# IDENTIFICATION FOR RINGERS

# 3

## *The Genus*

## SYLVIA

by KENNETH WILLIAMSON F.R.S.E.

...IST FOR ORNITHOLOGY

IDENTIFICATION GUIDE NUMBER THREE
FIELD GUIDE NUMBER NINE

OCTOBER 1976

*Revised Edition*

# IDENTIFICATION FOR RINGERS

# 3

## *The Genus*

## SYLVIA

by

KENNETH WILLIAMSON, F.R.S.E.
(Populations Research Officer, B.T.O.)

REVISED AND ENLARGED EDITION

BRITISH TRUST FOR ORNITHOLOGY
TRING, HERTFORDSHIRE

# IDENTIFICATION FOR RINGERS 3

(B.T.O. Field Guide No. 9)

by K. Williamson, F.R.S.E.

*First Edition* May 1964
*Second Edition* May 1968
*Reprinted* June 1974
*Reprinted* October 1976
*Reprinted* May 1983

*Cover Design by* ROBERT GILLMOR

CONTENTS

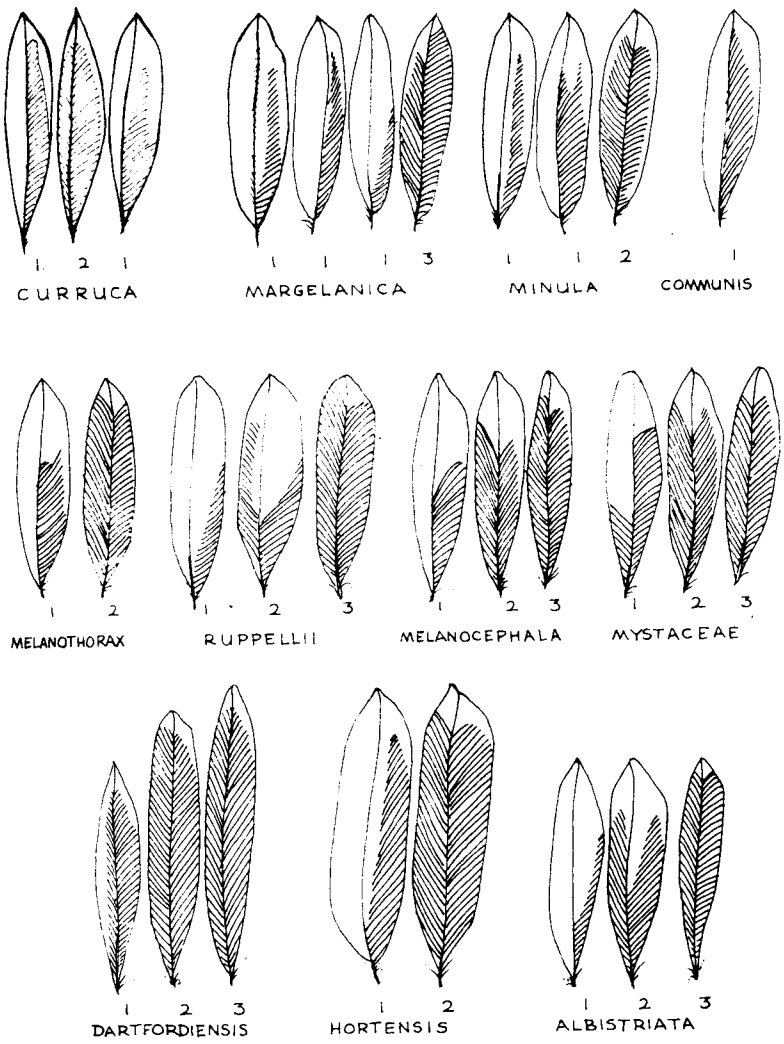


Fig. 1

Outer (1), penultimate (2) and next innermost (3) tail-feathers of some *Sylvia* warblers, to show distribution of white.

# INTRODUCTION

This study of the genus *Sylvia* completes the examination of the palearctic warblers, undertaken with a view to summarizing for the bird-ringer and observatory worker such points as will assist him in the identification of the species, race, sex and age of trapped birds. Previous volumes have dealt with the genera *Cettia*, *Locustella*, *Acrocephalus* and *Hippolais* (No. 1, revised edition published in May 1963), and the genus *Phylloscopus* (No. 2, published in May 1962). The present guide treats the subject-matter uniformly with these.

*Scope of the work*

All the palearctic *Sylvia* have been included. In some difficult cases the inter-relationship of closely allied birds is discussed (e.g. the forms of Blackcap, Lesser Whitethroat, Dartford Warbler, etc.) in advance of the treatment under species and sub-species headings. In a few cases I have appended a note on movements where these are of particular interest.

Under the species headings I have summarized what is on record concerning habitat preferences, song and call-notes, and have given full plumage descriptions of ♂♂ and ♀♀ (usually different in *Sylvia*), and a note on age differences where these are important. Notes on the colours of the 'soft parts' have been taken mainly from the labels of specimens in the British Museum, and presumably refer to the conditions at the time the birds were collected. The brief paragraphs on distribution are based very largely on Vaurie (1959).

*Measurements*

An indication of the observed range of wing, tail, bill and tarsus measurements, also the amount by which the outer tail-feathers fall short of the longest middle pair, and the wing/tail ratio (tail-length expressed as a percentage of wing-length), are given under each species. The ringer may find the main linear

measurements easier of access, however, in the Tables on pp. 66–68, which show the size of the sample measured, together with the means and standard deviations, and a theoretical range calculated from the mean ± three times the standard deviation. These figures were kindly prepared from my measurements by Mr. Stephen Boddy. The measurements are in millimetres throughout, and the weights (mostly provided by the British bird observatories) are expressed in grammes.

