E. C., Hungerdown, Seagry, Chippenham, Wilts.
1925 BARRINGTON, F. J. F., M.S., F.R.C.S., (*Committee*, 1929–1932; *Vice-Chairman* 1943–45), 14a Upper Wimpole Street, London, W.1.
1950 BARTHOLOMEW, J., Glenorchard, Torrance, Nr. Glasgow.
1947 BELCHER, Sir Charles F., K.B.E., Kinangop, Kenya Colony.
1937 BENSON, C. W., B.A., c/o Dept. of Game and Tsetse Control, P.O. Box 72, Lusaka, Northern Rhodesia.
1948 BENSON, Miss S. V. (Mrs. Hillier), 26 Downsview, Bude, Cornwall.
1948 BEVEN, Dr. G., M.B., B.S., B.SC, M.R.C.S., L.R.C.P. (*Committee*, 1954– ), Cromer Hyde, Central Road, Morden, Surrey.
1947 BLAIR, Dr. H. M. S., M.B., B.SC, Bonnie Rigg, 5 St. George's Avenue, South Shields, Durham.
1920 BOYD, A. W., M.C., Frandley House, Nr. Northwich, Cheshire.
1953 BOYES, Prof. J., F.R.C.S.(E), F.D.S.R.C.S.(ENG.), 41 Clayton Road, Jesmond, Newcastle-on-Tyne 2.
1953 BRADLEY, Mrs. J. D., 58b Kenway Road, London, S.W.5.
1952 BRAMHILL, R., Sumner House, Cottenham Road, Rotherham, Yorks.
1952 BROMLEY, R., Glenroyd, 28 Woodthorne Road, Tettenhall, Staffs.
1952 BROWN, Miss B. E., Gresham Cottage, Granville Road, Limpsfield, Surrey. *
1950 BROWNLOW, Lt.-Col. H. G., R.E., Monomark BM/DIPPER, London, W.C.1.
1948 BRYSON, A. G. S., 20 Inverleith Place, Edinburgh 4, Scotland.
1948 BUSHELL, D. C., Hurstbourne, Southwell Park Road, Camberley, Surrey.
1948 BUTTON, E. L., Boma, Lundazi, Northern Rhodesia.
1911 BUXTON, Major A., D.S.O., D.L., Horsey Hall, Nr. Gt. Yarmouth, Norfolk. *
1933 CAMPBELL, Dr. W., Ardrennich, Strathtay, Perthshire.
1948 CARR, L., 275 Ringinglow Road, Sheffield 11.
1936 CAVE, Col. F. O., O.B.E., M.C., Flat 4, 2 Ennismore Gardens, London, S.W.7.
1953 CAWSON, G., 7 Burnham Avenue, Ickenham, Middlesex. *
1946 CHADWYCK-HEALEY, Mrs. G. M., New Place, Porlock, Minehead, Somerset.
1951 CHALIF, E. L., 37 Barnsdale Road, Shorthills, New Jersey, U.S.A.
1936 CHAPIN, Dr. J. P., PH.D., c/o Irsac B.P. 217, Bukavu, Kivu, Belgian Congo.
1923 CHARTERIS, Hon. G. L., Old House, Didbrook ,Nr. Cheltenham, Glos.
1938 CHISLETT, R., Brookside, Masham, Nr. Ripon, Yorks.
1938 CLANCEY, P. A., F.Z.S., Museum and Art Gallery, City Hall, Smith Street, Durban, Natal, South Africa.
1916 CLARKE, J. P., Broadhurst Manor, Horstead Keynes, Sussex.
1950 CLAY, Miss T., British Museum (Natural History), Cromwell Road, London, S.W.7.
1946 COHEN, E., F.Z.S., Hazelhurst, Sway, Hants.
1952 CONDER, P. J., Dale Fort Field Centre, Haverford West, Pembrokeshire.
1948 COOMBES, R. A. H., British Museum (Natural History), The Zoological Museum, Tring, Herts.
1927 CUNNINGHAM, Capt. J., R.A., 3 Donegall Square East, Belfast, Northern Ireland.
1945 DALGETY, C. T., (*Committee*, 1948–1950), Radwell Mill, Baldock, Herts.

1948 De Hamel, Dr. F. A., Holly Cottage, The Warren, Cranleigh, Surrey.
1920 Delacour, J., Los Angeles County Museum, Exposition Park, Los Angeles 7, California, U.S.A.
1922 Dewhurst, Col. F. W., Middle Lake, Meavy, Yelverton, S. Devon.
1952 Dickinson, H. J., The Spinney, Wallis Wood, Ockley, Surrey.
1942 Duffin, C. J., The Cottage, Lyncroft Gardens, Ewell, Surrey.
1928 Duncan, A. B., Lannhall, Tybron, Dumfriesshire.
1952 Edwards, P., F.Z.S., The Rowans, The Avenue, Trimley St. Mary, Suffolk.
1953 Elliott, H. F. I., O.B.E., 173 Woodstock Road, Oxford.
1952 Etchecopar, R. D. (Mons.), 217 rue du Faubourg St. Honoré, Paris VIII, France.
1917 Ezra, A., O.B.E., F.Z.S., (*Committee*, 1933–36), Foxwarren Park, Cobham, Surrey.
1948 Ferguson-Lees, I. J., Fordlands, Crowhurst, Sussex.
1927 Ferrier, Miss J. M., F.Z.S., Blakeney Downs, Blakeney, Norfolk.
1953 Finnis, R. G., Helston, Nurstead Lane, Longfield Hill, Nr. Dartford, Kent.
1936 Fisher, J. M. M., (*Committee*, 1942–46), The Old Rectory, Ashton, Northampton.
1943 Fitter, R. S. R., B.SC., F.Z.S., Drifts, Chinnor Hill, Oxford.
1950 Forster, Miss E., 608 Grenville House, Dolphin Square, London, S.W.1.
1929 Foulkes-Roberts, Capt. P. R., M.C., Lamb Hill, Bride, Nr. Ramsey, Isle of Man.
1933 Gilbert, Capt. H. A., Bishopstone, Bridge Sollars, Nr. Hereford.
1930 Glenister, A. G., F.Z.S., The Barn House, East Blatchington, Seaford, Sussex.
1946 Godman, Miss C. E., South Lodge, Horsham, Sussex.
1933 Godman, Miss E. M., (*Vice-Chairman*, 1947–48), South Lodge, Horsham, Sussex.
1953 Gorton, E., 180 Wigan Road, Westhoughton, Nr. Bolton, Lancs.
1912 Grant, Capt. C. H. B., (*Committee*, 1944–47; *Editor*, 1935–40 *and* 1947–52; *Vice-Chairman*, 1940–43; *Acting Hon. Secretary*, 1947), 8 Cornwall Gardens Court, 50 Cornwall Gardens, London, S.W.7.
1946 Gudmundsson, Dr. F., Museum of Natural History, P.O. Box 532, Reykjavik, Iceland.
1954 Hadfield, C. S., 5 Douro Place, London, W.8.
1948 Hall, Mrs. B. P., 10 Downside, Epsom, Surrey.
1928 Harrison, Sir Bernard G., F.R.A.S., F.R.G.S., F.Z.S., (*Committee*, 1940–44, *Vice-Chairman*, 1946–47), 45 St. Martin's Lane, London, W.C.2.
1922 Harrison, J. M., D.S.C., M.R.C.S., L.R.C.P., F.Z.S., (*Committee*, 1933–36, *Vice-Chairman*, 1945–46, *Chairman*, 1946–49), Bowerwood House, St. Botolph's Road, Sevenoaks, Kent.
1943 Harrison, J. G., M.A., M.B., B.CHIR., D.R.C.O.G., (*Editor*, 1952– ), "Merriewood" St. Botolph's Road, Sevenoaks, Kent.
1954 Harrison, Mrs. P. F., "Merriewood", St. Botolph's Road, Sevenoaks, Kent. *
1953 Harwin, Dr. R. M., P.O. Box 65, Johannesburg, South Africa.
1951 Hawes, C. H., 248 Hoylake Crescent, Ickenham, Middlx. *
1953 Hazlewood, A., 54 Somerset Road, Bolton, Lancs.
1927 Heath, R. E., 2 Pembroke Court, Edwardes Square, London, W.8.
1953 Hemsley-Hall, Sqn. Ldr. H. S., Officer's Mess, H.Q., R.A.F. Bomber Command, High Wycombe, Bucks.
1952 Herington, S. D., 8 Eton Villas, London, N.W.3. *
1951 Heyder, Major H. M., M.C., 3 Whitehall Court, S.W.1. *
1952 Hoffman, L., Schonenburg, Nr. Pratteln (Basel), Switzerland.
1933 Hollam, P. A. D., (*Committee*, 1938–40 *and* 1947–49), Branksome, Old Woking Road, Pyrford, Woking, Surrey.
1950 Hudson, A. C., 50 Queen Anne Street, Cavendish Square, London, W.1. *
1946 Hunt, G. H., Curlews, Blakeney, Norfolk.
1951 Hurcomb, Lord, G.C.B., K.B.E., 47 Campden Hill Court, London, W.8.
1902 Ingram, Capt. C., F.Z.S., The Grange, Benenden, Cranbrook, Kent.
1954 Irwin, M. P. S., c/o Barclays Bank Ltd., P.O. Box 790, Salisbury, Southern Rhodesia.
1948 Jack, T. A. M., 15 Upper Berkeley Street, London, W.1.
1939 James, Miss C. K., Blake's Wood, Barnt Green, Birmingham.
1951 Johnson, H. P. H., B.A., F.R.G.S., Knutsford, Oak End Way, West Byfleet, Surrey.

1931 JORDAN, Karl, PH.D., F.R.S., F.R.E.S., F.Z.S., Zoological Museum, Tring, Herts.
1948 JUSTICE, J. R., The Fulling Mill, Whitchurch, Hants.
1949 KEYWOOD, K. P., 85 Hare Lane, Claygate, Surrey.
1904 KINNEAR, Sir Norman B., C.B., (*Editor*, 1925–30; *Vice-Chairman*, 1934–35; *Hon. Secretary*, 1940–43), 2 Burghley Road, Wimbledon, London, S.W.19.
1953 KREULE, A., F.Z.S., Sussex House, 12 Friars Stile Road, Richmond, Surrey.
1943 LACK, D. L., SC.D., F.R.S., Edward Grey Institute of Field Ornithology, Botanic Gardens, High Street, Oxford.
1931 LEACH, Miss E. P., M.B.E., (*Committee*, 1937–42; *Hon. Treasurer*, 1942–49), 9 Cornwall Gardens, London, S.W.7.
1926 LEWIS, J. S., Longstock House, Stockbridge, Hants.
1951 LIVERSIDGE, R., 3 Park Road, Rondebosch, Cape Province. South Africa.
1935 LONGFIELD, Miss C. E., F.R.G.S., F.R.E.S., F.Z.S., 11 Iverna Gardens, London, W.8.
1948 LOWE, Mrs. H. D., 2 Hugo House, 178 Sloane Street, London, S.W.1.
1935 MACDONALD, J. D., B.SC. (FOR.), B.SC., C.F.A.O.U., (*Committee*, 1946–49), British Museum (Natural History), Cromwell Road, London, S.W.7.
1921 MACKENZIE, J. M. D., B.A., C.M.Z.S., "Greyfriars", Greyfriars Garden, St. Andrews, Scotland.
1951 MACKINTOSH, D. R., Oak Wood, Bayley's Hill, Sevenoaks, Kent.
1917 MACKWORTH-PRAED, C. W., F.R.G.S., F.Z.S., (*Hon. Secretary*, 1922–23 *and* 1929–35; *Hon. Treasurer*, 1922–23 *and* 1929–36; *Committee*, 1936–37; *Vice-Chairman*, 1945–46), Castletop, Burley, Nr. Ringwood, Hants.
1934 MACPHERSON, D. W. K., P.O. Lilongwe, Nyasaland.
1935 MANSFIELD, The Right Hon. the Earl of, Scone Palace, Perth, Scotland.
1953 MANCE, H. S., Wychwood, Pembroke Road, Woking, Surrey.*
1907 MANSON-BAHR, Sir Philip H., C.M.G., D.S.O., M.D., F.R.C.P., (*Committee*, 1930–33,, *Vice-Chairman*, 1946–47; *Chairman*, 1949–53); 149 Harley Street, London, W.1.
1951 MANSON-BAHR, Lady, The Old Cottage, Pootings, Nr. Edenbridge, Kent. *
1933 MAVROGORDATO, J. G., c/o Legal Dept., Sudan Govt., Khartoum, Sudan.
1929 MAYAUD, Noël, 80 rue du Ranelagh, Paris XVIe, France.
1901 MEINERTZHAGEN, Col. R., D.S.O., F.Z.S., H.F.A.O.U., (*Vice-Chairman*, 1949–53; *Chairman*, 1953– ), 17 Kensington Park Gardens, London, W.11.
1952 MILLS, Dr. J. D., Shortlands, Seaford, Sussex.
1946 MONK, Dr. J. F., Little Stow, Goring-on-Thames, Oxon.
1949 MOORE, Capt. H. H. R., D.S.C., R.N., Milton Cottage, Church Street, Uckfield Sussex.
1953 MOORE, Dr. R. T., Laboratory of Zoology, Occidental College, Los Angeles, California, U.S.A.
1947 MORRISON, A. F., P.O. Box 473, Dar-es-Salaam, Tanganyika Territory, East Africa.
1951 MOUNTFORT, R. R., F.Z.S., A.A.O.U., Hartley House, Woldingham, Surrey.
1931 MURTON, Mrs. A. H., M.B.E., Cranbrook Lodge, Cranbrook, Kent.
1944 MCCULLOCH, Lt.-Col. G. K., F.Z.S., "Tringa", 5 Roy Road, Northwood, Middlx.
1931 MCKITTRICK, T. H., B.A., The Chase National Bank of the City of New York, Pine Street Corner of Nassau, New York, U.S.A.
1929 MCNEILE, J. H., Capt., (*Committee*, 1935–38), 6 Cresswell Gardens, London, S.W.7.
1954 NAUMBURG, W. W., 120 Broadway, New York 5, N.Y., U.S.A.
1934 NICHOLSON, E. M., C.B., (*Committee*, 1952; *Vice-Chairman*, 1953– ), 13 Upper Cheyne Row, London, S.W.3.
1936 NORTH, M. E. W., c/o Secretariat, Nairobi, Kenya Colony.
1952 OTTAWAY, C. L., 84 West Street, Aldord, Lincolnshire.
1945 PARRINDER, E. R., 91 Weald Road, Sevenoaks, Kent.
1932 PAULSON, C. W. G., (*Committee*, 1944–47), c/o Monotype Corporation Ltd., Salfords, Redhill, Surrey.
1932 PEALL, Mrs. D., Hatfield Farm, Oare, Marlborough, Wilts.
1933 PEASE, H. J. R., (*Committee*, 1939–42), Cedar House, Sudbourne, Nr. Woodbridge, Suffolk.
1953 PHELPS, W. H., Jnr., Apartado 2009, Caracas, Venezuela, South America.
1938 PHILLIPS, C. P. R., Mrs., Oxford House, Little Waltham, Chelmsford, Essex.

1948 PICKFORD, K. D., Rathlyn, 43 Barnwood Road, Gloucester.
1919 PITMAN, Capt. C. R. S., C.B.E., D.S.O., M.C., (*Committee*, 1953– ), Flat 9, 12 Chelsea Embankment, London, S.W.3.
1947 PLOWDEN-WARDLAW, W. J., 45 Ravelston Garden, Edinburgh, 4, Scotland.
1950 POOLE, J., 21 Sweetcroft Lane, Hillington, Uxbridge, Middlx.
1953 POWNALL, L. A., 11 Alton Road, Wilmslow, Cheshire.
1944 PRESTWICH, A. A., F.Z.S., F.R.H.S., The Agricultural Society, 61 Chase Road, Oakwood, London, N. 14.
1946 REYNOLDS, Lt. R. A. W., 2 Hillway, Holly Lodge Estate, Highgate, London, N.6.
1933 RHODES, Miss G. M., (*Committee*, 1945–48; *Hon. Secretary*, 1949–50), Hildersham Hall, Cambridge.
1949 RICHARDS, Dr. W. A., M.B., B.S., F.R.C.S., Greenoge, 40 Swakeleys Road, Ickenham, Uxbridge, Middlesex.
1951 RICHARDS, Hon. Mrs. Noel, M.D., 40 Swakeleys Road, Ickenham, Uxbridge, Middlesex.
1945 ROBERTS, Dr. B. B., 9 Pelham Court, 145 Fulham Road, London, S.W.3.
1949 ROBERTSON, Comdr. A. W. P., R.N., Deynes, Debden, Saffron Walden, Essex.
1953 ROOKE, K. B., M.B., B.CH.(CANTAB.), Cranborne, Nr. Wimborne, Dorset.
1948 RUSSELL, Lord Hugh, c/o Fisher & Co., 43 High Street, Market Harborough, Leics.
1950 RUSSELL, J. A. S., Copyhold Farm, Blackmore, Nr. Ingatestone, Essex.
1950 RYDZEWSKI, W., M.A. (WARSAW), 223 Selhurst Road, London, S.E.25.
1954 SAGE, B. L., 138 Fitzjohn Avenue, High Barnett, Herts.
1932 SCHAUENSEE, R. M. de, Devon, Pennsylvania, U.S.A.
1936 SCHOUTENDEN, Prof. Dr. H., Musée due Congo Belge, Tervueren, Belgium.
1954 SCHUZ, Prof. Dr. Ernst, Schloss Möggingen, über Radolfzell (Bodensee), Germany.
1946 SCOTT, P. M., C.B.E., D.S.C., M.A., F.Z.S., New Grounds, Slimbridge, Glos.
1952 SEARIGHT, R. G., 129 Oakwood Court, Kensington, London, W.14.
1945 SERLE, W., O.B.E., M.B., CH.B., 64 Strathearn Road, Edinburgh, Scotland.
1902 SETH-SMITH, D, F.Z.S., (*Committee*, 1905–12; *Editor*, 1915–20; *Vice-Chairman*, 1936–37; *Chairman*, 1943–46), Brabourne, 7 Poyle Road, Guildford, Surrey.
1953 SHACKLETON, K. H., 175 Piccadilly, London, W.1.
1936 SHERRIFF, A., F.Z.S., Ranulf Road, Hampstead, London, N.W.2.
1919 SLADEN, Major A. G., M.C., (*Committee*, 1921–24; *Hon. Treasurer*, 1936–42; *Vice-Chairman*, 1948–49); Crabtree, Furlong, Haddenham, Aylesbury, Bucks.
1948 SMITHERS, R. H. N., B.SC., National Museum of Southern Rhodesia, P.O. Box 240, Bulawayo, Southern Rhodesia.
1946 STAPLES, Lt.-Comdr. C. P., R.N., (*Committee*, 1948–51), Hedgerows, Ickenham, Middlx.
1950 STAPLES, Mrs. L. L., Hedgerows, Ickenham, Middlx. *
1925 STEVENS, H., Clovelly, 4 Beaconsfield Road, Tring, Herts.
1936 STEVENS, N., Walcot Hall, Lydbury, North Salop.
1953 SUMMERS, G. L. S., West Bank, Sutton Valence, Kent.
1949 SWYNNERTON, G. H., Game Dept., P.O. Box 397, Arusha, Tanganyika.
1945 TENISON, Lt.-Col. W. P. C., D.S.O., F.L.S., F.Z.S., (*Editor*, 1945–47; *Hon. Secretary*, 1945–47; *Vice-Chairman*, 1947–48), 2 Wool Road, Wimbledon Common, London, S.W.20.
1927 THOMSON, Sir (Arthur) Landsborough, C.B., O.B.E., D.SC., F.R.S.E., (*Committee*, 1930–33; *Hon. Secretary*, 1935–38; *Chairman*, 1938–43), 42 Girdwood Road, Southfields, London, S.W.18.
1897 TICEHURST, N. F., O.B.E., M.B., F.R.C.S., F.Z.S., (*Committee*, 1912–14), Spots House, Small Hythe, Tenterton, Kent.
1953 TOUSEY, Miss K., c/o The English Speaking Union, 37 Charles Street, London, W.1.
1947 TROTT, A. C., C.M.G., O.B.E., M.E.C.A.S., Shemlan, Nr. Beirut, Lebanon.
1925 TURTLE, L. J., 17–21 Castle Place, Belfast, Northern Ireland.
1948 UPTON, Mrs. R., Park Lodge, Margaretting, Essex.
1930 URQUHART, Capt. A., D.S.O., Latimer Cottage, Latimer, Chexham, Bucks.
1946 VAN SOMEREN, G. R. C., F.R.E.S., P.O. Box 1682, Nairobi, Kenya Colony.
1920 VAN SOMEREN, Dr. V. D., P.O. Box 1682, Nairobi, Kenya Colony.

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p. 5, line 46, for Schonteden read Schouteden.
p. 51, line 33, for F. B. Wainwright read C. B. Wainwright.
p. 73, line 33, for P. B. Hall read B. P. Hall.
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# BULLETIN

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# BRITISH ORNITHOLOGISTS' CLUB

**Volume 74**
**Number 1**


The five hundred and twenty-sixth meeting of the Club was held at the Rembrandt Hotel, Thurloe Place, S.W.7, on Tuesday, 15th December, 1953.

*Chairman :* COL. R. MEINERTZHAGEN.

Members present 20. Guests 4 ; Total 24.

## The Present Status of Icelandic Ornithology

Dr. G. Timmermann gave a most interesting talk to the Club on December 15th, 1953, of which the following is a summary :—

The composition of the Icelandic bird fauna corresponds fairly exactly to what we may expect from the position and nature of the country and from the character of the bird fauna of the adjoining areas. As a great North Atlantic island of more than 100,000 square kilometres surface area, of which however more than half is desert, Iceland possesses an exceptionally intimate contact with the sea. Further, since a relatively large number of rivers flow through the country and large quantities of water are stored continuously in glaciers and lakes, Iceland can be described as a true water country. This, the determining character of the landscape, is reflected in the bird fauna in so far as, of the 70 species of breeding birds of this country, only 15 are true terrestrial birds, while the remaining 55 wading and swimming birds are more or less closely associated with the water. That true terrestrial birds are represented in Iceland by only 15 species has its cause in the fact that Iceland is practically without forests. The few song birds living in Iceland are predominantly birds of the open country, as for instance, the Wheatear, *Oenanthe oenanthe* (Linnæus); Meadow Pipit, *Anthus pratensis* (Linnæus); White Wagtail, *Motacilla alba alba* Linnæus; and Snow Bunting, *Plectrophenax nivalis* (Linnæus), to which must be added as further terrestrial birds three species of birds of prey, two species of owls and the rock Ptarmigan, *Lagopus mutus* (Montin).

Among the aquatic birds, ducks and their relatives form with 18 species, the strongest group, whereas the waders follow some way behind with 10 species and gulls and auks with 7 species each. The rest is

formed by 4 species of petrels, 3 species of *Pelicaniformes*, represented by the Gannet, *Sula bassana* (Linnæus); Cormorant, *Phalacrocorax carbo* (Linnæus); and Shag *Phalacrocorax aristotelis* (Linnæus); divers and skuas with 2 species each and finally grebes and rails each with one species; thus there is a very striking predominance of aquatic birds and amongst these, true swimming birds constitute no less than 63 per cent. of the whole bird fauna. The oceanic character of the island on the other hand, finds expression in the fact that quite a few ancient groups of true oceanic birds, as for instance the *Pelicaniformes*, the petrels, the skuas and particularly the auks are represented in Iceland by a relatively high number of breeding species.

We may say that the Icelandic bird fauna is predominantly European in character, as more than half of the species breeding in Iceland are of European origin. So are especially the great majority of the Icelandic ducks and waders, which are widespread breeding birds in the remaining part of Europe, especially in northern Europe. To this big group of European birds are added, corresponding to the northern position of Iceland, some Arctic or Arctic circumpolar species as Snow Bunting, *P. nivalis* (Linnæus); Iceland Falcon, *Falco rusticolus islandus* Brünnich; Long-tailed Duck, *Clangula hyemalis* (Linnæus); Glaucous Gull, *Larus hyperboreus* Gunnerus; Brünnich's Guillemot, *Uria lomvia* (Linnæus); Little Auk, *Plautus alle* (Linnæus); Grey Phalarope, *Phalaropus fulicarius* (Linnæus), and others, the two last of which reach in Iceland their southern limit of distribution.

The American element is relatively weakly represented within the Icelandic bird fauna. In this we include only three species, namely Harlequin Duck, *Histrionicus histrionicus* (Linnæus); Barrow's Goldeneye, *Bucephala islandica* (Gmellin); and Great Northern Diver, *Colymbus immer* Brünnich, which have their main distribution in North America, breeding also in southern Greenland.

The fourth and last group is the so-called Atlantic species, namely Gannet, *S. bassana* (Linnæus); Leach's Petrel, *Oceanodroma leucorhoa* (Vieillot); Storm Petrel, *Hydrobates pelagicus* (Linnæus); Manx Shearwater, *Procellaria puffinus* Brünnich; and the Great Skua, *Stercorarius skua* (Brünnich); without exception pure oceanic species, which possess a more or less extended distribution on the coasts of the Atlantic ocean.

According to this ecologic-zoogeographical survey, it might seem that faunistic studies are no longer a fruitful subject for ornithologists in Iceland, apart from the observation and recognition of small alterations, which change every bird fauna. This idea is erroneous.

We can observe in Iceland three very striking phenomena, which belong to the sphere of regional ornithological studies. The first concerns the accumulated immigration and settlement of southern species in Iceland, which in association with the general rising of the temperature of Arctic countries, has taken place during the last decades. The second concerns the phenomenon of the so-called " drift migration," which every spring and autumn brings flocks of birds of Scandinavian and more eastward origin, as involuntary visitors to Iceland. The third problem concerns the status of the migration of the Icelandic bird population itself.

To begin with a short survey of the species recently immigrated to Iceland, it must be pointed out that the phenomenon in question is not only limited to birds, but is similar in many other groups of animals. As an example of this, there is the mass appearance of southern migratory butterflies in Iceland and the occurrence of numerous southern species of fish, which had been unknown in Icelandic waters. On the other hand, some Arctic species, fish as well as molluscs, simultaneously have drawn back from the warm Gulf stream water of the south coast into the cold water of the north and north-east. Of birds, the gulls were reacting most strongly to the increase of the temperature, perceptible for fifty years and in a greater degree for the past thirty years round Iceland, in so far as not less than three species, which before had been only rare visitors to Iceland now became frequent and widely distributed Icelandic breeding birds within a few years; these are the Black-headed Gull, *Larus ridibundus* Linnæus; the Herring Gull, *Larus argentatus* Pontoppidan; and the Lesser Black-backed Gull, *Larus fuscus* Linnæus, and this latter, the bright British race, not the dark Scandinavian one. To these three species must be added the Common Gull, *Larus canus* Linnæus, as a more frequent visitor and probably also an occasional Icelandic breeding bird.

Of the fresh water breeding birds, the breeding of the Shoveler, *Spatula clypeata* (Linnæus), started at the same time as the beginning of the recent warm period, and the Coot, *Fulica atra* Linnæus, has made some breeding attempts in Iceland during recent years. The immigration of heat-loving southern land bird species is not quite so striking as in water birds. That these birds, however, have reacted to the rising temperatures of the last decades in just the same way is proved by the example of the Short-eared Owl, *Asio flammeus* (Pontoppidan), which at the turn of the century was still an occasional visitor, was proved to have bred in Iceland for the first time in 1928, that is only a few years after the beginning of the rise of temperature, and is now a widespread breeding bird of the coastal lowlands. In the same connection the establishment of the Starling, *Sturnus vulgaris* Linnæus, must be mentioned, which was found breeding for the first time at the south-east corner of Iceland in 1941 and has since spread slowly along the south and east coast. Not so striking, but no less characteristic, are certain changes within the Icelandic fauna of breeding birds proper. Thus the Oystercatcher, *Hæmatopus ostralagus* Linnæus, which just before the first World War was only an inhabitant of the Gulf-Stream-heated coastal tracks of south and south-west Iceland, is to-day equally common on the northern coasts, whereas the cold-loving Long-tailed Duck, *C. hyemalis* (Linnæus), formerly one of the most numerous species on Lake Myvatn in N.E. Iceland, has decreased there during the last decades in a striking manner, apparently because of the recent high temperatures in summer, which do not suit this high Arctic species. The same is true of another extreme Arctic species, the Little Auk, *P. alle* (Linnæus), which in addition to the small island of Grimsey, off the north coast, had colonised other places on the north-east mainland, from where it has disappeared again. The colony on Grimsey has also greatly decreased, but excessive egg collecting may also be partly responsible here.

Whether these changes in fauna, due to the mildness of the recent

Icelandic climate are now complete, or represent the beginning of a far more comprehensive biological change, remains to be seen. Further changes in the climate will decide whether the northerly push of the southern species will result in permanent settlement, or whether they will begin to retire again from their conquered positions and make room for Arctic species, returning from the north. The observation of these changes will be a rewarding task to every ornithologist in Iceland.

The second phenomenon which requires still more study is the so-called drift-migration which, especially in spring and autumn, brings great numbers of involuntary migrants to Iceland. This phenomenon is still more clearly seen in the Faeroe Isles, because they are situated nearer to the main migration front of northern European migrants. In a much diminished scale, drift-migration can also be observed in eastern Greenland.

In Iceland, systematic field work began soon after 1930, and it is therefore no mere chance that a number of small European birds as for example the Brambling, *Fringilla montifringilla* Linnæus, the Blackcap, *Sylvia atricapilla* (Linnæus), our three *Phylloscopine* warblers, various species of pipits, buntings and larks, the Redstart, *Phœnicurus phœnicurus* (Linnæus), and others were found in Iceland for the first time and had not been recorded before that date. Other species, such as the Chaffinch, *Fringilla cœlebs* Linnæus; Robin, *Erithacus rubecula* (Linnæus); and Goldcrest, *Regulus regulus* (Linnæus), which until the early 1930's had been considered rare, are now proved to be quite regular and almost common. Various illustrious rarities were also found among the drift-migrants, as for instance *Turdus dauma* Latham and *Luscinia calliope* Linnæus. From 1939 to 1943, no fewer than 18 new species were added to the Icelandic list, belonging nearly exclusively to the category of drift-migrants, and it is to be expected that their numbers will steadily increase.

The third, last, and perhaps the most important faunistic problem with which the future ornithologist will be confronted in Iceland concerns the further exploration of migration in general, especially the question of routes and winter quarters of the Icelandic breeding populations. Soon after 1921, when ringing was first started in Iceland by Danish ornithologists, there could no longer be the slightest doubt of the unique position of the British Isles, and especially Ireland, as the main winter quarters of Icelandic migrants. This is best shown by the fact that more than two-thirds of all recoveries of Iceland-ringed birds from abroad, come from the British Isles, and more than 50 per cent. of these from Ireland. Some species keep strictly to this rule, wintering with their whole, or nearly their whole population in the British Isles. These include Grey Lag, *Anser anser* (Linnæus); Gadwall, *Anas strepera* Linnæus; Common Snipe, *Capella gallinago* (Linnæus), and others. The majority of Icelandic duck, although having their main winter quarters in Britain, possess others of secondary importance. Thus the Icelandic Scaup, *Aythya marila* (Linnæus), besides Ireland, has another winter quarter in the Zuider Zee area in Holland; Icelandic Pintail, *Anas acuta* Linnæus, seem to winter not only in Ireland, but also in the Mediterranean, and the Icelandic Wigeon, *Anas penelope* Linnæus, is a not uncommon visitor to the Atlantic coast of Canada and the U.S.A. Icelandic Wigeon are

also interesting because quite a number of them has been recorded from central Russia and western Siberia. As these recoveries have been in spring and summer it is possible that they have paired in British winter quarters with Wigeon of Russian origin and returned there in spring.

The number of species in which the British Isles do not seem of any importance as a wintering place is relatively small. In this category falls the Whimbrel, *Numenius phæopus* (Linnæus), which passes the winter in tropical Africa, and also the Common Scoter, *Melanitta nigra* (Linnæus), which winters as far as is known in southern Europe and has also been found in the Azores. The recovery of an Icelandic Purple Sandpiper, *Calidris maritima* (Brünnich), should also be mentioned; this was shot by an Eskimo hunter in the highest north of Canada and there is an interesting record of an Icelandic Snow Bunting, *P. nivalis* (Linnæus), recovered from southern Norway. Both these findings would change and enlarge our knowledge of the migrations of Icelandic birds, should they prove constant. Finally, some important experiments are being undertaken by counting and ringing whole populations of single Icelandic species, as has been done by British ornithologists, on the Icelandic Gannet, *S. bassana* (Linnæus), and the Pink-footed Goose, *Anser arvensis brachyrhynchus* Baillon, respectively.

## Racial variation in Eupodotis melanogaster (Ruppell)

By Mr. C. M. N. White

*Received 27th November, 1953*

It has been usual to recognise two races of this Bustard, which is commonly placed in the genus *Lissotis* but which I include in *Eupodotis*. Birds from south of the Zambesi are generally treated as larger than the nominate form from Ethiopia. My study of many specimens shows that variation is really clinal, as the figures below, all based on wing measurements of males, indicate.

| | | | | |
|---|---|---|---|---|
| 8 | Transvaal, Zululand | 360–375 | av. 364 | mm. |
| 4 | Portuguese E. Africa | 367–384 | 372 | ,, |
| 5 | Nyasaland, Northern Rhodesia | 355–370 | 360 | ,, |
| 7 | Katanga | 340–375 | 360 | ,, |
| 6 | Kasai–Kwango | 330–365 | 346 | ,, |
| 11 | Kivu, Ruanda-Urundi | 320–345 | 336 | ,, |
| 13 | Uganda, Kenya, Tanganyika | 330–375 | 356 | ,, |
| 12 | South Sudan, Ethiopia | 335–360 | 350 | ,, |
| 6 | Kunungu, Western Congo | 315–325 | 319 | ,, |

It is true that birds from Ethiopia and the Sudan can be separated from South African birds, but size increases through East and Central Africa so that no line can be drawn to separate the races ; moreover, size decreases further over the Congo basin to reach its minimum at Kunungu. If we recognise a large southern race, this dwarf western race should also be named. I prefer to recognize no races by name but to draw attention to the facts of size variation of a clinal nature. I am greatly indebted to the kindness of Dr. H. Schonteden for enabling me to obtain the measurements of Congo material at Tervuren.

# Note on the Double-Banded Sandgrouse, *Pterocles bicinctus*

By Mr. J. D. Macdonald.

*Received 14th December, 1953*

A usual pattern of colour variation in cryptic species widely distributed in South Africa is one in which populations show decreasing amounts of reddish-brown pigment from east to west, with least amounts in coastal districts between Walvis Bay and Benguella. This general pattern occurs, for example, in *Francolinus levalliantoides* (Smith) and in several lark species. It is also apparent in the Double-banded Sandgrouse, *Pterocles bicinctus* Temminck: so much so in fact that I think the extent of variation should be indicated by three, instead of the present two, geographical races. This has not been evident before probably because samples of populations are on the whole rather few, especially from localities in the west side of its range. It became clear, however, when a pair of birds collected by the British Museum Expedition, 1949–50, proved to be paler than other South West African birds. These birds taken on the rubble deserts near Spitzkopje, Swakopmund District, are distinctly greyer and generally lighter in colour than four collected by Andersson at Otjimbingue on the Swakop River, another two specimens from unknown localities, and four taken by Hoesch in 1936 at Onguma on the east side of the Etosha Pan. The old specimens are rather worn and dirty but, in my opinion, they were never as pale as those from Spitzkopje. But these pale birds are very similar to a long series from Benguella, Angola, and it seems to be, therefore, that there is a pale coastal race extending from Angola south through the Kaokoveld to at least the Spitzkopje area. It is replaced inland by a darker, grey-brown race distributed, as far as is known at present, from Onguma to Otjimbingue, and possibly as far south as the species extends. So far all these western birds have been included in the nominate rate. On the east side of the continent populations of this species are more rufous-brown. They were first distinguished by Hartert who gave them the name *multicolor* basing the race on a specimen from Rustenburg in the Transvaal. This richly coloured race extends westward as far as Kuruman in Griqualand.

Lack of material from Great Namaqualand and the apparent convergence of three forms in that area emphasised the importance of the true identity of the types and more precise information about the actual place in which they were collected. Hartert recorded (Bull. B.O.C., 21, 1908: 54), on information supplied by Neumann, that the types were identical with a series from Benguella. The species was described by Temminck on a pair of birds collected by Levaillant on his expedition to Great Namaqualand, 1783–5. Fortunately, the specimens are still in existence in the Leiden Museum. I sent the Spitzkopje pair and another pair of birds from Onguma to Dr. Junge for comparison with the types, and he selected the darker Onguma pair as the closest match. Levaillant is said to have collected the birds on the Great Fish River, a tributary of the Orange River having its source in the Auas Mts. near Windhoek and flowing (during seasonal rains) due south to join the Orange near its mouth. Opinions are divided as to whether or not Levaillant went

north of the Orange River. Mr. Vernon S. Forbes (S. Afr. Geog. Journ. 32, 1950: 32–51) points out that there are various inconsistencies in Levaillant's statements and gives the warning that the utmost caution should be used in accepting all the claims he made. Forbes refers particularly to evidence which shows that Levaillant could not have crossed the Orange River. It seems to me that this evidence is little more than hearsay originating with a witness who had good reason to be prejudiced against Levaillant. It is not a matter I am competent to argue fully but if Levaillant did collect these specimens of Double-banded Sandgrouse himself he could only have done so north of the lower Orange: so far as I know the species has not been recorded in Little Namaqualand. For the purpose of this note, therefore, I am assuming that he travelled in Great Namaqualand. It is not easy to trace Levaillant's movements on a modern map, but he records (" New Travels into the Interior Parts of Africa", 3 vols. English edition, 1796) that he crossed the " River of Fish " on two occasions, on the outward and return journeys, and from a study of the text, his map, and slight knowledge of the country, it seems to me that on both occasions he may have crossed the section between Seeheim and Gibeon. It is likely that he got the birds when they came to drink at river pools. I suggest therefore, that Gibeon, on the Great Fish River, should be accepted provisionally as a restricted type locality. Gibeon is just over a hundred miles south of Rehoboth, which seems to be the most southerly locality in South West Africa from which the species has been recorded with certainty.

The race *B. p. pallidior* of Forbes and Robinson (1900) has long been regarded as synonymous with typical *bicinctus*. It was based on specimens in the Derby Museum, 2♂ and 1♀ stated to be from Otjimbingue, Damaraland. They were described as " differing from *P. bicinctus typicus* as being generally paler," but the " typical " *bicinctus* with which they had been compared were three other specimens also in the Derby Museum, but which were from the Transvaal, and therefore the darker bird now known as *multicolor*. The Derby Museum collection is in the Liverpool Museum and Mr. R. Wagstaffe very kindly sent me the three specimens for examination. The one marked " type " is an Otjimbingue specimen collected by Andersson, and is identified with a series from the same locality in the British Museum, but the other two, a pair, almost certainly belonged to the collection made by Captain (later Sir James) Alexander during his " Expedition of Discovery into the Interior of Africa," 1837–38 (account published in 1838). I am unable to determine where Alexander obtained these specimens. Old labels on the birds give the information " Captain Alexander, 8th March, 1838." These are not collector's but sale labels for Alexander's collection was sold by auction in Stevens' sale rooms in London on that date. The specimens are a close match with typical *bicinctus*.