*Wing-formula*

An ascendant numbering of the primaries has been used in stating the wing-formula, and a descendant numbering for describing the moult: the reasons for this seeming inconsistency were fully explained in the introduction to the first identification guide. Briefly, they are that an ascendant numbering is used by *The Handbook of British Birds* and practically all other authorities in recording wing-formulae, but the majority of moult studies use a descendant enumeration because this is the direction in which the renewal of the primary wing-feathers proceeds. In the wing-formula section the values shown are the amounts in millimetres by which each feather falls short of the longest primary or wing-point. The symbols '+' and '—' are shorthand for 'longer than' and 'shorter than'; 'p.' and 's.' represent 'primary' and 'secondary' (with 'pp.' and 'ss.' as the plural), and 'p.c.' indicates 'primary coverts'.

*Moult*

Some species have a complete moult between the cessation of breeding and the onset of migration; in others, the post-nuptial moult is partial and the wing and tail feathers are not renewed until the birds reach winter quarters. This difference is important, since the condition of the plumage in autumn provides an easy means of age discrimination in species which belong to the latter category.

Some of the *Sylvia* appear to have a curiously irregular moult I have dealt with all the species in considerable detail, using museum material and also moult-cards relating to trapped birds supplied to the B.T.O. Moult Enquiry. In a few cases, sufficient data are now available to warrant the preparation of charts

showing the progress of the change and the period occupied, and such charts have been included for Common Whitethroat and Garden Warbler (see pp. 70, 71).

*Key to the Genus Sylvia*

I doubt whether a satisfactory key to the genus could be devised. It would be relatively easy to produce a workable key for adult ♂♂; but such are the similarity between ♀♀ and immatures of several species, and the overlap of measurements and wing-formula characteristics, that it is virtually impossible to construct a key that will isolate each species irrespective of sex and age.

The key provided on p. 69, therefore, should be treated only as a guide indicating the likely identity of the bird under examination, and a final decision should not be made without an appeal to the appropriate section of the text.

KENNETH WILLIAMSON

British Trust for Ornithology,
Tring,
Hertfordshire.

## PREFACE TO THE SECOND EDITION

This new edition contains a little additional material, especially concerning movements, bringing the work up to date. I am grateful to Professor Erwin Stresemann and Stuart Pimm for providing information on moult.

KENNETH WILLIAMSON

British Trust for Ornithology,
Tring,
Hertfordshire.

22nd March, 1968.

## THE BLACKCAP

Over its Continental range two races of Blackcap are currently recognized, nominate *atricapilla* in the west and north and the greyer and slightly larger *dammholzi* in the southeast. The Blackcap is also resident in a number of Mediterranean islands, and in the Azores, Cape Verde and Canary Is. The isolation of these insular populations has resulted in some differentiation. The birds of Sardinia were given the name *pauluccii* by Arrigoni in 1902, while birds from the Balearic Is were named *koenigi* by von Jordans in 1924. Vaurie (1954: 4-7) accepts *pauluccii* as a rather poorly differentiated form, and synonymizes *koenigi* with it.

In the oceanic sector, the name *Curruca heineken* was given by Sir William Jardine in 1830 to a melanistic form found in Madeira (and which occurs also in the Canary Is and the Azores) under the then entirely excusable impression that this was a separate species. This remarkable variant has been discussed by Southern (1951), Volsøe (1951), and Vaurie (1954, 1955). Under the International Rules of Zoological Nomenclature the name *heineken*, though applied to an aberrant form, is available for the normal part of the Madeiran population also, and so antedates *obscura* Tschusi, 1901, which is preferred by some authors, notably Bannerman (1963). In this population ♂♂ and ♀♀ are noticeably darker throughout than the typical race. Vaurie follows Volsøe in restricting *heineken* to Madeira, referring the birds of the Canary Is, Azores and Cape Verde Is to nominate *atricapilla*. In common with Bannerman I find this arrangement very unsatisfactory, since it is almost impossible to differentiate Canary Is birds from Madeiran, and together these are quite different from specimens collected in the Azores and Cape Verde Is.

Compared with *atricapilla* from Britain and Scandinavia, Azores ♂♂ are a greyer and colder olive on the upper parts, and there are other small differences as mentioned on p. 14; they are closer to *dammholzi* than to the dark *heineken* in colouration. The differences are sufficient, in view of their isolation, to justify a separate name, and in the first edition of this work I proposed one, *atlantis*. I further commented that birds from the Cape Verde Is seemed to me more similar to those from the Azores

than to the typical race, and I included them with *atlantis*. Dr. W. R. P. Bourne (*Ibis*, 108, p. 428) suggested that this name is preoccupied by *S. a. gularis* Alexander (*Ibis* 1898, p. 81), 'based on birds with dirty chins from the Cape Verde Islands'. This would be true, even though the name describes an aberrant form, had not Boyd Alexander subsequently restricted *gularis* to the population of a single island, Santiago (*Ibis* 1898, pp. 279-80). It is better, in the circumstances, that *atlantis* should be restricted to the Azores population, with type-locality as stated on p. 14 of the first edition.

A series from Corsica (9 ♂♂, 4 ♀♀) is thoroughly grey on the under parts with very little white on the belly, and is similar in this respect to 3 ♂♂ from Mallorca, Balearic Is. The Corsican birds, however, are decidedly more olive on the upper parts than the Mallorcan (which are markedly greyish-olive) and in this respect not to be distinguished from many ♂♂ *atricapilla*. The ♀♀ have a darker greyish suffusion on the breast and flanks, and are slightly darker brown above. It would seem best to restrict *pauluccii* to Sardinia and Corsica, and accept *koenigi* as the correct name for birds from the Balearic Is.