It seems to be, therefore, that the gradation from rich rufous-brown colour in the populations of eastern districts to pale grey-brown in north-western localities can be divided into three stages indicated by three geographical races, of which the intermediate group is the nominate form. No name is available for the pale group and it is described below. The races are summarised as follows:—

(1) *P. b. bicinctus* Temminck, Pig. et Gall. 3, 1815 (247 and 713): near Gibeon, S.W. Africa.
*P. b. pallidior* Forbes & Robinson, Bull. Liv. Mus. 11, 1900 (117): Otjimbingue, S.W. Africa.
*Distribution.* South West Africa inland districts, from Seeheim in the south to Onguma in the north.

(2) *P. b. multicolor* Hartert, Bull. B.O.C., 21, 1908 (53): Rustenberg, Transvaal.
*Distribution.* Transvaal, south-west to Kuruman and north to north-east Rhodesia.

(3) *P. b. elizabethae.* New race.
*Characteristics.* Both male and female are distinctly paler than typical *bicinctus*, particularly on the upperparts, and much paler than *multicolor*. There appears to be a higher proportion of yellow pigpigment in the plumage, making the brown of the upperparts more grey and the greenish-buff of the neck and upper breast less green.
*Distribution.* Rubble deserts of the northern part of the Swakopmund district, north through the Kaokoveld to Benguella in Angola.
*Type.* An adult male from Spitzkopje, Swakopmund district; 21° 52′ S., 15° 17′ E., alt. 3,500 ft. Collected by the British Museum Expedition on 2nd April, 1950. B.M. register number 1950 : 50 : 31. Wing 188; Tail ?, bill 20. Bill yellowish-brown; legs yellow; iris dark brown, skin round eye bright yellow.
*Remarks.* This race is named after my wife who accompanied the British Museum Expedition and put up with a lot of discomfort to keep us well fed.

## Subtractive Moult or Differential Abrasion in *Turdus ericetorum*, Turton

By Mr. Alfred Hazelwood and Mr. Eric Gorton

*Received 17th December*, 1953

Recent discussion of the phenomenon of subtractive moult has mainly been confined to those species which flock in winter and in the spring divest themselves of the feather tips in certain areas of the plumage in order to adopt a territorial dress without undergoing the physical strain of a moult. *Fringilla coelebs* Linnæus, *Emberiza schœniclus* (Linnæus), and *Passer domesticus* (Linnæus) are ready examples of this type of plumage adaptation.

Comparison of autumn and spring skins of *Turdus ericetorum* Turton reveals a difference in the shape of the ventral spots, which are pyriform in the fresh dress but become V-shaped in the spring. It might be assumed that this is due to normal wear but comparison with the companion unspotted contour feathers reveals that this is not the case. In the freshly moulted bird, the black spots are bounded by a lighter tip and the rhachis is equally barbed on either side. This light edge is already gone by early November and the feather has started its differential wear. This is brought about by the apparent weakness of the attachment of the barbs on one side only of the distal end of the rhachis which, as these are shed, bends around to open up the end of the feather in a V-shape. That the barbs are

shed, not worn away, is suggested by the clean appearance of the divested side of the rhachis, on none of which can we find any adhering fragments.

By early April the spots have the characteristic V-shape of the breeding bird but the unspotted feathers alongside, though worn, are abraded symmetrically and are rounded, not split, at the tips.

The whole process seems to be much more gradual than normal subtractive moult but the result is the same in producing a significant alteration of the plumage pattern. The means, too, differ slightly, since, instead of there being a frangible rhachis, apparently influenced by the endocrine metabolism of the bird, there is a progressive shedding of the barbs of one side, of the pigmented feathers only, which cannot be termed " wear " since it is a constitutional adaptation of the feather.

This phenomenon is not paralleled in any other of the British *Turdidæ*, the spots of *Turdus viscivorous* Linnæus wearing evenly across the tips while in *Turdus pilaris* Linnæus in the few birds in breeding dress at our disposal, the barbs are either worn or shed equally from either side of the rhachis which protrudes from the " worn " spotted feather.

## Symmetrical Albinism in Birds' Wings

By Mr. Bryan L. Sage

*Received 16th December*, 1953

I was most interested to read Dr. Jeffery G. Harrison's note on this subject in the Bull. B.O.C., 73, pp. 105–106, especially as it is a subject which receives little mention in the present-day ornithological literature.

For some years now I have been collecting records of albinism, melanism and other aberrations in birds. Amongst the several hundred records now in my index there are a number relating to symmetrical albinism in the wings of birds; this particular aberration is, as Dr. Harrison remarks, of less frequent occurrence than complete and asymmetrical albinism.

In attempting to collate the published records of albinism, etc. one is constantly reminded of how little *scientific* interest was taken in these specimens in the 19th century, to which period many of the records refer. In many cases the records are unaccompanied by dates or localities and the majority of them give no really detailed description of the bird involved. The procurers of these specimens were in the main concerned only with their value as curiosities.

The following records are supported by sufficient data to show that they are sound examples of symmetrical albinism :—

Partridge, *Perdix perdix perdix* (Linnæus). One with white wings obtained in Norfolk in October, 1905 (*The Zoologist*, 1906, p. 138).

Common Snipe, *Capella gallinago gallinago* (Linnæus). In *The Zoologist*, 1883, p. 377, mention is made of several individuals with the quill feathers in each wing white, seen apparently in Dorset.

Common Sandpiper, *Tringa hypoleucos* Linnæus. J. Whitaker mentions a specimen with white wings that was added to his collection (*The Zoologist*, 1884, p. 72).

Dunlin, *Calidris alpina* (Linnæus). In April, 1886, J. Whitaker received a specimen with nearly white wings, no locality given (*The Zoologist*, 1886, p. 182).

Hooded Crow, *Corvus cornix cornix* Linnæus. One, probably a male, with the whole of the wing coverts white, seen at Yell, Shetland, on 4th July, 1863 (*The Zoologist*, 1863, p. 8720)).

Rook, *Corvus frugilegus frugilegus* Linnæus. One seen in a rookery at Great Cotes, Lincolnshire, on 4th April, 1870, had all the primaries of one wing and all but the first of the other cream-coloured (*The Zoologist*, 1870, p. 2154). One with white primaries seen at Aylmerton, Norfolk, on 19th June, 1872 (*The Zoologist*, 1872, p. 3225). Another with white wings seen in Norfolk in October, 1905 (*The Zoologist*, 1905, p. 138).

Skylark, *Alauda arvensis arvensis* Linnæus. One with white wings seen in Lincolnshire in September, 1868 (*The Zoologist*, 1868, p. 1476).

C. S. Gregson in *The Zoologist*, 1873, p. 3412, states that he purchased two live birds in July, 1871, both of which had white primaries and secondaries. No locality given. J. Whitaker in his " Notes on the Birds of Nottinghamshire, p. 134, mentions a white-winged example that was obtained in the county but gives no further details.

Wren, *Troglodytes troglodytes troglodytes* (Linnæus). A bird with white wings was seen near Park, Co. Wicklow, in 1887 (*The Zoologist*, 1887, p. 193).

Blackbird, *Turdus merula merula* (Linnæus). H. Stevenson saw a female with dull white secondaries in Norfolk, in January, 1870 (*The Zoologist*, 1870, p. 2361).

Grasshopper Warbler, *Locustella nævia nævia* (Boddaert). A specimen with partly white flights in each wing was caught near Mansfield, Nottinghamshire, about 1892 (" Notes on the Birds of Nottinghamshire, p. 42).

Willow Warbler, *Phylloscopus trochilus trochilus* (Linnæus). J. Whitaker in " Notes on the Birds of Nottinghamshire," p. 36, mentions having seen one with white wings in Harlow Wood but gives no date.

Hedge-Sparrow, *Prunella modularis* (Linnæus). A specimen with white flight feathers in each wing was shot in Nottinghamshire in 1881 (" Notes on the Birds of Nottinghamshire, p. 45).

House Sparrow, *Passer domesticus domesticus* (Linnæus). A male with pure white primaries seen near Torquay, Devon, in January, 1869 (*The Zoologist*, 1869, p. 1720). Two with white wings seen at Woodbridge, Suffolk, on 6th December, 1870 (*The Zoologist*, 1871, p. 2483).

## A Hebridean Song Thrush *Turdus ericetorum hebridensis* Clarke in England

By Mr. Alfred Hazelwood & Mr. Eric Gorton

*Received 17th December*, 1953

A specimen of *Turdus ericetorum* accidentally killed at Hindley, Lancashire, is indistinguishable in colour and pattern from comparable specimens from the Outer Hebrides. The bird, a ♀, hit wires, perhaps while on passage, on 5th March, 1953.

Compared with Outer Hebridean material in the British Museum (Natural History) and in the Bolton Museum, it accords perfectly with the darkest examples of that race, to which we have no hesitation in assigning it.

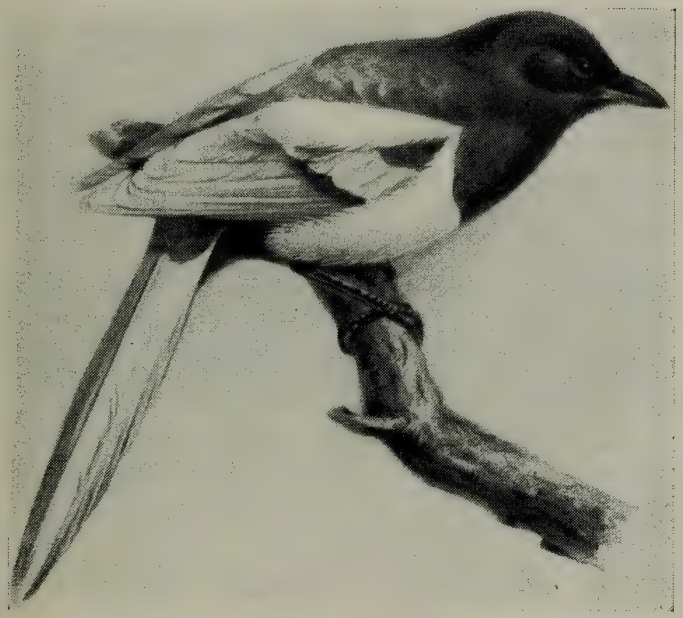
The specimen is in the Bolton Museum collection.

# On the Wing-Pattern of a Variant Magpie *Pica pica* (Linnæus)

By Mr. Alfred Hazelwood and Mr. Eric Gorton

*Received 17th December*, 1953

A Magpie ♀ *Pica pica pica* (Linnæus) from Halifax, Yorks, 5th March, 1951, is aberrant in pigmentation and in feather structure. The usual irridescence on wing and tail feathers is absent and the pigmentary colour is diluted to a deep bistre brown on the head, breast, rump and under-tail coverts, paling to drab on the lower back, tail and the wings except as noted hereafter. The primary and outer secondary coverts are dull white, forming a distinct wing-bar which is the better defined by the lesser coverts and a bar at the base of the secondaries being of the same deep bistre as the head.



The Variant Magpie.

It seems reasonable to infer from this bird that the melanin deposition is governed by a complex of genes, at least one of which is linked with that responsible for the refractive structure of the feathers. It may well be that the wing-bar reflects an ancestral pattern now obscured by the overriding melanin deposit activated by a separate gene.

The legs and bill of the bird, which is now in the Bolton Museum collection, are a uniform chocolate colour.

PURCHASED
13 JAN 1954



# On the Bill-colour of the Adult Grey Phalarope *Phalaropus fulicarius* (Linnæus) in Winter Plumage

By Mr. Bryan L. Sage

*Received 1st December, 1953*

According to Witherby's "Handbook of British Birds," Vol. IV, p. 218 the bill-colour of the adult female Grey Phalarope is chrome yellow with a black tip, and that of the male black with a yellow base. The bill of both sexes of the Red-necked Phalarope *Phalaropus lobatus* (Linnæus) is completely black at all seasons. An adult Grey Phalarope, almost certainly a male, that was seen at close quarters on Wilstone Reservoir, Tring, Herts, on 15th November, 1953, had a *completely* black bill. This is not mentioned in any of the numerous text-books that I have consulted. The identity of the bird was placed beyond doubt by the fact that the bill was short and broad and not long and narrow as in the Red-necked Phalarope.

At my request, Mr. Derek Goodwin kindly examined the Grey Phalaropes in winter plumage in the British Museum collection; there are not a great many. He reports that all showed a light area on the bill that was probably yellow in life. In many it is extensive and obvious (probably females) and in a few very small and ill defined (males?).

It seems evident that at least a small percentage of adult male Grey Phalaropes have completely black bills in winter. Therefore the only certain method of differentiating between the two species at this season is by the length and stoutness of the bill. Some observers, particularly those who have not had experience of *both* species are apt to assume that any phalarope with a completely black bill seen in the winter is a Red-necked Phalarope. As I have shown above this is not the case. Further observation will probably show that quite a large percentage of adult male Grey Phalaropes have black bills in the winter.

At the time of going to press, I have just been informed by two independent observers that a bird of this species, seen on Barn Elms reservoir on 28th November, 1953, and subsequently, also had a completely black bill with no trace of yellow.

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## DINNERS AND MEETINGS FOR 1954

19th January, 16th February, March with B.O.U., 20th April, 18th May, 15th June, 19th October, 16th November and 21st December.

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Edited by
DR. JEFFERY HARRISON

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1954

NATURAL HISTORY


# BULLETIN

OF THE

# BRITISH ORNITHOLOGISTS' CLUB

**Volume 74**
**Number 2**


The five hundred and twenty-seventh meeting of the Club was held at the Rembrandt Hotel, Thurloe Place, S.W.7., on Tuesday, 19th January, 1954.

*Chairman :* Mr. E. M. Nicholson.

Members present, 33; Guests 14; Guest of the Club, Mr. R. P. Bagnall-Oakley; Total 48.

Mr. R. P. Bagnall-Oakley showed a series of excellent colour films depicting autumn, winter and spring visitors to the Cley area of Norfolk and another of some of the rare vagrants, which have occurred there recently. Beautiful pictures were seen of an adult Night Heron *Nycticorax nycticorax* (Linnæus), a Semi-palmated Sandpiper *Calidris pusilla* (Linnæus), Mediterranean Black-headed Gull *Larus melanocephalus* Temminck, Black-bellied Dipper *Cinclus cinclus cinclus* (Linnæus), Red-rumped Swallow *Hirundo daurica* Linnæus, and Little Egret *Egretta garzetta* (Linnæus).

Mr. Bagnall-Oakley explained that the rare vagrants were perhaps less difficult to film than the migrants, for when newly arrived they are often more conservative in their choice of feeding grounds, but on the other hand, excitement and the "now-or-never" feeling sometimes marred the best photographic intentions.

Films of the various migrants were instructive, both from the point of view of field identification and habits, and some shots of a male Lapland Bunting *Calcarius lapponicus* (Linnæus) taken between March and early May, gave an excellent demonstration of subtractive moult into full spring plumage.

## The Occurrence of the Eastern Form of the Waxwing in the British Isles

By Dr. James M. Harrison.

*Received 31st December, 1953*

In a previous issue (*antea*, 1952, 72; 72,73) I recorded the eastern form of the Waxwing, *Bombycilla garrulus centralasiae* Poljakow from six specimens obtained between 1895 and 1914 from the following counties:

Yorkshire, Cambridgeshire, Sussex and Kent, and elsewhere (1953, *The Birds of Kent*, II, 299, 300) I indicated that the form might be expected to occur sporadically in the British Isles.

On 30th November, 1953 a Waxwing was received by Mr. Alfred Hazelwood of the Bolton Museum, which he rightly regarded as distinct from the nominate race. This bird he kindly sent to me for identification. It is a first winter male and when compared with series of the nominate form is at once singled out as very much paler both above and below, while it matches perfectly the six British taken examples referred to above, as well as material from western U.S.S.R. It is in fact a pale example of a pale race. It lacks any suggestion of the heavy greyish wash which characterizes the nominate race, and the vinous tone of the underparts is also particularly pure and free from grey. The specimen was also compared with the American form *B. g. pallidiceps* Reichenow from which it stands out as quite distinct. The inter-femoral region is suffused with a very pale lemon yellow; this character is mentioned in *The Handbook of British Birds* (1938, I, 289) as present in the nominate race, but this is a point which might well repay for further attention as to its incidence in the two forms of the species in the Old World. It is to be noted however that the character is a generic one for as well as occurring in the American *B. g. pallidiceps* Reichenow it also occurs in the Cedar Waxwing *B. cedorum* Vieillot and in the Far Eastern species *B. japonica* Siebold.

The present example was taken at Middlesbrough and is therefore the second specimen for Yorkshire, the first, as has already been recorded having been obtained near York, on 18th January 1904, while it is the seventh specimen to have been recognized for the British Isles.

## The Effect of Wind on Diurnal Spring Migrants Crossing the Mouth of the Elbe

By Dr. Jeffery G. Harrison

*Received 26th December, 1953*

In a recent Bulletin, Kenneth Williamson published a most stimulating paper on "Redwing Passage in Autumn at Fair Isle" (Bull.B.O.C. Vol. 73, pp. 18-23, 1953), in which he wrote "the investigation establishes the vital importance of wind as a main weather factor both at the commencement and during the course of a migratory movement."

His paper has prompted me to analyse a series of observations I made in 1951 on the Elbe in Germany. The mouth of the Elbe lies across the path of the main north-easterly migration track in Western Europe, the great majority of migrants following the coastline of Lower Saxony or the East Friesian Islands. The Elbe Estuary is ten miles across at its mouth and therefore represents a definite water barrier to the north-bound migrant. Professor Rudolf Drost of the Vogelwarte Helgoland told me that when he had to move his Institute from Heligoland at the end of the last war, he wished to come to Cuxhaven, as he considered that this was the next best place to study migration after Heligoland. His wants however, could not be fulfilled.

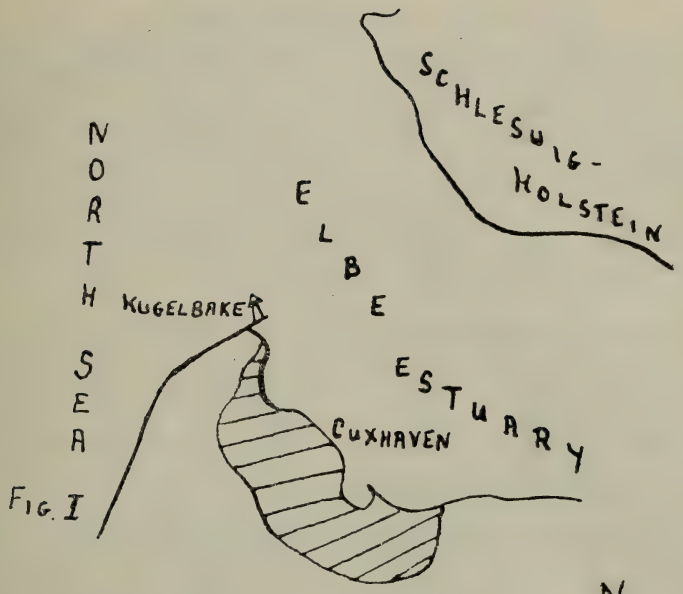


FIG. I

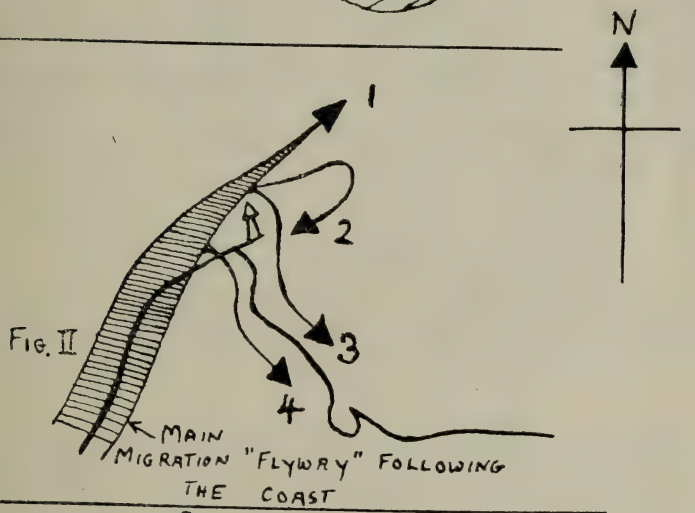


FIG. II

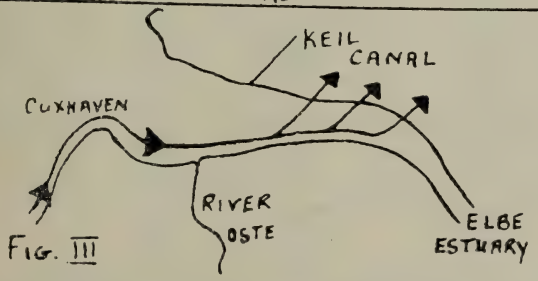


FIG. III

*Figure I.—The mouth of the Elbe Estuary, showing the Kugelbake observation point.*
*Figure II.—Diagramatic representation of the alternative routes taken by the migrants: (1) crossing the Elbe, (2) turning back to land, (3) turning east to follow the southern shore, (4) as 3 but following the land.*
*Figure III.—The Elbe Estuary to show the ultimate course of the migrants that turned eastwards.*

In the spring of 1951 I was stationed at Cuxhaven and was able to make a series of observations on diurnal migration from the Kugelbake, an old sea-mark standing on the point where the southern shore of the Elbe and the North Sea may be said to meet. It was found that the best time to watch diurnal migration was soon after dawn and my observations were made on most days from 0630–0730. The reason for this appeared to be that many diurnal migrants had spent the night roosting in the fir plantations south and south-west of Cuxhaven. Observations were continued from early March until late May and the exact movements of more than 25,000 migrants were plotted on arrival at the Kugelbake Point.

The migrants approximately followed the coastline from the south-west until they were confronted with the water barrier of the Estuary lying across their path. When this happened they would do one of two things; either they would fly on—sometimes after a little preliminary circling—or they would refuse to cross the water and either turn round and settle, or alter direction eastwards and fly inland along the southern shore of the Estuary. (See Figures I and II.)

It was quickly apparent that there was a considerable difference in the behaviour of the migrants with tail winds—i.e. those ranging from south to west, and head winds—i.e. those from north-west to east. Furthermore, with tail winds there were considerable differences in behaviour varying with the strength of the wind. Such differences were not so noticeable with variations in head wind strengths.

These differences are best appreciated in the form of a table, plotted as increasing wind force.

**TAIL WIND TABLE**

| *WIND FORCE* (Beaufort Scale) | *WIND DIRECTION* | *DATE* | *TOTAL MIGRANTS* per hour | *% CROSSING the ESTUARY* | |
|---|---|---|---|---|---|
| 2 | S. | 16-3-51 | 2759 | 70.78% | 64.09% |
| 2 | S.S.W. | 18-4-51 | 273 | 57.4 % | |
| 3 | S.W. | 12-3-51 | 466 | 47.6% | 70.06% |
| 3 | S. | 13-3-51 | 1113 | 93.0% | |
| 3 | S. | 1-4-51 | 3358 | 69.6% | |
| 4 | S.W. | 18-3-51 | 2271 | 62.7% | 51.4% |
| 4 | S.W. | 29-3-51 | 644 | 48.7% | |
| 4 | S.W. | 4-4-51 | 789 | 53.0% | |
| 5 | W. | 5-4-51 | 723 | 59.9% | 48.6% |
| 5 | S.W. | 12-4-51 | 264 | 33.7% | |
| 5 | W. | 19-3-51 | 446 | 52.2% | |
| 6 | W.S.W. | 15-3-51 | 197 | 0 | 10.8% |
| 6 | W.S.W. | 8-4-51 | 204 | 8.3 % | |
| 6 | S.W. | 16-4-51 | 327 | 24.2% | |
| 8 | W. | 17-4-51 | 48 | 2.1% | 2.1% |

**HEAD WIND TABLE**

| *WIND FORCE* (Beaufort Scale) | *WIND DIRECTION* | *DATE* | *TOTAL MIGRANTS* per hour | *% CROSSING the ESTUARY* | |
|---|---|---|---|---|---|
| 1 | N.N.E. | 30-3-51 | 944 | 86.9 % | 86.9% |
| 2 | N.W. | 21-3-51 | 747 | 88.46% | 91.92% |
| 2 | N. | 31-3-51 | 995 | 95.38% | |
| 3 | N.W. | 20-3-51 | 645 | 94.72% | 85.06% |
| 3 | N.W. | 28-3-51 | 980 | 92.75% | |
| 3 | N.E. | 20-4-51 | 344 | 67.72% | |
| 4 | N.E. | 20-5-51 | 678 | 37.9 % | 37.9% |
| 5 | N.N.E. | 21-4-51 | 194 | 82.9% | 83.45% |
| 5 | N.W. | 27-4-51 | 237 | 84.0% | |

When considering these two tables it is important to realize that there are two types of migration involved—over land and over water. Every bird plotted was already undertaking "over land migration" before reaching the Elbe, whatever the weather conditions and it is their reactions when faced with the prospect of crossing open water which must be studied.

For a bird this is potentially far more dangerous than flying over land, where it can alight in safety and quickly find cover. In the interpretation of the tables, the total number of migrants per hour represents the rate of "over land migration" and the percentage of those crossing the Elbe indicates the difference between migration over land and over water.

The totals show that migrants when travelling over land make great use of light tail winds, but with tail winds greater than force 4, their numbers fall sharply. The number migrating over land against light head winds was smaller than those with corresponding tail winds, and similarly they show a decrease as the head wind force rises. Thus we can deduce from these figures that migrants *when travelling over land* prefer light tail winds to assist them on their way, but they do not appear to favour strong tail winds.

Observations on migration over water, represented by the percentage that crossed the Esturay to Schleswig-Holstein, are particularly interesting. The percentage of migrants that were prepared to fly across the water was decidedly smaller with tail winds than head winds; and, with one exception, the percentage remains high with head wind up to force 5. The exceptional day (20th May) was probably abnormal, because almost all the migrants were *Hirundinidae* and Swifts*, and there were continuous heavy thunderstorms with hail, which might well effect such species. The percentage crossing the Estuary with tail winds, apart from being constantly smaller than against head winds, fall away much more rapidly, and there is a definite reluctance to set off with tail winds of force 4 and upwards.

*For the scientific names of this and all other species mentioned, see the final table on pages 20 and 21.

In the old controversy, it seems that supporters of the "migration with the wind" theory are right so long as the birds are flying over land, but those who hold opposite views seem more correct when birds are about to set off across open water, as the late Dr. Norman Joy has pointed out at Dungeness, and when I think of the large number I have seen carried a few hundred yards across the Elbe Estuary by tail winds, only to return flying into the wind and rapidly loosing height, I feel quite confident about this. I cannot believe the theory that an airborne bird does not appreciate the direction of the wind. It must, for it is not an inanimate object, the wind is seldom of constant strength and therefore the bird must perceive differences in flying effort required.

A possible explanation of the preference for a head wind when leaving land is that an emergency return flight, if needed, is more easily made. By the same token, a bird finding itself in trouble, may be forced further into danger by a tail wind, leaving only the fatal alternative of being forced down into the sea when exhausted.

This theory can be further explored by the use of another table to demonstrate the varied effect of the same tail wind on different species. To do this I have analysed the movements of *Corvidae*, Starlings, and Chaffinches, representing a group of large sized, medium and small sized migrants.

TAIL WIND VARIATIONS IN SPECIES

| *WIND STRENGTH* | *DIRECTION* | *DATE* | *SPECIES* | *CROSSING the ESTUARY* | *NOT CROSSING the ESTUARY* |
|---|---|---|---|---|---|
| 3 | S. | 1-4-51 | *Corvidae* | 599 (99%) | 6 (1%) |
| | | | Starling | 1354 (66%) | 601 (34%) |
| | | | Chaffinch | 270 (50%) | 270 (50%) |
| 4 | S.S.W. | 29-3-51 | *Corvidae* | 89 (99%) | 1 (1%) |
| | | | Starling | 168 (54%) | 123 (46%) |
| | | | Chaffinch | 43 (30%) | 100 (70%) |
| 5 | W. | 5-4-51 | *Corvidae* | 50 (77%) | 15 (23%) |
| | | | Starling | 330 (63%) | 192 (37%) |
| | | | Chaffinch | 11 (18%) | 49 (82%) |
| 6 | W. | 19-3-51 | *Corvidae* | 68 (93%) | 5 (7%) |
| | | | Starling | 74 (70%) | 31 (30%) |
| | | | Chaffinch | 16 (32%) | 35 (68%) |
| 6 | S.S.W. | 8-4-51 | *Corvidae* | 10 (36%) | 18 (64%) |
| | | | Starling | 0 (0%) | 28 (100%) |
| | | | Chaffinch | 0 (0%) | 41 (100%) |

There are two points demonstrated by this table. First, the larger the migrant, the more likely it is to set off across the ten mile stretch of open water. In other words, the stronger the migrant the bigger the risk it is able to take. Thus, every day a greater percentage of crows crossed than Starlings and of Starlings than Chaffinches. Second, the two days with winds of Force 6 show very different reactions. With the wind blowing strongly from the west on 19th March some numbers of all three groups

crossed, whereas on 8th April with the same strength wind, but from the S.S.W. only a few crows and not one Chaffinch or Starling crossed. Reference to the map will show the reason for this. A west wind keeps them in towards the land, a S.S.W. one makes the crossing longer and therefore more dangerous. With slight variations they might be blown out to sea.

From observations made further inland along the Estuary it was apparent that many of the migrants which turned inland followed the southern shore for about ten miles or more to the area of Balje Marsh, where the Estuary narrows. Here they crossed in great numbers to continue in their original north-easterly direction over land to the Baltic. (See Figure III.)

It is worth repeating here that I found there was a broad front during spring migration, extending at least from Heligoland to Hamburg, but within this broad front there was a marked concentration line that followed the coast through Cuxhaven. (See "British Birds" Vol. XLV. p.112, 1952 "The way migration takes place.") A good example of this was the Grey-headed Wagtail. In three days observations in May, 198 individuals were seen on the stretch of land a mile long between Cuxhaven and the North Sea coast. At the same time only 17 were seen on the Oste marshes, which are ten miles inland along the Elbe. On the Pinnau marshes, a further 20 miles inland on the same estuary, I never saw a single Grey-headed Wagtail during two spring migrations. This would seem to be an example of the use of coastal "guiding lines" referred to by Mr. Williamson.

At first sight it seemed difficult to link up my observations with those of Mr. Williamson. He has gone far towards proving the migrational drift theory, in which migrants drift with the wind ahead of a weather front and he has shown on the weather map how a south-bound migrant could literally be carried out of the mouth of the Elbe northwards across the North Sea to Fair Isle.

If my observations are correct, the reason for the head wind preference when setting off across the Elbe is to minimise the risk of drift. In other words, the migration I was studying was normal, controlled migration, possibly associated with coastal "guiding lines", whereas drift migration is abnormal, in that it is out of the birds' control and therefore of greater danger to it. It would be interesting to know if there were similar differences in the numbers of *Corvidae*, Starlings and Chaffinches arriving on Fair Isle as the result of North Sea drift, but this would be difficult to ascertain, because the clue lies in the percentages and not the totals.

The behaviour of migrants on arrival at the Kugelbake point was not without interest and it was obvious that the water barrier which confronted them exerted a profound effect on their behaviour.

The commonest phenomenon was circling—large numbers of migrants reacted in this way, the most regular being Jackdaws, Starlings and Green Plover. As a result many of them gained height, but it seemed possible that they were also testing the wind strength. It may be a sign of indetermination, because I have observed birds of one species (Green Plover) circling, while a flock of another species (Starlings) set off without

any preliminary circling and were immediately joined by the Plover flock.

Occasionally too, flocks would split up and some would return to the shore, while the remainder crossed. Twice an individual Starling was observed to leave the flock and return by itself. A flock of Chaffinches was watched repeatedly setting off across the Elbe, only to return each time when about a quarter of a mile out.

Another constant feature was "crabbing"—i.e. facing into the wind while flying at an angle to it. This was a feature much stressed by Dr. Norman Joy in migrants at Dungeness Point. The fact that a bird can "crab" must surely refute the argument that a flying bird cannot appreciate the wind direction.

Visibility changes did not seem to exert any definite effect on the migrants and one marked rush took place in spite of a thick fog. There was a definite correlation between head winds, tail winds and the height of migration, birds flying higher with tail winds, so that field glasses were necessary for identification. This was always easier against a background of light cloud. The height factor was complicated however, because many migrants came down low over the Elbe, presumably to make use of the up-currents from the water. The only days when migration actually halted was March 25th–27th, when there were heavy intermittent snow storms from the north-west.

In some stange way the sight of the water appeared to act as a "releaser" for spring behaviour and song was heard from Wood Larks, Sky Larks, Greenfinches, Linnets and a Mistle Thrush, while several Sky Larks indulged in complete song flights and a Greenfinch performed its aerial display. All this took place in the midst of their normal migratory flight.

It was plain that many species were already paired and in this connection it is of interest that three pairs, each of a Hooded Crow mated to a Carrion Crow, were seen on one day. The line of inter-breeding lies a little to the north in Denmark and Schleswig-Holstein, but these birds had definitely paired in winter quarters.

Finally, the following table gives an indication of the prevalence of the species and races seen and analysed:—

| Species | March | April | May | Total |
|---|---|---|---|---|
| Starling *Sturnus vulgaris vulgaris* Linnæus | 4996 | 3483 | — | 8479 |
| Chaffinch *Fringilla coelebs* Linnæus | 1934 | 1187 | 44 | 3165 |
| Green Plover *Vanellus vanellus* (Linnæus) | 1577 | 110 | 1 | 1688 |
| Linnet *Carduelis cannabina cannabina* (Linnæus) | 707 | 467 | 4 | 1178 |
| Jackdaw *Corvus monedula* Linnæus | 244 | 845 | 33 | 1112 |
| Hooded Crow *Corvus cornix cornix* Linnæus | 788 | 156 | — | 944 |
| Meadow Pipit *Anthus pratensis* (Linnæus) | 319 | 277 | 9 | 605 |
| Sky Lark *Alauda arvensis* Linnæus | 523 | 69 | 12 | 604 |
| Wood Pigeon *Columba palumbus palumbus* Linnæus | 201 | 282 | 45 | 528 |
| Black-headed Gull *Larus ridibundus ridibundus* Linnæus | 412 | 93 | — | 505 |
| Shore Lark *Eremophila alpestris flava* (Gmelin) | 330 | — | — | 330 |
| Rook *Corvus frugilegus frugilegus* Linnæus | 52 | 249 | — | 301 |
| Swallow *Hirundo rustica rustica* Linnæus | — | 9 | 238 | 247 |
| Swift *Apus apus apus* Linnæus | — | — | 219 | 219 |

| Species | March | April | May | Total |
|---|---|---|---|---|
| Grey-headed Wagtail *Motacilla flava thunbergi* Billberg | .. | — | 198 | 198 |
| White Wagtail *Motacilla alba alba* Linnæus | 140 | 56 | — | 196 |
| Sand Martin *Riparia riparia* (Linnæus) | — | — | 192 | 192 |
| House Martin *Delichon urbica urbica* (Linnæus) | — | — | 164 | 164 |
| Greenfinch *Chloris chloris chloris* (Linnæus) | 58 | 90 | — | 148 |
| House Sparrow *Passer domesticus domesticus* (Linnæus) | 61 | 63 | — | 124 |
| Tree Sparrow *Passer montanus montanus* (Linnæus) | 39 | 50 | — | 89 |
| Yellow Bunting *Emberiza citrinella citrinella* Linnæus | 74 | 15 | — | 89 |
| Blue-headed Wagtail *Motacilla flava flava* Linnæus | — | 86 | — | 86 |
| Ringed Plover *Charadrius hiaticula* Linnæus | 81 | — | — | 81 |
| Twite *Carduelis flavirostris flavirostris* (Linnæus) | 70 | 9 | — | 79 |
| Hedge Accentor *Prunella modularis modularis* (Linnæus) | 71 | 6 | — | 77 |
| Mistle Thrush *Turdus viscivorus viscivorus* Linnæus | 59 | 14 | — | 73 |

cont. on next page

| Species | March | April | May | Total |
|---|---|---|---|---|
| Curlew | 72 | — | — | 72 |
| *Numenius arquata arquata* (Linnæus) | | | | |
| Common Tern | — | — | 65 | 65 |
| *Sterna hirundo hirundo* Linnæus | | | | |
| Stock Dove | 50 | 8 | — | 58 |
| *Columba œnas* Linnæus | | | | |
| Golden Plover | 44 | 6 | — | 50 |
| *Charadrius apricarius* Linnæus | | | | |
| Siskin | 15 | 30 | — | 45 |
| *Carduelis spinus* (Linnæus) | | | | |
| Herring Gull | 40 | — | — | 40 |
| *Larus argentatus argentatus* Pontoppidan | | | | |
| Wood Lark | 16 | 20 | — | 36 |
| *Lullula arborea arborea* (Linnæus) | | | | |
| White fronted Goose | 35 | — | — | 35 |
| *Anser albifrons* (Scopoli) | | | | |
| Brent Goose | 29 | 4 | — | 33 |
| *Branta bernicla* (Linnæus) | | | | |
| Little Tern | — | 27 | — | 27 |
| *Sterna albifrons albifrons* Pallas | | | | |
| Redwing | 7 | 18 | — | 25 |
| *Turdus musicus* Linnæus | | | | |
| Carrion Crow | 13 | 12 | — | 25 |
| *Corvus corone corone* Linnæus | | | | |
| Fieldfare | 20 | 1 | — | 21 |
| *Turdus pilaris* Linnæus | | | | |
| Blackbird | 18 | 2 | — | 20 |
| *Turdus merula merula* Linnæus | | | | |
| Whooper Swan | 20 | — | — | 20 |
| *Cygnus cygnus* (Linnæus) | | | | |
| Brambling | 20 | — | — | 20 |
| *Fringilla montifringilla* Linnæus | | | | |
| Common Gull | — | 20 | — | 20 |
| *Larus canus* Linnæus | | | | |
| Honey Buzzard | — | — | 20 | 20 |
| *Pernis apivorus* (Linnæus) | | | | |
| Reed Bunting | 16 | 3 | — | 19 |
| *Emberiza schœniclus schœniclus* (Linnæus) | | | | |
| Grey Plover | 2 | — | 16 | 18 |
| *Charadrius squatarola* (Linnæus) | | | | |
| Magpie | 3 | 13 | — | 16 |
| *Pica pica pica* (Linnæus) | | | | |
| Heron | 5 | 10 | — | 15 |
| *Ardea cinerea* Linnæus) | | | | |
| Sparrow Hawk | 3 | 10 | — | 13 |
| *Accipiter nisus nisus* (Linnæus) | | | | |
| Snipe | 12 | — | — | 12 |
| *Capella gallinago gallinago* (Linnæus) | | | | |
| Song Thrush | — | 12 | — | 12 |
| *Turdus ericetorum philomelus* Brehm | | | | |
| Goldfinch | 2 | 6 | 4 | 14 |
| *Carduelis carduelis carduelis* (Linnæus) | | | | |
| Tree Pipit | — | — | 10 | 10 |
| *Anthus trivilais trivialis* (Linnæus) | | | | |
| Black Tern | — | — | 7 | 7 |
| *Chlidonias niger niger* (Linnæus) | | | | |
| Greenland Wheatear | — | 5 | — | 5 |
| *Oenanthe oenanthe leucorhoa* (Gmelin) | | | | |

| Species | March | April | May | Total |
|---|---|---|---|---|
| Shelduck | — | 5 | — | 5 |
| *Tadorna tadorna* (Linnæus) | | | | |
| Goosander | 5 | — | — | 5 |
| *Mergus merganser* Linnæus | | | | |
| Hen Harrier | 1 | 3 | — | 4 |
| *Circus cyaneus cyaneus* (Linnæus) | | | | |
| Snow Bunting | 3 | — | — | 3 |
| *Plectrophenax nivalis nivalis* (Linnæus) | | | | |
| Redshank | 1 | 1 | 1 | 3 |
| *Tringa totanus* (Linnæus) | | | | |
| Kestrel | — | 3 | — | 3 |
| *Falco tinnunculus tinnunculus* Linnæus) | | | | |
| Marsh Harrier | — | 3 | — | 3 |
| *Circus æruginosus æruginosus* (Linnæus) | | | | |
| Common Snadpiper | — | — | 3 | 3 |
| *Tringa hypoleucos* Linnæus | | | | |
| Ruff | — | 3 | — | 3 |
| *Philomachus pugnax* (Linnæus) | | | | |
| Gulled-billed Tern | — | — | 2 | 2 |
| *Gelochelidon nilotica nilotica* (Gmelin) | | | | |
| Spotted Flycatcher | — | — | 2 | 2 |
| *Muscicapa striata striata* (Pallas) | | | | |
| Merlin | — | 1 | 1 | 2 |
| *Falco columbarius æsalon* Turnstall | | | | |
| Hawfinch | 2 | — | — | 2 |
| *Coccothraustes coccothraustes coccothraustes* (Linnæus) | | | | |
| Mallard | 2 | — | — | 2 |
| *Anas platyrhyncos* Linnæus | | | | |
| Great Tit | 1 | 1 | — | 2 |
| *Parus major major* Linnæus | | | | |
| Robin | 1 | — | — | 1 |
| *Erithacus rubecula rubecula* (Linnæus) | | | | |
| Kingfisher | 1 | — | — | 1 |
| *Alcedo atthis ispida* Linnæus | | | | |
| Rock Pipit | 1 | — | — | 1 |
| *Anthus spinoletta* (Linnæus) | | | | |
| Red-throated Diver | 1 | — | — | 1 |
| *Colymbus stellatus* Pontoppidan | | | | |
| Sc.Lesser Black-backed Gull | — | 1 | — | 1 |
| *Larus fuscus fuscus* Linnæus | | | | |
| Goshawk | — | 1 | 1 | 1 |
| *Accipiter gentilis gentilis* (Linnæus) | | | | |
| Peregrine | — | 1 | — | 1 |
| *Falco peregrinus peregrinus* Tunstall | | | | |
| Wheatear | — | 1 | — | 1 |
| *Oenanthe œnanthe œnanthe* (Linnæus) | | | | |
| Green Sandpiper | — | 1 | — | 1 |
| *Tringa ocrophus* Linnæus | | | | |
| Chiff-chaff | — | 1 | — | 1 |
| *Phylloscopus collybita* (Vieillot) | | | | |
| Greenshank | — | 1 | — | 1 |
| *Tringa nebularia* (Gunnerus) | | | | |
| Black tailed Godwit | — | 1 | — | 1 |
| *Limosa limosa limosa* (Linnæus) | | | | |

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## On Two New Races and an Undescribed Variety from the Tristan da Cunha Group

By Mr. H. F. I. Elliott.