A race described from the S. Ural Mts, *riphaea* Snigirewski, does not appear to be valid (Johansen, *Jour. Ornith.* (1954), 95: 106; Meinertzhagen, 1954: 205).

**SYLVIA ATRICAPILLA** (Linnaeus)

*Blackcap*

*S. atricapilla atricapilla* (Linnaeus)

♂♂. Upper parts brownish-olive, greyer on nape and rump. Crown jet black. Wings and tail dark brown, without any white. Under parts off-white suffused buffish-olive on breast and flanks.

♀♀. Upper parts more brownish, crown rufous; under parts pale brown.

Haunts mature woodland with good shrub layer and undergrowth of brambles etc., also parkland and gardens. In central Europe it is also found in coniferous woods. In winter it occurs in

evergreen forest and thick undergrowth. Call-notes: a hard, scolding *tak, tak*, rapidly repeated when excited; a *churr* similar to GARDEN WARBLER, a creaky *sweerr* (alarm); a plaintive whining or whistling *pheu*. Song of rich, clear warbling notes has more definite form and phrasing than GARDEN WARBLER's and is usually in shorter phrases and less hurried in delivery (see *Handbook*, 2: 77-8).

**Ageing.** 1st-winter ♂♂ usually have a mixture of black and brown in the crown, though some are said to have crowns equally black as adult ♂♂. Some ♂♂ in juvenile plumage have the crown exactly as ♀♀.

**Colours of soft parts.** Bill: slaty-black to brownish-black, with paler and greyer lower mandible. Legs: dark slate. Iris: brown. Eye-ring: whitish.

**Measurements.** Wing, ♂♀ 68-78, mostly 70-76. Tail ♂♀ 53-65, mostly 57-62. Bill, 13-15. Tarsus, 20-22½. Tail nearly square. Wing/tail ratio of 200 birds of all races 73-90, mostly 78-87. See Tables on pp. 66, 68.

**Weight.** At Fair Isle B.O., average of 33 spring migrants 16.8 (14.0-19.5) gm.; average of 50 autumn migrants 16.6 (12.2-24.4) gm., most between 16.0-18.5 gm.

**Wing-formula** (pp. ascendant). Emarginated 3rd-5th. 1st p. 2½-6+p.c.

Wing-point 3rd=4th (occasionally 4th ½ shorter). 5th, 2½-4½; 6th, 7-10; 7th, 9½-13; 8th, 11½-15; 10th, 15-21.

2nd, 4½-7, usually falls between 5th-6th, only occasionally=6th or slightly shorter. Notch on inner web= or falls below tips of ss. Notch on inner web of 3rd usually falls between 8th-9th, occasionally between 7th-8th.

**Moult** (pp. descendant). Complete post-nuptial. The spread of onset of moult in English birds is from early July to mid-August; ♀♀ may be generally later than ♂♂. The early birds finish in mid-August, but late ones can hardly do so before the first week in October (see fig. 7, p. 72). Tail moult in most is from mid-July to mid-August, with late birds continuing into mid-September. A ♂, Distriz Monforte, Lugo, Spain, 1.ix., had pp. 1-5 new and 6-9 growing, ss. 1 new and 2-3 growing, and the tail short; another, 4.ix., was also well advanced, with pp. 1-3 new, 4-6 well-grown and 8-9 short; ss. 1-4 were moulting and the tail well-grown. A ♀, Corsica, 7.x., has replaced only pp. 1-4 with p. 5 and s. 1 nearly complete and the tail still in moult.

In young birds, body-moult from mid-August to late September may be accompanied by a change of inner greater coverts and tertials. The body, tertials, and inner greater coverts are moulted again from January to March.

**Distribution.** British Is (not regularly N. Scotland), Norway (to 69° N.), Sweden, S. Finland, Russia (to 63° N.) and W. Siberia, south to Mediterranean countries (including N. Africa), Black Sea and Asia Minor intergrading in southeastern areas with *dammholzi*. Winters mainly in S. Europe and N. Africa eastwards to Egypt, but occurs in Britain and Ireland regularly at this season: birds were recorded in a dozen counties between Cheshire and Dorset during the severe cold spell of January-February 1963. Has been taken at Christiansund, N. Norway, 1.xii. Regular as vagrant and on passage in Faeroe and Shetland Is and probably Canary Is. (A ♀ from Santa Brigida, Gran Canaria, 5.i.1909, is a wintering *atricapilla*.)

**Movements of Blackcaps.** Although *S. atricapilla* does not differ structurally or in plumage over its wide European range there is a marked 'migratory divide' at about 10°-11° E., birds from east of this line migrating southeast in autumn, and those from west of it (including the British stock) migrating southwest through France to the Iberian Peninsula (Brickenstein-Stockhammer and Drost, 1956). This 'migratory divide' is well shown by the distribution of ringed bird recoveries plotted on the map which appears between pp. 12-13. Movements of this species in the British area in the light of these and other facts have been fully treated by Williamson and Whitehead (1963) and by Davis (1967).