*Received* 18*th December*, 1953

Although the few resident land birds of Tristan da Cunha and its associated islands derive from South America (to which continent the avifauna should certainly be referred rather than as formerly to the Ethiopian region), it is clear that those species which have established

themselves have, in the absence of competition, food shortages or climatic extremes, become very sedentary. Of over 100 thrushes *Nesocichla eremita* (Gould) ringed at the landing-place on Nightingale Island only one, in the course of a year's observation, was found to have wandered any distance and then only a matter of 300 yards. In consequence it is not surprising that the populations inhabiting the various islands and islets of the group exhibit divergences.

Most of the forms which have evolved have been recognized and described, and doubts which have sometimes been expressed as to their validity and constancy are unjustified. They can in fact all be readily distinguished in the field, even in the absence of direct comparison, by characteristic behaviour as well as appearance. In two cases, only, differences have hitherto escaped notice. One of these can probably never be verified. It has always been assumed that the smaller bunting of Inaccessible Island is identical with *Nesospiza acunhæ acunhæ* (Cabanis), of the main island of Tristan, now extinct. This for the reasons indicated above is most improbable, but only a single specimen of the extinct race is known to exist (in the Berlin Museum: see Stresemann, Ibis, 95, 1953: 146–147), which I have not yet had an opportunity of examining. In the other case it has been mistakenly supposed that the thrush of Nightingale Island is identical with the race described from Inaccessible, *Nesocichla eremita gordoni* (Stenhouse). It is in fact distinct and I propose:

*Nesocichla eremita procax* subsp.nov.

*Description :* Sexes alike, though ♂ averages slightly larger in all races. Differs from *N. e. eremita* of Tristan in being larger (e.g. wing 112 to 119 against 100 to 110, culmen usually 24 or 25 against 21 or 22), the much darker and also more rufous tone of the plumage (the paler areas on wing coverts and inner webs of the primaries being tawny red not buff), and the paler (more brown less blackish) bill and feet. Differs from *N. e. gordoni* of Inaccessible, which is intermediate in size (wing 108 to 117, culmen usually 22 or 23), in being larger on the average in all dimensions, having a pale grey tinge suffusing the buff of the underside, which is also more heavily spotted and streaked with dark brown especially on the flanks, and in having the primary coverts more uniformly tawny red.

*Distribution :* Nightingale Island, South Atlantic.

*Type :* ad. ♂ Nightingale. 11th April 1950. Wing 119. No. 966 in my collection, now in the British Museum. *Co-type.* ad. ♀ Nightingale. 10th July 1951. Wing 112. My No. 1028 in the same collection.

*General :* The name is intended to denote the extreme tameness and impudence of this race compared with the other two. Further distinctions are that the normal clutch seems to be 3 in this race, 2 in the others, and that the eggs are larger (average of 10: 33.5 x 22.7; average of 4 eggs of *N. e. gordoni* 29.5 x 22).

The isolation of Tristan da Cunha might be expected to have had less effect on the breeding populations of sea-birds. Nevertheless a comparatively

large number of local forms have evolved. Most of these have been recognized and described, doubts as to their validity being in most cases removed by examination of adequate material. Thus the local races of *Eudyptes cristatus*, *Puffinus assimilis*, *Procellaria æquinoctialis*, *Peleconoides urinatrix*, *Catharacta skua* and *Sterna vittata* are all "good"; those of *Diomedea exulans* and *Fregetta grallaria* somewhat more doubtfully so; and only the local population of *Pachyptila forsteri*, among those generally recognized, having no reliable distinctions (the criteria given in Mathews's description being if anything the exact reverse of the truth).

I suspect that in the differentiation of the species mentioned, there is a correlation with the extent to which the population concerned is prone to wander from its breeding station. For instance the distinctive ring-eyed form of the Cape Hen, *Procellaria æquinoctialis conspicillata* (Gould), is found in its burrows on Inaccessible Island in April, May and June, in the very middle of the non-breeding period, while the notable long-tailed Tristan race of the Antarctic Tern, *Sterna vittata triantaniensis* Murphy, is present in the islands throughout the year. Murphy and Harper's review of the Diving-Petrels, *Pelecanoides* (Bull. Amer. Mus. Nat. Hist., 1921: 44, art. 17: 495–554), and subsequent work on the genus, indicates that it is peculiarly liable to divergences of form in each of its breeding stations, and it therefore seems significant that the Tristan race. *P. urinatrix dacunhæ* Nicoll, was recorded in the vicinity in all months except July and August (a time of year when observations at Tristan are in any case difficult to maintain).

It has always been assumed that the Diving-Petrel of Gough Island is also referable to *P. urinatrix dacunhæ*, but the 250 miles of sea and latitude, which separate this outlying member of the Tristan group from the other islands, seem to have isolated that Gough population sufficiently for differentiation to occur. The British Museum had one specimen taken in June 1927 (again the middle of the non-breeding season), but another secured in February, 1952, (when numbers of these brids were attracted by the lights of a fishing trawler anchored just off the Gough beaches) agrees in showing the same divergences from the good series of *P. u. dacunhæ* now available. I propose:

*Pelecanoides urinatrix elizabethæ* subsp.nov.

*Description :* Differs from the neighbouring *P. urinatrix dacunhæ* of Tristan in the shape of the bill, which is broader with a shorter and blunter unfeathered inter-ramal space, the brown shafts of the feathers of the neck and jugulum are less conspicuous, but the flanks considerably greyer; from typical *P. u. urinatrix* of New Zealand waters differs in being smaller (wing 113 against 119, tail 35–38 against 39–41) and in the dark shafts of the neck feathers; from *P. u. berardi* of the Falklands (which has wing 122) differs in being smaller, but broader-billed and darker on throat and flanks; and from *P. u. coppingeri* of South America, to which it is very similar in size, in having a broader bill and dark neck and flanks. *P. exsul* of Kerguelen and Marion is larger (wing 122, tail 39–43) and has a considerably broader and deeper bill.

*Distribution :* Gough Island, South Atlantic.

*Type :* ad. ♂ Gough. 23rd February 1952. Wing 113. No. 1066 in my collection, now in the British Museum.

*General :* Named after my wife, who is I believe the first woman ever to have landed on Gough Island and accompanied me on my explorations there.

One other form of sea-bird which does not seem to have been described, was discovered nesting in small numbers on the precipices immediately above the settlement of Edinburgh on the main island of Tristan. On the evidence available this would seem simply to be a dark form of the Soft-plumaged Petrel, *Pterodroma mollis mollis* (Gould), a variety upon the existence of which considerable doubts have been expressed by some authorities. It is true that a specimen in the British Museum captured at sea in lat. 36deg.S., long. 88deg.55min.E., is labelled *mollis* (dark form), and agrees generally in dimensions with that species. But there are no other data on the label except a recent note by Murphy that the specimen may in fact be *Pterodroma ultima.*

With regard to the four specimens of the undescribed form secured on Tristan (three of which are now in the British Museum), the salient fact is that whereas the normal type of *P. mollis* is still found breeding in large numbers on Gough Island and rather sparsely on Nightingale and Inaccessible Islands, all the examples of a petrel of the same dimensions found breeding at the same time of year and in the same type of burrow on the main island of Tristan were found to be dark birds of the same general form. The colour of the soft parts is identical (feet: tarsus and one third of inner toe and web and streak at apex of outer web pale flesh, remainder dusky black). The only distinctions are in the colour of plumage and may be summarized as follows:

*Pterodroma mollis mollis* dark form

*Description :* Differs from light form in being sooty-grey not blue-grey above (very close in tone to the grey of *Pterodroma brevirostris* Lesson); the outer tail feathers are uniformly dark and not freckled with white; there are some dark rufous margins to the feathers of the crown; below, the breast band is sooty grey and about $1\frac{1}{2}$ inches wide, not blue-grey and $\frac{3}{4}$ of an inch wide as in the normal *P. m. mollis*; the belly, under tail coverts, throat and cheeks are all more or less heavily streaked and freckled with sooty grey; in normal *P. m. mollis* the under tail coverts are usually plain white or with very sparse grey freckling.

*Distribution :* Breeding at about 1,000ft. to 2,000ft. a.s.l. on the Goat Ridge, near the Settlement, Tristan da Cunha.

*General :* Nests found were burrows about 18 inches deep, usually beneath clumps of ferns. An egg taken on 28th December, 1951, measured 60 x 44mm. A chick examined on 13th February, 1951, was covered in thick grey down, very slightly paler on the breast and sparser and much whiter about the throat and cheeks; differs only in being slightly darker from a rather larger chick attributed to *P. m. mollis* found on Gough Island on 24th February, 1952.

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## DINNERS AND MEETINGS FOR 1954

16th February, March with B.O.U., 20th April, 18th May, 15th June, 19th October, 16th November and 21st December.

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Communications are not restricted to members of the British Ornithologists' Club, and contributions up to 1,500 words on taxonomy and related subjects will be considered from all who care to send them to The Editor, Dr. J. G. Harrison, "Merriewood", St. Botolph's Road, Sevenoaks, Kent.

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Edited by
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BULLETIN

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BRITISH ORNITHOLOGISTS' CLUB

Volume 74
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The five hundred and twenty-eighth meeting of the Club was held at the Rembrandt Hotel, Thurloe Place, S.W.7., on Tuesday, 16th February, 1954.

*Chairman :* COL. R. MEINERTZHAGEN.

Members present, 31; Guests 6; Guests of the Club, Dr. and Mrs. K. H. Voous; Total 39.

Dr. Voous of the Zoological Museum, Amsterdam, gave a most interesting talk, illustrated with slides, an account of which follows.

## Clines and their Significance in Zoogeographical Studies

By DR. K. H. VOOUS.

We have become accustomed to the phenomenon that specimens belonging to one species, show without exception, mutual differences of a variable extent. Age or sex may be responsible for this phenomenon of individual variability, but differences are equally well-known among random individuals from one locality and between specimens originating from different places. The distinctness of these various forms of variation is, however, by no means absolute. Instead, variations attributed in one locality to age or sex may be found in another locality to be independent of these categories and again may turn up as of a geographical nature in other places. There is therefore, no clear-cut difference between the types of variation generally known as local variation and geographical variation. In describing the geographical variation of a species therefore, we try to find *geographical differences in individual variation* and not differences between two or more species from two or more localities.

As a matter of fact, there are types of variations, which are more or less confined to a certain part of the species' range, but even in these cases specimens may occasionally turn up in any outpost of the area, exhibiting one or more characters ascribed to quite another part of the range. Kleiner (1939) mentions a Magpie *Pica pica* with yellow bill and yellow orbital skin found in Hungary, where all other Magpies have the bill black; but, those from California as a rule have them all yellow. Although this and similar cases are generally referred to the large group of undetermined phenomena generally called "atavisms", yet, such exceptional individuals form part of the range of individual variation of a given species at a given spot. Here we have reached the stage where the

direct relation between local and geographical variation at first sight would seem to be absent, but, still, it proves to exist, working in the stock of genes preserved in the population of a certain place, rather than in the skins that taxonomists have available for their study.

Strictly speaking, the curves of individual variation of no two populations will prove to be exactly alike, although it would seem to be so from a comparison of a few specimens. Definite points of distinction between different populations are not always easy to describe, particularly not, when the differences are gradual and show a certain decline. Such types of geographical variation, in which the gradation is measurable, have been called by Huxley (1938) a *cline*, a name, which has subsequently proved to fill a demand. Times were especially ripe for the general acceptance of the cline-concept in the sense of a "*continuous cline*", which denotes a gradual shift of individual variation of all kinds of characters liable to vary individually and occurring within a large and continuous area of freely interbreeding populations.

Clines in birds have been described in detail by Murphy (1951), Meinertzhagen (1951, 1953) and Verheyen (1950), but in this paper I will mainly refer to my own investigations on the Jay *Garrulus glandarius* in Europe (Voous, 1953).

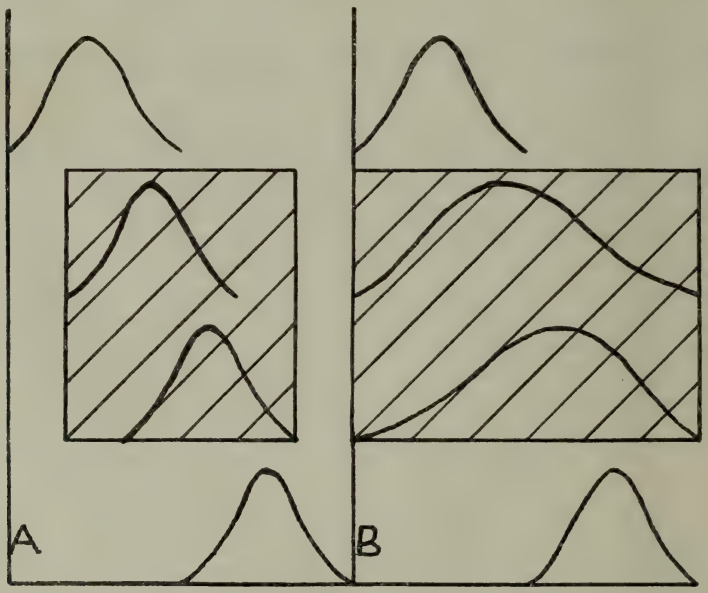


Fig. 1. A. Primary intergradation showing regular cline.
B. Secondary intergradation of zone of hybredization.
Taken from *Ardea* 41, 1953, Figure 1.

Clines can only be studied on measurable characters. Colour-clines, therefore, require a quantitative method of research, which it is not always easy to design. For a diagrammatic picture of a cline, see figure 1, A.

It is important to notice that any gradation in geographically variable characters is not by necessity a cline! Mayr distinguishes between primary and secondary intergradations, depending on a primary or a secondary contact of populations. In primary intergradations the range of normal individual variation remains unmodified; the variation falling well within the definition of a regular cline. Individual variation in secondary intergradations is, in contrast, exceedingly large, connecting the extremes of both populations which have come together (figure 1, B); this variation is no part of a cline. Zones of secondary intergradation or hybridization, as well as their significance in zoogeography, have been fully discussed by Voous and Van Marle (1953).

Various authors have claimed that the increase of dimensions found in many populations in Europe and Asia (Rule of Bergman) has resulted from the process of *natural selection*, the working of which has never been clear to me. I am, however, fully inclined to accept this hypothesis, but in addition see the probability of purely genetical factors inducing the origin of these and similar clines of size and coloration. This will be explained below.

The coloration of the upper and under parts of the Jay *Garrulus glandarius* depends on the relative and absolute quantities of the two feather-pigments, eumelanin and phæomelanin. The actual quantity of each pigment in the rami of one feather seems to vary independently and at all events to such an extent, that every imaginable transition between the "extreme" colour-types of grey and brown, dark and light, has proved to occur in nearly all populations.

Dobzhansky and other authors have suggested that a regular cline may have a basal system of *multiple factors*. The regular trend in European Jays of becoming greyer and more intensively pigmented towards the end of the clines must then be explained by assuming a regular shift in the relative frequencies of the genes (alleles) of a multiple system controlling the quantitative deposition of the two feather-pigments. Marginal populations of a continuous breeding area are considered to be less regularly supplied with all gene-combinations than the populations situated in the centre. Consequently, certain genes (or their alleles) will gradually come to disappear through a unilateral regulation of gene-drift, resulting in the high frequency of homozygotic conditions in terminal populations.

We must pay attention then, to the role of the *climate in the process of gene-elimination*. In the Jay, no direct correlation of either temperature and rainfall with the colour-clines has been found. This does not mean, of course, that we should neglect that an increase of brown tones, particularly of the under parts, has been noticed in the moist British Isles, a situation which might be correlated with a corresponding increase in humidity of the atmosphere. In other parts of Europe, however, such a correspondence is not evident or is even contradictory (see Voous 1953, fig. 13–14). Now, it is of course possible, that various climatic conditions control the frequency of the responsible alleles in one way or another, but it is most likely that the main function of these genes is not the regulation of the feather pigmentation, but rather some other physiological process, while the deposition of the pigments, which are the side-products of the main-process, is only secondary.

With regard to the supposed role of natural selection in the process of the origin of the colour-clines in the European Jay, the following questions wait for a definite answer:—

1. Has it any survival advantage to any Jay from central and northern Europe to be darker and greyer in coloration, instead of being paler and browner, as are the Jays inhabiting southern and south-western Europe?

2. Would any grey Jay be subject to a higher mortality in Britain than a brown Jay actually living there?

Having in mind the wide range of individual variation throughout the whole of the European area any attempt to answer these questions will be in vain. Thus, although we cannot by any means reject the possibility of climatic and environmental factors controlling the clinal variation of the Jay, direct evidence supporting this supposition is absent.

The formation of a cline is a continuous and never-ending process, reflecting the fluctuations of dispersal and climate. For example, the cline of increasing vinaceous-brown coloration in Atlantic Jays, running from the Mediterranean region to Ireland, is not at all constant; instead, it is always changing and may deepen and flatten out in time, according to the activity of all factors which have induced its origin.

In view of the regulation of a cline by both concurrent environmental and genetic factors, regular clines are likely to become *basal units in detailed zoogeographical studies* dealing with rather recent distribution-phenomena, including post-glacial dispersal. We take it for granted that wherever a clinal system shows a distinct gap or irregularity, two populations, that is, two clinal units, have met from different directions and have subsequently formed a zone of secondary intergradation. This criterium not only holds for strikingly different populations; it is also apparent in superficially very similar population-groups. For example, clinal variation in the Jay as studied by the curves of individual variation shows distinct discontinuities in east-central Europe and in the regions north and south of the Pyrenees. For the presence of these discontinuities, also found in other passerine birds, a zoo-geographical explanation has been proposed in the form of a theory on post-glacial dispersal-phenomena (Voous 1950, 1951; Voous and Van Marle 1953).

We now have to direct our attention to the *subspecies*, that much disputed systematic category, of which up to now I have not even mentioned the name. Our previous considerations have more or less overrun the subspecies-concept, particularly in those cases where we have come to the conclusion that every population has its own picture of individual variation, notwithstanding the fact that similar individual specimens occasionally or as a rule occur in the greater part of the species' range. We have however, omitted to draw sharp lines of demarcation between populations to mark the limits of those artificial groups, which, after having got a name, are called subspecies. This omission has not been made without reason. For, when we look once more at the ideal, regular cline (fig. 1, A), we are fully confronted with the difficulty of the poor taxonomist, or let us say nomenclaturalist, from whom it is expected that he should express the given geographical variation in a clumsy system of trinominals, based upon the recognition of subspecies. Even when we

bear in mind that a subspecies' name never means to indicate difference between specimens, but rather between populations, we cannot otherwise than agree, that any decision in naming the populations which are intermediate in both character and place must be arbitrary and, thus, open to criticism. At present we are inclined to give different subspecific names to those opposite extremes of a cline, which are for approximately 100 per cent distinct. Even then there are no clear limits between one "subspecies" and the other. This simple method of naming also fails, when for example the oldest available name has its type-locality in the centre of the cline, a situation, which, in view of the fact that type-localities are artificial and dependent on the material available to occasional taxonomists, frequently occurs.

Personally I am of the opinion that the present disadvantage of the *impossibility of giving subspecific names* to a great many of our study-skins will help us to overcome the present deadlock, which merely means a deadlock in technique, *not* in science. As a matter of fact we are forced to use symbols—be it ordinary trivial names or a systematically regulated system of ternary nomenclature—to make our thoughts understandable to other persons. In my paper on the European Jay I have therefore chosen the method of naming at least all terminal ends of individual clines, as well as all isolated populations. This resulted in the enumeration of eleven names, two of which were newly created. To these names has now been added *Garrulus glandarius caledoniensis* by Hazelwood and Gorton to denote Scottish populations (Bull. B. O. C. 73, 1953, p.1). Of course, this system of multiple names was a failure. But the alternative method of applying one and the same ternary name to all European Jays would have caused even greater criticism. So that we are forced to confess that it *is* impossible to press the dynamics of nature into our inflexible and firm system of trinominal nomenclature. Yet, I feel that in the future at least all continental European and British Jays should be denoted with one ternary name, of which it should be stated that it intends to name a system of closely resembling clines and not an orthodox "subspecies". But this is not a prophecy, nor a formal proposal, but a mere *personal thought*, as has been this whole lecture.

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## A Recent Example of Symmetrical Albinism in the Mallard, *Anas platyrhynchos platyrhynchos* Linnaeus

By Mr. Bryan L. Sage.

*Received 20th January*, 1954

An adult female Mallard, *A. platyrhynchos* seen on Wilstone Reservoir, Tring, Herts, by Mrs. S. Cowdy on 8th January, 1954, in a flock of other birds of the same species was obviously an example of this form of albinism.

From the observer's detailed description it appears that the primaries and secondaries of each wing were pure white, most of the flanks on each side were also white and there was a prominent white line running down the back of the neck from the head to the mantle. There was no sign of the usual purplish speculum. The legs and bill were normal in colouring.

I have a record of another female of this species shot at Ulceby, Lincolnshire, on 15th December, 1871, this bird was pure white with the exception of the shoulders and wing coverts which were the normal colour (*The Zoologist*, 1872, p.2932).

## Comments on Geographical Variation in the Tit-Babbler *Parisoma subcæruleum* (Vieillot) and the Description of a New Race from the High Interior of Natal, South Africa

By Mr. P. A. Clancey.

*Received 22nd January*, 1954

*Parisoma subcæruleum* (Vieillot) is a locally common species of Tit-Babbler confined to Africa south of the Zambesi in suitable thornveld and scrubby areas, three races being generally recognized, namely, *P. s. subcæruleum*, described from the Cape Province, and *P. s. cinerascens* Reichenow, described from Hereroland, *i.e.*, Damaraland, South-West Africa, and *P. s. ansorgei* Zedlitz of southern Angola. The differences separating the two southern races are known to be rather subtle and resulting therefrom the distributions in the literature are both nebulous and contradictory. For instance, specimens stated to resemble in all essential details those from Damaraland are recorded from as far to the south-east as Natal (*vide* Roberts, "Birds of South Africa", 1940, p.278), from which territory the species is not listed by Sclater, "Systema Avium Aethiopicarum," 2, 1930, p.402, nor by Zedlitz, "Ornithologische Monatsberichte," vol. 29, 5/6, 1921, pp. 51–52. Indeed, Roberts goes so far as to suggest that the nominotypical subspecies is confined to the southern parts of the Cape Province, all the other populations of the species found south of Angola being referable to the race *P. s. cinerascens*,

but Vincent, in his recently published "Check List of the Birds of South Africa," 1952, p.66, restricts *P. s. cinerascens* to the South-West Africa—Matabeleland area, placing the other populations, even those of Bechuanaland ( ! ), as *P. s. subcæruleum*. Neither arrangement is in accordance with the normal pattern of geographical variation to be expected in small sedentary South African polytypic species of birds occupying such regions of the sub-continent, and on theoretical grounds alone both arrangements are unsatisfactory, and a critical examination of material recently collected and assembled confirms such a supposition.

The populations which constitute the race *P. s. subcæruleum* are apparently mainly confined to the Cape Province in areas to the south of the Orange River, and are characterized by the dark greyish suffusion to the breast and flanks, reduced quantity or absence of white on abdominal surfaces, and broadly striated throat. In the drier areas to the north of the Orange River, *i.e.*, in South-West Africa, Bechuanaland, eastwards to parts of Southern Rhodesia, etc., the populations differ slightly from those from the Cape Province just dealt with in having the upper-parts a trifle lighter and rather less smoky grey-brown in series, and on the ventral surfaces they are found to be paler on the breast, sides of the body and flanks, and to have the white on the abdomen more extensive and prominent, while the striæ of the throat are generally finer and of a less intense black than in the nominate form of the south. These populations represent the race *P. s. cinerascens*. In the littoral of south-western Angola the birds are still paler and greyer than *P. s. cinerascens* and have much white abdominally, while structurally they are small, wings generally (♂♀) 60–65mm. For these small, pale birds O. Graf Zedlitz has proposed the name *P. s. ansorgei*, 1921. Of this race I have not been able to examine material. In parts of upper Natal the birds are markedly clearer, rather bluer, grey above than either *P. s. subcæruleum*, or *P. s. cinerascens*, lacking almost entirely the brownish cast to the plumage in both of these races, and ventrally they most closely resemble the nominotypical subspecies, differing only in having the striæ of the throat still broader and more intensely black. The bill is also somewhat longer. The differences displayed by the birds from the high interior of Natal are actually greater than the observed differences existing between topotypical material of the two forms *P. s. subcæruleum* and *P. s. cinerascens*, and seem to warrant the erection of a third geographical race from the south-eastern parts of the range of this species. Recourse to such action is materially strengthened by the knowledge that the population resident in the interior of Natal is isolated both geographically and ecologically from other populations, and enjoys a very restricted distribution on the eastern periphery of the species' range.

While it must be admitted that geographical variation is relatively poorly developed in *P. s. subcæruleum*, four valid races can be recognized to advantage on the basis of the taxonomic series, and the new race I intend to differentiate under the name.

*Parisoma subcæruleum orpheanum*, subsp.nov.

*Type :* ♂, adult. Collected on the Estcourt—Weenen road, near Estcourt, central Natal, South Africa. Altitude c. 5,000ft. a.s.l. 22nd

April, 1951. Collected by P. A. Clancey. In the collection of The Natal Museum, Pietermaritzburg, Natal.

*Description :* Similar to *P. s. subcæruleum* (Vieillot) of the Cape Province but differs in having the upper-parts clearer and more bluish violet-grey with little or no brown wash, and on the underside by having the striæ of the throat still broader and more intensely black. Bill rather longer, thus: ♂♀ 14–16mm. as against 13–14mm. (measured from skull) in *P. s. subcæruleum*. Differs from *P. s. cinerascens* Reichenow of South-West Africa and adjacent arid areas to the east in having the upper-parts clearer, more bluish violet-grey without the slight brownish wash, which is also present in that race. Ventrally the new race differs from *P. s. cinerascens* in having the white on the abdominal surfaces restricted, the grey on the breast, sides of body and flanks darker, and the throat striæ generally broader and more intensely black. Bill slightly longer.

*Measurements of the Type :* Wing (flattened) 69, culmen from base 16, tarsus 22, tail 72 mm.

*Range :* Confined to certain localities in the high interior of Natal (Estcourt, Weenen, Colenso, Ladysmith, etc.). Apparently absent from all districts of southern Natal and from Zululand, and also does not extend to the west and north of its recorded range beyond the limits imposed by the great physical barrier of the Drakensberg Mountains.

*Description of the Type :* Whole of upper surface light bluish violet-grey, about UV–7–1deg. (*vide* C. & J. Villalobos, "Colour Atlas," 1947); lores, orbital, areas, and ear coverts similar; malar surfaces and entire throat dull white with blackish longitudinal striæ; breast, sides of body and flanks dull bluish grey with slight admixture of dull white; abdominal surface dull white; under tail-coverts cinnamon, about OOS–9–6deg. Wings brownish slate, outer webs of all feathers with bluish violet-grey fringes, except for the bastard-wing feathers which are prominently edged with white; axillaries grey; under wing-coverts grey with narrow white tips. Tail black, three outermost pairs of rectrices with deep white tips, and ultimate pair with white extending up outer web.

Iris, dull creamy white; bill, black; legs and toes black.

*Material examined : P. s. orpheanum*, paratypes, 6; *P. s. subcæruleum*, topotypes, 14; *P. s. cinerascens*, topotypes, 7. *P. s. ansorgei*, not examined.

*Remarks :* Named *P. s. orpheanum* on account of its delightful song, which recalls similar outpourings by certain Sylviine warblers. I am deeply indebted to the Directors of the Transvaal Museum, Pretoria, and the Natal Museum, Pietermaritzburg, for the loan of comparative material.

The characters and ranges of the four recognized races of *P .s. subcæruleum* can be defined in synoptic form as follows:

1. *Parisoma subcæruleum subcæruleum* (Vieillot).
   *Sylvia subcærulea* Vieillot, "Nouveau dictionnaire d'histoire naturelle," nouvelle édition, vol. XI, 1817, p. 188: Gouritz River, southern Cape Province (ex Levaillant).
   Upper-parts dark smoky grey-brown; throat dull white with broad blackish longitudinal streaks; breast, sides of body and flanks dull bluish grey; abdomen with little white; under tail-coverts cinnamon.

*Measurements :* ♂♀ wings 63–71, culmen from base 13–14mm.

*Distribution :* The southern and eastern parts of the Cape Province, but precise limits not clear and presumably intergrades with *P. s. cinerascens* over a considerable area in districts of the Northern Cape and Orange Free State.

2. *Parisoma subcæruleum orpheanum* Clancey, subsp.nov. Herewith. Similar to *P. s. subcæruleum* but clearer, more bluish violet-grey above, and with the striations on the throat broader and deeper black. Bill slightly longer.

*Measurements :* ♂♀ wings 67–72, culmen from base 14–16 mm.

*Distribution :* Confined to and isolated in certain districts of the interior of Natal.

3. *Parisoma subcæruleum cinerascens* Reichenow.
*Parisoma subcæruleum cinerascens* Reichenow, "Ornithologische Monatsberichte," vol. 10, 1902, p.77: Hereroland, *i.e.*, Damaraland, South-West Africa.

Closely similar to *P. s. subcæruleum* on upper-parts but averaging slightly paler and greyer; on underside with paler grey on breast, sides of body and flanks, and more extensive white over abdomen; striations on throat rather finer and not so intensely black; cinnamon of under tail-coverts rather duller.

*Measurements :* ♂♀ wings 66–72, culmen from base 13–14 mm.

*Distribution :* The most widely distributed of the races. Ranges from South-West Africa, (?) and parts of southern Angola, eastwards through Ngamiland and Bechuanaland to Matabeleland, Southern Rhodesia, eastern and northern Transvaal, and apparently parts of the Orange Free State. Intergrading to the south of its wide distribution with *P. s. subcæruleum* and to the north-west with *P. s. ansorgei.*

4. *Parisoma subcæruleum ansorgei* Zedlitz.
*Parisoma subcæruleum ansorgei* Zedlitz, "Ornithologische Monatsberichte," vol. 29, 5/6, 1921, p. 52: Benguella Town, Angola.
Nearest to *P. s. cinerascens* but lighter and even purer grey above, and still paler below, the grey on the sides of the body very light. Much white over the abdomen. Wing feathers with paler outer webs. Smaller.

*Measurements :* ♂♀ wings 60–70 (After Zedlitz).

*Distribution :* Little information. Known mainly from Benguella and the littoral of south-western Angola.

## On Caprimulgus pectoralis, Caprimulgus fervidus, Caprimulgus fraenatus and Caprimulgus rufigena quansae

By Captain C. H. B. Grant & Mr. C. W. Mackworth-Praed.

*Received 8th February,* 1954

In the Bull. B.O.C. 58, p.34, 1937, we considered that *C. frænatus* Salvadori, should be placed as a race of *C. pectoralis* Cuvier.

Roberts, Bds. S.Afr. 1940: Vincent, Check-List Bds. S.Afr. 1952;

Clancey, Prelim. Lst. Bds. Natal & Zululand, 1953; and Benson, Check-List Bds. Nyasaland, 1953, all place *C. fervidus* as a race of *C. pectoralis*, whereas we in our Handbk. N.E. & E. Africa, 1952, treat *C. pectoralis* and *C. fervidus* as separate species and place *C. frænatus* as a race of *C. pectoralis*.

We have examined the large series in the British Museum and are now of opinion that *C. fervidus* is a race of *C. pectoralis* and that *C. frænatus* be treated as a species. Our reasons for this are:—

*Caprimulgus pectoralis pectoralis* Cuviev.

The white spot on the inner web of the first primary does not reach the shaft. The apical third of outer tail feather white. The young bird is like the adult except for being rather paler from breast to belly. Female and young bird have white in wings and tail. Occurs at Ulundi in Zululand.

*Caprimulgus pectoralis fervidus* Sharpe.

The white spot on the inner web of the first primary does not reach the shaft. The apical third of outer tail feather white. The young bird differs from the adult in being warm tawny-brown above. Female and young bird have white in wings and tail. Occurs at Eshowe in Zululand which is south of Ulundi.

There is a gradual gradation from a cold stone colour from Port Nolloth to the Cape and George, to a more vinous tone from Knysna to Natal and Zululand. These two races appear to intergrade in Zululand as shown by the one at Ulundi and the other at Eshowe.

*Caprimulgus frænatus.*

The white spot on the inner web of the first primary reaches the shaft, although in very few specimens there is a slight gap. The apical third of outer tail feather white. Outer tail feather narrower than in *C. pectoralis*. The young bird is very like the adult. The female has white in wings and tail ends buff, or buffish-white.

The white on the first primary reaching the shaft, the narrower outer tail feather, the tawny spots on the wing coverts and chest are, we consider, characters that do not allow of *C. frænatus* being placed as a race of *C. pectoralis*.

In Proc. Ac. Nat. Sci. Philad. 82, p.1, 1930, Bowen has described the race *Caprimulgus rufigena quansæ* from Villa General Machado, Angola. Through the kindness of Dr. de Schauensee we have been able to examine an adult male collected by Bowen at Villa General Machado, Angola. This specimen agrees with specimens in the British Museum collection from the Waterberg area, northern South West Africa. The white edge to the outer web of the first primary is an inconstant character, and the amount of white in the tail of the male varies slightly, and many from other localities equal, or slightly exceed, 28mm. We do, however, consider *Caprimulgus rufigena quansæ* Bowen, to be a valid race, paler than *Caprimulgus rufigena* Smith, and especially greyer on the upper parts. It occurs from Angola to northern South West Africa.

# The Identity of *Cinnyris afer whytei* Benson

By Mary Paterson

*Received 17th February, 1954*

When registering and incorporating a collection of Nyasaland birds presented by Mr. C. W. Benson to the British Museum (Natural History), it seemed to me that the specimens of his race *Cinnyris afer whytei* (Bull. B.O.C. 69, 1948, p.19) were more like the species *C. chalybea* than the species *C. afer* (correctly *afra*).

The adult males of the two species *C. chalybea* and *C. afra* are almost identical in colour pattern, but they are readily distinguished by size. There seems to be no doubt that they are two species because they both occur in the eastern Cape Province, Natal, Zululand and the Transvaal; according to Roberts ('Birds of South Africa,' 1940, p. 323) they occur "side by side", and although this proximity may be more apparent than real, for there is some indication that the species replace each other locally, there is no evidence of interbreeding.

Grant and Praed (Bull. B.O.C. 64, 1943, p.9) distinguished between *C. chalybea* and *C. afra* on length and shape of tail. There is a constant small difference in tail size but, in my opinion, the tail of *C. afra* is no more graduated than in *C. chalybea*. To me the size of bill seems to be a more important distinguishing feature than size of tail, and is fairly constant throughout the ranges of both species (see table of measurements). The bill measurements of *C. afra whytei*, and wing and tail measurements also, fit more closely to those of *C. chalybea* than to those of *C. afra*.

Perhaps Benson was influenced in putting *whytei* into *C. afra* instead of *C. chalybea* because specimens from the Nyika Plateau had previously been identified as *C. ludovicensis* Bocage, a form which was put as a race of *C. afra* by Grant and Praed (op. cit), but had previously been regarded as a race of *C. chalybea*. The dimensions of *C. ludovicensis* (see table) fit better with those of *C. chalybea* and I think it should be with that species.

It may be that Grant and Praed put *C. ludovicensis* into *C. afra* because they revived *C. intermedia* Bocage, a form which they regarded as a valid race of *C. chalybea*, and obviously it would not be possible to have two races of the same species apparently occupying the same range. Until they resuscitated this form, *intermedia* was regarded as a synonym of *ludovicensis*.

Both forms, which were described by Bocage from Angola, are very alike in size and colour pattern, and differ only in that *intermedia* lacks the small patch of iridescent colour on the upper tail coverts. This could be an important difference of specific rank, but the unusual uniformity of *ludovicensis* and *intermedia* in every other respect suggests that they belong to the same species and the conclusion that in part of its range *C. chalybea* may be dimorphic in regard to the occurrence of iridescent upper tail coverts. This conclusion is supported by the series of specimens collected by Admiral Lynes in the Iringa area of southern Tanganyika

Territory. In several males collected at Iringa itself most lack the iridescent patch while one has it partially developed; and another specimen from Dabaga, about thirty miles away, has a fully developed patch (J.f.O.Supp. 1934, p.115). Incidentally, Lynes did not seem to be aware of *C.intermedia* Bocage, and named the specimens *ludovicensis* (wrongly *ludovicianus*) with the comment that they might represent a new race. It is highly probable that within the range of the *ludovicensis-intermedia* group there may be a certain amount of local segregation according to presence or absence of iridescent upper tail coverts, one such segregated population being the birds at high altitudes on the Nyika Plateau. This population differs from typical *ludovicensis* mainly by the very slight difference in the width and shade of colour of the red breast-band, and not significantly by any of the dimensions.

My opinion is, therefore, that *whytei* is a mountain race of *C. chalybea*, apparently lying within the range of the widely distributed *ludovicensis*, and that *intermedia* is probably a variant of *ludovicensis*.

In his description of *whytei* Benson compared it with *graueri* of western Uganda, a race sometimes put with the species of *C. afra* and sometimes with *C. chalybea*. Judging by its dimensions *graueri* is a race of *chalybea*. I have not taken this study any further but it seems to me that there may be some intra-specific connection between *C. chalybea* and the more northerly *C. reichenowi*.

These notes are based on an examination of adult males. The females are less variable but in no way contradict the conclusions arrived at.

My thanks are due to Mr. J. D. Macdonald of the Bird Room, British Museum (Natural History), for his advice and help, and for agreeing with these conclusions.

**TABLE OF DIMENSIONS**

| | | *Wing* | | *Tail* | | *Bill* | |
|---|---|---|---|---|---|---|---|
| *Cinnyris chalybea* | *No.* | *Range* | *Av.* | *Range* | *Av.* | *Range* | *Av.* |
| *chalybea* | 31 | 53–59 | 56.7 | 40–47 | 44 | 21–24 | 22.5 |
| *subalaris* | 11 | 55–57 | 56 | 43–48 | 45.5 | 23–25 | 24.2 |
| *bractiatus* | 39 | 59–67 | 63 | 43–50 | 46.5 | 23–26 | 24.3 |
| *ludovicensis* | 7 | 63–67 | 65 | * – | 47 | 20–22 | 21 |
| *intermedia* | 21 | 58–64 | 61 | 37–44 | 41.2 | 19–24 | 21.3 |
| *whytei* | 10 | 59–64 | 60.6 | 47–54 | 50.1 | 20–21 | 20.2 |
| *graueri* | 3 | 60–65 | 63 | 54–59 | 55.6 | 20 | 20 |
| *Cinnyris afra* | | | | | | | |
| *afra* | 34 | 61–70 | 66.5 | 48–56 | 53 | 28–33 | 30.5 |

* Measurements of six of these specimens from Angola are of birds not in the British Museum and were kindly given me by Captain Grant who had not recorded the tail measurements.

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PURCHASED

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# BULLETIN

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**Volume 74**

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The five hundred and twenty-ninth meeting of the Club was held at the Zoological Society, on Tuesday, 16th March, 1954, following a dinner at 6.30 p.m. The meeting was held jointly with the B.O.U.

*Chairman:* Sir Landsborough Thomson.

Members present, B.O.U. 46; B.O.C. 52; Guests 29; Total 127.

## A New Race of Button-Quail *(Turnix maculosa)* From New Guinea

By Mr. R. W. Sims.

*Received 31st January, 1954*

During 1951 Mr. F. Shaw-Mayer made a small but valuable collection of birds in the Central Highlands of New Guinea. In it were eight specimens (2♂ and 6♀) of a button-quail taken at 7,000 to 8,000 feet on the lightly wooded plateau and mountain grasslands near Mount Giluwe. I find that they represent an undescribed race of *Turnix maculosa*.

Although comparatively little is known about the species in New Guinea, two races have been described on the very few specimens which have been collected, and both are from coastal localities at below 350 feet, they are *T. m. horsbrughi* Ingram from Yule Island and adjacent lowland grasslands of the mainland south of the mountain ranges of south-east New Guinea; and *T. m. furva* Parkes taken a short distance inland from Finschhafen on the Huon Peninsula (see map). The race *horsbrughi* appears to be more closely related to *T. m. yorki* Mathews of Queensland, Australia than with *furva*; one character which illustrates this affinity is the chestnut collar which is present yet incomplete in *yorki*, pronounced in

*horsbrughi* but absent in *furva*; in this, and other, respects *furva* is closer to *T. m. saturata* Ogilvie-Grant of New Britain. The two New Guinea races are separated by a series of mountain ranges and Parkes (1949) believed that these mountains were a major barrier which prevented interbreeding and brought about this division in the species. But the discovery of the bird on the mountain grasslands around Mount Giluwe indicates that high mountains are not necessarily a barrier to distribution. This point is emphasized by the fact that these brids lack the chestnut collar and are more closely related to *furva* than to *horsbrughi* and yet there is no mountain barrier between Mount Giluwe and the south-eastern coastal areas where *horsbrughi* is found: indeed, one of the tributaries of the Purari River, which flows into the Gulf of Papua, rises on the south slopes of Mount Giluwe. It may be that the tropical forest to the south with the absence of suitable habitat for the species is a more effective barrier than the mountain ranges, or the cause of such differences between races on the same land mass must be looked for, perhaps, in independent colonizations from widely separated sources of origin. However, it seems to me that as yet there are too few data on which to base any far reaching conclusions.

MAP OF NEW GUINEA SHOWING THE DISTRIBUTION OF THE RACES OF *Turnix maculosa*.

Although the present series was taken at between 7,000 to 8,000 feet the birds do not appear to exhibit the common altitudinal variation observed in other New Guinea species (Rand 1938), that is, birds from high altitudes are generally larger and darker in colour than those from the lowlands. The Mount Giluwe birds are as dark above as *furva* from the north-east coast and apparently smaller.

I wish to express my gratitude to Dr. Dean Amadon, of the American Museum of Natural History, for making a comparison between the

Mount Giluwe birds and the type of *T. m. furva* Parkes; his report confirmed that the birds from Mount Giluwe were a new race which I propose to name:—

*Turnix maculosa giluwensis* new race.

*Description :* (NOTE.–Since both *furva* and *horsbrughi* have been described from female specimens a female has been selected as the type of *giluwensis*).

Nearest to *T. m. furva* in being very dark above and lacking the chestnut collar which is present in *T. m. horsbrughi*. It is clearly separable from both these races in having paler underparts; the chin, throat, and belly are white*; and the colour of the breast and flanks is paler, more rufous, than in *furva* and *horsbrughi* in which it is more chestnut. The colour of the edging of the wing coverts, small feathers of the sides of the head, and the crown stripe is a pale ochraceous colour rather than rufous as in the other two races. It is almost identical, in size, with the type of *horsbrughi* which is somewhat smaller than *furva*.

*Range :* Known only from the grasslands and lightly wooded plateau near Mount Giluwe.

*Type :* Adult female: from grasslands on the north slopes of Mount Giluwe, Central Highlands, New Guinea, at 8,000 feet. Collected by F. Shaw-Mayer on 23rd May 1951; Collection No. 954; B.M.Reg. No. 1953. 17. 40.

*Measurements :* Wing (flat), 74; tarsus, 20; culmen, 13mm.

*Colour of Soft Parts :* Bill, yellowish, ridge and tip, dark horn; feet, yellow with greenish tinge; iris, cream.

*Remarks : Adult female.* The series of female exhibit some variation in the colour of the chin and throat. In some specimens these parts and, to a lesser extent, the belly are not entirely white but have a slight rufous wash. The feathers of the upper parts are mainly black with a faint grey edging on those of the crown and nape while some, or all, of those of the back have a narrow ochraceous edging. Many feathers of the back have their centres inperfectly barred. If present, chestnut barring predominates towards the rump and a greyish barring towards the interscapular region, this latter colour gives the feathers of that region an ashy appearance reminiscent of the condition in *T. m. saturata*.

*Adult male.* Similar to adult female, slightly smaller. One specimen (immature?) has a rufous washed chin and throat like some of the females.

*Immature female.* Similar to adult female but with the rufous colour at the sides of the breast separated by a broad whitish stripe joining the white of the throat and belly.

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* Mayr, 1938, described a female specimen of *horsbrughi* from the Aroa River as having the middle of the belly whitish. The differences described above are in comparison with the type of *horsbrughi*.

MEASUREMENTS IN MILLIMETRES OF THE NEW GUINEA RACES OF *Turnix maculosa*.

| | Wing (flat) | *Tarsus* | *Culmen Ror.v.* |
|---|---|---|---|
| *T. m. giluwensis* (type) | 74 | 20 | 13 |
| *T. m. giluwensis* (5 ♀) | 70–74 (av. 71) | 19–20 (av. 19.4) | 11.5–14 (av. 12.6) |
| (1 imm. ♀) | 75 | 18.5 | 13 |
| (2 ♂) | 65 | 18.5–19 | 10–11 |
| *T. m. furva** (type) | 80 | 20 | 14 |
| *T. m. horsbrughi* (type) | 72 | 19.5 | 12 |

*Measurements taken from Parkes (1949).

Perhaps the greatest value of these Mount Giluwe specimens lies in the fact that they form a series collected in the same locality and most of them during the same month, namely in May 1951, only one was taken in June. This series exhibits, to a limited extent, the degree of individual variation found in the race, which is not very great. Moreover, since with the exception of the June bird all the others are in moult there are further superficial differences but again these are hardly discernible. It is to be regretted, however, that the sequence of moult cannot be determined despite the excellence of the series.

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# The Type Species of the Genera *Tesia, Pnoepyga* and *Oligura*

By Dr. J. T. Zimmer and Dr. C. Vaurie.

*Received* 21*st February*, 1954

During a study of the palearctic forms of the wren-babblers and bush-warblers now classified in the genera *Tesia*, *Pnoepyga*, and *Oligura*, all of which were proposed by Hodgson, the junior author met with great confusion owing to the repeated naming of these genera and the failure of proper designation of types. After a study of the problem by the senior author it was decided that the genera *Pnoepyga* and *Oligura* were still without valid type designations. Accordingly the following review was p repared to correct this deficiency.

The genus *Tesia* was proposed by Hodgson in 1837 (Jour. Asiat. Soc. Bengal, *6*, p.101, Feb. 1837), with the inclusion of four newly described species—*cyaniventer*, *flaviventer*, *albiventer*, and *rufiventer*. No type was here designated, but Gray (List. Gen. Bds., p.27, 1840) selected "*cyaniventris*" [=*cyaniventer*] for that position. This designation is valid.

In 1844 (Zool.Miscell., p.82, June, 1844), Hodgson broke up and discarded *Tesia*, replacing it with two new concepts—*Pnoepyga* for *rufiventer* and *albiventer* (the cited *concolor* and *pusillus* are here nomina nuda) and *Oligura* for *cyaniventer* and *flaviventer*. No generic types are cited and the two new genera are not described but both are valid by reason of the citation of valid species in each.

The following year (Proc. Zool. Soc. London, *13*, p.24, Aug., 1845), Hodgson described the two new genera as well as their included species, adding to *Pnoepyga* the species *unicolor* and *pusillus*, properly described. This reference has been recognized almost universally as the original account of these genera, to the exclusion of the true original account of 1844.

Gray (Cat. Gen. Subgen. Bds., p.31, 1855) cited *Pnoepyga* of 1845 as a synonym of *Tesia* whose type is now stated to be "*albiventris*" [=*albiventer*], in contradiction to the selection of "*cyaniventris*" in 1840. He accepted *Oligura* of 1845 as distinct (correcting the reference to 1844 in the Appendix, p.143) but cited as type *Sylvia castaneo-coronata* Burton (Proc. Zool. Soc. London, *3*, p. 152, "1835" [=Feb. 12, 1836]). This designation is inadmissible since *castaneo-coronata* was not included in either the 1844 or 1845 references to *Oligura* and is not identified otherwise by Gray. The existing concept of *castaneo-coronata* as an older name for *flaviventer* does not validate Gray's selection of it as type of *Oligura*.

Sharpe (Cat. Bds. Brit. Mus., *6*, p. 301, 1881 ; op. cit., *7*, p. 603, 1883) reverted to Hodgson's 1844 and 1845 concept of *Tesia* as untenable because of its composite nature and recognized *Pnoepyga* of 1845 with type "*albiventris*" and *Oligura* of 1845 with type "*castaneocoronata.*"

Stuart Baker (Fauna Brit. India, ed. 2, Birds, *7*, pp.93, 94, 1930) accepted *Pnoepyga* of 1845 as distinct with *albiventer* as type, but placed *Oligura* of 1845 as a synonym of *Tesia*, with *cyaniventer* as type of both *Oligura* and *Tesia*.

Delacour (Ibis, ser. 14, *6*, p. 515, Oct., 1942) proposed the genus *Chlorotesia* (once misspelled "*Chorotesia*") with "*castaneocoronata*" designated as type. Later (L'Ois. et Rev. Franç. d'Orn., *21*, p. 85, 1951) he placed *Chlorotesia* as a synonym of *Oligura*, accepting *castaneo-coronata* as type designated by Gray for the *Oligura* of 1845.

Except for Gray's 1855 correction of the date of *Oligura* to 1844, though with an inadmissible type designation, there is no mention of 1844 in any of these references subsequent to the original proposal of the name in that year. Apparently, both *Pnoepyga* and *Oligura* of 1844 are without validly designated types. To remedy this deficiency with the minimum of disturbance to existing concepts, we propose the following :

*Pnoepyga* Hodgson, Zool. Miscell., p. 82, June 1844 ; type here designated is *Tesia albiventer* Hodgson, Jour. Asiat. Soc. Bengal, *6*, p.102, Feb., 1837. *Pnoepyga* thus stands as a valid genus.

*Oligura* Hodgson, Zool. Miscell., p. 82, June, 1844 ; type here designated is *Tesia flaviventer* Hodgson, Jour. Asiat. Soc. Bengal, *6*, p.102, Feb. 1837. *Oligura* thus remains intact as a valid genus distinct from both *Tesia* and *Pnoepyga*, with *Chlorotesia* a synonym of *Oligura* as long as the species *castaneo-coronata* is identified with *flaviventer*.

# Further Note on the Double-Banded Sandgrouse

By Mr. J. D. Macdonald.

*Received 2nd March, 1954*

When preparing my note on the Double-banded Sandgrouse, *Pterocles bicinctus*, page 6 of this volume, I overlooked a note on *Eremialector bicinctus* published by Benson in vol. 47, 1946–47, p. 79. Benson distinguished three stages in an east to west colour cline with the darkest form *P. b. multicolor* in the east, the lightest form *P. b. bicinctus* in the west, and intermediate between them the form *P. b. chobiensis*. It seemed to me, for reasons I have stated and on data not available to Benson, that typical *P. b. bicinctus* is darker than populations in the coastal districts of northern South West Africa and Angola, and therefore I indicated the same colour cline, though of a slightly wider range, with *P. b. multicolor* at one end, these pale coastal birds—to which I gave the name *P. b. elizabethae*—at the other, and typical *P. b. bicinctus* as an intermediate group. In a regular short-range colour cline division into three named groups is the simplest way of dealing with it, and therefore it seemed that the retention of *P. b. chobiensis* as an additional intermediate group was of doubtful value.

I should have considered the use of Benson's name *ansorgei* for the pale coastal group. Benson separated the Angola birds as a small edition of *P. b. bicinctus* (see Table). As the type of *P. b. elizabethae* is slightly larger than the largest measured *P. b. bicinctus* the question is whether *P. b. elizabethae* and *P. b. ansorgei* can be regarded as distinct size groups. I think it is a point which can only be settled arbitrarily at this stage. Dimensional clines are apparent both on the west side of the species range and on the east side, where Benson separated *P. b. usheri* as a small northern edition of *P. b. multicolor*. There is a greater distance geographically between *P. b. ansorgei* and *P. b. elizabethae* than between *P. b. usheri* and *P. b. multicolor* and a corresponding greater size difference (see Table). The existence of these clinal variations is of special interest and they are readily lost sight of unless indicated by names, but it is one of the well know problems of taxonomy to decide just how many stages should be named.

| *Palest* | | *Intermediate* | | *Darkest* | |
|---|---|---|---|---|---|
| *ansorgei* | 157-168 (13) | — | | *usheri* | 161-171 (13) |
| *elizabethae* | 188 (1) | *bicinctus* | 168-184 (14) | *multicolor* | 168-188 (20) |

*Table :* Range of wing measurements of adult males of various races of *Pterocles bicinctus*, arranged in relative geographical positions. Number of specimens in brackets.

# A New Race of Scimitar Babbler from Szechwan.

By Mrs. B. P. Hall

*Received 5th March, 1954*

*Pomatorhinus ruficollis usheri* new race.

*Description :* Closest to *P. r. styani* Seebohm, of the Yangste Valley, but with the back slightly more olive and the under tail-coverts and the streaking on the underparts olive-grey with no trace, except for a faint tinge in one specimen, of the ochre-brown that is characteristic of *styani*. The colour of the streaking is more similar to, but not so dark as, that of *P. r. godwini* Kinnear, of Bhutan. Two males and three females of the new race have the following measurements: Wing ♂ 75–76, ♀ 73–74; bill ♂♀ 20–22mm.

*Distribution :* Known only from the type locality.

*Type :* In the British Museum. Adult Male. Chuan Chi Mine, near Pei Pei, Central Szechwan (lat. 29deg. 47min.N.; long. 106 deg. 25min.E.). 3rd February 1945. Collected by Mr. A. Morrison, British Museum Reg.No.1946.49.1243.

*Measurements of Type.* Wing 76; tail 79; bill 22mm.

*Colours of Soft Parts.* Iris dark chestnut; bill, black above, whitish below; feet bluish (brown or dark brown in other specimens).

*Remarks :* I have named this race with some hesitation as it seems that in a highly variable species such as this there may be no limit to the variations found in isolated populations in the mountains of Central Asia and it may well prove impractical to distinguish them all by name. On the other hand it seems the only way at present in which to draw attention to the characters of the Pei Pei population which are especially interesting in that, in the colour of the underparts, this race is in no way intermediate between any two of the surrounding races, while in the colour of the back it shows affinities with *P. r. similis* Rothschild, of north-western Yunnan, and not, as would be expected, with the chestnut backed *P. r. eidos* Bangs, of western and south-western Szechwan. The complexity of the geographical variation in southern Szechwan is indicated by two single specimens in the British Museum from Chungking, less than 50 miles south of Pei Pei and from Tungtse, northern Kweichow, which are closest to *styani* but intermediate between that race and *P. r. stridulus* Seebohm, of southern China, including the greater part of Kweichow.

Delacour (L'Oiseau, 1940: 63–66) unites *P. ruficollis* with the white-breasted *P. schisticeps*, but I do not feel able to accept this view while the apparent overlap of the two forms in the Himalayas and Upper Burma is not satisfactorily understood.

The differences between the five specimens of the new race and others in National collection were first noticed by Mr. H. B. Usher when identifying the Morrison collection. As he has since retired it seems appropriate that they should be named after him.

# The Status of the Tawny Pipit

By Mr. Collingwood Ingram.

*Received January 15th, 1954*

Systematists agree that the pipits (*Anthus*) and the field wagtails (the so-called *Budytes* section of the genus *Motacilla*) are very closely related and base their separation mainly on a difference in their plumage patterns. In *The Handbook of British Birds* (Vol. I, p.211) the latter group is described as being further distinguishable by having their tail "as long as or longer than wing", a statement which, however, is contradicted a few pages later by the measurements given for *Motacilla flava*. From these measurements we learn that in this species the average length of the wing in the male is 82mm. and that of the tail 72.5mm., figures which roughly correspond with those given by Hartert in his *Vögel der Pal. Fauna*. So far as most Pipits are concerned the plumage pattern distinction certainly holds good though it cannot be convincingly applied to *Anthus campestris* whose adult plumage, being practically devoid of striations on the under surface, in general appearance closely resembles that of an immature field wagtail. But it is more in its nesting habits, actions, voice and in its newly-born young that the Tawny Pipit displays its near affinity to that group of wagtails.

Unfortunately I have only been able to study one breeding pair of Tawny Pipits in the field but I was given to understand by ornithologists familiar with the bird that these were in every way typical of the species as a whole.

In all other pipits that I have seen the down of the nestlings has been of a sooty-grey colour, a shade which, by counterfeiting a patch of inanimate shadow, serves to effectively camouflage their presence in a recess or cavity in a bank where their nests are usually placed. The Tawny Pipit on the other hand makes a practice of building its nest in a shallow cup on more or less level ground. As in general with small birds breeding in such situations (namely the larks and the field wagtails) in its case the nestling down is of a sandy or buffish colour, that is to say, a shade roughly approximating that of the immediate environment. A Tawny Pipit's fledgling further resembles that of a field wagtail by having the inside of its mouth orange-yellow instead of the usual red colour. In many of its actions the adult Tawny Pipit also strongly resembles a field wagtail for it runs swiftly and will often travel thus for considerable distances. Its distress note being a Sparrow-like chirrup differs markedly from that of other pipits while another of its notes has been likened by the authors of the *Handbook* to that of a Yellow Wagtail.

For all these reasons I suggest that *Anthus campestris* shows a closer affinity to the field wagtails (*Budytes*) than is the true Pipits (*Anthus*), among which, of course, it is now placed.

# BRITISH ORNITHOLOGISTS' CLUB

## REPORT OF THE COMMITTEE

### FINANCE

The Committee present herewith the Accounts of the Club for the year 1953.

The Income for the year exceeded the Expenditure by £15 9s. 7d. compared with a deficit for the previous year of £61 16s. 7d., an improvement of £77 6s. 2d. As will be seen from the Accounts, the major part of this is accounted for by a reduction in the cost of the "Bulletin".

A re-arrangement was made during the year in regard to printers and separates, the effect of which is to reduce materially the cost of publishing the "Bulletin"; the full effect will be apparent in 1954.

After taking account of the sales of old "Bulletins" amounting to £26 15s. 1d., there is a surplus for the year of £42 4s. 8d. which is added to the Accumulated Fund.

As the market value of the Investments is now greater than the cost the Reserve against Investments of £15 0s. 0d. is no longer required and has been transferred back to the Accumulated Fund.

### GENERAL.

**Meetings.**

The Club held 9 meetings, including 2 in conjunction with the B.O.U. Aggregate attendances for 1953 were 472, compared with 508 in 1952, an average of 52 members at each meeting. This reduction may have been due to the rise in the cost of dinner. The total attendance at meetings, including 55 members of the B.O.U. was 527, compared with 605 for the previous year.

**Membership.**

The Club membership increased by 8 to 199. The Committee very much regret to record the deaths of Miss M. G. S. Best, The Marquis Hachisuka, Mr. A. J. Rhead, and Colonel R. S. Sparrow. Miss Best had been a member of the Club since 1922, and Colonel Sparrow joined in 1906. He was Vice-Chairman in 1937/38, and as a regular attender, he

## INCOME AND EXPENDITURE ACCOUNT FOR

| 1952 £ | Expenditure | £ s. d. | £ s. d. |
|---|---|---|---|
| | "Bulletin" Vol. 73: | | |
| 346 | Cost of publication, distribution, including Editor's Expenses | 290 15 6 | |
| 47 | *Less :* Sales | 48 12 10 | |
| 299 | | | 242 2 8 |
| 28 | Notices for Meetings etc. | | 19 17 3 |
| 30 | Postages and Miscellaneous Expenditure | | 38 4 10 |
| 9 | *Hire of Sound Equipment* | | — — — |
| 11 | Contribution "Zoological Record" | | 5 5 0 |
| 377 | | | 305 9 9 |
| — | Balance, Excess of Income over Expenditure, carried down | | 15 9 7 |
| £ 377 | | | £320 19 4 |
| 62 | *Excess of Expenditure over Income, brought down* | | — — — |
| — | Surplus for the year carried to Accumulated Fund | | 42 4 8 |
| £ 62 | | | £ 42 4 8 |

## BALANCE SHEET

| £ | | £ s. d. | £ s. d. |
|---|---|---|---|
| | Accumulated Fund: | | |
| | As at 31st December 1952 | 1,112 16 1 | |
| | *Add :* Excess of Income over Expenditure | 42 4 8 | |
| | Transfer from Reserve against Investments | 15 0 0 | |
| 1,113 | | | 1,170 0 9 |
| | Bulletin Fund: | | |
| 73 | As at 31st December 1952 | | 72 18 3 |
| 11 | Subscriptions for 1954 paid in advance | | 36 9 0 |
| 137 | Sundry Creditors | | 16 13 0 |
| £1,334 | | | £1,296 1 0 |

We have examined the above Balance Sheet and Income and Expendi accordance therewith, and in our opinion correct.

Finsbury Circus House,
Blomfield Street, London, E.C.2.
*20th February, 1954.*

# LOGISTS' CLUB

AR ENDED 31st DECEMBER 1953

| 1952 £ | Income | £ s. d. | £ s. d. |
|---|---|---|---|
| | Subscriptions: | | |
| 194 | 189 Members .. .. .. .. .. | 198 9 0 | |
| 13 | 13 Associates .. .. .. .. .. | 13 13 0 | |
| 52 | Income Tax recovered under Covenants .. .. | 51 6 0 | |
| 259 | | | 263 8 0 |
| | Entrance Fees:— | | |
| 16 | 18 Members .. .. .. .. .. | 18 0 0 | |
| 3 | 3 Associates .. .. .. .. .. | 3 0 0 | |
| | | | 21 0 0 |
| 4 | Interest on Bank Deposit .. .. .. .. | | 4 7 4 |
| 33 | Investment Income .. .. .. .. .. | | 32 4 0 |
| 315 | | | |
| 62 | *Balance, Excess of Expenditure over income, carried down* .. .. .. .. .. .. | | — — — |
| £ 377 | | | £320 19 4 |
| | Excess of Income over Expenditure, brought down | | 15 9 7 |
| 37 | Sales of "Bulletin" for previous years, less Expenses | | 26 15 1 |
| 25 | *Transfer from "Bulletin" Fund* .. .. .. | | — — — |
| £ 62 | | | £42 4 8 |

## 31st DECEMBER 1953

| £ | | £ s. d. | £ s. d. |
|---|---|---|---|
| | Investments, at cost:— | | |
| | £700 3½% Defence Bonds .. .. .. .. | 700 0 0 | |
| | £250 2½% Savings Bonds 1964/67 .. .. .. | 210 12 0 | |
| | £100 3% Savings Bonds 1960/70 .. .. .. | 100 0 0 | |
| 996 | | | 1,010 12 0 |
| | (Market Value of all securities at date £1,017) | | |
| | Projector, Lantern and Screen | | |
| 1 | As at 31st December 1952 .. .. .. .. | | 1 0 0 |
| 1 | Stock of "Bulletin" Nominal Value .. .. | | 1 0 0 |
| 19 | Sundry Debtors .. .. .. .. .. | | 5 5 8 |
| 317 | Cash at Bank .. .. .. .. .. | | 278 3 4 |
| £1,334 | | | £1,296 1 0 |

R. MEINERTZHAGEN, *Chairman.*
C. N. WALTER, *Hon. Treasurer.*

nt with the books and records of the Club and certify them to be in

W. B. KEEN & CO.,
*Chartered Accountants,*
*Honorary Auditors.*

will be greatly missed by all his friends. Seven members resigned, and three were removed from the list for non-payment of subscriptions. 19 new members and 3 associates were elected during the year.

**The "Bulletin."**

Early in 1953, Messrs. H. F. & G. Witherby Ltd. intimated their inability to continue distribution of the "Bulletin", meeting cards, notices, etc., but were prepared to continue printing. After careful consideration of all the questions involved, and with considerable reluctance to sever connections with Messrs. Witherby, the Committee decided to place the printing and distribution in the hands of The Caxton & Holmesdale Press Ltd., who took over from October 1953. The Committee is entirely satisfied that this change was in the best interests of the Club.

Outside subscriptions to the "Bulletin" rose to 68, and as a result of the re-arrangement mentioned above, collection of subscriptions is now undertaken by the Hon. Treasurer, with the result that a slightly larger proportion of the proceeds accrues to the Club.

With Volume 74, it is proposed to print a List of Members, since the last list was published in 1949.

**Acknowledgments.**

We should like to express our gratitude to the retiring Chairman, Sir Philip Manson-Bahr. His kindness, good humour, and tact have been invaluable to the Club. We should also like to thank Lt.-Cdr. C. P. Staples for operating the projector and lantern, and Messrs. W. B. Keen & Co. for acting as Hon. Auditors.

R. MEINERTZHAGEN,
Chairman.

3rd March 1954.

PURCHASED

## BACK NUMBERS OF THE "BULLETIN"

Back numbers of the "Bulletin" can be obtained at 2/6 each. Applications should be made to R. A. H. Coombes, Esq., Zoological Museum, Tring, Herts. No reply will be sent if parts are not available.

Members who have back numbers of the "Bulletin" which they no longer require, are requested to kindly send them to R. A. H. Coombes, Esq., as above.

## DINNERS AND MEETINGS FOR 1954

20th April, 18th May, 15th June, 19th October, 16th November and 21st December.

## SEPARATES

Contributors who desire free copies of the Bulletin containing their notes should state so on their MS., otherwise these will not be ordered. These will be supplied up to a maximum of twenty five.

## PUBLICATION OF THE "BULLETIN"

Members who make a contribution at a Meeting should hand the MS. to the Editor at that Meeting. As the proofs will be corrected by the Editor, it is essential that the MS. should be correct and either typed or written very clearly with scientific and place names in block letters. The first mention of a scientific name should be spelt out in full, i.e., genus, specific name, racial name (if any), and author. Any further mention of the same name need only have the initial letter of the genus and no further mention of the author.

If no MS. is handed to the Editor at the Meeting, a note will be inserted mentioning the contribution.

## ILLUSTRATIONS

The cost of one black and white block per article will be borne by the Club. If the author desires the block for his own personal use afterwards, this may be purchased through the Hon. Treasurer.

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Communications are not restricted to members of the British Ornithologists' Club, and contributions up to 1,500 words on taxonomy and related subjects will be considered from all who care to send them to The Editor, Dr. J. G. Harrison, "Merriewood", St. Botolph's Road, Sevenoaks, Kent.

Communications relating to other matters should be addressed to the Hon. Secretary, N. J. P. Wadley, Esq., 14 Elm Place, London, S.W.7.

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# BULLETIN

OF THE

# BRITISH ORNITHOLOGISTS' CLUB

Edited by
DR. JEFFERY HARRISON

Volume 74
No. 5

May
1954

# BULLETIN
OF THE
# BRITISH ORNITHOLOGISTS' CLUB

**Volume 74**
**Number 5**


## Annual General Meeting

*Chairman :* COLONEL R. MEINERTZHAGEN.

The Sixty-second Annual General Meeting of the Club was held at 5.45 p.m. on Tuesday, 20th April, 1954, at the Rembrandt Hotel, Thurloe Place, London S.W.7.

The Minutes of the last Annual General Meeting held on 14th April, 1953, were read and passed.

The Report and Accounts for the year to 31st December, 1953, were considered. Mr. James Fisher proposed that consideration should be given to an increase in the subscription to the "Zoological Record". Mr. E. R. Parrinder seconded the proposal. Sir Philip Manson-Bahr spoke against any increase, pointing out that the Club, in relation to its modest income, already made a substantially larger contribution than any other society which published its donation. The Hon. Treasurer also spoke against the proposal, emphasizing Sir Philip's contention with comparative figures and adding that members of the Club, being also members of the B.O.U., made a further contribution through the Union. Mr. Fisher did not press his proposal but asked that the Committee should bear the question in mind. The Report and Accounts were passed unanimously.

The Chairman moved a vote of thanks to the Hon. Treasurer, the Editor and the Hon. Secretary whose combined work, he said, had placed the Club in the more favourable position now held.

A vote of thanks was accorded to the Honorary Auditors, Messrs. W. B. Keen & Co.

### ELECTION OF OFFICERS

| | |
|---|---|
| Chairman: | COLONEL R. MEINERTZHAGEN, D.S.O. |
| Vice-Chairman: | MR. E. M. NICHOLSON, C.B. |
| Hon. Treasurer: | MR. C. N. WALTER (re-elected) |
| Hon. Secretary: | MR. N. J. P. WADLEY (re-elected). |
| Committee: | DR. G. BEVEN. |

### COMMITTEE, 1954

COLONEL R. MEINERTZHAGEN, Chairman (1953)
MR. E. M. NICHOLSON, Vice-Chairman (1953)
MR. C. N. WALTER, Honorary Treasurer (1950)
MR. N. J. P. WADLEY, Honorary Secretary (1950)
DR. J. G. HARRISON, Editor (1952)
MISS C. M. ACLAND (1951)
MAJ.-GENERAL C. B. WAINWRIGHT (1953)
CAPTAIN C. R. S. PITMAN (1953)
DR. G. BEVEN (1954)

## The Protection of Wildfowl

Mr. M. Nicholson speaking in a personal capacity, opened the discussion by saying that the main problem was to provide enough wildfowl for sport, science and for their aesthetic value. Wildfowl are international and we have a responsibility not only as a breeding station, but for great numbers of passage migrants and winter visitors. In America, wildfowl are dealt with internationally, with all interests, including the sporting, represented and one of their great advantages is an adjustable protection. We should be giving an equivalent lead to Western Europe. Instead we cannot agree at home.

Attention should be given to three important points. First: there is at present a wide diversion of views on wildfowl counts. The method used must be accepted by all, be honest and accurate to within 20 per cent. Second: reserves—a smallish number should be built up where fowl can be left completely undisturbed, feed and come into breeding condition. Third: the Wildfowlers' Association should produce a code of sporting methods.

Mr. E. Parrish said that the wildfowlers were privileged to be present tonight and had much in agreement with Mr. Nicholson. They had at present no evidence of any decrease in duck; Pink-footed Geese had increased and so far they could find no evidence of decrease in the Brent Goose.

Wildfowlers would be delighted to join in some scheme for counts and the Association is determined to increase the wildfowl population and has plans to supplement this. Reserves in America concentrate the fowl and the fowlers then gather round the periphery. The Horse Shoe Lake Refuge now attracts 100,000 Canada Geese in a few 100 acres and this year 6,000 died of disease before the season opened. High Explosive was used to try and move the geese. Therefore the Association favoured small reserves and has already established some of their own and wish to be consulted on future plans for others.

Wildfowlers already have a code of conduct, but there are black sheep in every walk of life and the Association tries to trace tales of gross slaughter which ninety-nine per cent of wildfowlers are against, especially large bags of geese. The Wildfowlers' Association would have liked the sale of fowl banned in the new bill. Finally, the professional punt gunner has practically gone. Tales of 2,000 Brent Geese shot in six weeks in 1940 seemed not possible and such propaganda led to much dissention notably in the Wildfowl Enquiry sub-committee, but it is a great pity that this organization has been dissolved. Under Nature Conservancy we must have an organization where fowlers can play their full part.

Fowlers are convinced that their greatest contribution is to produce fowl and help with research. They would like to live in peace with other interested parties and hand on a handsome heritage of fowl.

Mr. J. Fisher thought wildfowl on the whole were decreasing. The only thing that matters now is measuring facts and the Pink-footed Goose census is the only really scientific one so far. He also thought it a pity that the Wildfowl Enquiry Sub-committee had gone, but the widened scope of the Wildfowl Trust had a great future.

Dr. G. Storey said that fowlers were antagonized by the outcry that there had been a serious decline in European wildfowl over the past twenty

years and that shooting was responsible. As an organized body the Wildfowlers' Association had set out to put wildfowling on a better footing and was ready to co-operate in unbiased schemes to prevent wildfowl decreases. Protection should not be rigid. Sanctuaries should be established with regard to improving their natural facilities, providing extra food and protection from other disturbances, including bird watching. An ethical committee is to be set up by the Wildfowlers' Association and a booklet may be produced.

Mr. P. Scott spoke as "a middle of the road thinker". Populations of fowl are controlled by food supplies, disease, parasites and predators (man). Fowl should be regarded as a legitimate harvest of man.

Reproduction is decreased by drainage and by the break-up of large estates in our over-populated country. Reservoirs serve to counteract this, but not all species can live successfully on them.

In view of these general trends there is a good *prima facie* case for some decrease over the past few centuries. Now the crux is—is it under control? He thought that the present rift of opinion was rather sad. Regarding the population studies of the Pink-footed Goose, calculations are still not complete, but they have been prematurely given out because they are so satisfactory to wildfowlers. It was unfortunate that the "2,000 Brents" figures were used in the House of Commons. The details were collected under terms of secrecy. Such figures should not be used against punt-gunning, which is a dangerous and adventurous sport and it would be a sad thing if punt-gunning were to be prohibited. All were agreed that the sale of wildfowl should have been banned.

The Horse Shoe Lake serves as a refuge for one race of Canada Goose, *Branta canadensis interior*. When it was formed their total population was 30,000. Now it is 150,000. When we can increase a population five times, then it will be time to talk of the unfortunate effects of reserves.

In conclusion, Peter Scott urged that now the new Wild Birds Act was almost passed, it was the time for all to get together and agree for the future status of wildfowl.

Major-General F. B. Wainwright talked of keepering in sanctuaries. For every bird reared, one head of vermin must be destroyed. He thought that such places could be open for shooting until the end of November. As regards disturbance, he thought the bird-watcher worst of all, then those who had permission to shoot, and least of all the poacher, who did not wish to be seen by any one.

There was an urgent need to ring far greater numbers of duck before we begin to see anything like the complete picture of their migrations and the effects of weather.

In conclusion, Lord Hurcomb spoke not as a fowler or as an ornithologist particularly interested in the *Anatidae*, but he thought the possibility that geese and some of the duck could survive in their present numbers was small, because of the contraction in breeding and feeding grounds. The dangers of under-protection were greater than those of over-protection, but wildfowl must be considered species by species. We must get facts via the right questions and the protection laws must be adjustable. The discussion had been encouraging as showing that it should be possible to come to an agreement between opposing views.

In closing, the Chairman again referred to the need for scientific facts. He agreed with Lord Hurcomb that shooting over decoys should be stopped. Finally it is no good for Great Britain to protect fowl for others to kill. Only eight days ago he had bought 12 Teal in London. All had had their necks wrung and were from the Dutch decoys.—J.G.H.

## Further Instances of Aberrations of Pattern and Colour in the *Anatidae*

By Dr. James M. Harrison.

*Received, 8th March,* 1954

In previous communications (*antea* Vol. 66, 24; Vol. 73, 37), the writer has described instances of significant aberrations in the normal pattern of the head and neck of the European Teal, *Anas crecca crecca* Linnæus, a phenomenon which, in the absence of hybridisation (*sens. strict.*), he has termed autophoric reverse mutation.

Since these notes were published, a further instance of aberration of pattern in this species has come to his notice.

In addition to the above, two further examples of heterochrosis in this species can be recorded, as well as two examples of the presence of a white collar in the drake Gadwall, *Anas strepera* Linnæus.

Dealing with the colour aberrations first, one of these is an adult female of *A.c. crecca*, which shows dull green reflections of the median and lesser wing-coverts, but is otherwise a normal bird. The second is a young drake of the same species; this example is predominantly a buff variety, suggestive of a schizochrosis. Both were shot by Dr. Jeffery G. Harrison in the Medway marshes, the former on 11th October 1952, the latter on 11th November 1952.

The third specimen, also obtained by Dr. Jeffery G. Harrison in the same locality on 27th January 1954, is of particular interest in that it shows in combination the presence of the previously described aberration of the division of the cheek by a faint vertical line with the unusual feature of a faint but distinct buffish white narrow V-shaped marking with its base at the fine vermiculations at the root of the neck in front, and its apex just short of the submental blackish patch.

Linked with this peculiar neck pattern, there is also an over-development of the feathers at the occiput which, in consequence, form a well defined and almost bipartite nuchal crest of a deep steely blue colour, not green.

These characters are shown in the accompanying figure. The resulting superficial resemblance to the Falcated Teal, *Anas falcata* Georgi, is very striking. There is even a suggestion of some degree of over-development of the scapulars and secondaries, though of course not to the extent of this character as found in that species.