Norwegian birds appear to be exceptional in following the same tradition as Swedish and central European birds: viz., a June *pullus* from Nordfjordeid, and a September bird from Drammen, were recovered in the Lebanon in subsequent years (A, B). An autumn passage-migrant at Revtangen wintered the same year in Salerno, S. Italy (C). One recovery shows an apparent south-westerly trend, a young ♂ at Time, Rogaland, on 10.x.1960, being found a month later in E. Spain (D). In the same season, which was dominated by easterly winds, a passage-migrant at the Isle of May, Fife, 1.x., was found farther east in Spain than the region normally visited by British stock (E). There is a similar recovery of a Fair Isle migrant caught during easterly weather on 19.x.1959 (F).

Heligoland passage-migrants have gone to Cyprus (G), three years after ringing; N. Italy in the autumn of ringing (H); Lincolnshire five days after capture in early October 1960 (I); and Limburg in Holland three weeks after ringing (J).

British-ringed birds, with rare exceptions, show a southwest movement into Iberia, where some no doubt winter, and beyond to Algeria (February) and Morocco (October 2, December, January, April 2). Mid-September migrants at the Isle of May, Fife, and Seahouses, Northumberland, were recovered in the Lebanon in April in later years (K, L). Since the map was prepared there has been an even more interesting case, of a ♀ reorienting from Beachy Head, Sussex, to the Lebanon in the same autumn, 10.ix. to 19.x.1963; while in that

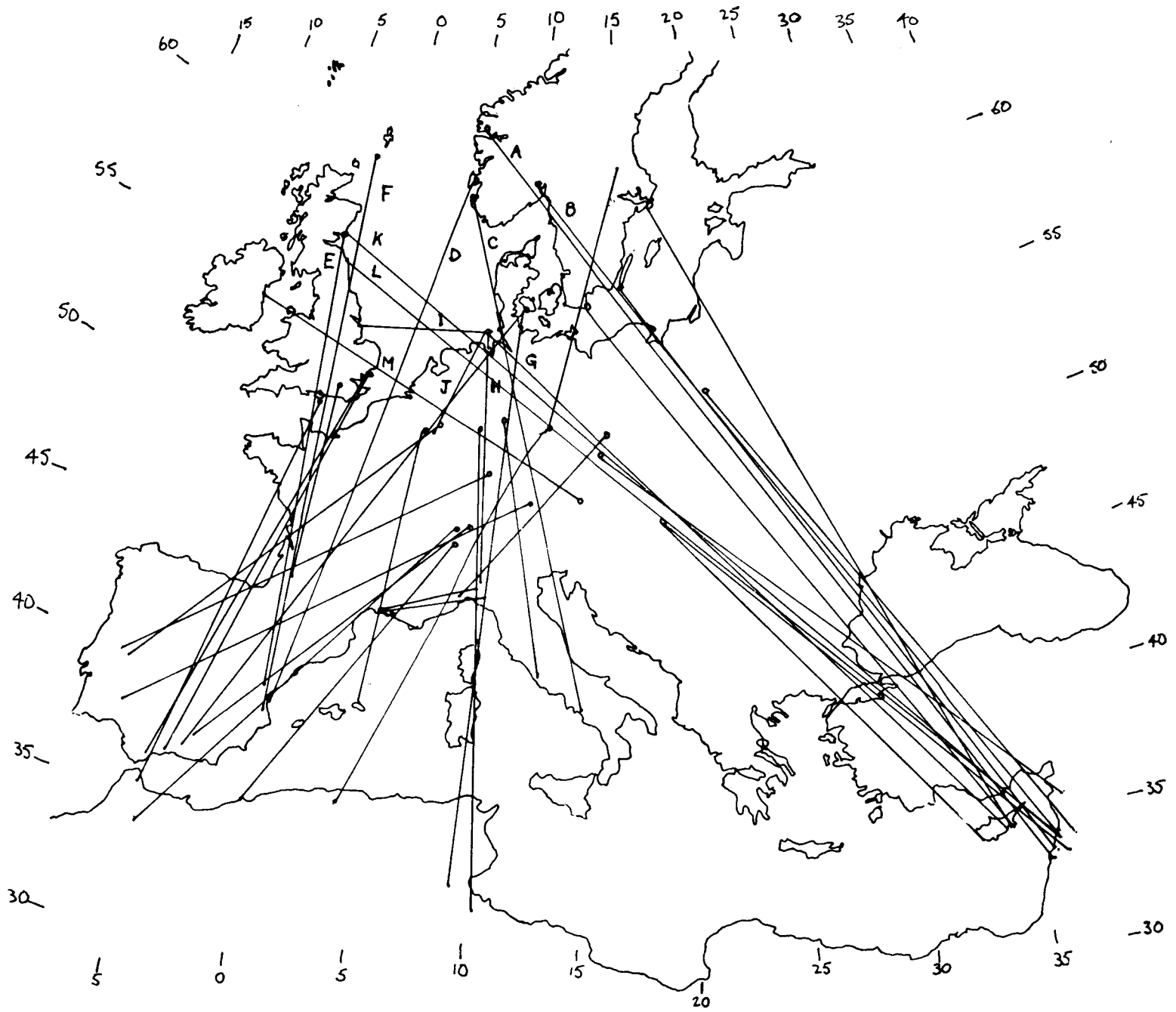


Fig. 2

The 'Migratory Divide' in the BLACKCAP *Sylvia atricapilla* as shown by the recoveries of ringed birds. See pp. 11-12.

year also a Yorkshire-ringed bird reached the province of Imperia, Italy, 14.ix. to 22.x.

A curious movement, perhaps post-juvenile dispersion, took a 1st-winter ♂ from Culross, Fife, 250 miles N.NE. to Fair Isle, between 21.vii. and 10.ix.1963. Another unprecedented recovery is of a bird ringed near Linz, Austria, on 6.viii. 1961, and found 950 miles W.NW. in Co. Wicklow, Eire, on 12.xii.1961 (M): it suggests that at least some of the BLACKCAPS which winter in the British Isles are neither local nor Scandinavian in origin, but birds carried far to the west of their native area during post-juvenile dispersion.