That a linkage of the characters of the white throat pattern with development of a nuchal crest and strongly developed scapulars and secondaries exists, would seem to be clearly demonstrated by this individual, and it is quite probable that the variations in this specimen may have phylogenetic significance in the *Anatidæ*.

The occasional presence of a white collar, usually incomplete, in the European Teal is well known, while its presence in the Gadwall, *A. strepera*, has also been recorded, though in the writer's opinion it should not be regarded as a normal character. There do not seem to be any figures expressing the incidence of this mutation for either the Teal or the Gadwall. The writer possesses two examples of the latter species showing this character; both are adult males, one having been obtained at Rainham in November 1933, the other shot at Hickling, Norfolk, on 30th January 1948 by Mr. Colin McLean.

Aberrant Teal; 27th January 1954, River Medway, Kent.

There is in all probability a close phylogenetic relationship existing between the Mallard, *A. platyrhynchos*, the Gadwall, *A. strepera*, the European Teal, *A. c. crecca*, and the Falcated Teal, *A. falcata*, which latter species also possesses a well developed white collar.

That the Gadwall and the Falcated Teal may actually be close to each other phylogenetically is suggested by the very similar pattern presented by the breast feathers and upper mantle feathering in these two species, the patterns of which are almost identical.

## On an Unusual Tufted Duck and Smew

By Dr. Jeffery G. Harrison.

*Received, 3rd March,* 1954

It is well known that the duck Tufted Duck, *Aythya fuligula* (Linnæus) quite often has a few white feathers around the base of the bill, but on 17th February 1951, I shot a duck of this species at the mouth of the Pinnau River, on the Elbe Estuary, Germany, with a white frontal band almost as extensive as that of an adult duck Scaup, *Aythya marila marila*

(Linnæus), as can be seen from the accompanying sketch. Above the base of the bill and lateral to the upper mandible the amount of white is exactly comparable. Lateral to the lower mandible and on the chin it is reduced to white flecks, whereas the Scaup is normally white here.

Such varieties appear quite unusual. In view of the recent papers by Dr. James M. Harrison which have appeared in the Bulletin and elsewhere, describing varieties and hybrids of duck, it seems most likely that this is yet another instance of autophoric reverse mutation, in which the genes have recombined at species level to produce the facial pattern of a duck Scaup in a duck Tufted Duck. That such a broad frontal band can occur in the Tufted Duck should be remembered by over-enthusiastic bird watchers, for when the small crest is depressed, the similarity with the Scaup is remarkable.

In 1947, I recorded an adult drake Smew, *Mergus albellus* Linnæus, (''British Birds,'' Vol. XL., p.220) which was shot on the Earith-Sutton Washes in Cambridgeshire on 11th January 1947, and which had a pink suffusion on the sides of the neck and upper breast. This was the same tone as that on an adult drake Red-breasted Merganser, *Mergus serrator* Linnæus. In the time that has now elapsed since I preserved it, the colour has faded similarly to a faint yellow and it is therefore likely to be of the same chemical constitution as in the Merganser. Although I did not realise it at the time, this could be a further example of gene recombination at species level.

## The Feral Rock Pigeons of London

By Col. R. Meinertzhagen.

*Received, 11th March,* 1954

The feral rock pigeons of London, all originally descended from wild stock but probably passing through many fancy breeds en route, present an interesting example of double adaptation and a remarkable instance of autolycism. Descended from a stock which nests in the wildest places and themselves one of the wildest birds, the feral pigeons of London feed freely from the hand—I have had as many as eleven birds on my arm at one time in Trafalgar Square—and, by human selection they have been changed into fantastic, monstrous variations bearing no relation to their original ancestor.

These London pigeons are now slowly reverting to type and to a variety known as ''chequered'' or ''blue chequered'' and to a very dark uniform lead-coloured variety known as ''velvet'' or ''dark chequered''. But in

nearly every case of reversion the wattle or cere at the base of the bill is swollen more than is usual in genuine wild birds.

In a wild state the rock pigeon rarely settles in trees. In Dakhla Oasis of the Libyan Desert they habitually do so but I have not observed this habit elsewhere. In the London parks it is quite normal to see them sitting in trees.

The "blue chequered" type occurs in wild flocks in the Faeroes, Shetland and Orkneys (Williamson 1949) and Bannerman (1931) records the blue chequered variety as abundant if not dominant in the Azores and Madeira and gave them the name *C. i. atlantis* (Typ. loc. Azores; in the British Museum coll.).

Since 1921 I have at various times visited Trafalgar Square and selecting a batch of about 100 birds I have tried to determine the numbers in four categories—pure rock pigeon, blue chequered, dark chequered and various. A small proportion of the pure rock pigeon type have a grey instead of a white lower back, but I have lumped them all together.

It is no easy matter counting pigeons in Trafalgar Square; they will not keep still, they are often flushed by passers-by and individuals are constantly arriving and departing. The following figures must therefore be only approximate, though on some occasions when I have made as many as a dozen counts, the averages work out much the same.

| | *Pure Bred* | *Blue Chequered* | *Dark Chequered* | *Various* |
|---|---|---|---|---|
| 1921 | 37 | 12 | 2 | 49 |
| 1923 | 34 | 15 | 4 | 47 |
| 1929 | 21 | 19 | 4 | 56 |
| 1937 | 17 | 22 | 6 | 55 |
| 1941 | 16 | 24 | 6 | 54 |
| 1947 | 14 | 23 | 9 | 54 |
| 1951 | 17 | 26 | 19 | 38 |
| 1952 | 16 | 27 | 22 | 35 |
| 1953 | 11 | 31 | 24 | 34 |
| 1954 | 14 | 36 | 45 | 5 |

These figures show a remarkable increase in the two chequered types and a corresponding decrease in the true Rock Pigeon and "various" types. I have not exact figures from continental cities for this change in urban populations of the Rock Pigeon, but in such widely separated cities as Stockholm, Milan, Venice and Athens the same change is taking place. It would be interesting to know if a similar change is taking place in American cities. Townsend (1915) records that in Boston only 13 out of 150 deviated from the wild type.

If we are to believe that mutation is the source of all heritable variation, that natural selection is the only source of evolution and improves life in relation to its surroundings and that favorable mutations will slowly become established and unfavourable ones eliminated, how do these beliefs conform to what is happening to the feral pigeons of London?

Industrial melanism among insects has a survivial value against predators; but the London pigeons have complete security. The fact that this change is taking place in more than one urban area points to the fact that urbanity is the cause of the change and is possibly connected with the "slum" conditions under which urban populations live; and "slum" conditions—overcrowding—are fetile ground for tuberculosis. McDiarmid

(1948) has shown that wild woodpigeons affected by tuberculosis show an alteration in plumage, especially on the mantle which becomes darker with less gloss and a slightly smaller size. The gloss on the mantle of the dark London Pigeons is noticeably matt when compared with the gloss on the mantle of the wild type.

Finally, I believe that perfect health is of greater value to life than perfect security and that health rather than security is the greater aim of natural selection. A gene can contain more than one character, one of which may be beneficial and the other incidental. The change in colour and pattern in the London Rock Pigeons may be incidental whilst the other character may not be apparent and is possibly related to a changed diet or environment, these being vastly different to those enjoyed by wild birds of the same species.

*References*

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## On the Status of *Macronyx capensis stabilior* Clancey

By M. P. Stuart Irwin.

*Received, 15th March,* 1954

Clancey, "Durban Museum Novitates," vol. IV, part III, pp. 51-54, in describing this new form, with type locality Salisbury, Southern Rhodesia, firstly compared it with *M. c. colletti* Schou, "Ornithologisches Monatsberichte", vol. XVI, 1908, p.119: Zululand. Showing rightly so, that it differed from that form, in the well-developed nature of the black centres of the dorsal feathers, darker wings and tail, and in those skins of fresh plumage, by the more rufescent colouration of the upper parts and the darker, more fully developed blackish centres of the feathers on the mantle and the nape, never being so grey as in *M. c. colletti.*

However, from *M. c. capensis* it is said to be markedly different on account of the saturated appearance of the upper parts, and the browner tone of the suffusions on the sides of the breast in the ♂.

Although only 3♂♂, 2♀♀ of the typical form are available for comparison, it will be seen, that when compared with the type of *M. c. stabilior*, the latter remark only applies, in fact when material of the typical race is compared, it will be found to be nearly identical with *M. c. stabilior*, the general tone of the mantle being one of degree, there being much individual variation, even in fresh plumaged birds, except in the character as described below, and not, as is stated by its describer, "markedly different". The type is indeed heavily marked on the flanks; but in itself, is least typical of a series of 24 skins from the population it purports to represent (16 of them ♂♂), from northern Mashonaland; being the most aberrant of the series, which show this character in varying degrees, but no more so than do the two other described forms.

On the characters enumerated, *M. c. stabilior* is shown to be inseparable from the typical race. It differs, however, in another character; this being

that it lacks the dark breast streakings below the black gorget. In this respect it agrees with the geographically adjacent *M. c. colletti* which has a more pallid, less heavily saturated mantle, contrasting significantly with the typical race.

It is now possible to divide these three groups of populations under the names which have already been applied to them under the diagnosis in the following key:—

(a) Mantle dark, pronounced streaking on breast below black gorget. *M. c. capensis.*

(b) Mantle dark, no pronounced streaking on breast below black gorget. *M. c. stabilior.*

(c) Mantle pallid, breast as in (b). *M. c. colletti.*

*NOTE.*—Clancey states op. cit. that the affinities of the Southern Rhodesian form are with *M. c. colletti*, but on the characters as enumerated above, this assumption would carry less weight. Direct relationship may possibly be such, but as the various morphological characters are shared between the three races in an inconsistent manner; with the peripheral populations the darkest, it is best not to speculate until more information is available.

Material examined in the preparation of this note is listed as under, being in the collection of the National Museum of Southern Rhodesia, Bulawayo, and to whose Director, Mr. R. H. N. Smithers, I am indebted for help and advice.

*M. c. capensis*, 2♂♂, Durbanville, C.P.; ♂♀ Caledon C.P.; ♀ French Hoek, C.P.

*M. c. colletti*, ♀, Ingwavuma, Lebombo M'ts. N.E. Zululand; ♂, Pietermaritzburg, Natal; ♀, nr. Durban, Natal; ♂, 7 miles north of Redersburg, O.F.S.; ♂, Sterkfontein, Tvl.

*M. c. stabilior*, 8♂♂, 4♀♀, Thornpark, Salisbury; ♂, 2♀♀, Lochinvar, Salisbury; 2♂♂, Nyahuvu, Headlands; ♂, Rusape; 3♂♂, Inyanga; ♂, 2♀♀, Matopos Research Station; ♀, Sauerdale, Bulawayo.

## On a hitherto Unrecorded Example of the Spotted Sandpiper *Actitis macularia* (Linnaeus)

By Mr. Bryan L. Sage.

*Received 10th February*, 1954

In view of the fact that there are only a few authentic records of this species in the British Isles, I consider it advisable to place on record the following rather meagre details concerning a specimen in the Letchworth Museum, Hertfordshire. There is always the possibility that some further evidence may be brought to light as a result.

As stated above the specimen in question is on show in the Letchworth Museum, the Accession Number is 7086. The bird, an adult, was presented to W. Percival Westell of Letchworth by Mr. C. Corke of London, in October 1935, the transaction was carried out through the medium of Mr. C. E. Flemming. All these gentlemen are now deceased. Mr. Corke is believed to have resided in south Hertfordshire at one time and to have done all his own collecting.

W. P. Westell placed this bird, together with a number of other species,

in the museum. The label on the exhibit is in Westell's handwriting. The only clue at present to the probable origin of this bird lies in the fact that Westell only placed birds in the Letchworth Museum which he knew had been recorded in Hertfordshire, all the other birds that were placed in the museum along with the Spotted Sandpiper had all been recorded in the county. Westell does not mention the Spotted Sandpiper in his article on "Rare Herts Birds in the Letchworth Museum" (*Journal of the Letchworth and Dist. Nat. Hist. and Antiq. Soc.* No. 3 (1943), pp. 18–26), but this is probably because this article deals only with those species recorded within a 12 miles radius of Letchworth.

To summarize, there is a specimen of the Spotted Sandpiper in the Letchworth Museum, and from a consideration of the evidence at present available it appears that it may have been obtained in Hertfordshire by the late Mr. C. Corke. Date and locality unknown but prior to October, 1935.

## A Revision of *Colius indicus* Latham

By Mr. C. M. N. White.

*Received 21st February, 1954*

The need to settle the identity of this species so far as the race in Northern Rhodesia was concerned led me to revise the range of variation. I recognize the following races.

*Colius indicus indicus* Latham (1790. Gamtoos R., Cape Province). Upper surface dark with a strongly bluish shade; under surface very dark, belly strongly orange buff. 8 examined.

*Range :* Cape province to Orange river.

*Colius i. pallidus* Reichenow (1896. Kionga, Rovuma R.) Above paler than nominate race and grey with little blue tinge; forehead paler buff; underside much paler, the breast with a pink flush and belly pale buff or whitish in middle.

*C. i. transvaalensis* Roberts (1922. Pretoria) does not appear to be separable; some birds from the Transvaal may average a trifle darker than those from Portuguese East Africa as one would expect as the range approaches the dark typical form; I cannot distinguish either *C. i. ngamiensis* (Roberts) (1932. Maun). A tendency for birds from Ngamiland to be a little grayer, less warm on the chest is the only feature I can see and it is far from constant. There is considerable individual variation in the populations of this race; birds from the Transvaal and from northern Portuguese East Africa tend to be very whitish on the belly; others from Nyasaland to Tete and the middle Zambesi are rather more rusty on the belly. Birds from Portuguese East Africa are rather small; wings 86–93 mm. in 8 measured; Ngamiland birds measure 97–101mm. in 8 specimens; similar large birds occur as low as Feira in the Zambesi valley whence 3 measure 97–102mm. but the size difference is clinal and I do not propose to use it to separate races; the larger inland birds must be called *C. i. transvaalensis* if any division on size is to be made. 60 examples of *C. i. pallidus* examined.

*Range :* Natal and Transvaal, Bechuanaland north to Lukulu in Barotseland, Broken Hill and the Eastern province of Northern Rhodesia, Nyasaland, Portuguese East Africa and south Tanganyika Territory at Sumbawanga and the Rovuma river.

*Colius indicus lualabae* (Verheyen) (1951. Mulumbu Kazadi, Lualaba). Very near to *C. i. pallidus* but below more uniform with less pink flush on breast which is greyish and less contrasting with the grey belly.

The type examined in the Brussels Museum by the kindness of Dr. Verheyen and 2 in the British Museum from Elisabethville.

*Range :* S.E. Belgian Congo—so far only from the localities named; some race occurs at Ndola, Northern Rhodesia, probably this one.

*Colius indicus angolensis* Reichenow (1902. Kwanza, Angola). Much paler than the preceding races; crown very pale and frontal band very pale buff and narrow; breast with a well marked but very pale flush. 14. examined.

West Angola from the Cunene to the Congo mouth.

*Colius indicus lacteifrons* Sharpe (1892. Damaraland).

The palest race with a very broad whitish frontal band and pale sides of face; still paler than *C. i. angolensis* and much less pinkish on the breast. 10 examined.

*Range :* South West Africa.

## The Life Histories of some Flukes of Wild Birds

By Sir Philip Manson-Bahr.

*Received 19th December, 1953*

**Bilharzia and Bilharziella.**

*Bilharziella*, or the Bilharzia fluke, of wild and domestic ducks, is indeed a historic parasite with a most interesting life history. Like almost all the chief animal parasites, the prototype was first described in Man.

The very name "*Bilharzia*" has a romantic quality, because it contains as its basis, that of Theodor Maximilian Bilharz, the German professor of Zoology in Cairo, who discovered the human form—*Bilharzia haematobia* —first in a monkey (*Cercocebus fulinginosus*) and then in man in 1851. It was indeed a sensational discovery, because this was a unisexual fluke, or trematode, in which the sexes are separate, in contradistinction to other flukes in which they are combined in the same individual. These parasites, moreover dwelt within the veins and gave birth to eggs which passing into the urinary bladder, produced the disease, known as "endemic haematuria" which was thought to be peculiar to Egypt. Since the times of the Pharoahs every true Egyptian sincerely believed the presence of blood in the urine to be the outward sign of puberty in both sexes. To add to its romantic aura the very characteristic eggs were found to survive in the dust of the mummies of the dynasty of Chefren, the builder of the Great Pyramid, as has shown by Armand Ruffer. Moreover mention of the disease has been disclosed in Ebert's Papyrus. The parasite, originally known in scientific language as *Bilharzia haematobia* has now been given a much uglier title, that of *Schistosoma haematobium*. The two sexes, male and female, live locked together in the venous pelvic plexuses. The male is stouter, just over half and inch in length, by one millimetre in breadth, has a cuticle studded with minute bosses, an oval and ventral sucker, and a ventral slit, or gynæcophoric canal, in which coiled up, lies the much more slender, and slightly longer female. Mated for life they remain for thirty years or longer, secure in their stronghold, free from external stresses, bathing in and feeding

on the blood which surrounds them. The eggs are striking objects, being oval, about 120μ in length by 60μ in breadth with a sharp terminal spine. This is a most useful provision as it enables the egg to penetrate the walls of the containing blood vessel and to pass into the urinary bladder which serves as its route to the outside world.

When the urine is passed by the human host into water, as usually happens in the ancestral home (Egypt), the shell of the eggs splits diagonally and from it there emerges the embryo, or miricidium. This is an interesting little creature, almost the size of the egg from which it has just hatched. It is fascinating to watch, as covered with cilia, which constitute its swimming organs, it rushes round, like some miniature speed-boat, anxiously in quest of some object which it must either find or perish. Anteriorly it possesses a beak, or papilla which is shot out and then retracted. Its free life is short and it is destined to die within 24 short hours. From time to time on its onward path the little creature rolls itself into a ball, then elongates again to shoot forward with reinforced energy. The object of these manœuvres remained a mystery for a very long time. The story is an elaborate one which cannot here be related in detail. In 1915 it was found by Professor Leiper that, when placed in the vicinity of certain fresh water snails of the genus *Bulinus*, which abound in the ponds and canals of Egypt, the miracidia are instantly attracted towards these mollusca and like some minute meteors bombard the tentacles of the snail and penetrate them. These snails, then, constitute the intermediate host of *Bilharzia* and in them a phase of their existence must be passed in order to perpetuate the race, thus forming an essential part of their life-history. In the hepato-pancreas, or the organ that functions as a liver in these mollusca, the miracidium, having cast their cilia, now settle down and grow at a tremendous rate, forming finger-like tubules, or sporocysts, which radiate throughout the organ, eventually destroying it. In the interior of the sporocysts cercariæ, or larvæ, are produced in prodigious numbers. These are also fascinating and lively creatures, being white and semi-transparent, measuring about half a millimetre in total length. They possess an oval shaped head, oral and ventral suckers, a few specialized cells, a water-vascular system and a series of periacetabular glands which open into the ventral sucker. Their function is to secrete ferments or lysins to dissolve the skin or cuticle of their definitive host which in this instance is man.

They are, moreover, provided with a mermaid-like tail which is of greater length than the head to which it is attached. At the posterior extremity are situated the swimming organs which take the form of bifid forks, or *furci*. The cercariæ find their way into the water through the pulmonary aperture, or blow-hole, of the snail, and can easily be observed with a hand lens emerging in puff-like smoke, thousands at a time. They are phototactic, that is to say they are attracted by light and emerge mostly during the daytime. They, too, have a mayfly existence in water and a lifespan of about three days in favourable circumstances. They are attracted by vibrations of the water and warmth of the body, so that, when a bather plunges into cercaria-infested water, these energetic larvæ swim with one accord towards him, attach themselves to his skin by means of their suckers and burrow in aided by the secretions from the glands already mentioned. When the head has penetrated the skin the tail is shed and it swims away.

Once inside the young flukes, or *schistosomulae*, make their way through the tissues, and eventually reach their objective in the blood vessels to become mature, a process which is completed in about six weeks. The life-cycle then recommences.

During their passage through the skin the cercariæ give rise to considerable irritation, and inflammation which is known as cercarial dermatitis. This is well recognized in Egypt when bathers and labourers in the canals are attacked by intense irritation when the skin is drying. The itching is sometimes so intense that they scratch till the skin bleeds—soon afterwards they suffer from urticaria (or hives) and fever ensues during the passage of the young flukes through the body.

This then is the model of the Bilharzia story. After the Bilharz era another German helminthologist—A. Looss—reigned in Cairo. It was a happy hunting ground. He was active, not only a good investigator, but also an accomplished artist. It was he who discovered bifid-tailed cercariæ in many species of Egyptian water snails, but he failed to elucidate the true life-history of the human *Bilharzia*, but he did find the cercaria of the avian species and he created the genus *Bilharziella* in 1899. The type species is *B. polonica* (Kowalewski, 1896) and we know now that the cercariæ of this species develop in the "Ram's horn" common pond-snail —*Planorbis corneus*. The *B. polonica* is found in the mesenteric and pelvic veins of wild and domestic ducks in Europe and N. America. The body of this fluke is rather flattened in both sexes and lancet shaped in the posterior half. The male is small—4mm. in length by 0.5mm. in breadth; but the female is smaller still, being half its length by 0.25mm. in breadth. The female pore, as is customary in this genus, is placed behind the ventral sucker. Of these there are two, oval and ventral (acetabulum) by which the trematodes adhere to the side of the blood vessels which they inhabit. The eggs are narrow and elongated, with a *terminal* spine, measuring 40 x 20m. The eggs are deposited in the small vessels of the intestinal wall with the narrow part directed towards the lumen of the gut. They then work their way through the intestinal wall and are passed in the fæces. The *intermediate* host in the common Ram's horn snail—*Planorbis corneus*. The cercariæ are of the bifid-tailed *Bilharzia* type, but possess a pair of pigmented eye spots. They infect the duck by penetrating the skin, as does the human form. In the main their life history is the same, but does not appear to have been worked in comparable detail. So far little has been done in the way of treatment, but antimony preparations so successful in Man have proved disappointing. Although the parasite has been studied in wild Mallard and in domestic ducks no one has yet compiled a list of species affected. All we know is that surface-feeding ducks are more liable than diving ducks.

It must not be thought that *B. polonica* is the only Bilharzia-like parasite of birds. Several others have been described and lie scattered in the literature. There is one *Gigantobilharzia sturniæ*—a parasite of Starlings, Sparrows and Wagtails in the Far East. The intermediate host is the Marsh snail, *Polypylis haemisphaerula* (Hunter and colleagues, 1951). The cercariæ cause dermatitis in agricultural labourers, known as paddy itch or "Koganbyo" in the Valleys adjacent to Lake Shinji, Japan.

There is an interesting development that has been much in evidence

lately. This is the recognition of "swimmer's itch" in bathers in lakes harbouring infected Planorbis snails.

It is an irritating, but transient dermatitis that may at first be rather alarming. The condition is due to the penetration on *Bilharziella* cercariæ into the human skin, but within a short time the heads of the larvæ perish, as they cannot develop further in human tissues.

Swimmer's itch is found especially in Lake Roath near Cardiff, but is also known in Lake Michigan and some waters in Minnesota. In Wales some of the cercariæ are derived from the common snail—*Limnaea stagnatalis* and have been provisionally called—*Cercaria ocellata*, *C. elvae*, *C. douthitti* and *C. physellae*. The classification of these odd cercaria on morphological characters, while the adult flukes remain unknown to science, is somewhat exasperating, but it all goes to show what a rudimentary state our knowledge of avian helminthology is, and how much more remains to be done. So far this science is modelled upon the life-histories so carefully worked out by medical zoologists for the species that affect man. Someone must devote equal zeal and attention to the parallel parasites of birds. One of the objects of this communication is to stimulate further research on this absorbing subject.

## Taxonomic Notes on African birds

By Mr. C. M. N. White.

*Received 21st February*, 1954

1. The status of *Campethera abingoni annectans* (Neumann).

Comparison of 10 specimens of *C. a. smithi* (Malherbe) from the Transvaal and Bechuanaland with 13 examples from Angola, the Katanga and Northern Rhodesia shows very little difference; there is no difference in the bill length which measures 24–30mm. in birds from north of the Zambesi. The only reliable difference which I can see to support *C. a. annectans* is its more or less unstreaked belly, whereas *C. a.smithi* has the belly distinctly streaked. Single individuals are not invariably separable at a glance; the Zambesi river can be taken as the dividing line between the two races.

2. The race of Scaly Francolin in the Upemba National Park.

Verheyen in his recent work on the birds of the Upemba National Park refers a long series of *Francolinus squamatus* to the race *F. s. doni* Benson described from Nyasaland. Through the kindness of the authorities of the Brussels Natural History Museum some of these Upemba birds were sent to London for comparison. They are quite unlike the Nyasaland race and must be referred to *F. s. schuetti* Cabanis. They average rather redder than the aggregate of *F. s. schuetti* from the north east Belgian Congo to Uganda and western Kenya colony but I doubt if any sharp line can be drawn between them and these more eastern birds; but the reddish trend in the Upemba birds strongly suggests that intergradation to the west may be found with the similar birds of the Kwanza valley *F. griseostriatus* Ogilvie Grant, at present treated as a distinct species. 11 birds from Ethiopia and 7 from the southern Sudan are more greyish sandy above than *F. s. schuetti*, more strongly vermiculated on the back and lacking the reddish tinge of the Upemba birds. It may be well to keep these north eastern populations apart as *F. s. tetraoninus* Blundell and Lovat. But individual variation in this species is so great that it is difficult to define ranges of races very sharply.

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## DINNERS AND MEETINGS FOR 1954

18th May, 15th June, 19th October, 16th November and 21st December.

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Number 6

The five hundred and thirty-first meeting of the Club was held at the Rembrandt Hotel, Thurloe Place, on Tuesday, 18th May, 1954, following a dinner at 6.30 p.m.

*Chairman :* COLONEL R. MEINERTZHAGEN.

Members present, 25; Guests 3; Total 28.

The Chairman welcomed Dr. F. Gudmundsson from Iceland and Dr. J. Van Tyne from the U.S.A., both members of the Club, and Mr. E. P. Gee, a guest from Assam.

He then announced with much regret that Mr. E. G. Turbott of the Auckland Museum, New Zealand, who was to have shown films of the rediscovered *Notornis*, was ill. He had, however, gone to great trouble to have the films delivered and these were shown with an interesting commentary by Mr. J. D. Macdonald.

The first film was taken in Notornis Valley beyond Lake Te Anau in the South Island of New Zealand by Dr. Falla in summer. The total population is thought to be not more than 100 and excellent views of the bird creeping among the snow-grass were seen, in which it demonstrated the typical Waterhen behaviour of tail-flicking as it walked. Scenes of the habitat, as well as the nest, eggs, incubating adult and downy young were also taken.

The second film, by Mr. Turbott showed the *Notornis* in its winter habitat. It had moved down to a lower valley, Notornis Valley being snow-bound and the small lake frozen. A fine close-up of a specimen gave a good idea of the remarkably strong beak to deal with the tough snow-grass, which forms its main food. When released, this flightless Rail flapped its wings vigorously while running for cover.

Both of these remarkable films were greatly appreciated, but members were disappointed by Mr. Turbott's enforced absence.

# The Races of the Crombec *Sylvietta rufescens* (Vieillot) Occurring in the South African Sub-continent.

By P. A. Clancey.

*Received 25th March*, 1954

The Crombec *Sylvietta rufescens* (Vieillot) is a small, short-tailed warbler of the thornveld savannas and scrubby areas of southern and south-central Africa in which geographical variation is reasonably well developed. Within the limits of the South African sub-continent two and sometimes three geographical races have been admitted by workers. Sclater, in his "Systema Avium Æthiopicarum," part ii, 1930, p.533, recognizes three South African races; Vincent, "Check List of the Birds of South Africa," 1952, p.81, admits two; while Roberts, "Birds of South Africa," 1940, p.259, recognizes only the nominate race, though in this particular instance the race *S. r. pallida* (Alexander) and the closely allied *S. w. whytii* (Shelley) appear to have been confused and united under the combination *S. r. whytii*, and Roberts should, perhaps, be credited with recognizing two South African races of *S. rufescens*. *S. whytii* is now generally conceded to be specifically distinct from *S. rufescens*, from which it differs in having no dark grey loral and post-ocular stripes and distinctive light supercilia (see particularly Chapin, "Birds of the Belgian Congo," vol. iii, 1953, p.264). *S. rufescens* and *S. whytii* are sympatric where their ranges meet in southern Portuguese East Africa and in western Nyasaland, where the problem has been critically investigated by Benson.

Sound revisionary work on the South African races of *S. rufescens* is quite lacking, the only important note on the subject being that of Sclater and Mackworth-Praed, "Ibis," 1918, 4, pp.666–667, but a recent note by Clancey, "Ostrich," vol. xxiv. 2, 1953, pp. 127–128, has outlined briefly new advances in our knowledge, and it is the purpose of this paper to enlarge on this recent communication and discuss within the limits of the material at present available the geographical variation exhibited by the South African sub-continental populations.

Sclater and Mackworth-Praed, *loc. cit.*, recognize three races, namely, *S. r. rufescens* (Vieillot), 1817: Olifants River, western Cape Province; *S. r. transvaalensis* Sclater and Mackworth-Praed, 1918: Rustenburg, Transvaal; and *S. r. pallida* (Alexander), 1899: between Tete and Chicowa on the Zambesi River, Portuguese East Africa. Three other names have been proposed and have to be considered in any valid appraisal of the South African races, these being: *Sylviella flecki* Reichenow, 1900: Mutschumi (Machumi Pan), south of Lake Ngami, Bechuanaland; *S. r. ochrocara* Oberholser, 1905: Damaraland; and *S. r. resurga* Clancey, 1953: Weenen, Natal.

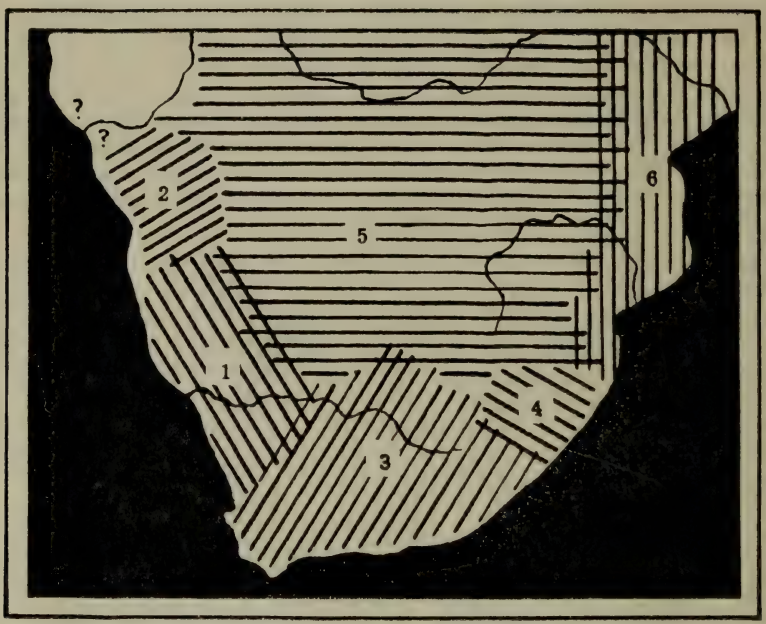
The general trend of geographical variation in the South African populations appears to be clinal in character. The populations of the southern Cape Province are the darkest both dorsally and ventrally and have the bill, particularly in the male, powerful, long and decurved (usually about 17mm.), while the populations of the lower Zambesi and contiguous areas

to the north and south represent the other end of the cline, being markedly paler throughout and the bill is appreciably shorter (usually about 15mm.). The clinal extremes are very different, and the main task is to assess the constancy and validity of the characters of the intervening populations and to estimate the extent to which names can be used to advantage in the breaking up of this cline into a series of races worthy of recognition by modern standards. Through the great kindness of the Directors of the following museums I have been able to examine a large number of specimens of critical importance in such a study: South African Museum, Cape Town; East London Museum; Kaffrarian Museum, King William's Town; Durban Museum; Natal Museum, Pietermaritzburg; Transvaal Museum, Pretoria; National Museum of Southern Rhodesia, Bulawayo; Museu Dr Alvaro de Castro, Lourenço Marques.

Described by Vieillot on the basis of two figures on pl. 35 in Levaillant, "Histoire Naturelle des Oiseaux d'Afrique," vol. iii, 1802, nominate *S. rufescens* presents certain difficulties owing to the occurrence of two geographical races of the species in the western Cape. Specimens from the extreme south-western corner of the Cape Province in the collection of the South African Museum (collected at Rondebosch, Durbanville, and Touws River) have the upper-parts dark greyish brown and the ventral surfaces rich cinnamon-buff, and the bill is long, measuring from 16–18 mm. These skins are closely matched by other examples before me from such widely scattered localities in the south and east as Knysna, Hanover, Cradock, Grahamstown, Queenstown, King William's Town, etc., and to the north of the Orange River in the east at Barkly West in Griqualand West. Specimens taken at Klaver, Port Nolloth, and at points on the lower Orange River, in the western and north-western Cape, and at Kalkfontein in southern Great Namaqualand, differ from the southern birds I have just dealt with in being paler cinnamon-buff below and greyer on the dorsal surfaces and they average slightly larger in size.

From the material available to me it appears that in the Cape Province there are two groups of populations worthy of recognition as races, namely, a richly coloured one confined to the southern and eastern districts, and a paler and duller group in the more arid regions of the west and north-west. It is customary to fix the type-locality of *S. r. rufescens* as the Olifants River, western Cape Province (a locality which must almost certainly be in the southernmost extermity of the range of the duller and paler of the two Cape races), because Levaillant states in his narrative that he first encountered the Crombec near that river. There is, of course, no evidence to the effect that the specimens obtained near the Olifants River were actually used for the illustrations, but even making allowance for artistic discrepancies and the use of worn material, it seems evident that the figures on p.135—which are the virtual *Types* of the *D. rufescens* of Vieillot —are only applicable to the race which I would distinguish from the dry areas of the western and north-western Cape, and this view is lent support by the material which is available to me from Klaver (a village almost on the Olifants River), and which can be taken as topotypical of *S. r. rufescens*. Klaver specimens are the same as those from Port Nolloth and other localities in Little Namaqualand, and from Bushmanland and southern Great Namaqualand. The paler and duller of the two Cape races is

therefore the nominate one, and the richer subspecies of the south and east, being without a name, is described below as *S. r. diverga*, subsp.nov.




Sketch map showing the approximate ranges of the South African races of the Crombec *Sylvietta rufescens* (Vieillot). 1. *S.r. rufescens;* 2. *S.r. ochrocara;* 3. *S.r. diverga;* 4. *S.r. resurga;* 5. *S.r. flecki;* 6. *S.r. pallida.*

Material from Great Namaqualand is scarce in South African museums and it is not possible on the few skins available to arrive at any conclusions, but a single specimen from Great Brukaros Mountain is paler than a skin of *S. r. rufescens* from Kalkfontein in the south of the territory. That this is a progressive trend is clear from an examination of material from still further north in Damaraland. Specimens from Damaraland differ from *S. r. rufescens* as here defined in being paler and clearer grey on the upper-parts, but ventrally there is no prominent difference. Oberholser, "Smithsonian Miscellaneous Collections," xlvii, 1905, p.373, has proposed the name *S. r. ochrocara* for the Damaraland populations, but the separation has to the best of my knowledge never been given support by workers. I am of the opinion that subspecific status should now be accorded the populations of Damaraland, and that the name conferred on them by Oberholser should be resurrected for this purpose. The Kaokoveld and Mossamedes populations may belong here, but I have seen no material.

In Ovamboland, and to the east of the range of *S. r. ochrocara*, the populations show marked differences, the birds being more bluish grey above and rather richer cinnamon-buff below, and the bill is invariably shorter (usually about 15mm.) and straighter. Roberts, "Annals of the Transvaal Museum," vol. xvi, 1935, p.146, on the basis of a very large

series from all over Bechuanaland, states that the "birds from these localities are like those from the Transvaal," and this finding is confirmed by my own observations. I find that the populations of British Bechuanaland (northern Cape Province), the northern Orange Free State, the Transvaal (except the eastern lowlands), Bechuanaland Protectorate, extreme eastern districts of South-West Africa, Ovamboland, and most of Southern Rhodesia northwards to south-eastern Angola and the western parts of Northern Rhodesia are reasonably homogeneous, and, in my view, represent one race. Two names are available for this race, *viz.*, *S. flecki* described from south of Lake Ngami, and *S. r. transvaalensis* described from the Rustenburg district of the Transvaal. As has just been shown, Transvaal and Bechuanaland birds are the same, and therefore this race must be known as *S. r. flecki* (1900), of which *S. r. transvaalensis* (1918) is a synonym.

To return to the long-billed and dorsally darker races of the south and west, it has recently been shown by Clancey, "Durban Museum Novitates," vol. iv., 4, 1953, pp.61–62, that the population resident to the east of the Drakensberg Range in Natal is distinguishable from adjacent forms and he has described this population as a new race under the name *S. r. resurga*. This race has the long bill of *S. r. rufescens* and its racial affines, the reddish ventral colouration of *S. r. diverga* (but throat whiter), and bluish grey upper-parts much as in *S. r. flecki*. Examination of still further material shows that *S. r. resurga* is a well-marked race with a somewhat circumscribed distribution in Natal (mainly interior) and southern Zululand.

From the area of northern Zululand, Swaziland, the eastern lowlands of the Transvaal, and southern Portuguese East Africa northwards to the Zambesi River and beyond in parts of Nyasaland west of the Nyasa Rift, and in parts of south-eastern Northern Rhodesia, occurs yet another group of populations worthy of racial rank. Birds of these populations most closely resemble *S. r. flecki* of the interior as defined earlier, but they are in series paler ventrally, the cheeks and throat are much whiter, and the centre of the abdomen is lighter. The superciliary stripes are also more fully developed in these eastern populations. This race has been fairly consistently supported by workers under the name available for it, *i.e.*, *S. r. pallida*, which was described by Alexander on material collected on the Zambesi River between the towns of Tete and Chicowa.

To the north of the range of *S. r. pallida* occurs a still smaller race with brighter rufous under-parts which extends from the Lake Bangweulu region of Northern Rhodesia and the Katanga north to the Ruzizi Valley in the eastern Congo. This is the race described by Hermann Grote as *S. r. adelphe*.

On the basis of the data now available it would seem desirable to recognize no less than six races of *S. rufescens* from the South African sub-continent instead of the customary three. The races here recognized are reasonably well defined and constant, and it is remarkable that there has been so much uncertainty heretofore as to the full range of geographical variation, which incidentally follows closely that of so many other widely distributed polytypic South African species, although the finding of the palest race on the eastern side of the sub-continent is exceptional.

In order to assist workers not equipped with a wide range of South African material I have detailed the dorsal and ventral colouration readings of the various races, using the system perfected by C. and J. Villalobos, "Colour Atlas," 1947. The characters and ranges of the races recognized are as follows:

1. **Sylvietta rufescens rufescens** (Vieillot)

*Dicæum rufescens* Vieillot, "Nouveau Dictionnaire d'Histoire, Naturelle," nouvelle édition, vol. ix, 1817, p.407: Olifants River western Cape Province, South Africa (ex Levaillant).

Upper-parts, wings and tail dark greyish brown (about 00S–6–2°); Entire ventral surface pale cinnamon-buff (about 00Y–14–5°). Superciliary stripes poorly developed.