*S. atricapilla dammholzi* Stresemann

Paler than nominate race: ♂♂, greyish-olive not brownish-olive above, purer grey on nape and breast, whiter on belly; ♀♀, paler rufous cap.

**Measurements.** Wing, ♂♀ 70-80. Tail, ♂♀ 57-66. Bill, 14-15.

**Distribution.** Caucasus Mts eastwards to S. Caspian districts of Iran, but intergrading with nominate race in Asia Minor etc. Known to winter on Mt Kenya, where it appears to be the dominant form (Meinertzhagen, 1954). A ♂, Turin, N. Italy, 1879 is very near this form.

*S. atricapilla pauluccii* Arrigoni

Corsican ♂♂ are only slightly greyer than the typical race above, many being indistinguishable, but they are a darker grey below with the white restricted to a narrow strip in the middle of the belly. ♀♀ have a darker greyish suffusion on breast and flanks.

Common in Sardinia on the western slopes of the central mountain bloc, between 2,000-3,000 feet up, in woods and orchards, but more characteristically in hazel copses (M.F.M. Meiklejohn).

**Measurements.** Wing ♂♀, 68-74 (76). Tail ♂♀, 55-64. Bill, 14-16.

**Wing-formula** (pp. ascendant). As *atricapilla*, but 2nd=6th, or falls between 6th/7th.

**Distribution.** Sardinia and Corsica.

*S. atricapilla koenigi* von Jordans

Markedly greyish-olive above in ♂♂, and the grey of under parts deeper and more extensive than in the typical race.

**Measurements.** Mallorca, 3 ♂♂. Wing 66, 69, 72. Tail, 55, 60, 62. Bill, 14½-15.

**Wing-formula** (pp. ascendant). As *atricapilla*, but 2nd p. falls opposite 6th, opposite 7th, and between 7th/8th in the ♂♂ examined.
**Distribution.** Balearic Is.

*S. atricapilla heineken* (Jardine)

Darker throughout than the nominate race. Normal specimens from Madeira and the Canary Is differ as follows: ♂♂, browner, less olive above, the grey deeper and more extensive below; ♀♀, more rufous on mantle, more heavily suffused with olive on the belly.

There is a melanistic variety in which the olive suffusion on the under parts is stronger still, and the black of the head extends on to the throat and upper breast in ♂♂ (see p. 9). This appears to have been almost confined to the huge Caldera crater, 2,400 ft—5,200 ft on Palma, but is now exceedingly rare if not extinct (Bannerman, 1963).

**Measurements.** Madeira: Wing, ♂♀ 70–77. Tail, ♂♀ 55–62. Canary Is: Wing, ♂♀ 73–78. Tail, ♂♀ 56–64. Bill, 13–14½.

**Wing-formula** (pp. ascendant). As in *atricapilla*, but 2nd p. often falls between 6th/7th.

**Distribution.** Madeira and Canary Is.

*S. atricapilla atlantis* Williamson

Azores ♂♂ are more greyish-olive, not brownish-olive, above, have the nape a purer grey, and the greyish on breast darker and more extensive than in the typical race. They are similar to *heineken* below but not nearly so dark on the upper parts. ♀♀ show a brighter suffusion of buff on breast and flanks. A melanistic variety is known.

**Measurements.** Wing, ♂♀ 69–78. Tail, ♂♀ 54–63. Bill, 13½–16, mostly 15, therefore slightly longer than in Continental birds.

**Wing-formula** (pp. ascendant). Emarginated 3rd–5th. 1st p. 1½–4½ + p.c.

Wing-point 3rd=4th (occasionally 3rd ½–1 shorter). 5th, 1–3; 6th, 5½–8; 7th, 8½–11½; 10th, 14–18.

2nd, 5½–9, mostly=6th or falls between 6th–7th.

**Distribution.** Azores Is.

NOTE. Birds from the Cape Verde Is seem nearer to this than to nominate *atricapilla* in general tone of plumage. Wing, ♂♀ 66–71. Tail, ♂♀ 53–61.

**SYLVIA BORIN** (Boddaert)

## *Garden Warbler*

Upper parts uniform brown tinged olive. Lores and inconspicuous line over eye pale greyish-buff, ear-coverts pale brown. Under parts whitish suffused brownish-buff, most obvious on upper breast and flanks. Under tail-coverts pale brown with long white tips; axillaries and under wing-coverts buff. Wings dark brown, feathers with olivaceous fringes; tertials and coverts olivaceous-brown with paler fringes; dark centres to primary coverts. Tail olivaceous-brown with paler edges to outer webs.

Haunts open deciduous or mixed woodland with plenty of undergrowth of bushes, brambles etc., but unlike BLACKCAP will occupy bushy areas where no tress are present. Occasionally in coniferous woods with deciduous secondary growth. In winter occurs in gardens, thorn-bush, savanna and edges of evergreen forest. Call-notes are the usual sylvid *tak, tak* and a low, grating *churr*, also a plaintive *whit*. Song a sweet, smoothly-flowing warble mellower and more uniform than that of BLACKCAP, and delivered with greater vigour. *See Plate I.*

CAUTION. This is often a confusing species because of the lack of any distinctive characteristics. In the hand young birds have not infrequently been mistaken for *Acrocephalus* sp. on account of the pronounced notch on inner web of p. 2 (see **Wing-formula**), but the short bill and short, square tail should at once correct this impression.