*Measurements :* Wing ♂♂ 59–64, ♀♀ 59–61; culmen from base ♂♂ 16–18.5, ♀ 17mm. (Eight measured).

*Range :* The dry western and north-western districts of the Cape Province and the southern half of Great Namaqualand, South-West Africa. Intergrading to the north of its range with the next race and to the south and south-east with *S. r. diverga.*

2. **Sylvietta rufescens ochrocara** Oberholser

*Sylvietta rufescens ochrocara* Oberholser, "Smithsonian Miscellaneous Collections," xlvii, 1905, p.373: Damaraland, South-West Africa.

Similar to *S. r. rufescens* but upper-parts, wings and tail paler and greyer in series (about 00S–8–2°). Slightly richer below (about 00Y–13–5°). Larger.

*Measurements :* Wing ♂♂ 64–66.5, ♀♀ 60–62; culmen from base ♂♂ 16–18, ♀♀ 16.5–17mm. (Seven measured).

*Range :* The Damaraland plateau, South-West Africa. ? And the Kaokoveld and south-western Angola (Mossamedes). Replaced to the north and east of its ascertained range by *S. r. flecki.*

3. **Sylvietta rufescens diverga,** subsp.nov.

Darker above and on wings and tail than *S. r. rufescens* (about S0–5–1°), and on the under-parts richer cinnamon-buff (about 0–13–4°), and with the flanks and sides of the breast copiously suffused with dark greyish brown. Similar in size.

*Measurements :* Wing ♂♂ 59–65, ♀♀ 57.5–62; culmen from base ♂♂ 16.5–18, ♀♀ 16–17.5mm. (Eighteen measured).

*Type :* ♂ adult. Collected on Doornhoek Farm, near Cradock, eastern Cape Province, South Africa. 20 October, 1953. Collected by P. A. Clancey. In the Durban Museum. Wing (flattened), 65, culmen from base 16.5mm.

*Range :* The extreme south-western portion of the Cape Province eastwards through the Karroo districts to the eastern Cape, and northwards to the southern Orange Free State and Griqualand West. Intergrading to the north of its range in the east with *S. r. flecki.*

4. **Sylvietta rufescens resurga** Clancey.

*Sylvietta rufescens resurga* Clancey, "Durban Museum Novitates," vol. iv, 4, 1953, p.61: Weenan, Natal, South Africa.

Nearest to *S. r. diverga* but upper-parts much lighter, more bluish-grey (about S0–10–1°); ventrally closely similar but whiter on the throat.

*Measurements :* Wing ♂♂ 62–67, ♀ 59.50 culmen from base ♂♂ 16–17.5, ♀ 16.5mm. (Six measured).

*Range :* Confined to Natal (mainly interior) and parts of southern Zululand. Intergrading to the north of its range with *S. r. pallida.*

5. **Sylvietta rufescens flecki** (Reichenow)

*Sylviella flecki* Reichenow, "Ornithologische Monatsberichte," vol. viii, 1900, p.22: Mutschumi (Machumi Pan), south of Lake Ngami, Bechuanaland Protectorate, of which *S. r. transvaalensis* Sclater and Mackworth-Praed, "Ibis," 1918, 4, p.667: Rustenburg, Transvaal, is a synonym.

Somewhat similar to *S. r. resurga* on upper-parts, wings and tail, but slightly paler; under-parts wholly buffish cinnamon without any white on throat (about 0–10–5°). Bill shorter and less decurved.

*Measurements :* Wing ♂♂ 60–67.5, ♀♀ 58–62; culmen base ♂♂ 14.5–16.5, ♀♀ 14–15.5mm. (Twenty-two measured).

*Range :* The interior of southern Africa. Ranges from the northern parts of the Cape Province (British Bechuanaland), northern Orange Free State, Transvaal (except eastern lowlands), Bechuanaland Protectorate, extreme eastern districts of South-West Africa (in the north as far west as Ondonga, Ovamboland), most of Southern Rhodesia and the Caprivi Strip northwards to south-eastern Angola and apparently most of western Northern Rhodesia. Intergrading with *S. r. adelphe* to the north of its range, and with *S. r. pallida* to the east.

6. **Sylvietta rufescens pallida** (Alexander)

*Sylviella pallida* Alexander, "Bulletin of the British Ornithologists' Club," vol. viii, 1899, p.48: between Tete and Chicowa on the Zambesi River, Portuguese East Africa.

Closely similar to *S. r. flecki* from which it differs in being markedly whiter on the cheeks, throat and centre of abdomen. Supercilia paler and more fully developed.

*Measurements :* Wing ♂♂ 60–65, ♀♀ 56–60; culmen from base ♂♂ 15–16.5, ♀♀ 14.5–15.5mm. (Twenty-two measured).

*Range :* The south-eastern districts of Northern Rhodesia to the south and east of the range of *S. r. adelphe*, and in Nyasaland west of the Nyasa Rift, southwards through the lower Zambesi River valley to southern Portuguese East Africa, parts of eastern Mashonaland, Southern Rhodesia, eastern lowlands of the Transvaal, Swaziland, and northern Zululand (Tongaland).

*Extra-limital race.*

**Sylvietta rufescens adelphe** Grote

*Sylvietta micrura adelphe* Grote, "Ornithologische Monatsberichte," vol. xxxv, 1927, p.118: Baraka, north-western end of Lake Tanganyika, Belgian Congo.

Described as smaller than *S. r. pallida* (wing 56–61mm.) and brighter rufous on breast and abdomen. (Not examined).

*Range :* (After Chapin, "Birds of the Belgian Congo," vol. iii, 1953, p.263). From the Katanga, southern Belgian Congo, and Lake Bangweulu in north-eastern Northern Rhodesia north to the Ruzizi Valley in the eastern Congo.).

## On a Possible Physiological Barrier between two Races of Song Thrush *Turdus ericetorum* Turton

By Alfred Hazelwood and Eric Gorton.

*Received 11th March, 1954*

During the very cold spell in February this year, we received a number of *Turdus ericetorum* Turton picked up in a dead or dying condition near Seaton, Devon.

These can readily be separated into phenotypes of *T. e. philomelos* Brehm and of the typical race and it is of interest to note that the gonadal development of either group was markedly different. The gonads of birds of either sex referable to *T. e. ericetorum* were well developed and little short of breeding condition while those of *T. e. philomelos* were still in complete recession.

Presumably, the Continental birds which occur in the British Isles in winter are, at least in the main, from more northerly latitudes and while the two races appear to mix in winter flocks, this physiological differentiation would prove an effective barrier to miscegenation.

This phenomenon is of course well known among discrete populations of the European Starling *Sturnus vulgaris* L. even where no conventional racial manifestations occur but the above is thought worthy of note because the opportunity of examining such truly comparable material seldom occurs.

Eight birds were examined, six skins prepared.

## Forster's 1788 Genera

By Captain C. H. B. Grant.

*Received 29th March, 1954*

The eighty-one genera given by Forster in his Ench.Hist.Nat. pp. 33 to 38, 1788, have been introduced into literature but NOT into nomenclature as no species are designated, only under 23 *Calloeas* (Great Wattle bird of New Zealand) does he give a reference to a particular species. Amongst the new genera by Forster is 76 *Gavia* on p.38, with the description "rostrum subulatum, compressum. Pedes palmati, tetradactyli."

A compressed awl-shaped bill is a character that cannot be fixed to any particular species and the webbed-feet with four toes could apply to any web-footed bird.

Even though the description could have been said to apply to a known species, it is understood that a genus with or without a description has no standing in nomenclature until a type species has been attached to it.

As far as I can find Boie is the first author to attach a species name to the genus *Gavia*.

In the "Isis," p.563, 1822, Boie under *Gavia* gives two species, *eburneus* and *tridactyla*, and in "Isis", p.980, 1826, gives under *Gavia*, *Larus eburneus* Linn. If we do not accept his designations in 1822 we can accept his 1826 one, he having clearly given a single valid species name and which should be accepted as the type species of the genus *Gavia*.

*Larus eburneus* is not given by Linnaeus in either his 1758 or 1766 editions, but is to be found in Gmelin, Syst. Nat. p.596, 1789. The title of Gmelin's work is Caroli a Linné, Syst. Nat. I, 1788–89, and many earlier authors incorrectly quoted the names given in this work as of Linnaeus, and this has no doubt been done by Boie as *Larus eburneus* Linn.

In the Bull. B.O.C. 73, p.58, 1953, the writer and five others gave Allen, 1908, as the author of the genus *Gavia* and the type species as *Colymbus imber* Gunnereus, but it seems clear that Boie in 1826 first introduced the genus *Gavia* into nomenclature and as it is attached to the Gulls it cannot very well be adopted for the Divers as proposed in Bull. Zool. Nom.9, p.6, 1952, I.C.Z.N.Ref.Z.N.(S) 78, in place of *Colymbus* Linnaeus, 1758.

It would also appear that *Gavia* Boie, 1826, has priority over *Pagophila* Kaup, 1829, both having the same type species.

## Notes on some Petrel Names

By Captain C. H. B. Grant and Mr. C. W. Mackworth-Praed

*Received 26th March, 1954*

In the Bull. B.O.C. 73, p.101, 1953, we said that an unpublished drawing was unavailable to the public. This statement is not quite accurate as an unpublished figure can be accepted as the type when cited by an author as the basis of a new name and description, as is a type specimen which is not figured, but can be examined where it is housed.

Kuhl on p.144 of Beit. Zool. verg. Anat. Beit. Kennt. Proc. Frankfurt a Main, 1820, gives in Latin:—

"15 Proc. grisea L.

Forster's bird came from the Atlantic but Latham thought the Antarctic Ocean was its habitat.

My fig. 9.

Pl. 93b. or Forster's is much less good.

But it is not fig. 94 of Forster's which is a *Nectris*.

In my specimen I was quite unable to see what Latham said of the lower wing coverts.

*Procellaria lugens* Banks tab. 21 and 22, best shows the shape of the beak.

(c) Tail cuneiform, rounded.

2. Second primary very long, almost as long as the tail.
++Sickle-shaped claws, central hallux.

Beak strongly compressed, hooked, deflexed, black, 1⅓in. from angle of mouth to tip (nasal) tube swollen, apertures oval, septum far back. Middle digit 1in. 10 lines long. tarsus 1in. 4 lines long. Length 13in. tail by itself 4¼in. Wings from elbow to tip 9⅓in. Body and under wing coverts sooty grey, feet pale.

Amongst Forster's drawings there are 6 species belonging to the first group (in which the fused nostrils are carried in one tube) certainly not obvious to me.''

Kuhl has clearly misapplied Gmelin's *Procellaria grisea* which is a Shearwater and so 15 *Proc. grisea* L. is of Kuhl, not of Gmelin. The title of Gmelin's work is Caroli a Linné, Syst. Nat.1, 1788–89, and many earlier authors incorrectly quoted the names given in this work as of Linnaeus, and this has been done by Kuhl under his 15 *Proc. grisea* L.

Mathews, Emu, pp. 96 and 97, 1936, was correct in stating that *Procellaria grisea* Kuhl, not Gmelin, is pre-occupied by *Procellaria grisea* Gmelin.

Forster's incon.ined. 93b, quoted by Kuhl is now identified as *Pterodroma macroptera* (Smith), 1840.

(2) The other name given by Kuhl is *Procellaria lugens* and is referred to Banks i.e. Parkinson's icon.ined. 21 and 22 which have been identified as *Procellaria inexpectata* Forster, 1844.

Kuhl's description on p.145 does not apply to Parkinson's icon.ined. 21 and 22, nor has the figure 9 of the head of a Petrel on Kuhl's plate xi been copied from either of these drawings, therefore Kuhl's description and figure are not based on the Parkinson' icon.ined. 21 and 22, but on a specimen collected by Forster which apparently is no longer in existence, as is shown by Kuhl's mention of ''Forster's bird'' and ''my specimen.''

The bills of the fourteen specimens of *Procellaria brevirostris* in the British Museum, agree in size and shape with Kuhl's fig. 9, except that they have a slightly deeper depression in the culmen immediately in front of the nostrils.

As Kuhl's description does not apply to Gmelin's *Procellaria grisea*, which is a Shearwater, it can be accepted as that of *Procellaria lugens* Kuhl, the type locality of which is Atlantic Ocean.

Kuhl's description agrees quite well with that of *Procellaria brevistrostris* Lesson, Traité d'Orn. p.611, 1831, ''Bec noir, court, tres-recourbe; tarses jaunes; plumage entier brun fuligineux; ailes at queue noir intense'',* type loc. by subsequent designation: Kerguelen Island, and therefore *Procellaria lugens* Kuhl, 1820, replaces Lesson's 1831 name which should be placed as a synonym.

The breeding are of *Procellaria lugens* Kuhl, is, without doubt, Tristan d'Cunha and Kerguelen Islands.

The following authors have used *Procellaria lugens*, which we have shown to be pre-occupied by *Procellaria lugens* of Kuhl:—

(1) Mathews, Bds. Austral. 2, p.159, 1912, who states that the MS. description of Solander's *Procellaria lugens* (which he quotes in full) appears to him as agreeing very well with *P. inexpectata*. This description

* *Note :* See also Dr. Jouanin's description of the type in Bull. B.O.C. 73, p.100, 1953.

from Solander, who was working with Parkinson, in no way affects that given by Kuhl. *Procellaria lugens* here is of Mathews adopted from Solander's MS. and is so given in Mathews' Syst.Av.Austal. 1, p.118, 1927, under *Pterodroma inexpectata* (Forster).

(2) Salvin, in Rowley's Orn.Misc. 1, p.235, 1876, places *Procellaria lugens* of Parkinson and of Solander as a synonym of *Oestrelata brevirostris* (Lesson); this is *Procellaria lugens* of Salvin, based on icon.ined. 21 and 22.

(3) Godman, Mon. Petrels, p.216, 1908, gives *Procellaria lugens* as of Parkinson, icon.ined. Nos. 21 and 22; this is *Procellaria lugens* of Godman.

(4) Murphy, Oc.Bds.S.Amer. p.703, 1936, places *Pterodroma lugens* as a synonym of *Pterodroma brevirostris* (Lesson), but as he gives no author it is impossible to say whose *P. lugens* he is quoting.

We have to thank Mr. W. H. T. Tams, Mr. R. W. Sims, and Miss A. Lysaght for so kindly entering into the discussion on this question of nomencalture.

## On Sexual Variation in the Moult of the Leach's Petrel *Oceanodroma leucorrhoa* (Vieillot)

By Alfred Hazelwood and Eric Gorton.

*Received, 11th March,* 1954

A series of Leach's Petrels from various inland localities during the "crash" of 1952, all picked up dead or dying between 30/10/52 and 4/11/52, are clearly separable into two groups. In one group the moult is practically complete or complete while the other birds are still in worn feather, especially on the nape, throat and wings and in some cases overall. Two of the latter group have the edges of the secondaries so frayed as to appear almost white.

Save for one doubtful example, the two groups correspond exactly with the different sexes as determined by dissection, those birds through the moult being males.

6 ♂♂, 6 ♀♀ examined and prepared.

## On the Range of *Stachyris nigriceps spadix* Ripley

By Mrs. P. B. Hall

*Received 19th March,* 1954

*Stachyris nigriceps spadix* Ripley (Bull.B.O.C.68, 1948: 89–90) was described from Laisung, north Cachar, with a range limited to Cachar and the Naga and Chin Hills. (In 1952 this range was further restricted when fresh specimens from the Naga Hills proved to be *S. n. coltarti*.) At that time birds of Lower Burma and Tenasserim were generally referred to the race of the Malay Peninsula, *S. n. davisoni*.

It appeared to me in examining the series in the British Museum that birds from the Malay Peninsula (*davisoni*) and Trang (*dipora*) are readily

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separable from those of Lower Burma and North Tenasserim, having paler throats and duller heads on which the streaking is less well defined. At the same time the Burmese birds seemed similar to the few available specimens from within the range of *S. n. spadix*. As these specimens were old and possibly foxed I wrote to Dr. Dillon Ripley for his opinion: he very kindly re-examined the material in New York and discussed the problem with Mr. H. G. Deignan. They agreed that *S. n. spadix* should be used for all the birds of Lower Burma and North Tenasserim and that the ranges of this and the adjoining races can be defined as follows:—

*S. n. spadix*. Cachar, Chin Hills, Lower Burma, N.Tenasserim, extreme S.W. of Shan States.

*S. n. dipora* Oberholser 1922. S.Tenasserim, Thailand near Isthmus of Kra south to Trang.

*S. n. davisoni* Sharpe 1892. Pattani and Malay Peninsula.

*S. n. yunnanensis* La Touche 1921. Yunnan, N.W. Tonkin, Laos, N. Thailand, Shan States (except extreme S.W.).

*S. n. coltarti* Harington 1913. Margherita, Naga Hills, Upper Burma.

*S. n. coei* Ripley 1952. Mishmi Hills.

## On the Plumage Characters of an Aberrant Female Mallard *Anas platyrhynchos platyrhynchos* Linnaeus

By Mr. Bryan L. Sage.

*Received 12th May*, 1954

On one of the flooded gravel pits at Old Parkbury, Radlett, Hertfordshire, there has for some time been a female Mallard that exhibits some rather unusual plumage characteristics. The possibility of this bird being a hybrid will be discussed later.

The plumage is predominantly that of an adult female Mallard, but the dorsal surface is noticeably paler than is usual; the ventral surface and flanks are pure white but the breast and upper belly are very strongly tinged a sandy-buff colour, there are some very fine streaks or spots on the upper breast; the speculum is almost completely black and only shows a purplish gloss at certain angles, it is bordered at both edges by the normal white bars but that on the forward edge is very much wider than usual; legs and bill are the usual colour of the species. In size this bird appears a little smaller than a normal female but not greatly so. It is mated to a normal male Mallard.

This may be just another example of the almost unending plumage variations to which this species seems subject but there are certain points which suggest that it may be the result of a cross with the Gadwall *Anas strepera* Linnaeus. Mr. Peter Scott informs me that the Mallard x Gadwall hybrid is quite a common occurrence. The white underparts with the streaked and spotted upper breast are similar to that of the Gadwall as is the wing pattern which is identical to that of the Gadwall in reverse, i.e. with the white bar above the black.

This occurrence tends to support Dr. James M. Harrison's suggestion (*antea* Vol. 74, 53) of a close phylogenetic relationship between these and other species of the genus *Anas*.

## BACK NUMBERS OF THE "BULLETIN"

Back numbers of the "Bulletin" can be obtained at 2/6 each. Applications should be made to R. A. H. Coombes, Esq., Zoological Museum, Tring, Herts. No reply will be sent if parts are not available.

Members who have back numbers of the "Bulletin" which they no longer require, are requested to kindly send them to R. A. H. Coombes, Esq., as above.

## DINNERS AND MEETINGS FOR 1954

15th June, 19th October, 16th November and 21st December.

## SEPARATES

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## PUBLICATION OF THE "BULLETIN"

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# BULLETIN

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# BRITISH ORNITHOLOGISTS' CLUB

Edited by
DR. JEFFERY HARRISON

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NATURAL HISTORY

BULLETIN

OF THE

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The five hundred and thirty-second meeting of the Club was held at the Rembrandt Hotel, Thurloe Place on Tuesday, 15th June, 1954, following a dinner at 6.30 p.m.

*Chairman*: COLONEL R. MEINERTZHAGEN.

Members present 14 ; Total 14.

Mrs. Bradley showed some birds and photographs taken on a recent entomological expedition to Rennell Isle, Soloman Islands.

## The Life History of Avian Filaria Parasites

By SIR PHILIP MANSON-BAHR

*Received 10th March*, 1954

One of the most sensational, as well as beneficial, advances in Medical Science has sprung from the Science of Parasitology. Albeit that Pope's *dictum* that the "proper study of mankind is man", (Pope's Essay on Man), still holds good, great assistance in tracing the very intricate and involved life-story of these human parasites has been derived from observation of those of lower animals, notably birds. However, as will be shown in the sequel, the transmission of bird filariae, which are so widespread in many different genera, is to a great extent unknown and the subject has been generally neglected, although it must exert a great influence on bird biology.

The Filariae, as their name implies, are thread-like nematodes which live in the lymph, blood and connective tissues. Generally speaking they are 2–3 inches in length, white or yellowish in colour and consist of male and female individuals. Those of the latter sex usually predominate and are of a larger size. The greater part of the body of the female is packed with genitalia, including a coiled and bifid uterus. In the interior of this organ are found, in close array, myriads of ova, each containing a coiled and fully developed embryo, ready to emerge. These embryos are little creatures, usually measuring 0.3mm. in length, and are known as *microfilariae*. When ripe these embryos are poured out in an almost continuous stream from the genital aperture of the female and continue, in a manner that is little understood, to gain the bloodstream and there, as active

wriggling little worms, they circulate in the body of their host and remain unchanged in their primitive embryonic condition, for very long periods; at any rate for a month or it may be as long as a year. The object which this rather strange process subserves is to enable them to be present in the blood, on the analogy of fish in a stream, in order to be transferred to another vertebrate host (man, or it may be a bird) so as to propagate their kind. They do this in a very curious manner, but using the blood in which they live, as a bait. They are then taken up by different species of mosquito, midges, blood-sucking flies or gnats (*Culicoides*) when they suck human or avian blood. Directly on entering the stomach of the insect, so far from being digested or absorbed, they become activated and stimulated, bore through the stomach wall, burrow into the thoracic muscles and encyst there, becoming in a few days much squatter and fatter and losing their pointed tails. During their development in the mosquito or other insect they undergo three ecdyces, or moults. Under favourable conditions of temperature and moisture they grow at a very rapid rate to be converted into *larvae* which reach their full development in 10–14 days. During this period they have increased in length from 1/48th to 1/16th inch. In other directions they have become transformed in shape and appearance. By then they have developed a mouth, anus and alimentary canal. Excretory and sexual cells have appeared in their bodies. Now from a semi-torpid state they become extremely active, wriggling forward through the tissues to the head of the insect, or intermediary host, and eventually they struggle to reach the proboscis sheath in which the biting apparatus lies (which in mosquitoes and midges consists of a formidable array of miniature bayonets) and, emerging from the tip through the *labellae*, are deposited into the skin of the next host upon which this insect feeds. This is known as the *definitive host*, and in its body the larvae proceed to grow and mature. After the lapse of some considerable time, probably extending over a period of three months or longer, they become adult and fully mature. This, in outline, is roughly the life-history of filarial worms and forms the pattern upon which insect-borne disease was originally founded by Patrick Manson in 1879.

This story has been frequently detailed in medical literature and now it is time that it should be applied to ornithological parasitology. There are further elaborations to which attention must be drawn. The first is that certain microfilariae of man, monkeys and birds are encased in a sheath which in reality represent the chorionic envelope of the egg from the maternal uterus. This sheath has a definite function to subserve. In the first place it shackles the embryo so that it cannot escape from the blood-stream and thus it severely limits its movements when it is being swept by that current round the circulation. The embryo can only escape from the sheath when the blood is cooled and coagulates, as occurs in the stomach of an insect intermediary. It was this pregnant observation which originally led Manson to suspect that the mosquito could function as a "nurse" as he envisaged that of the intermediary host to be. The second great feature is a mysterious process known as "periodicity". This is the habit of some species of microfilariae to migrate in enormous swarms into the capillary bloodstream during the night or day hours. Night-swarming is known as *nocturnal*; day-swarming as *diurnal* periodicity. This property has been acquired in order that the microfilariae may be present in maximum

numbers at such time as the insect intermediary feeds on the blood. In the case of nocturnal mosquitoes this periodicity is at its maximum from 8.0 p.m. to 8.0 a.m. In the case of diurnal periodicity, in which certain biting flies of the genus, *Chrysops*, are concerned, the swarming takes place at the reversed times, 8.0 a.m. to 8.0 p.m. Although the mechanism which controls these migrations is not understood, it is, however, a scientific feature characteristic of, and inherent in, the species concerned. It is known, moreover, that this periodicity may be maintained, with mathematical regularity, for a very long time, as long as the life of the adult parent worms lasts. All this is a very astounding and wonderful adaptation which should appeal to every student of nature.

The best understood of the Filariae are, of course, those that attack man of which eight are known. Some are transmitted by mosquitoes, (*Culex*, *Mansonia*, *Anopheles*) ; others by gad flies (*Chrysops*), buffalo gnats (*Simulium*), or midges (*Culicoides*).

This brief introduction is necessary in order that we should be in a position to appreciate this subject. There are a great number of Filariae which are found in birds. Apart from the fact that their anatomy and location has been described, little or nothing is known about their life-histories or their pathological effects. Some indeed have been used on an experimental basis in order to elucidate the life story of the human parasites and the scant information is widely scattered through parasitological literature. Amongst the corvidae a number of species occur and there is one in the American crow (*Corvus megarhynchos*) in which the microfilariae are nocturnal, but whose activities can be influenced by light and dark.

Manson, in China in 1878, worked on the filaria (*Filaria picae mediae*) of the Chinese magpie, in which bird he found the sheathless microfilariae in the blood and the adult forms in the cusps of the aortic semilunar valves. He furthermore ascertained that the microfilariae were provided with a cephalic armature which he thought was designed to fix onto the vessel wall and to anchor themselves. He thought that this mechanism had something to do with "periodicity". Unfortunatley his investigation in this direction was brought to an abrupt end by the local Chinese who intimated to him that once upon a time the spirit of a dead Emperor had entered a magpie, so that by shooting this particular bird, he might kill the spirit of this great man as well and that would indeed be a disaster.

From a brief study of the literature it is quite clear that the corvidae are infested with several species of filaria, especially the jays (*Garrulus*) and the *Coracidae*, or rollers. Few of them have been actually named and described and it is almost incredible to relate that their life-histories are unknown.

## A new race of Warbler from Northern Rhodesia

By Mr. C. W. Benson

*Received* 14*th June*, 1954

*Seicercus laurae eustacei*, subsp. nov.

*Description*: Similar to *Seicercus laurae* Boulton, Ann. Carnegie Mus., 21 (1), 1931, p. 54, but differing in having the abdomen and flanks white

washed pale yellow instead of greyish white without any such wash (in *S. l. laurae* the flanks are even more greyish than the abdomen), so that there is no sharp contrast, as there is in *S. l. laurae*, between the bright yellow of the throat and chest and the colour of the abdomen (in both forms the under tail-coverts are bright yellow, like the throat and chest); the upperside a much brighter, less dusky, green ; and the yellow of the underside slightly duller.

*Type*: Male, adult. Danger Hill, Mpika district, Northern Rhodesia, 11°32'S., 31°30'E., at 5,800 ft. a.s.l., 7th January, 1953. Collected by Major William Eustace Poles, M.C., of the Game and Tsetse Department, Northern Rhodesia; collector's No. 2704. In the National Museum of Southern Rhodesia, Bulawayo (N.M. reg'd No. 11606).

*Measurements of Type*: Wing 59, tail 42, culmen from base 13 (exposed 9), tarsus 19 mm.

*Range*: So far only definitely known from evergreen forest patches along streams (known locally as "mushitu") in the Northern Province of Northern Rhodesia, at Danger Hill, and in the Kasama, Abercorn, Mporokoso and Kawambwa districts at 4,300 – 5,500 ft. a.s.l.

*Remarks*: This new race is named after Major Poles, who has made valuable and extensive collections, amounting to nearly three thousand specimens, in the Mpika district and adjacent areas during the past five years. His collections are now in the National Museum, Bulawayo. Five specimens from the above mentioned localities have been presented to the American Museum of Natural History, and I am very grateful to Dr. Dean Amadon for comparing them with the type and co-type of *S. l. laurae*, loaned by the Director of the Carnegie Museum. The foregoing description is based entirely on Dr. Amadon's remarks, which he has very kindly allowed me to make full use of. I am also much indebted to Mr. R. H. N. Smithers, the Director of the National Museum, and to his assistant, Miss Mary Paterson, for every assistance in the consignment and loan of specimens.

Major Poles has collected altogether twenty-one specimens of this new race at Danger Hill, and myself a further nine elsewhere in the Province. Wing measurements of the twenty-five specimens in the National Museum are as follows:—

| | |
|---|---|
| 9 males. | 55, 58, 58, 59, 59, 59, 60, 60, 60 mm. |
| 12 females. | 53, 54, 54, 55, 55, 55, 55, 55, 58, 58, 59, 61 mm. |
| 4 unsexed. | 55, 55, 56, 58 mm. |

Possibly there has been mis-sexing in a few instances. In the closely related genus *Phylloscopus* males tend to larger size then females, see for example the measurements given by Witherby *et al.* in "The Handbook of British Birds", vol. 2, 1944.

*Seicercus laurae* has also been collected in the southern Belgian Congo, see Lynes *cit.* Chapin, "The Birds of the Belgian Congo," vol. 3, 1953, p. 475; Schouteden, Rev. Zool. Bot. Afr., 42 (1), 1949, p. 172 ; and Verheyen, "Exploration du Parc National de l'Upemba. Oiseaux", 1953, p. 492. The racial status of these specimens needs further investigation.

I agree with Chapin that this species is most nearly related to *S. ruficapilla*, of which *S. l. laurae* and *S. l. eustacei* could even be regarded as merely very richly pigmented races, on an extreme view.

Lynes, Rev., Zool. Bot. Afr., 31 (1), 1938, p. 79 records a male in breeding condition at Kayoyo in the Congo in September, *i.e.*, towards the end of the dry season. A male collected by me at Kawambwa on 16th September was considered to be about to breed. Twenty of Poles' specimens were collected in January (in the rains). Only one of these appears to have been at all close to breeding, and in a number of them skull ossification was incomplete. There is no certain evidence in any of our other specimens of skull ossification being incomplete or of any gonad-activity ; and see also Verheyen.

Since going to press, I have collected a male near Fwaka, Fort Rosebery District, Northern Rhodesia at 12°00'S., 29°08'E., 3,800 ft. a.s.l., 11th August, 1954, with gonads starting to enlarge; wing 60 mm.

## Some Remarks on the individual variation of *Dendrocopos major* from Switzerland with special reference to *Dendrocopos major praealpinus* von Burg

By Dr. James M. Harrison

*Received 8th July, 1954*

It is recognised that species living in the comparative isolation afforded by reason of altitude often exhibit morphological characters sufficiently distinct to justify separation.

Recently the question of the races of the Great Spotted Woodpecker in Switzerland has been the subject of one or two communications.

Reichenbach [1] (1854) separated the Austrian *D. major* from Carinthia under the name *D. m. alpestris*, and of recent workers Johansen [2] (1922) and Voous [3] (1947), and Voous and Amann [4] (1951) all support the validity of Reichenbach's race.

It is perhaps advisable to restate briefly the broad position with regard to those races in northern and western Europe about which there is general agreement, *viz.* that the nominate form *D.m. major* is that inhabiting Scandinavia and the U.S.S.R., with *D. m. pinetorum* occupying central Europe and the major part of north-western Europe, and *D. m. anglicus* as the resident form of the British Isles, excluding Northern Ireland and Eire. The matter of intergrades of the above forms over the area defined, though recognised, is not relevant to this discussion, so need not be gone into in detail, while of course the last named race does not effect the problem under consideration.

The work by Johansen, Voous and Voous and Amann referred to above, based as it is both on taxonomic research and field observation, supports and substantiates the validity of the form *D.m. alpestris*, and extends our knowledge of its range westwards from Austria into the Lötschenthal district of southern Switzerland.

The population thus delineated is characterised by being slightly larger than *D.m. pinetorum*, in having very white undersides and in possessing a heavier bill—in other words, as Voous (*loc. cit.*) asserts, it is approaching

in its colouration and dimensions the nominate race *D.m. major*, from which form, in his opinion, *D.m. alpestris* was derived in post-glacial times.

We thus arrive at the position that the race of this species in southern Switzerland is distinct from *D.m. pinetorum* Brehm, which up to now has been the presumed racial identity of the Swiss Great Spotted Woodpeckers.

It is the purpose of this communication to throw some light upon another alpine population in Switzerland, which was described by G. von Burg [5] (1921) as *D.m. praealpinus*.

The writer has been able to investigate a series of 43 Swiss specimens of this species. Of these 10 are breeding birds, 8 from the Bernese Oberland, one from Canton Aargau in northern Switzerland and one from the environments of Bern.

Although the series of breeding birds is not extensive, and that of German *D.m. pinetorum* also small, there is nevertheless quite an apparent difference to be seen, for whereas *D.m. pinetorum* tends to have a whiter overall appearance, the series of *D.m. praealpinus* shows a light buffish-brown overall wash of the underparts and also, not infrequently, of the upperparts as well at this season.

If this distinction is apparent in the breeding season, then in the autumn to winter period, it is greatly intensified. Out of the total of 43 Swiss specimens no fewer than 36 show a high degree of phaeomelanin deposition, mostly in the throat and crop region, while in many individuals the distribution of this pigment also affects much of the undersides and often of the upperparts and of the sides of the head and neck as well.

It is particularly to be noted that in the Swiss series there is one, but only one, breeding bird (♂ 18 v. 1939) from the Bernese Oberland which cannot on any character be separated from typical *D.m. pinetorum*, and is indeed whiter than the average specimen of that race. Similarly in the German series of *D.m. pinetorum* there is a specimen (♂ 24. IV. 1915) from Saxony which, on balance, closely approaches *D.m. praealpinus*. Such instances of individual specimens which do not conform to the series are of course familiar to all engaged in taxonomic practice.

The frontal band tends to be variable, but in *D.m. praealpinus* it is very much more brownish than it is in *D.m. pinetorum* ; in some specimens indeed it is an intense and very dark chocolate brown.

As has already been mentioned, in von Burg's race the distribution of phaeomelanin is particularly marked on the throat and in the crop region, much more so than in the majority of specimens of *D.m. pinetorum*, in which the distribution of the pigment lies mostly below the crop level and affects the breast and sides fairly evenly.

The shape of the bill may be said to be that of the average specimen of *D.m. pinetorum*, but both in size and shape there is marked variability. At any rate, it is evidently quite different from that of *D.m. aplestris*.

Clearly then, we must recognise in Switzerland two distinct forms, one south of the Alps, *D.m. alpestris* Reichenbach, derived as Voous (*loc. cit.*) has demonstrated from *D.m. major* stock, and north of the Alps, *D.m. praealpinus* von Burg, which, from its characters, must have arisen through *D.m. pinetorum* influence in post-glacial times.

It is possible that in the German-Swiss zone of territory, and also in the Swiss-French zone, birds of *D.m. pinetorum* type may be found to predominate, a point which can only be assessed on examination of a sufficient material, just as in the woods and forests of the foothills of the Bernese Oberland birds of *D.m. praealpinus* are predominant. *D.m. praealpinus* was placed in the synonymy as it was argued that the characters upon which it was based were not geographically related. In evaluating any given character, its importance should relate to its incidence in any given population, and not to whether it occurs sporadically in other areas in the range of the species concerned. However the distribution of the phaeomelanin in the two forms under consideration is essentially different.

A red colouration in the crop region in this species is found in different areas throughout the range of this species, but this has not been judged as invalidating races in the populations in which it is constantly, or more constantly, found. Such instances of a character peculiar to another form occurring outside the area of the population in which it is a constant, or almost constant, represent mutational reversions by gene-recombination. In the Swiss series referred to in this communication, there are three instances of the red crop-band mutation.

The following are the measurements of all birds in the series which have reached adult proportions, and have completed their moults. The * denotes a breeding specimen.

The bills are measured from the base of the skull and the bill coefficient (b.c.) is arrived at by the multiplication of the heighth and breadth of the bill as measured at the base at the level of the roots of the nasal bristles.

**D.m. praealpinus**

28 ♂♂

Wing:

| | | | | |
|---|---|---|---|---|
| 132 (1) | 133 (*1, 2) | 134 (*1,3) | 135 (4) | 136 (*1, 4) |
| *136.5 (1) | 137 (*1, 2) | 138 (1) | 138.5 (1) | 139 (*1, 3) |
| 143 (1) | | | | |

132 – 139 (one 143) mm.

Bill variation:

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Culmen: | 24 | 24 | 25 | *26 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | *27 | *27 | |
| b.c. | 88 | 96 | 99 | 99 | 80 | 80 | 88 | 93.5 | 93.5 | 99 | 99 | 108 | 122 | |
| *28 | 28 | *28 | 28 | *28.5 | 29 | 29 | 29 | *Damaged* | | | | | | |
| 80 | 93.5 | 99 | 99 | 99 | 93.5 | 99 | 108 | 108 | | | | | | |
| 30 | | 30 | 30 | 31 | 31 | one juvenile (small) | | | | | | | | |
| 102.5 | | 108 | 120 | 93.5 | 112.5 | | | | | | | | | |

15 ♀♀

Wing:

| | | | |
|---|---|---|---|
| 133 (*1, 1) | 134 (2) | 135 (1) | 136 (*1, 3) |
| 137 (*3, 2) | 140 (1) | | |

133 – 137 (one 140) mm.

Bill variation:

| Culmen: | *24 | *24 | *25 | *25 | 25.5 | *26 | 27 | 27 | 27.5 |
|---|---|---|---|---|---|---|---|---|---|
| b.c. | 99 | 99 | 99 | 99 | 93.5 | 88 | 88 | 99 | 108 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 28 | 28 | 28 | 28 | 30 | 30 | 30.5 |
| 88 | 93.5 | 93.5 | 99 | 88 | 88 | 92 |

**D.m. pinetorum**

11 ♂♂

Wing:

| | | | |
|---|---|---|---|
| 131 (1) | 133 (1) | 134 (1) | *135 (1) |
| 136 (*1, 2) | 137 (1) | 138 (1) | *139 (2) |

131 – 139 mm.

Bill variation:

| Culmen: | 26 | 27 | *28 | 28.5 | 29 | 29.5 | 30 | 30 | 30.5 | *31 | *31 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| b.c. | 132 | 132 | 131 | 132 | 99 | 120 | 99 | 131 | 108 | 110 | 140 |

8 ♀♀

Wing:

| | | | |
|---|---|---|---|
| 133 (1) | 134 (1) | *135 (1) | 135.5 (1) |
| 138 (*1, 2) | 139 (1) | | |

133 – 139 mm.

Bill variation:

| Culmen: | 26.5 | *27 | 27.5 | 27.5 | *29 | 29 | 29.5 | *29.5 |
|---|---|---|---|---|---|---|---|---|
| b.c. | 93.5 | 99 | 99 | 99 | 88 | 93.5 | 93.5 | 120 |

A study of the above measurements reveals the fact that there is not very much difference in the wing measurements of the two forms, but that *D.m.praealpinus* has a less robust bill as demonstrated by the computation of the bill coefficient when compared with *D.m.pinetorum*. This is apparent even in the comparatively small samples of each form which have been investigated.

In order to place *D.m.praealpinus* von Burg on a proper footing, it is desirable to create a type, and since the author of this form refers to "Die Buntspechte des Mittellandes und des Jura," I have selected as the type specimen an adult male, obtained at Interlaken, in the Bernese Oberland, on November 21st, 1948, in my collection.

Measurements:—

| | | | | | |
|---|---|---|---|---|---|
| wing | — | 134 m.m. | bill | — | 28 m.m. |
| bill coefficient | — | 99 | tarsus | — | 20 m.m. |
| tail | — | 87 m.m. | | | |

My grateful acknowledgements are due to Dr. Jeffery Harrison for the loan of his series of German examples of *D.m. pinetorum*, which augmented those in my own collection, and also to Herrn Ernst Flükiger of Interlaken for valuable assistance in the course of this investigation.

[1] Reichenbach, (1854) *Handb. spec. Orn.*, Scansores, 365.