**Ageing.** Since adults do not moult the wings and tail after breeding, autumn birds with fresh-looking remiges and rectrices are 1st-winter. These sometimes have a decidedly greenish tinge on mantle.

**Colours of soft parts.** Bill: dark brown, base of lower mandible tinged yellowish-brown. Legs: greyish-brown. Iris: dull-brown.

**Measurements.** Wings, ♂♀ 73-84 (rarely above 82). Tail, ♂♀ 50-61. Bill, 12½-15, mostly 13-14. Tarsus, 20-22. Tail almost square. Wing/tail ratio of 88 birds, 68-75. See Tables on pp. 66, 68.

**Weight.** At Fair Isle B.O., average of 50 spring migrants, 16.6 (13.8-20.3) gm., most between 15.5-18.0 gm.; average of 50

autumn migrants 17.2 (11.0-25.4) gm., most between 15.5-20.0 gm. Average of 23 autumn migrants, Dungeness B.O., 20 gm; average of 23 at Falsterbö, Sweden, 19 gm. (R. Scott, *Var Fagelvärld*, 24: 157, 163).

**Wing-formula** (pp. ascendant). Emarginated 3rd, occasionally slightly on 4th. 1st p. minute, about half p.c.

Wing-point usually 3rd, occasionally 2nd, with 3rd 1-1½ shorter. 4th, 3-5; 5th, 7-9½; 6th, 10-13½; 7th, 12-16; 8th, 14½-18; 10th, 20-23.

2nd, ½-3, occasionally longest, always shorter than 4th or=4th. Notch on inner web falls between 6th-8th. Slight notch on inner web of 3rd.

**Moult** (pp. descendant). The *Handbook* (2: 78) credits this species with two complete moults in the year, one from July to September, the other from December to March, but I have seen no evidence of birds moulting other than body plumage during the autumn. In Africa the first to show moult is a ♂, Damaraland, 30.xi., with p. 1 new and some tail feathers missing; and a bird from N. Gazaland, 7.xii., is moulting pp. 1-5. Others from Uganda and Nyasaland have started at this time, but some Nyasaland birds still have the innermost pp. in sheath, 20-24.xii. By the end of December and January most birds are moulting the inner part of the wing, though some have not yet begun, and at this period a number are moulting tertials and tail. A ♂, Kroonstadt, S. Africa, 5.ii., has just finished, as also have ♂♂ from Beira, Mozambique, 8.ii. and 16.ii., and although a few from N. and S. Rhodesia and Nyasaland are within a week or so of finishing at this time, many are only half-way through the moult in mid-February. Birds from Sierra Leone and W. Nigeria have almost finished by the end of February and first week of March, so that the moult appears to be up to a month later in West than in East and South Africa. Late birds from N. Rhodesia and Nyasaland are just finishing on 25.iii., and 11.iv. See the chart on p. 67.

The onset of ss. moult takes place when the renewal of pp. is well advanced (pp. 1-3 new, pp. 4-5 growing), but is retarded in some birds. Birds are usually about half-way through the replacement of pp. by the time tail moult begins, but this is apparently rapid with most if not all the feathers being replaced together. Birds are often well advanced in wing-moult before the new tertials appear, the outermost ss. preceding them. All the above data are based on specimens examined by R. Dowsett in the National Museum of S. Rhodesia and by me in the British Museum (Nat. Hist.), or on birds trapped for ringing by A. R. Ludlow in Oyo Province, W. Nigeria.

**Distribution.** British Is, Norway (to 70° N.), Sweden, N. Finland, N. Russia south to Iberian Peninsula, S. France, Italy, Sicily, Malta, Albania, Rumania, S. Russia to Transcaucasia; also W. Siberia eastwards to Semipalatinsk. Winters

mainly in central and S. Africa, but also in W. Africa and Sierra Leone. Vagrant to Iceland, Faeroe Is, Canary Is and Madeira. Occasionally in winter in Britain (*Brit. Birds*, 54: 123).

NOTE. Eastern populations tend to be slightly greyer above than western, but the difference is so slight and inconstant as to preclude division into subspecies. The following are best regarded as synonyms of *borin*: *kreczmeri* Dunajewski, 1938, eastern Poland; *pateffi* von Jordans, 1940, Bulgaria; *woodwardi* (Sharpe), 1877, Natal; *pallida* Johansen, 1907, western Siberia.

**Movements of Garden Warblers.** Ringing recoveries of the GARDEN WARBLER show the existence of a 'migratory divide' at about 10°-11° E. in central Europe. German birds ringed at Heligoland (7° 55′ E.), Mellum (8° 10′ E.), Darmstadt-Eberstadt (8° 40′ E.), Tann (10° 02′ E.) and a locality in E. Germany at 10° 19′ E. were all recovered well to the southwest, in Spain. From farther east in Europe the direction of autumn migration appears to be markedly southeast: young birds from Magdeburg (11° 58′ E.) and Dalbersdorf (17° 44′ E.) were found in Cyprus in their first autumn, while *pulli* from localities 16° 33′ E. and 19° 13′ E. were found respectively near Beirut in the Lebanon, and on the Aegean island of Rhodes, in December of their first year.

So far there is a resemblance to the movements of the BLACKCAP (see p. 11), and this is fortified by the fact that British birds also travel southwest, to W. France and the Iberian Peninsula. There the resemblance ends, however, since (unlike the BLACKCAP) birds from Fenno-Scandia also show a decidedly southwesterly trend. One from Setesdal, Norway, was in Spain in its first autumn; birds ringed at Ottenby, on the Swedish island of Öland, have reached Spain; and a Finnish bird from 19° 22′ E. was recovered at Madrid. Other Finnish birds, however, have taken a route more to the S.SW., to N. Italy, while several Swedish birds and at least one from N.E. Germany have also been recovered in this area.

Swiss birds have turned up in S. France and S. Spain, and in a few cases in N. Italy. An unusual movement was that of a juvenile ringed at Armentières, N.E. France, on 9.vii.1955, and recovered at Naples, Italy, on 3.ix.1955. Migrants at Heligoland have appeared at Minsmere (Suffolk) the same autumn and Isle of May (Fife) a year the following spring, while an August bird at Spurn Point (Yorkshire) was at Heligoland next May. A June migrant at Heligoland was at Mjölby, Sweden (15° 10′ E.), a month later, and another at Mellum in late May was at Roskilde, Denmark (12° 15′ E.), in July of the following year.

There have been recoveries in Africa of birds ringed in the U.S.S.R. (Bogdum, Cameroons), Finland and Lithuania (Congo), and E. Germany (near Benin City, Nigeria). Recoveries up to 1955 are plotted by Brickenstein-Stockhammer and Drost (1956). See also Davis (1967).

## SYLVIA COMMUNIS Latham

## *Common Whitethroat*

*S. communis communis* Latham

♂♂. Upper parts brown, upper tail coverts greyer. Crown and nape slate-grey, feathers tipped brown. Lores greyish, eye-ring whitish, ear-coverts brown. Under parts whitish (especially throat) with breast suffused pink or buffish-pink and flanks deeper buff. Under tail-coverts buff with white tips; axillaries and under wing-coverts pale brown with white fringes and tips. Wings dark brown, feathers narrowly fringed rufous-brown; tertials, ss. and greater coverts broadly edged rufous-brown. Lesser coverts tipped slate-grey. Tail dark brown with paler fringes, outer pair with most of outer and much of inner web white or brownish-white, penultimate pair with white tip (fig. 1).

♀♀. Crown brown, lesser wing-coverts brown without grey tips; flanks, and often breast, without pink; white of outer tail-feathers never pure. (Some are slightly greyish on crown and tinged with pink on breast in summer plumage.)

Haunts fairly open localities of untrimmed hedgerows and field-borders, thickets and rough ground with tangled vegetation or bushes; gorse-grown commons, osier-beds, outskirts of woods. In winter occurs in open thorn-bush, scrub, edges of forest land. Call-notes a scolding, harsh *charr*, a sharp *tak*, *tak* of alarm, and a more conversational *wheet*, *wheet*, *whit-whit-whit-whit*. Song a short, rapidly-uttered warbling, very brisk and lively, with occasional 'swearing' notes. (*Handbook*, 2: 83.) *See Plate II.*

**Colours of soft parts.** Bill: greyish-horn, base of lower mandible bluish-flesh. Legs: pale brown. Iris: variable, yellowish-brown to olive-green, often with pale ring.

**Measurements.** Wing, ♂♀ 65-74, mostly 67-72. Tail, ♂♀ 54-66, mostly 56-63. Bill, 12-14½, mostly 13-14. Tarsus, 21-22½. Tail almost square. Wing/tail ratio of 100 birds, 80-93. See Tables on pp. 66, 68.

**Weight.** At Fair Isle B.O., average of 50 spring migrants 13.0 (10.7-16.5) gm., most between 12-15 gm.; average of 50 autumn migrants 13.0 (9.1-17.5) gm. Average of 200 newly-arrived spring

migrants 13.0 (9.1-17.5) gm. Average of 200 newly arrived spring migrants, Portland B.O., 14.3 (11.0-17.4) gm. (Autumn migrants average 1.5-2 gm. more) (Dr. J. S. Ash).

**Wing-formula** (pp. ascendant). Emarginated 3rd-5th. 1st p. minute, about half p.c.

Wing-point occasionally 2nd, but usually 3rd=4th (occasionally 3rd or 4th to 1 shorter). 5th, 1-2½; 6th, 4-5½; 7th, 6-8; 8th, 7½-10; 10th, 12-15.

2nd, ½-3½, usually=5th or falls between 5th-6th, occasionally= wing-point. Notch on inner web falls between 9th-10th or is shorter.

**Moult** (pp. descendant). A complete moult takes place after breeding, early July to early September. Birds from Brittany, 7.vii., Kent, 10-12.vii., and Suffolk, 11.vii., have the innermost pp. in pin or growing, and two have dropped several tail feathers. Tertials and coverts (and body) begin to moult almost at once, and are changing in eight birds from Dungeness and Minsmere between 11-20.vii. Birds from Yorkshire localities, 23-31.vii., are still at an early stage, the most advanced at this period being a ♀ from Kent, 30.vii., with pp. 1-4 new, pp. 5-7 growing and pp. 8-9 in pin, with ss. started and tail nearly complete. Two from Northumberland, 20.viii., are considerably behind most others, but a Spurn (Yorks.) ♀ of this date has practically finished. One from Texel, Holland, 26.vii., has only pp. 1-4 new and the rest growing with tertials nearly complete, but all ss. and four tail feathers old. A ♂ from Oswestry (Salop), 28.viii., is finishing p. 9 and s. 6; two from Lincolnshire, same date, have ss. and outer tail feathers growing, and a ♂ from I.O.W., 29.viii., has p. 10 and ss. 5-6 incomplete. There are later birds, including two from Spurn Point and I.O.W., 10.ix., with p. 9 and several ss. short of full length. See chart showing rate of moult, p. 71.