[2] Johansen, H. (1922) "*Dryobates major alpestris* Reichenbach und einige Bemerkungen zu *D.m. major* (L). *Verh. Orn. Ges. Bayern*, 15, 231, 232.

[3] Voous, K. H., jnr. (1947). On the History of the Distribution of the Genus Dendrocopos. *Publ. Zool. Mus. Amsterdam.*

[4] Voous, K. H., jnr. and Amann, F. (1951). Die Alpenform des grossen Buntspechtes *Dendrocopos major alpestris* Reichenbach) im Lötschental. *Der Orn. Beob.*, 1951, 48, 5, 172.

[5] von Burg, G. (1921) Weiterer Mitteillungen über schweizerische Vögel, *Der Weidmann*, 6, 6, 7.

## A new race of Nightjar from the Caprivi Strip, South West Africa

By Mr. R. H. N. Smithers

*Received 16th June*, 1954

*Caprimulgus natalensis carpi* new race.

*Description:* Differs from *Caprimulgus natalensis natalensis* Smith, in having the whole upperside including sides of face, wing-coverts, secondaries and tail much paler, more sandy-buff; primaries more dusky less black ; buff markings of underparts generally paler.

*Distribution:* The eastern Caprivi Strip, South West Africa.

*Type:* In the National Museum of Southern Rhodesia, Bulawayo. Male adult. Kabuta, Caprivi Strip, South West Africia, 19th July, 1949. Carp 1949 Expedition. Collector's No. 113. N.M. No. 2929.

*Measurements of type:* Wing 155 ; tail 100 mm.

*Remarks:* Measurements of another male, wing 158 ; tail 103 ; two females wing 156 and 164, and tail 96 mm.

This new race is named in honour of Mr. Bernard Carp of Cape Town, who sponsored and financed the 1949 Caprivi Expedition.

## A new race of Nightjar from Northern Rhodesia

By R. H. N. Smithers

*Received 16th June*, 1954

*Caprimulgus natalensis mpasa* new race.

*Description:* Differs from *Caprimulgus natalensis natalensis* Smith, in being colder in tone of colour above, less vinous and rufous with broader black markings. Appreciably darker than *Caprimulgus natalensis carpi* Smithers.

*Distribution:* Northern Rhodesia from Balovale to Mpika.

*Type:* In the National Museum of Southern Rhodesia, Bulawayo. Male adult. Mpasa, Luwingu district, Northern Rhodesia. 19th August, 1953. Collected by C. W. Benson. Collector's No. N.R.1801 N.M. No. 13975.

*Measurements of type:* Wing 158 ; tail 105 mm.

*Remarks:* Ten specimens examined. Wings 156 to 167 mm.

## Ornithological Nomenclature and the "First Reviser"

By Captain C. H. B. Grant

*Received 10th July*, 1954

Chapin and Amadon, Ostrich, p.123, 1952, and White, Bull B.O.C. 72, p. 106, 1952, invoked the principle of the "first reviser" in the cases of *Pelecanus philippensis* and *Struthio camelus* respectively.

In nomenclature the broad application of the principle of the "first reviser" may lead to difficulties that in some respects serve to challenge our concepts of the validity and purpose of ornithological research. The broadest application of this principle must of necessity assume that the first reviser was infallible, a quality, I am certain, that no scientific worker would concede to any of his fellows. The hazards that may beset the unwary in the application of this principle can be appreciated by studying the works of about one hundred years ago, or thereabouts, when there were no universally accepted rules although the majority of these authors accepted Linnaeus' 1758 or 1766 editions of the Systema as the starting point of binomial nomenclature. The point of particular interest at present is that these early workers did not always accurately transcribe other authors' works and often selected that scientific name which they considered most appropriate, ignoring those that had priority of date, page or line. Consequently, in these circumstances, the work of the first reviser may be misleading.

An example of this nature is provided in the history of the name of the Philippine Pelican. Gmelin in Syst. Nat. 1789 gave in the following order on page 570, *Pelecanus roseus* (type locality, Manila Island) and *Pelecanus manillensis* (type locality, Manila Island), and on page 571, *Pelecanus philippensis* ; but Bonaparte, in his Con. Gen. Av. p. 162, 1851, placed *Pelecanus philippensis*, *P.manillensis*, and *P.roseus* in that order. Undoubtedly Bonaparte changed the order of the names because he considered that the name *P.philippensis* was more appropriate than *P.roseus*, it may be more desirable but it is incorrect to use it because *P.roseus* has page priority over *P.philippensis*. More recently Chapin and Amadon, Ostrich, p. 123, 1952, invoked the principle of the "first reviser" in the matter and, preferring presumably Bonaparte's order of names to that of Gmelin's, wrote—"their desire to retain *P.philippensis* is based on the Rules" (but do not say which of the Rules) and "not upon any attempt to set up "this name" as a nomen conservandum."

Later, in their paper, they wrote—"In this case were page priority to be demanded, we should certainly recommend *philippensis* be entered as a nomen conservandum if there were no other method of saving it." These are diametrically opposite statements and either way the result would be a nomen conservandum, and it would appear that in the second statement they were aware that *P.philippensis* is not the earliest valid name.

It may be that *P.roseus* could be considered as indeterminate as the drawing and description, in particular the colour of the bill, do not agree with the Philippine Pelican nor perhaps with any known Pelican ; but this would not rule out *P.manillensis* which is as good a name as *P.philippensis*, if one desires to have appropriate names, and it has priority. I fail to see any sound nomenclatorial reason for wishing to retain *P.philippensis*. This is a question of name and locality and there can be no gainsaying that all three names were based on the Philippine Pelican. In my opinion the principle of the "first reviser" is not applicable in this instance any more than in the case of the type locality of *Struthio camelus* that White considered to have been fixed irrevocably by Rothschild despite evidence suggesting otherwise.

Bonaparte and Rothschild were no more "first revisers" than those authors who came before and after their day. We are all revising some group almost every day in the week and if the argument of the "first reviser" is accepted then the revising done by authors at a later date has no standing. Thus we are all doing, or have done, something that we should not have done and that would be the end of advancement in the scientific knowledge of the birds of the world.

It could be argued from the "first reviser" standpoint that as Praed and Grant have revised some African Larks, White had no right to re-revise them and having done so his work is invalid, an argument that would be quite absurd.

To invoke the "first reviser" is not a sound nomenclatorial practice ; except where :—firstly, an author has first attached a species to a genus and thus created a type species for that genus and this is sacrosanct ; and secondly, an author has first placed a nomen nudum in the synonymy of a known valid species.

- 2 OCT 1954
PURCHASED

# On the Correct Scientific Name of the Damaraland Race of the Rufous-naped Lark

By Captain C. H. B. Grant and Mr. C. W. Mackworth-Praed

*Received 16th June*, 1954

Roberts, in Ann. Trans. Mus. 16, p. 119, 1935, states in a footnote that *Mirafra pallida* is preoccupied by "*Mirafra pallida*" Gray, 1870. Reference to Gray's Handlist Birds, 2, pp. 121 and 122, 1870, shows that this author placed this name under *Ammomanes* i.e., No. 7807, as *Ammomanes pallida* Ehr. and under No. 7812 *Ammomanes pallida* Heugl. Arabia. The earliest reference to this name is *Ammomanes pallida* Cabanis, Mus. Hein. 1, p. 125, 1851 : Kunfunda, Arabia. Therefore *Mirafra pallida* Sharpe, Bull. B.O.C. 12, p. 62, 1902: Damaraland, is not preoccupied.

In place of *Mirafra pallida* Sharpe, Roberts proposed *Mirafra pallidior* Shelley, Bds. Afr. 3, p. 55, 1902. We thus have two names by two different authors given to the same bird in the same year. We know that Sharpe's name was dated 28th April, 1902, but there is no exact date of publication of Shelley's Vol. 3, nor is there any preface to this volume. This work was published by R. H. Porter who went out of business about 1913 and enquiries from several London publishing firms have failed to reveal the whereabouts of R. H. Porter's records, and so they must be presumed to have disappeared.

Shelley states that he adopted the name *Mirafra pallidior* from Sharpe's naming on the specimens in the British Museum, but we have no information as to the lapse of time between the writing of this work and its publication. In default of tracing the exact date R. H. Porter issued Shelley's vol. 3 to the public we must rely on what other information is available. The copy in the British Museum of Natural History was received on the 6th August, 1902, and the one in the British Museum Library at Bloomsbury was received on the 5th August, 1903. The reviews of this Volume 3 are to be found in the October 1902 numbers of both the 'Auk' p. 404, and the 'Ibis' p. 670.

Through the kind assistance of Mr. A. C. Townsend and his staff in the General Library of the British Museum (Natural History) no other information on the publication date of Shelley's Vol. 3 is to be found in any catalogue or other published work. The earliest definite date we have is the 6th August, 1902 and as the reviews were in the October numbers of both the 'Auk' and 'Ibis' it can be presumed that Shelley's Vol. 3 was not published in time for the reviews to appear in the July number of these journals.

It should therefore be accepted that Sharpe's *Mirafra pallida* has priority over Shelley's *Mirafra pallidior*.

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## DINNERS AND MEETINGS FOR 1954

19th October, 16th November and 21st December.

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# BULLETIN

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# BRITISH ORNITHOLOGISTS' CLUB

Edited by
DR. JEFFERY HARRISON

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# BULLETIN

OF THE

# BRITISH ORNITHOLOGISTS' CLUB

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The five hundred and thirty-third meeting of the Club was held at the Rembrandt Hotel, South Kensington, on Tuesday, 19th October, 1954, following a dinner at 7.30 p.m. The meeting was held jointly with the B.O.U.

*Chairman*: COLONEL R. MEINERTZHAGEN.

Members present, B.O.U. 13 ; B.O.C. 29 ; Guests 16 ; Total 58.

After dinner Miss Theresa Clay gave a most interesting talk on the Environment of the Avian Entoparasite, and showed a series of slides illustrating the various types of habitat and adaptation.

## Notes on the Phylogenetic Significance of an Aberrant Robin *Erithacus rubecula melophilus* Hartert, Observed in Carmarthenshire

By MR. BRYAN L. SAGE.

*Received 27th August*, 1954

A number of varieties of the Robin have been placed on record, most of them refer to individuals showing a band of grey or blackish colouration below the red gorget. Dr. James M. Harrison when describing two such birds obtained in Kent (*antea* Vol. lxvi, p.69), pointed out the remarkable resemblance between these birds and the Japanese Robin *Luscinia akahige* Temminck. He further suggested that the grey or blackish band on the bellies of the aberrant Kentish birds may be a reversionary character providing evidence of a close phylogenetic relationship between the genera *Erithacus* and *Luscinia*. Dr. David Lack (*antea* Vol. lxvi, pp.55–65) has also discussed the great similarities between these two genera.

On 3rd August, 1954, near Laugharne, I had under observation for almost an hour an adult Robin which exhibited two very interesting aberrations in plumage. The most noticeable of these was a pure white forehead, the second was a band of deep black running along the lower border of the red gorget and down the flanks on each side from where it extended almost to the centre of the belly. The probable significance of this latter character has been discussed above so we need not consider it further. The white forehead of this bird was remarkably similar to that of the adult male Redstart *Phoenicurus phoenicurus phoenicurus* (L), and I suggest that

this may also be a revisionary character which in this case suggests a close phylogenetic relationship between the genera *Erithacus* and *Phoenicurus*. I am aware that this is very hypothetical, but the close relationship of the species within these two genera and also *Luscinia* can be seen in the great similarity of the nestlings and juveniles and to a certain extent in the breeding biology. It may perhaps also be significant that the eggs of the Redstart occasionally show signs of reddish-brown speckling similar to, but less dense than that on the eggs of the Robin.

The fact that the three genera mentioned above are closely related is one that is recognized by the majority of ornithologists, and I have little doubt that research on the lines followed by Dr. K. H. Voous in his valuable work on the genus *Dendrocopos* (*Limosa* Vol. 20, pp.1–142). would do much to elucidate the problem.

## A new race of *Cossypha polioptera* Reichenow

By Mr. C. M. N. White

*Received 1st September*, 1954

*Cossypha polioptera grimwoodi* new race.

*Description:* Differs from *C.p.polioptera* Reichenow, in its clearer grey head top and in having the back and rump less tawny and more olive brown.

*Type:* Male adult, collected by Major I. R. Grimwood at the source of the Zambesi River, Mwinilunga district, Northern Rhodesia, 23rd July 1954, in evergreen forest. In the British Museum (Natural History), Reg. No. 1954, 34. 1.

*Measurements of type:* Wing 84, tail 71, culmen 17mm.

*Distribution:* So far only known from the type locality where a male and female were collected together whilst feeding on a column of army ants. This new race represents a considerable extension of range for the nominate race is known from the Lotti forest, south-eastern Sudan, the base of Mt. Elgon, and Kisumu across Uganda to Bukoba, Mahagi and Nioka on the edge of the Belgian Congo. The nominate race apparently re-appears in north Angola at Ndala Tando whence a single specimen agrees well with one from Uganda.

Named after Major Grimwood who collected these interesting specimens which he has presented to the British Museum.

## The status of *Turdus fischeri belcheri* Benson, "Ostrich", 1950, p.58

By C. W. Benson

*Received 3rd August*, 1954

In my Nyasaland check list (Benson, 1953, p. 54), I used the racial name *T. f. belcheri* for the form of this thrush in southern Nyasaland, instead of *T. f. natalicus* Grote as used by Mr. C. W. Mackworth-Praed and Captain C. H. B. Grant in the MS. for their "Birds of Eastern and North-Eastern Africa." As will be understood from page 1 of the check list, these authors very kindly allowed me to use their nomenclature. This was one of the relatively few instances in which it was not followed.

The female (incorrectly, the male) from Cholo, Southern Nyasaland, see Benson, 1952, was presented to the British Museum. It was no doubt as a result that Mackworth-Praed and Grant decided not to recognise *T. f. belcheri*. Previously the only specimens in the British Museum were ten of *T. f. natalicus*.

It seems desirable to re-examine the status of *T. f. belcheri*, not forgetting that when describing this race I did not examine any specimens of *T. f. natalicus* collected later than 1911. The type of *T. f. belcheri* was collected in 1924, and the only two other known specimens at Cholo in 1951, see Benson, 1952. It was therefore perhaps arguable that I had been deceived by colour differences due merely to the age of the specimens.

Mr. P. A. Clancey has very kindly loaned me two females of *T. f. natalicus*, accidently killed in Durban streets in 1954 and presented to the Durban Museum, particulars as follows:—23rd April, wing 118 mm., tail 80 mm.; 13th May, wing 118 mm., tail 83 mm. This second specimen had skull-ossification incomplete, but shows no colour-differences from the earlier one. I am also grateful to Dr. G. Rudebeck, the Ornithologist at the Transvaal Museum, who has loaned five of the nine specimens of *T. f. natalicus* in the Transvaal Museum previously examined and also the male of *T. f. belcheri* from Cholo.

Mr. Clancey's two specimens generally bear out the colour-differences already given for *T. f. belcheri*, especially the more intense white colour on the abdomen and flanks. Similar differences were noticed by me when in the British Museum in July, 1952, and I compared the female from Cholo with the ten specimens of *T. f. natalicus*. There is, however, no very marked difference in the colour of the bill, if only relatively recently collected specimens are considered. In Clancey's two, it is blackish slate, with base of lower mandible flesh (as given on the collector's labels). In Nyasaland birds the corresponding colours are black and dull ochre.

The olive colour of the upperside in Clancey's specimens lacks the rufous tinge in the specimens now re-examined. This difference is undoubtedly due to foxing and the Cholo male, even though collected as recently as September 1951, already does not differ in this respect from the five specimens of *T. f. natalicus* re-examined, none of which was collected later than 1911. In describing *T. f. belcheri*, no difference in the colour of the upperside from that of *T. f. natalicus* was in fact mentioned. In Clancey's specimens, the spotting on the underside is perhaps a trifle blacker than in the five of *T. f. natalicus* (all from Pondoland). I consider that this minute difference is due to the relatively early date of collecting of the latter. On the other hand, the difference in this respect between his specimens and the Cholo bird is much more pronounced.

It would be surprising if the South African and Nyasaland populations were not separable, in view of the restricted habitat of the species at the present time. The period of their isolation can surely be reckoned in millenia at least.

Chiazzari, 1952, finds that in Pondoland *T. fischeri* is commoner and less shy than *T. gurneyi*. In Nyasaland the reverse is applicable. Incidentally, there is a recent sight-record of *T. f. fischeri* Hellmayr. Mr. J. G. Williams informs me that in late March 1951 he had an excellent view of an individual in the Sokoke forest, between Takaungu and Malindi, in

coastal Kenya Colony. It was standing on a fallen log, at a distance of about 25 yards. The black spotted underside and white spots in the wing were conspicuous, especially the latter. Although he spent every morning from dawn for a fortnight in the forest, he never saw another.


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## Notes on the Type Locality of *Eupodotis vigorsii* (Smith)

By MRS. B. P. HALL

*Received 14th August*, 1954

The original description of *Otis vigorsii* was given in a letter from Sir Andrew Smith to N. A. Vigors, dated 8th September, 1830; this letter was published in the Proc. Zool. Soc. London part 1, 1830 (1831), p.11. He stated that *Otis vigorsii* "inhabits the most dry and barren situations in the south of Africa, and is known among the colonists by the name of Karor (misprint for Karoo?) Koran." In view of subsequent arguments it is important to note that in the same letter he names, among others, another new species *Otis ferox* "found in the country toward Latakoo" (i.e. Kuruman); this shows that he was not describing only species obtained on his recent travels through north western Cape Province.

The type locality of *Otis vigorsii* was designated as "South Africa" until Roberts (Ann. Trans. Mus. 18, 1936, p. 283) published manuscript notes made by Smith between 1826 and 1831 which were chiefly, but not entirely, concerned with the birds seen and collected in north western Cape Province. In these notes this bustard is named only as "Otis—Karoo Koran"; details of its habits and appearance are given and Smith says "seen on Bushman Flats." Roberts then appends a comment that Bushman Flats must therefore be taken as the type locality. This argument does not appear wholly reasonable as it is inconsistent with the name "Karoo Koran" and it is apparent from Smith's use of this name and from his letter that he had met this bustard in other parts of South Africa, and he was probably familiar with it before he went to north western Cape Province. It is not even certain from Smith's note that any specimens were actually collected at Bushman Flats.

Later, Roberts either decided his argument was not sound or else overlooked his own notes, for the following year (Ostrich 8, 1937, p. 93) in describing a new race of the Karroo Bustard he named the type locality of the nominate *vigorsii* as "Central Districts of the Cape Colony, i.e. Beaufort West, C.P."—it would appear that he was quoting from some source not stated. Two specimens of Smith's in the British Museum which were named as types of the species in the "Catalogue of Birds" support this designation of type locality as they are close matches with others from Deelfontein, in the same district as Beaufort West, but clearly different from those of north western Cape Province. Unfortunately there is little

information on their history ; all that is certain is that they came to the Museum prior to 1837 when the registers were started, and therefore before the sale in 1838 of specimens from Smith's 1835 Expedition for Exploring Central Africa. It is known from Smith's notes in the South African Quarterly Journal 1830 and in the Proc. Zool. Soc. 1830-1833 that he had for several years collected specimens from widely scattered areas in Cape Province and sent collections back to London from time to time, and it must be presumed that these two specimens were among some such collection. Though there can be, unfortunately, no certainty about most of Smith's type specimens, there is at least a possibility that these two are syntypes and were among those on which he described *Otis vigorsii*, and, as far as I know, no other syntypes are in existence ; their evidence, combined with the use of the common name "Karoo Karon," seems to me to present a strong argument for restricting the type locality to somewhere in the Karroo from which similar birds are found, rather than to Bushman Flats, and Beaufort West seems suitable.

Vincent had not the opportunity of examining these specimens when he accepted Roberts' first designation of type locality, Bushman Flats, for the nominate *vigorsii*, and gave a new name *karrooensis* to the birds of central Cape Province. (Ostrich 20, 1949, p. 148). If Beaufort West is accepted as the type locality of *Eupodotis v. vigorsii*, as I believe it should be, *E. v. karrooensis* (Vincent) must be placed in the synonomy of *E. v. vigorsii*.

## Notes on Some Petrel Names

By Captain C. H. B. Grant

*Received 16th June*, 1954

Kuhl on p. 142, of Beit. Zool. Verg. Anat. Beit. Kennt. Proc. Frankfurt au Main, 1820, gives:—

"11. PROC. HASITATA Forster.

Forster tab. 97.

— tab. 98, sub nomine Procellariae leucocephalae.

c. *Cauda cuneiformi*

2. Remige primo longissimo.

++Unguibus falculatis, altitudine latitudinem superanti. Halluce mediocri.

Alis caudam aequantibus, a flexura ad apicem usque 11⅓ poll. longis, Cauda cuneiformi, acuta, 6 poll. longa: rosto robustiori, valde deflexo. ab angulo oris ad apicem 19 Lin. longo. Pedibus humilibus, tarsis 17 Lin. digito medio 25 Lin. longis. Longitudo corporis 16⅓ poll. Alba sunt: latus inferius, frons, facies, nucha caudaeque tectrices superiores et inferiores.

Brunescente-nigra sunt: alae, cauda, dorsum, uropygium et vertex medius, interscapulium autem brunescente—cinereum.

Rostro et membranae natatoriae parte antica nigris, pedum parte reliqua flava.

In Museo Bullokiano, nunc in Temminkiano."

The English translation of which is:—
"11. PROC. HASITATA Forster.
Forster drawing 97.
„ drawing 98 under the name of White-headed Petrel.
c. Tail cuneiform.
2. First primary very long.
++Claws sickle-shaped, height greater than the breadth. Hallux in the middle.
Wings equal to the tail, from the bend to the tip $11\frac{1}{3}$ in. Tail wedge-shaped, pointed, 6 in. long ; beak rather stout, very much curved, from the angle of the mouth to the tip 19 Lin. Feet small, tarsus 17 Lines, middle digit 25 Lines in length. Length of body $16\frac{1}{3}$ in. The lower sides, frons, cheeks, nape, upper and lower tail coverts are all white.
The wings, tail, back, rump, crown of the head are all brownish black, but the interscapular area is brownish grey.
Beak and front part of web are black, the remaining part of the foot yellow.
Was in Bullock Museum, now in Temminck's."

*P. hasitata* was founded on a specimen in the Bullock Collection, now in the Leiden Museum, and not on Forster icon. ined. 97, which as given by Kuhl is a reference only, he presumably considering this icon, ined. was a drawing of the species he was describing.

It is presumably this same specimen in the Leiden Museum to which Temminck gave the name *Procellaria hasitata* (see Temminck & Laugier, Pl. Col. pl. 416, 1826); he also quotes Forster's icon. ined. 97 and 98 as *Hasitata* and *Leucocephala*.

Kuhl had access to Forster's unpublished drawings and MSS. and no doubt this is why he places Forster as the author of his new name. This same plate of George Forster's *icon. ined.* 97 was presumably the one referred to by his father (J. R. Forster) in his description (Des. Anim. p. 204, 1844) of *Procellaria inexpectata. Icon. ined.* 98 is an illustration of another bird subsequently described by J. R. Forster as *Procellaria leucocephala* (op. cit. p. 206)—currently regarded as a dubious race of *Procellaria lessonii* Garnot, 1826.

(2). I have now to consider the status of Procellariae leucocephalae as given by Kuhl. It can be argued that Procellariae leucocephalae is either a valid scientific name or that as Kuhl's work is written in Latin, "sub nomine Procellariae leucocephalae" is a vernacular name and could be translated as "under the name of the White-headed Petrel." If it is a valid scientific name it is a synoym of *P. hasitata*, as the description applies to both names and therefore Procellariae leucocephalae Kuhl, would antedate *Procellaria leucocephala* J. R. Forster, Des. An. p. 206, 1844,—New Holland=Australia.

Sherborn, Ind. Anim. does not give Procellariae leucocephalae and his first reference to *Procellaria leucocephala* is that of J. R. Forster, Des. Anim. p. 206, 1844: New Holland=Australia. Most authors give *P. leucocephala* of Forster. It would therefore appear that Sherborn and most other authors did not consider Procellariae leucocephalae of Kuhl to be a scientific combination, and I agree with this and would express the opinion that it should be considered as a vernacular name.

Godman, Mon. Petrels, 1, p. 181, 1908, places Forster's *Procellaria leucocephala* as a synonym of *OE. lessonii* (Garnot), 1826. Mathews, in Bds. Austral. 2, p. 153, 1912, considers *P. leucocephala* Forster, as a race of *P. lessonii*, and in his Syst. Av. Austral. 1, p. 122, 1927, places "*P. leucocephala* Forster, 1844, not of Kuhl, 1820, " as a synonym of his *OE. lessonii australis* 1916, but in any case Forster's 1844 name has priority over Mathews 1916 name. Mathews quotes Kuhl's Procellariae leucocephalae, and by inference has spelt it *Procellaria leucocephala* (see Syst. Av. Austral. 1, p. 122, 1927).

## A Case Analogous to Verruca Vulgaris in the Human, in a Starling, *Sturnus vulgaris vulgaris* Linnaeus

By Dr. James M. Harrison.

*Received 8th July*, 1954

In early October, 1953, I received an adult Starling, *Sturnus vulgaris vulgaris*, from Mr. H. E. Axell. The bird had been found in a moribund state by some boys at Dungeness, on 9th October, 1953. On examination no obvious visceral pathology was found, so it was decided to submit the warty excrescences which were present in both orbital regions and around the gape to histological examination.

For the report on the growths which follows I am indebted to Dr. Keith Randall.

"A diffuse warty lesion. Section shows marked acanthosis and some dyskeratosis of the epithelium. There is also some hyperkeratosis. A few inclusion bodies (? viral origin) are seen within the epidermal cells.

This lesion is clearly related to the simple human wart (verruca vulgaris) and there is no evidence of malignancy."

In view of the final comment one is naturally interested as to the probable cause of death in this case. Inanition was extreme and one can only assume that in all probability from interference with clear vision, for the orbicular ring on both sides showed exuberant thickening, the bird had been unable to feed as voraciously as is the habit with Starlings, and in consequence became progressively more emaciated and weak, ultimately succumbing to starvation.

## Subtractive Change Artificially Induced in a Male Brambling, *Fringilla montifringilla* Linnaeus

By Dr. Jeffery G. Harrison.

*Received 20th July*, 1954

In a joint paper[1] read before the Club in 1949, Lieutenant Commander C. P. Staples and I put forward the theory of subtractive change "as just as much a definite process as the ordinary autumnal moult that all birds undergo." We pointed out that it occurs in nomadic species, where the sexes are dissimilar and pair up in spring. In a further paper[2] we demonstrated this change in a series of skins of Starlings, *Sturnus vulgaris* Linnaeus and Chaffinches, *Fringilla coelebs* Linnaeus, pointing out that

the change was interrelated with the breeding cycle and had no connection with environmental causes. The alteration in bill colouration was shown to coincide with the subtractive change.

On 14th November, 1953, I received a male Brambling, *Fringilla montifringilla* Linnaeus, which had been caught about a week previously and was by now quite tame. We kept it in a large cage in the kitchen until December 28th, when it suddenly developed an acute enteritis and died in about two hours. It was found subsequently to have ruptured its gall bladder, presumably as a result of the acute intestinal infection, to which captive finches are particularly susceptable.

Professor W. Rowan[3] has shown that by increasing the length of daylight artificially it is possible to induce breeding condition in birds in autumn, the light stimulus acting through the pituitary via the supra-optico hypophyseal tract. This is in effect what happened accidently to the male Brambling referred to above. The kitchen in which it lived was the only room in use at the time and as the daylight hours shortened, so the electricity went on earlier each evening.

The Brambling is of course a species which shows subtractive change *par excellence* and if our theories were correct, then this bird should demonstrate a colour change in advance of the normal.

It was preserved after death and was later compared with a male that was collected on 23rd March, 1954. The differences are instructive for the December bird already showed considerably more yellow in the bill than the March bird, thus proving an earlier development of breeding condition and at the same time, the buff tips of the crown of the December specimen have been shed well in advance of the March specimen and the crown has already begun to take on the blue-black appearance of summer, while the pale grey nuchal patch is more noticeable.

It might be argued that the wear on the crown is due to traumatic abrasion from the cage, but the bird was not in the habit of crashing against the wires and the cage was large. In addition there is in fact more wear in the wing feathers of the March bird, but the colour change in the secondaries to a blacker gloss is comparable.

This experiment can hardly be called controlled, but I have described it because it is the first proof of subtractive change as a physiological process. It is moreover a line of research that can be followed up quite easily, although it is doubtful if full summer plumage is ever obtained in captive finches, a fact which utterly disproves the traumatic abrasion theory of colour change without moult.

My father, Dr. James M. Harrison saw the bird in captivity and has compared the specimens and fully agrees the changes described.

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3). William Rowan. "The Riddle of Migration," 1931.

# The Identity of *Cinnyris afer whytei* Benson

By C. W. Benson.

*Received 16th September, 1954*

The note of Paterson (1954) calls for a reply, even although at present no specimens are available to me.

Paterson refers to the note by Grant & Mackworth-Praed (1943), who are of the opinion that *Cinnyris chalybeus* and *C.afer* are distinct species. Delacour (1944) also supports this conclusion, and so evidently do Prigogine (1952) and Williams (1953). These three publications are not mentioned by Paterson. Nor is a note by myself, see Benson (1952). This is all the more remarkable, because the specimens of *C.whytei* mentioned therein (including three of the female, not previously known) were in my collection registered and incorporated by Paterson. The differences between *C.a.ludovicensis* and *C.a.whytei* are by no means so slight as is suggested. The narrower red chest band in the male of the latter race, one of the characters mentioned in the original description, see Benson (1948), is particularly striking. Further differences between the two races are mentioned by Benson (1952). I also understand that Chapin in his forthcoming "Birds of the Belgian Congo", vol. 4, adopts the same arrangement as Grant and Mackworth-Praed, and Delacour.

I am still of the opinion that *C.afer whytei* and *C.chalybeus intermedius*, both of which occur in northern Nyasaland, see Benson (1953), are not conspecific. The following points should be mentioned in particular:—

(a). Tail-measurements of the two forms, as given by Paterson, show a marked difference, without overlap.

(b). The male of *whytei* has the rump (as well as the upper tail-coverts) metallic blue, whereas in *intermedius* the rump is always a non-metallic, olivaceous grey, and the upper tail-coverts are also entirely this colour or with a few feathers lightly tipped metallic greenish or bluish.

(c). Regardless of sex, the bill in *whytei* is, I recollect, always less curved.

(d). Ecological differences are given by Benson (1953: 72). *C.chalybeus* does not frequent mountain-plateaux in Nyasaland (see also page 8,) unless *whytei*, confined to the Nyika Plateau, is regarded as a race of it. But if so, it seems strange that *chalybeus* is only represented on the Nyika.

I think it will be found that the foregoing differences between *whytei* and *intermedius* on the one hand are also generally applicable to *ludovicensis* and *intermedius* on the other. For measurements of tail-length, see not only Paterson but also Williams (1953).

*C.afer ludovicensis* is not a widely distributed form, as stated by Paterson (page 36, line 15), and as it has so often, but erroneously been regarded in the past. On the contrary, it has a strictly limited distribution in the highlands of Angola, with ecological requirements presumably analogous to those of *whytei*. And it is perhaps significant that the forms *graueri*, *stuhlmanni*, and *chapini* (see Prigogine), representing the *afer* species-group, occur in highland areas where no (lower level) representative of the *chalybeus* species-group has been recorded, in contrast to the case of *ludovicensis* and *whytei*.

I am much indebted to Mr. J. G. Williams for reading through my manuscript, and for several valuable suggestions which I have adopted. He agrees entirely that *afer* and *chalybeus* are two distinct species.

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## Notes on the Song of the Blue Rock-Thrush, *Monticola solitarius* (Linnaeus)

By Dr. James M. Harrison

*Received 8th September, 1954*

From various descriptions of the song of *Monticola solitarius* it would appear that some phrases are not generally known.

The song itself has been well described by a number of observers, and is considered melodious and varied, resembling somewhat in its qualities those of the Blackbird, *Turdus merula*, Mistle-Thrush, *Turdus viscivorus* and the Rock-Thrush, *Monticola saxatilis*.

In addition to its song this species has several call notes which are uttered under circumstances of stress or alarm. Naumann[1] and Géroudet[2] mention a deep *tac tac*, more chat-like than thrush-like in its qualities. The latter authority (*loc. cit.*) also refers to a sibilant phrase *vivivi* and *uit uit* somewhat similar to the notes uttered by the Nuthatch, *Sitta europaea*.

Last June when in North Italy I had a pair of Blue Rock-Thrushes under observation and the female, in addition to the above notes also frequently used an alarm call almost identical to that of *Turdus merula*, as typically noted in the latter species when suddenly disturbed. On one occasion I had the bird under observation for a matter of twenty minutes as she was perched on a roof-top at sky level. The open mandibles were clearly visible as she uttered the *uit uit*, to be followed almost immediately by the familiar rattling alarm notes of *T.merula*. which have been so ably syllabalised by Géroudet (*loc.cit.*) as *tchou tchou atchitchouitchouitchoui tchou tchou*.

There can be little doubt that in many respects and on characters, both morphological and of behaviour, the genus *Monticola* represents a connecting link phylogenetically between the true *Turdidae* and the saxicoline group (i.e., *Saxicola*, *Oenanthe* and *Phoenicurus*). The stance is more that of the chats, and the frequent flicking of wings and tail, as well as the body movements closely resemble the saxicoline species.

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1). Naumann, J. F. 1905, *Naturgeschichte der Vögel Mitteleuropas*, 1. 132.

2). Géroudet, P. 1951. *Les Beautés de la Nature, Passereaux II*, 149.

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## DINNERS AND MEETINGS FOR 1954

16th November and 21st December.

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# BULLETIN

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The five hundred and thirty-fourth meeting of the Club was held at the Rembrandt Hotel, South Kensington, on Tuesday, 16th November, 1954, following a dinner at 6.30 p.m.

*Chairman* : Colonel R. Meinertzhagen.

Members present, 26 ; Guests 3 ; Total, 29.

The Chairman read a paper on grit in birds' stomachs, an account of which follows.

## Grit

By Colonel R. Meinertzhagen

For many years I have examined the stomachs of birds with a view to determining the nature of food and the nature of grit used for the digestion of food: my object tonight is more in the nature of an exhibition of grit and stomach contents, supplemented by a few explanatory remarks.

*What Birds take grit.* Generally speaking all birds with a vegetable diet take grit ; but there are exceptions. Rooks eating grain do not take grit. Berry and fruit-eating birds do not take grit, the hard seeds being evacuated without crushing. The Bramble Finch in autumn eats nothing but soft fruit, takes no grit and evacuates the seeds. In winter this same finch eats grain and seeds, taking much grit. Ptarmigan eating *Empetrum* berries take no grit, yet another eating coarse vegetable matter will have one-third of stomach contents coarse grit. Corn Buntings in Ireland eating sodden wheat grains had no grit whilst another eating hard seeds had one-eighth bulk of stomach contents grit. Nutcrackers eating hazel nuts do not take grit.

I have opened many stomachs of Shag and Cormorant but beyond finding an occasional small pebble, there is no regular intake of grit. In an investigation of the stomach contents of six species of *Phalacrocorax* in New Zealand (Trans. R. Soc. New Zealand LXXIV ; 320–331) no more pebbles or sand were found in stomachs than could be reasonably expected to be taken accidentally with their normal food.

The Divers (*Colymbus* or *Gavia*) present a remarkable exception. Every Diver of three species I have shot in the British Isles contains a certain amount of small rounded pebbles. Lönnberg (Fauna och Flora 1939 pp. 176–180) finds the same in Scandinavian Divers. The reason is not at all clear but is most likely due to the stomach contents of bottom-feeding fish on which Divers feed.

I have opened many stomachs of Landrail (*Crex*) and have never found a trace of grit, but Gilbert White in letter No. 25 to Barrington says, "The gizzard is thick and strong, and filled with small snail-shells, some whole and many ground to pieces through the attrition which is occasioned by the muscular force and motion of that intestine. We saw no gravels among the food ; perhaps the shell-snails might perform the function of gravels or pebbles and might grind one another".

And in Letter No. 29 to Barrington, says he has found very small gravels in woodcocks and snipe, otherwise only mucus.

Many of the Charadriidae, especially the land-feeding species like the Plover (*Vanellus*) and Golden Plover (*Ch. apricarius*) often have a little grit which is probably accidental.

There has recently been correspondence in the Ibis as to why Nightjars often resort to roads and paths and it was suggested that their purpose was grit. I have opened the stomachs of many Nightjars in various parts of the world and have not yet found grit, nor should they require grit for digestive purposes. But in Ibis (1954: 626) appears a letter from Harrisson stating he has found "grit of the road type" in the stomachs of two Sarawak Nightjars. I believe grit in a Nightjar's stomach to be fortuitous.

*Type of grit.* Generally speaking, most grit is quartz and birds will travel long distances for it, resorting to river beds and exposed surfaces for this type of hard grit. The size of grit is in direct relation to the nature of food and to a lesser degree to sex and age. The Scandinavian Willow Grouse in winter eats very coarse food and takes particulary coarse grit, whilst in summer the food is less coarse and smaller grit is taken. When eating *Empetrum* berries no grit is taken.

The male Red Grouse takes a slightly larger grit than the female and young birds take an even smaller grit.

Blood Pheasants (*Ithagenes*) and Tragopans eat particularly coarse food and take particularly coarse grit. Surface feeding duck, swans and geese eating soft vegetable matter take a very fine, almost sandy grit.

I am indebted to Lord Richard Percy and Mathew Ridley for much information on grit taken by the two African Flamingos, the larger (*ruber*) eating mainly small gastropods and taking a fairly coarse grit, the smaller Flamingo (*minor*) eating diatoms and blue-green algae and taking a finer grit, with occasional particles of coarse grit which cannot pass through the finer straining mechanism of the smaller bird. It is interesting to note that two Lesser Flamingo obtained on Lake Elmenteita in Kenya with broken wings and unable to follow their brethren who had gone elsewhere, were eating Greater Flamingo food and yet contained the finer grit typical of their species.

The discovery of the Streeter Ruby Mines in Burma was due to the finding of a rough ruby in a pheasant's stomach.

Where quartz is unobtainable, small rounded stones are taken; such is the case with Crane, Ostrich, Bustard. Samples of these are exhibited.

*Amount of grit taken.* This is extremely difficult to assess in relation to food as grit is more or less permanent whilst food is transitory. In full stomachs as much as one half bulk may be grit, especially in swans, geese and duck, whilst in game birds it varies from one-twelfth to one-sixth in bulk. In the Red Grouse as many as 509 large pieces of quartz have been found and as few as 201 in full stomachs. It also depends on the nature of the food, the coarser the food the more grit in both bulk and number.

*Function of Grit.* Grit grinds down to pulp the vegetable matter in the stomach. How this takes place, beyond the fact that it is by the muscular action of the stomach, is unknown. I secured the fresh stomach of a Woodpigeon containing much grit and in it I placed an equal bulk of beech-mast. I then placed the stomach between two butter platters and used alternatively a rotary, and up-and-down and a slapping motion for a quarter of an hour each. It had not the slightest effect on the beech-mast. On the same day I secured a pigeon with a crop full of beechmast which was constantly being fed down to the stomach and there was not one single piece of beechmast unaffected by grit, so whatever muscular action takes place in the stomach must be extremely rapid and effective and incapable of reproduction by artificial methods.

Quartz retains its sharp qualities until completely worn to powder whilst less hard grit becomes rounded and in some cases polished but it is my experience that grit is not evacuated until completely worn to powder. I have examined 56 grouse droppings and these contained not a single piece of serviceable grit, only powder.

It is a curious fact that grit passes through the crop to the stomach at once. I have shot both Grouse and Siskin when taking grit and in both cases the grit had gone straight through to the stomach, by-passing all food in the crop. I have never found grit in the crop of any bird.

It is interesting to note that a Hawfinch (*Coccothraustes*) can crack hard fruit stones (Yew, Cherry, etc.) which no other bird's stomach can deal with by grit-grinding.

*Substitutes for grit.* Starlings eating grain will use small shells for grinding. Dippers will also use small shells when vegetable matter occurs in the stomach which is quite frequent, in one case in Aran half the stomach content was vegetable matter. Pigeons, doves and game birds when eating stone fruit do not take grit, the hard stones acting as grit. Shellduck when taking vegetable matter use hard pieces of shell for grinding. The Thrush family when eating berries take no grit and evacuate the stones or seeds without damage.

I have on several occasions found pellets of shot in stomachs, doubtless taken for digestive purposes.

*Food preferences in the same species.* Food preferences are more frequent than is generally thought. I had a pair of hedge-sparrows under observation in Cornwall for a week, the one eating nothing but insect food and the other nothing but seeds, the former taking no grit the latter having one-tenth in bulk of grit. Three Crested Larks shot in Arabia had quite different food, two having insects and no grit and one was crammed with seeds with one-fifth bulk content grit. Two Sandgrouse (*orientalist*) from the same covey

in N. Africa had quite different types of seed and in Arabia three Sandgrouse (*indicus lichtensteini*) had respectively stomachs crammed with seeds of acacia, cassia and asphodel, each bird selecting his particular preference and refusing all other seeds.

This food preference habit may be commoner than is supposed. It is known that among the large carnivores a tiger may be a buffalo—sambhur—or pig-killer, and among lion a zebra—or impala—killer, ignoring other game unless driven to do so by hunger. Man-eaters are another case. There is some evidence to show that bird predators have food preferences. Peregrines may be duck—or pigeon—killers, the Short-eared Owl may be a small rodent or snipe killer.

*When do birds take grit.* In Ireland I had a small flock of Siskins under observation for several days in winter. Their regular food was alder seeds and buds. On five consecutive days they resorted to a gravel path at 11.15 a.m. punctually for about twenty minutes for grit. I have observed the same regularity in habit among Crossbills and Redpolls in Estonia and Lappland respectively. Grouse will concentrate for grit twice a day, in the forenoon and just before dark. In the Himalayas I have seen Blood Pheasant on several consecutive days, come to a snow-free path for grit about noon and again just before sunset, in fact the habit became so regular that I could be sure of securing specimens at those times.

The small colony of domestic pigeons based on the N.H.Mus take grit between 11 a.m. and noon and again in the late afternoon ; where the Trafalgar Square pigeons, many hundreds gorged with hard grain, take their grit, is a mystery ; I should have expected them to fly off somewhere for grit at regular times but so far I have never observed it.

During the breeding season all birds will take any hard substance which gives them lime for the egg-shell.

*Effect of grit-starvation.* Birds requiring grit for digestive purposes must have grit or become unhealthy and eventually perish. Snow is the greatest enemy to birds dependent on grit. Ptarmigan overcome this by burrowing into the snow but the Red Grouse is not such an expert in burrowing and will resort to cleared drives and snow-free places for grit, often flying long distances. Inability to find grit may result in wholesale migration. I have seen coveys of grouse on a station platform (Hawes Junction in Yorkshire) which had been cleared of snow, busily taking grit. And in Rossshire I have seen coveys on a gravel drive close up against a house, eating grit when the surrounding country was snow bound. It is possible that certain grit-taking species may be forced to migrate from snow-bound regions more from lack of grit than lack of food.

Institutions and persons keeping grit-taking birds in captivity would do well to ascertain the types and quantities of grit taken by birds in relation to their food. Much suffering and even death must be caused by lack of grit-consciousness among aviculturists.

*The effect of grit on seed distribution.* Grit has a disastrous effect on seed distribution, and it is a paradox that seed-eating birds are not seed-distributors but seed-destroyers, except in cases where some hawk or owl kills a seed-eater with seeds in its mouth or crop ; these are evacuated in pellet form together with grit from the victim's stomach ; hence the occurrence of grit often found in the pellets of predators.

It is a paradox that those hawks and owls which devour seed-eating birds are probably the most powerful agents in seed distribution, for not only is the crop but the stomach—both crammed with undigested seeds—swallowed, sometimes whole. I have found the complete stomach of a Chukar Partridge in the crop of an Imperial Eagle and he had flown many miles into the Iraq plains where the Chukar does not exist, before he was shot. All these seeds germinated and proved to be of plants not occurring on the plains of Iraq. I have shot a Harrier in Egypt in which I found the complete stomach of a Sandgrouse and there was not a Sandgrouse within fifty miles. It is not uncommon to find both grit and seeds in hawks' and owls' pellets and these can only be accounted for through a seed-eating victim.

The main seed distributors are Pigeons, Doves, Swans, Geese and Duck, the Thrush family and birds eating soft fruit. The fine sandy-grit taken by the *Anseriformes* is incapable of crushing seeds of *Potamogeton*, *Ranunculus*, *Scirpus*, *Carex*, etc., these being evacuated whole and undamaged and accounting for such plants occurring in isolated pools.

The spread of the Water Hyacinth must be mainly due to the evacuation of undigested seeds ; the hard seed of the common ivy is also rarely digested and is evacuated whole which may account for its wide distribution.

The aquatic *Hydrilla verticillata* occurring in Britain only in two lakes—in the Lake District and in West Galway—is difficult to account for except through transportation of seeds by some species of water bird. Its nearest stations to Britain are in lakes in Lithuania and in Pomerania whence we know there is direct bird migration to Britain.

Among the seed-eating Passerines, the seed is eaten whole, the stomach muscles aided by grit, pounding the seeds to digestible pulp. When a seed-eater is seen mouthing a seed, he does not crush or damage it, but is removing the husk. The Crossbill (*Loxia*) uses his powerful bill to extract the pine pip which is eaten whole and crushed in the stomach. Waxwings will manipulate the seed or stone from a fruit and then drop it, the pulp only being swallowed ; the Thrushes, Pigeons, Doves and fruit-eating game-birds as Blackgame, swallow the fruit whole, the stone or seed being evacuated in the faeces. If these stones are hard they are retained in the stomach as a substitute for grit. Blackgame feed largely on hawthorn berries, using the stones as grit and when eating wild cherries (*cerasus* and *padus*) little grit is taken, the hard stones being substitutes for grit, and these are subsequently evacuated undamaged.

Starlings swallow their fruit whole and having no means of breaking up seeds, excrete them and must distribute many through their faeces. Orioles when eating the larger fruits will refuse the stone or pips, except in the soft fruits which are swallowed whole, the seed being evacuated whole without destruction.

Jays, Nutcrakers, and to a lesser extent Nuthatches and Tits, are great distributors of seeds through hoarding. The Jay, in particular, is a splendid forrester and will spread hard wood up hill by planting, and in my London Garden the frequent appearance of young oak trees in odd places is entirely due to a single pair of Jays burying and forgetting acorns. The Nutcracker is a less skilled buryer of hazel nuts, usually breaking into the nut before burying and ruining any chance of germination.

*Valuable evidence from stomachs of migratory birds.* I can give a few cases where stomach contents have afforded evidence of origin of migratory birds. A Turtle Dove (*Streptopelia turtur*) shot in Crete had 15 olive stones and 16 Cotton seeds, the latter having been ingested in the Sudan or Egypt. I also have the grit from both Whooper Swan and Pink-footed Goose shot in South Uist containing black lava which can only have come from Iceland.

*Gastroliths from Crocodiles.* I am much indebted to Dr. Hugh Cott for many suggestion on this subject. The weight of the stone is in a fairly constant ratio to the weight of the reptile which looks as though their ingestion was not fortuitous but deliberate. In fact accidental intake is ruled out by the fact that all crocodiles have a stomach full of pebbles.

A crocodile's stomach is exceptionally muscular and no doubt pebbles would assist digestion, but it seems possible that these pebbles have a hydrostatic function, crocodiles being slightly unstable in deep water ; ballast might help to keep them on an even keel. And these pebbles are roughly one per cent in weight of the weight of the reptile.

The Indian Gharial also takes pebbles, as much as 5 lb. 8 oz. being found in a single reptile. A large African Crocodile weighing just over 800 lbs. has 1120 pebbles weighing about 8 lbs.

*Gastroliths from extinct reptiles.* I exhibit gastroliths from Dinosaurs and Plesiosaurs. It has been presumed that these stones were taken to aid digestion ; some of them are highly polished which has never been explained. In Mongolia as many as 112 of these pebbles have been found in the body cavity of a Dinosaur. It is possible that the Plesiosaurs swallowed pebbles for ballast, as the Crocodile may do.

*Gastroliths from Moas* (*Dinornis*). These gastroliths (a sample exhibited) are often found within the body cavity of Moas alongside remains of severed twigs, coarse grasses and recognisable seeds. As many as 220 stones weighing 5½ lbs. have been found in one stomach. Here again, some of the pebbles show a high polish.

*Gastroliths from Fish.* The Marine Laboratory of Aberdeen inform me that the occurrence of pebbles in the stomachs of fish is a rare event even in bottom-feeding fish. No trace of pebbles has been found in pelagic fish such as herring and mackerel. There is no record of pebbles in the stomachs of salmon. But there are a few records of large cod having small rocks in their stomachs. I exhibit a flint ball taken from the stomach of a 15 lb. cod. And in the Fishing Gazette of 9th August, 1952 is the record of a 1½ lb. stone being taken from the stomach of a cod.

In the discussion afterwards, Dr. George Taylor of the British Museum Botanical Department said that he was not convinced that birds could be held responsible for the remarkable distribution of *Hydrilla*, as the seeds were very thin-walled and would be quickly destroyed in a bird's digestive tract. Sir Landsborough Thomson thought that the subject was a good one for experiments on the behaviour aspect in captive birds, and Dr. Jeffery Harrison referred to the possibilities of examining live birds under an X-Ray screen to gain a better idea of the normal physiology of grit in the stomach, as it would be radio-opaque.

## Possible occurrance of the American Horned Lark *Eremophila alpestris alpestris* Linnaeus in Britain

By Col. R. Meinertzhagen.

Colonel Meinertzhagen also exhibited a specimen of the Horned Lark (*Eremophila alpestris*) believed to belong to the American race (*E. a. alpestris L*) but requiring confirmation by the B.O.U. Taxonomic Sub-Committee. It was obtained in South Uist on 29th September, 1953.

## Four Birds new to Northern Rhodesia

By Mr. C. M. N. White and Major I. R. Grimwood.

*Received 11th September, 1954*

One of us (I.R.G.) recently paid a brief visit to an evergreen forest patch at the source of the Zambesi in the Mwinilunga district of Northern Rhodesia and was fortunate in finding many forest birds attending a column of army ants, a habit which has been frequently noted in the Congo basin and Cameroons. Four species collected proved to be new to Northern Rhodesia and southward extensions of known range. The first three have been recently collected by W. S. Fisher at Kasaji in the Katanga not far over the border (specimens in the Congo Museum, Tervuren) ; the last mentioned has not been so far reported from Kasaji. The species concerned are:

*Bleda syndactyla tricolor* (Bocage). Chapin has pointed out that this name is evidently based on the bird later called *B.s.ogowensis* Neumann. Cf. Bds. Belgian Congo. 3.p.179. 1953.

*Tchitrea rufiventer ignea* (Reichenow).

*Stizorhina fraseri rubicunda* (Hartlaub). For the use of the subspecific name for the mainland population cf. Amadon.Bull.Amer. Mus. Nat. Hist. 100. Art. 3. p.425. 1953.

*Cossypha polioptera polioptera* Reichenow. The two specimens with grey crowns, white brow stripes and a black stripe through eye to side of hind crown clearly belong to this species which has a curious distribution as far as known. The main range is from the S.E. Sudan (Lotti forest) to Uganda and the adjacent areas (Bukoba and Mahagi). It has also been recorded in N. Angola at Ndala Tando. These records slightly bridge the gap but it remains to be seen whether or not these more western birds are really quite identical with the nominate form described from Bukoba on L. Victoria.

## On the Nomenclature of the Himalayan Goldcrests.

By H. G. Deignan

*Received 20th September, 1954*

A recent review of the races of *Regulus regulus* (Vaurie, Amer. Mus. Nov. 1684: 1–7, 1954) divides Himalayan populations between a western

race, *himalayensis* Jerdon, 1863, and an eastern race, *sikkimensis* R. and A. Meinertzhagen, 1926. Unfortunately, neither of these names can be used.

Bonaparte described *Reg(ulus). himalayensis* in Comptes Rendus Acad. Sci. (Paris), tome 42, No. 17, session of 28th April, 1856, p. 767 (''*Similis* cristato, *sed major, rostro longiore et crista citrina vix aurantiaca, superciliis nigris latissimis*''), with type locality ''les monts Himalaya.'' His type specimen was a male belonging to Gould, later to be portrayed in Gould's The Birds of Asia 4 (21), April, 1869, and still later to be listed as specimen *b.* of the ''Himalayan Race'' in Catalogue of the Birds in the British Museum 8: 82, 1883. Since the specimen was from Nepal, *himalayensis* Bonaparte, 1856, must be applied to the eastern race.

Jerdon's *Regulus Himalayensis* (The Birds of India 2 (1): 206, 1863) was named independently of Bonaparte's, and since he believed that the Himalayan form occurred only ''in the N. W. Himalayas,'' it is clear that his type can only have been the male in Blyth's possession collected on 20th October, 1845 by Surgeon-General L. C. Stewart and/or Captain Thomas at Kotgarh in the Simla Hill States (see The Zoologist (3) 10: 443, 1886), not at Simla as believed by the Meinertzhagens, who were led astray by Blyth himself (Catalogue of the Birds in the Museum Asiatic Society, 1849, p. 186).

Since the earlier *himalayensis* of Bonaparte must be used for the eastern race, *sikkimensis* of the Meinertzhagens becomes its synonym, and the western Himalayan form is left without a valid name. It may be called

*Regulus regulus salimalii*, new name

for *Regulus Himalayensis* ''Blyth'' Jerdon, The Birds of India 2 (1): 206, 1863 (Kotgarh), not *Reg(ulus). himalayensis* Bonaparte, 1856 (Nepal).

## An Unusual Example of Symmetrical Albinism in the Carrion-Crow *Corvus corone corone* Linnaeus

By Mr. Bryan L. Sage.

*Received 3rd November*, 1954

On 2nd October, 1954, whilst travelling down the Watford By-Pass near Aldenham, Herts, I saw on a piece of waste land an adult Carrion-Crow with a considerable amount of white on the closed wings. I put the bird to flight and saw that it had three fairly wide white transverse bars on the upper surface of each wing, these gave the bird a most peculiar appearance when in flight.

The only other record of symmetrical albinism in this species of which I am aware is that of a bird with light grey bastard wings seen near Ulceby, Lincolnshire, on 16th July, 1872, and recorded by J. Cordeaux in the *Zoologist*, 1872: 3207.

# Remarks on The Taxonomy of the Yellow Bunting, *Emberiza Citrinella* Linnaeus

## Part I

By Dr. James M. Harrison

*Received 12th August*, 1954

## I INTRODUCTION

The Yellow Bunting or Yellow Hammer, *Emberiza citrinella* Linnaeus, of the Western Palaearctic Region, provides an admirable study of the morphological characters of its geographical populations in the light of modern concepts, and it is the writer's opinion that the taxonomic position now calls for revision and reconsideration.

It is the purpose of this communication to clarify, as far as the material which has been available allows, some of the problems of the individual variation presented by this species throughout its range.

In order to elucidate the matter, the author has had placed at his disposal a very comprehensive material from many European countries and an adequate series of the eastern form from localities in its European and Asiatic distributions, while the series from the British Isles has been particularly ample and fully representative of the wide distribution the species enjoys in our islands and in Eire.

## II METHODS

One of the criticisms levelled at avian systematics by the non-systematists is that races have often been made upon slight differences of colour, or sometimes on minimal differences of measurement. These criticisms are fair enough when appropriate, and when they come from those who have made a special study of morphological matters, but are of little consequence when voiced by those not versed in systematic techniques and practices. Another criticism which has been advanced is the statement that some races are only recognisable in certain plumages — it would be just as logical to assert that because critical characters are effaced when a bird becomes racially unrecognisable in its worn breeding dress, or when in full moult, that therefore no racial differentiation ever existed! The divorcement of biology and systematics has emboldened such illogical criticism, which often comes from those whose lack of experience of taxonomic work disqualifies them from judging the issues involved.

In the present research, the author has carried out the experiment of using material of all seasons of the several geographical populations, as well as submitting the breeding specimens to the more usual and critical examination for comparative study. It was abundantly evident as a result

of this, that a surprising measure of uniformity of characters could be seen even in the non-breeding specimens, and that it was often possible to single out immigrant and aberrant elements in the series. For this practice to prove of value, however, it is essential to stress the fact that the material under review needs to be really extensive, in order to bring out the basic morphological characters of each group. This is all the more important where any question of intergradation in colour, pattern or measurement arises, as it does in this species. A handful of specimens may well provide a clue, but certainly cannot provide the answer. Equally, morphological analysis without a due regard to biological, ecological and phenological influences, can only lead to fallacious interpretations ; the one science is necessarily the handmaiden of the others.

This study demands as a preliminary an evaluation of the position of the species and its races, i.e., the taxonomic set-up as given in the description of the species and its races from the time of Linnaeus's *Systema Naturae*, Ed. X. 1758, which we may usefully term its History.

## III HISTORY

The history of the nomenclature of this species is set out in Hartert[1] (1910–1922), and in the synonymy thereof as under:

"272 *Emberiza citrinella citrinella* L. Goldammer.

*Emberiza citrinella* Linnaeus. *Syst. Nat.* E. X. p. 177, (1758 – "Habitat in Europa." Typ. Loc. Schweden, denn Diagnose beruht auf dem ersten Zitat: *Fauna* Suecica 205).

*Emberiza sylvestris* Brehm. *Handb. Naturg. Vög. Deütschl.*, p. 294 (1831 – "nur in Nadelwaldern).

*Emberiza septentrionalis* Brehm, Handb. Naturg. Vög. Deutschl. p. 295 (1831 – "bewohnt den Norden").

*Emberiza major, longirostris, planorum, brachyrhychos* Brehm *Vogelfang*, p. 113 (1855 – "Schweden bis Karnthen").

*Emberiza citrinella pratorum, campestris*, A. E. Brehm, *Verz. Samml.*, p. 8 (1866 – nomina nuda !).

*Emberiza citrinella* var *brehmi* Popham, *Ibis* 1901, p. 453, Taf. X (Ex Homeyer MS nomen nudum, ohne Fundort. Abgebildet ist ein Stück der Aberration mit braunrotem Bartstreif aus England.

*Emberiza longirostris* Brehm. *Isis* 1842, pp. 753, 764 "der gewöhnlichste Goldammer" —namentlich in der Renthendorfer Gegend – in Garten, an Flussufern, Waldrändern.

*Emberiza arbustorum* Brehm t.c. p. 753, 765 (Karnten, Thüringen).

*Emberiza crassirostris* Brehm t.c., p. 753, 765 (Renthendorfer Gegend).

*Emberiza pratorum* Brehm t.c., p. 753, 767 (bei Leipzig, Renthendorf).

*Emberiza citrinella palukae* Parrot. Orn. Jahrb. 1905, p. 45 (Konstantinople). (p. xxii).

*Emberiza citrinella nebulosa* Gengler, *Archiv. f. Naturg.* 85, Abt. A, Heft 5, p. 91 (1920 – England, Holland, Dept. du Nord in Frankreich).

*Emberiza citrinella romaniensis* Gengler, Orn. Jahrb. 1911, p. 182 (Rumänien) ist Synonym von *E. erythrogenys* Brehm 1855.

*Emberiza citrinella somowi* Aweurin, Trav. Soc. Univ. Kharkow, XLV. p. 153 (1912 – bei Charkow in Südrussland, Russisch !) ist wohl ohne Zweifel ebenfalls *erythrogenys;* doch konnte ich keine Stücke von Charkow untersuchen.

To the above synonymy has since been added:

*Emberiza citrinella caliginosa* Clancey[2], *Ibis* 1940, 94 Dornoch, Scotland.

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1. *Vög. der Paläark. Fauna*, Bd. I, pp. 167, 168. *loc. cit.*, Bd. III, (1921–22), Nachtr. u. Bericht. p. 2072.

2 *Ibis*, 1950, p. 134, Twenty-first Report of Commit. on Nomencl. and Records.

From this it can be seen that no small amount of study has been bestowed upon this common species and its forms in the past, since the earliest races described by Brehm in 1831 over 120 years ago and, moreover, that these deliberations have attracted the attention of many able systematists. It was therefore with considerable diffidence that the present writer decided to revise the species and its races. The decision to do so resulted largely from a recognition of the fact that some other common passeres—e.g. *Fringilla coelebs*, *Pyrrhula pyrrhula*, *Turdus ericetorum*, and indeed also some non-passerine species, e.g. *Tringa totanus*, show a somewhat parallel evolution in the Western Palaearctic Region.

The above then represented the synonymy up to 1940, and at that time only one form, additional to the nominate race, had been accepted as vaild. This, the eastern form, was described in 1855 by Brehm under the name *E.c. erythrogenys*, the type locality being Sarepta in south-west U.S.S.R. As we shall see, in the synonymy of this form have also been placed *E.c. romaniensis* Gengler, *E.c. somowi* Aweurin and *E.c.mollessoni* Zarudny, which last is now regarded as a mutation occurring not infrequently in the Orenburg and Jenniseisk area, and as such should only have been described and not named. I do not consider it necessary to discuss the above synonymy which we can accept as our taxonomic baseline, in greater detail, and we can also accept the validity of the two races, *E.c. citrinella*, the nominate form, and *E.c. erythrogenys*, which have been admitted by the above and subsequent authorities. The former, the Linnaean species, lacks a type, an adequate description, and requires also the type locality restricting to Uppsala, Sweden. To comply with the above, I have selected as the Neo-type an adult male collected by K. J. Hernell at Uppsala on 4th May, 1924, and presented to the British Museum Collection by the late Professor Einar Lönnberg.

*Description of Neo-type ;* ♂ adult, British Museum Registered Number 1926. 12. 21.21. 4th May, 1924, Uppsala, Sweden.

Crown, superciliary region, lores, sides of neck, chin throat and upper breast Lemon Yellow (Ridgway[3] Pl. VI. No. 11). Pectoral band rather pale Canary Yellow (*loc. cit.* Pl. VI. No. 12) lightly striated pale feruginous, near Ferruginous (*loc. cit.* Pl. IV. No. 10) Belly Canary Yellow (*loc. cit.* Pl. VI, No. 12), flanks slightly dusky Canary Yellow and striated feruginous and Clove Brown (*loc. cit.* Pl. III, No. 2). Under tail-coverts Canary Yellow, shafts striated narrowly with Clove Brown. Crown from and including base of bill delineated with dull greyish green, feather shaft region picked out with Clove Brown, these markings carried back on either side to unite in a broad dull grey-green nuchal band. Moustachial stripes of the same dull greyish-green colour and yellow of throat picked out with small greyish green spots. Ground colour of mantle Olive (*loc. cit.* Pl. III. No. 9), upper region and area adjacent to wing-coverts tinged pale Raw Umber (*loc. cit.* Pl. III, No. 14). Well defined longitudinal striations of Clove Brown: the overall appearance is one of a fairly pale cold greyish-brown. Rump and upper tail-coverts Russet (*loc. cit.* Pl. III, No. 16) narrowly edged near Olive-Buff (*loc. cit.* Pl. V. No. 12) ; secondaries rich Clove Brown edged with pale Russett, primaries near Sepia (*loc. cit.* Pl. III, No. 3) edged narrowly with greenish-white. Rectrices: centre pair Sepia paler at edges, rest Clove-Brown, outermost pair with larger white wedge-shaped spot on inner vanes, next adjacent pair with similar but smaller wedge-shaped white markings.

| Measurements: | wing | = | 89 m.m. | bill | = | 12 m.m. |
|---|---|---|---|---|---|---|
| | tarsus | = | 21 m.m. | tail | = | 75 m.m. |

Clearly the Linnaean species must stand as the nominate race and both Swedish and Norwegian birds are recognisable in the series on account of

[3] *Nomenclature of Colors for Naturalists.*

the cold grey-brown colour of the upper parts, well defined mantle striations and mostly paler yellow underparts, though this latter feature is somewhat variable. It is to be noted that the nominate race is dimorphic, presenting both a dark and a light phase. This is found in both Swedish and Norwegian breeding birds and occurs in both sexes.

Concerning the eastern population, there is no issue, for all recent systematists are agreed that *E.c. erythrogenys* is a well differentiated race, characterised by being paler on the upper parts and in having paler edges to the secondaries (Stresemann,[4] 1920 ; Harrison and Pateff,[5] 1932, 1935, and Pateff,[6] 1950). The underparts of this form are, when compared with the nominate race, usually of a brighter yellow.

If no problem arises in connection with the two above named populations, the same cannot be said in respect of the birds inhabiting north-western Europe. It is these individuals resident in the western end of the species range which have caused difficulties and confusion in the characters they present. To this problem we will return presently.

As long ago as 1831, C. L. Brehm[7] described the birds of central Germany under the name *E.c. sylvestris*. This race was of course based by its author upon entirely fictitious characters, but a re-examination of material from central Germany reveals the fact that adequate series show surprisingly uniform characters, and that for these birds the above name is therefore applicable. Broadly, the males of this form are of a warm rich brown on the mantles, with well defined sepia striations, and the lower mantle is not infrequently washed with greenish, and there is also a fairly rich olive green nuchal band. In addition to the above, the under parts are mostly of an intense and bright yellow, an important feature when compared with the northern group. Of modern authors to point out the more constant and brighter yellow underparts of the central German birds, is Richard Heyder[8] (1952), who, quoting Schlegel, writes as follows:—"Schlegel wies darauf hin, dass sich Leipziger Goldammern Ausprägung des gelben Farbtones von Artgenossen aus den gebirgigen Gegenden Sachsens, bei denen mehr ein düsteres Grüngelb vorherrscht, abheben. Er trat für Annehmen des Namens *sylvestris* Brehm (ex Handb. Naturg. Vögel Deutschl., s. 294), für dieses 'Mittelsächsischen Nadelholzammern' ein, hat jedoch bisher keine Zustimmung gefunden. Den roten Bartstreif, der sich mehr oder minder bei vielen ♂♂ vorfindet, konstatierte er bis etwa 30% von Vögel seiner Sammlung." I fully concur with Schlegel and Heyder in their recognition of Brehm's *E.c. sylvestris*, and can confirm their findings of the morphological characters. Moreover, this well differentiated race is also the resident form, in my opinion, of Switzerland and much of the Great Lowland Plain, the Hungarian Plain and possibly also the Plain of Lombardy. The boundary between this form and the eastern race *E.c. erythrogenys* is constituted by the mountainous country of Bulgaria

[4] *Avifauna Macedonica*, pp. 39 – 42.

[5] *Ibis*, 1933, p. 511, A Contrib. to the Ornith. of Bulgaria. *ibid.*, 1937, p. 596, An Ornith. Survey of Thrace, etc.

[6] *The Birds of Bulgaria*, pp. 46, 47 ; p. 342.

[7] *Naturg. aller Vög. Deutschl.* pp. 294, 295.

[8] *Die Vög. des Landes Sachsen*, pp. 147, 148.

and Jugoslavia ; a few individuals from Jugoslavia and Hungary are suggestive of intergradation between the eastern form and *E.c. sylvestris*, an area which may well favour some intergradation. With the resuscitation of the central European form, *E.c. sylvestris*, a similar procedure as that adopted for the nominate race becomes essential. I have therefore selected as the Neo-type an adult male collected by Herr Udo Bährmann at Schraden in Saxony on 7th April, 1935, No. 2422, in my collection.

Description of Neo-type: ♂ adult.

Crown, chin and throat, superciliary stripes, sides of neck and ear-coverts Lemon Yellow (Ridgway Pl. VI. No. 11) ; crown delineated from base of bill, above superciliary stripes and over occiput with greenish-grey and freely striated longitudinally with Clove Brown (*loc. cit.* Pl. III. No. 2). Ear-coverts delineated by dusky shading. Faint and fine Russet (*loc. cit.* Pl. III, No. 16) moustachial stripes. At the nape a broad greenish band continuing forwards over the sides of the neck to join in the pectoral region as an interrupted pectoral band dividing the Citron Yellow (*loc. cit.* Pl. VI, No. 15) of the throat and rest of under-parts: under tail-coverts paler, feather shafts narrowly striated Clove Brown (*loc. cit.* Pl. 111, No. 2). Lower breast and flanks striated Russet (*loc. cit.* Plate. III, No. 16) and Clove Brown. Upper mantle predominantly pale Russet, with bold Clove Brown longitudinal striations ; Wing-coverts pale Russet: lower mantle with distinct greenish wash. Rump and upper tail-coverts Russet, secondaries rich Clove Brown edged with Russet, outermost secondaries edged yellowish green. Lesser, median and greater wing-coverts Clove Brown edged pale Russet. Primaries and primary coverts sepia edged whitish green. Rectrices Clove Brown, centre pair paler and edged lightish, outermost pair with large white wedge-shaped markings on inner vanes, next pair with smaller wedge-shaped white markings.

| Measurements: | wing | = | 91 m.m. | bill | = | 11 m.m. |
|---|---|---|---|---|---|---|
| | tarsus | = | 19 m.m. | tail | = | 76 m.m. |

Type locality is hereby restricted to Schraden in Saxony, Germany.

In addition to the above, Brehm also described the following races between 1831 and 1855, *E.* (*c.*) *septentrionalis*, *E.* (*c.*) *major*, *E.* (*c.*) *longirostris*, *E.* (*c.*) *planorum*, *E.* (*c.*) *brachyrhynchos*, while in 1866 he also described *E.c. pratorum* and *E.c. campestris*, both of which are nomina nuda ! Since of all these names, all of which incidentally are based upon invalid characters, *E.c. sylvestris* is the earliest (1831), having page priority over the next described race, *E.c. septentrionalis*, the former must stand as the name of the central German form of *E. citrinella*.

In the above, I have indicated the three recognisable racial genotypes of this species,—the nominate form, *E.c. citrinella*, in northern Europe, *E.c. erythrogenys* in the east, both already accepted as well differentiated races, and the central European race, *E.c. sylvestris* which, on examination of adequate series of males is a recognisable form both in breeding and non-breeding plumage. Indeed Brehm (*loc cit.*, p. 295) indicates a broad difference between the birds he was accustomed to see in central Europe and northern immigrants, when he writes—: "3) Der nordische Goldammer *Emberiza septentrionalis* Br. (*E. citrinella* Linn.). Die Kehle, die Stelle um das Auge and der Bauch gelb, der Schnabel kurz. Er ist etwas kleiner als die vorgehenden—7″ 3‴ lang und 11″ 4‴ breit—und gewöhnlich weniger schön gezeichnet ———. Er bewohnt den Norden, geht bis Kiel herab, verirrt sich zuweilen in Winter in Mitteldeutschland—." The above quotation draws attention to the fact that, when compared with the birds he was most familiar with in central Germany, the immigrants were less brightly coloured, a point which has again been stressed by a

recent observer, as we have just seen. We can pass over the fact that Brehm was renaming the nominate race and thereby adding to the synonymy. It is curious that from the midst of a spate of ill-founded races created by Brehm, one, the eastern form *E.c. erythrogenys*, has been found to stand the scrutiny of modern investigation, and one other, *E.c. sylvestris*, despite the entirely fictitious characters upon which it was based, should be found on re-investigation to prove valid and recognisable. From this it is apparent that the previously accepted taxonomic position and the position reached as a result of an examination of populations on morphological characters are actually extremely close.

By the resuscitation of Brehm's race, *E.c. sylvestris* as one of the cardinal racial genotypes, it is possible to understand some of the inconsistencies which have come to light, and also to recognise two clines in the species, one from south-west to north-east in Europe, and a second from south-west Asia northwards to northern Europe in the western range of the species. Three racial genotypes of the species are recognisable therefore as (1) a northern, the nominate form, *E.c. citrinella*, (2) an eastern form, *E.c. erythrogenys* and (3) a central, and possibly south European race, *E.c. sylvestris*.

Examination has revealed that from west to north-east the mantle colour passes from brown in the western and north-western populations to grey-brown in the populations of Scandinavia and western U.S.S.R., while over the same areas the mantle striations tend to become more definite. In central and south Europe, the underparts are of an intensely bright yellow ; this character does not, however, conform to the characters of a continuous cline, but rather as a discontinuity in a cline. A greenish wash over the mantles and the degree of richness of development of the green nuchal band is, however, subject to expression in a cline, increasing across Europe from south-west to north-east in Scandinavia, where its development is less marked.

The cline in the eastern part of the species distribution is less gradual and is expressive of a far lesser degree of heterozygosity. Intergradation between *E.c. citrinella* to the north and north-west, and *E.c. erythrogenys* in the east, is far less evident than it is between *E.c. citrinella* in the north and *E.c. sylvestris* in the south, and *E.c. nebulosa* in the north-west. The three latter races, where they come into contact, are responsible for many intermediates.

In southern Hungary, there is some evidence that *E.c. erythrogenys* and *E.c. sylvestris* intergrade to some extent. This matter of intergradation must now be examined when considering the populations inhabiting the north-western lowland of the Continental mainland, i.e. northern France, western Germany, Belgium, Holland, Denmark and the British Isles. Gengler[9] (1920) described the birds inhabiting northern France, Belgium, Holland and England under the name *E.c. nebulosa*, the type locally being later (1950)[10] restricted to Stalham in Norfolk, from which locality Gengler had had three breeding adult males only, and one adult male from Berkshire. The present investigator has examined very extensive material from

[9] *Archiv. für Naturg.* 85 Abt. A. Heft. 5, p.91.

[10] *Ibis*, 1950, p. 133. Twenty-first Report of Commit. on Nomenclature and Records.

the above European countries, and even more extensive material from all over the British Isles, including 95 breeding specimens. From this examination, it is abundantly clear that *E.c. nebulosa* is as yet an unstable form, though undoubtedly a subspecies in the making. It is at the present time, particularly in so far as the population in north-western Europe is concerned, best regarded as a variable intermediate in a continuous cline which provides evidence of a mosaic of discontinuities, i.e. some individuals tending in the balance of their morphological characters to the nominate form, others to the central European race ; for it is more probable that the population in north-western Europe is intermediate between these two forms and not between the nominate race and *E.c. erythrogenys* as suggested by Meinertzhagen[11] (1953). Relatively few birds from the Continental range of Gengler's form, *E.c. nebulosa*, present the characters observable in birds taken in the eastern and south-eastern half of England. It is of great significance, in the writer's opinion, that the differentiation of *E.c. nebulosa* is more advanced in populations in the eastern and south-eastern half of England than in northern France, Holland and Belgium. It is the presence of these intergrading individuals, distributed as these are over a wide area of the Continental mainland, which has so confused the taxonomic picture in so far as morphological assessment is concerned. It is opportune in this connection that the type locality of the race was restricted to a locality in south-eastern England.

As has already been indicated, in *E.c. nebulosa* in the Britsh Isles we are in effect witnessing subspeciation through the stage of the variable intermediate. It has not yet been proved that British examples of this species occur on the Continent. There is, however, plenty of evidence of immigration by this species into the British Isles in the autumn and winter. This again is in close parallel with what is known concerning the English form of the Chaffinch—*Fringilla coelebs gengleri*. This of course means that the population of *E. citrinella* in the British Isles because of limited gene-flow should develop uniform and distinctive differential subspecific characters. It is not implied, however, that there is no intergradation, but that the interchange of genes is minimal and therefore with negligible morphologically recognisable effect.

*E.c. nebulosa* is, to the best of our knowledge, a very sedentary form and exists in some degree of isolation in the breeding season in the British Isles. In consequence it can easily be comprehended why its differentiation is better than that of individuals in northern France, Holland and Belgium, where there must be a far greater interchange of breeding individuals and consequently of gene-flow. With ample material of *E.c. nebulosa* from throughout its range, and by comparing adequate series of this form from south-east England with populations from its Continental distribution, the recognisable characters of the former group are quite striking, for they are certainly acquiring good subspecific differentiation, whereas the Continental group tend individually towards either the nominate race, or the central European birds on balance. They constitute an example of the "deme" of Gilmour and Gregor[12] (1939).

[11] *Bull. B.O.C.* 73, 4, p. 42. On some west Irish Birds and a Suggestion for the use of the Cline.

[12] *Nature*. 144, p. 333 Demes, a Suggested new Terminology.

PURCHASED



In what way do the characters of *E.c. nebulosa* differ from those of the nominate race ? It has already been indicated that a few individuals approach *E.c. citrinella*, but it is exceptional to find a breeding male from the zone of intergradation with the cold brown-grey mantle of the Scandinavian birds. Added to this, is the fact that the majority, certainly of those taken in south-eastern England, show less well-defined mantle striations, which are also in most cases less heavy than in the northern birds. The underparts are variable, but conform fairly closely to those of the nominate race, though birds with moderately bright yellow are perhaps more frequently met with Summarising then, the mantles of *E.c. nebulosa* are mostly browner, warmer, than in the nominate race, and the striations less well defined and not so heavy, in some cases in fact quite fine: they are indeed aptly described by Gengler (*loc. cit.*) as ''cloudy'' or ''misty''— ''Mann sieht die ganze Zeichnung durch einen leichten Nebel.''

How does *E.c. nebulosa* compare with the central European population *E.c. sylvestris* ? On making a comparison between the two groups, the more constant characters of the central European birds are very striking, the basic morphological characters of the latter race may be said to be firstly a rich brown colour of the mantles, secondly well-defined dark sepia mantle striations, often a greenish wash on the mantles, and as an almost constant feature a more intense yellow of the underparts from chin to the interfemoral region. The presence of a rich green nuchal band is also usual.

The general trends of the cline across Europe have already been given, and our next investigation concerns the evidence and interpretation of the range of individual variation observable in the populatins of the British Isles and in Eire. An examination of very extensive material, both of breeding and non-breeding birds, reveals the fact that from east to west they tend to change in general colour from a lighter to a darker and richer brown, the mantle striations similarly becoming heavier and darker. The populations in the extreme west in Eire, in Scotland and Wales, and in the western half of England, i.e. roughly west of a line drawn from Flamborough Head to Start Point, are in the series mostly markedly darker on the mantles and a richer chestnut on the rumps than are the birds resident to the east of that line. They are also more constant in general tone, for whereas the mantles of some of the birds breeding in the south-eastern counties and in the southern coastal counties, at any rate as far as Hampshire, show considerable greenish wash in that region, which is a character found rather constantly in *E.c. sylvestris*, this tone is largely eliminated in the western populations which consequently, by contrast, appear much darker and browner and more uniform.

A consideration of climatic influence in this matter is not without interest for, approximately corresponding with the line indicated as significant in the demarcation of the easterly and westerly populations, we find that to the west the annual rainfall is in the order from 40 inches to 60 inches, while in the south-eastern half it is from under 25 inches to 25 to 30 inches. The population therefore conforms to Glosger's Law with regard to temperature and humidity. It would appear then that we have in the north and western half of the British Isles and in Eire a phenologically determined race.

*to be continued.*

35/1/56



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## DINNERS AND MEETINGS FOR 1954

21st December.

## SEPARATES

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