Young birds have a moult of body and head plumage from early July, in most cases accompanied by replacement of tertials, inner greater and median coverts. Birds from Minsmere, 15.vii., Calf of Man, 21.vii. and Spurn Point, 2.viii. were also replacing three or four innermost ss., and two eastern birds (Kerob Mts, Yugoslavia, 14.vii. and Moscow, U.S.S.R., 15.viii.) were renewing part of the tail. Professor Erwin Stresemann has found that whereas eastern birds, adults and young, have a complete moult in winter quarters, western populations do not. Stuart Pimm found evidence of 'suspended moult' in the ss. of birds, presumably of S. European origin, trapped at Coto Donana, Spain. A ♀, Tanganyika, 21.xii., has pp. 1-5 new, the rest old; a ♀, Nyasaland, 26.xii., has renewed p. 1 only; a ♂, Uganda, 24.i., has pp. 1-6 and pp. 7-9 growing, while another ♂, Uganda, 16.ii., has pp. 1-5 new, pp. 6-7 growing and pp. 8-10 in pin.

**Distribution.** Europe north to 65° N. in Scandinavia and N. Russia, south to Mediterranean basin including N.W. Africa, eastwards to Crimea, intergrading with *icterops* in Asia Minor and Near East. Winters in tropical and S. Africa, also in Canary Is, according to Dresser.

**Movements of Common Whitethroats.** There is a suggestion of a 'migratory divide' in this species, though a southeast orientation is not nearly so pronounced as in BLACKCAP, GARDEN WARBLER and LESSER WHITETHROAT. British recoveries, plotted recently by C. J. Mead in Spencer (1963), are predominantly in W. France, Portugal and W. Spain, while birds ringed in N.E. France and Belgium use the same route. Migrants ringed on Heligoland and Mellum off the North Sea coast of Germany have reached Denmark later. Birds from localities in Germany east to about 10° E. show movement to the southwest, while more easterly birds have moved due south or S.SE. to the 'heel' and 'toe' of Italy, and to localities on the eastern shore of the Adriatic Sea.

Birds from Revtangen, S. Norway, and Sweden (including Ottenby, Öland) have travelled south and S.SW. to N. Italy, and one from Antwerp, Belgium, has been reported from the same area. Two from localities in U.S.S.R. at 17° 30′ E. and 17° 54′ E. respectively, moved southwest to Italy and Hungary, the latter being recovered at Budapest when eight years old.

A migrant ringed at Tunis on 25.iv.1957 had reached Zamość, Poland, a month later—a journey at an average speed of at least 72 miles a day. A bird from Brabant, Belgium, was in the middle of the Moroccan Sahara on 11.v. a year later. A Heligoland migrant reached Ghana and others have been recovered in N.W. Africa. The only British birds reported from Africa are four in Morocco, and two in Senegal (18.iv.1959 and 15.ix.1966). There is a marked concentration of British-ringed birds close to the Atlantic coasts of S.W. France, Spain and Portugal in autumn, but the seven spring recoveries suggest a different return route *via* N.E. Spain and France east of longitude 2°W. See Davis (1967).

## *S. communis icterops* Ménétries

This eastern form has a greyer-brown mantle and darker grey head than the typical race; it is said to be whiter below, paler on sides and flanks, but I can see no constant difference in skins, nor could D. I. M. Wallace in birds in the field in Jordan. The broad fringes of tertials, ss. and coverts are sandy-brown rather than rufous.

**Measurements.** Wing, ♂♀ 67-77. Tail, ♂♀ 56-67. Bill and tarsus as in *communis*. See Table on pp. 66, 68.

**Weight.** Oxford Univ. Caspian Exp., N. Iran, late August 1963, average of 16 birds, 14.8 (12.3-18.5) gm.

**Wing-formula** (pp. ascendant). As in *communis*, but emargination of 5th often very slight, and 2nd sometimes falls between 4th-5th.

**Moult** (pp. descendant). Both the post-nuptial and pre-nuptial moults appear to be very irregular, and often incomplete. A ♀ from Najd, Arabia, has apparently new wing-feathers except for pp. 4-10, and the tail is old. A ♂, Punjab, 24.viii., does seem to be completing a normal moult, having all feathers new except p. 9 and the middle pairs of tail feathers, still growing. A ♂ from Fao on the Persian Gulf, 27.viii., has new body-plumage and may be part-way through a complete moult, having renewed pp. 1-3, tertials and greater coverts. A ♂ from the Yemen, 5.ix., appears to have renewed all the ss., though only pp. 1-2 in addition to tertials and greater coverts are new. One from the Taif Plateau, Arabia, 6.ix., is curiously inconsistent, only pp. 3-4, s. 6, tertials and greater coverts having been replaced; while another from the same locality, 8.ix., with body-moult well advanced but an old tail, appears to have entirely new ss. and tertials but only pp. 1-4 in the left wing new and pp. 1-2 in the right! An Arabian bird from near Jedda, 24.ix., with ss. and tertials fresh, has replaced p. 1 only and is moulting the tail feathers irregularly. Four others from localities in S. Arabia, dated 4, 21, 27, and 29.ix., have the wing and tail old except for new tertials and greater coverts, and may be 1st-winter birds. A bird from Aiyadh, Arabia, 23.x., has completed a full moult except for the partly grown tail.

A number of S. Rhodesian birds, examined by Robert Dowsett in the National Museum at Bulawayo, show evidence of a complete pre-nuptial moult, from about late December to late February. There is, however, rather wide variation in the progress of moult, the replacement of ss. being unusually advanced in some and retarded in others. The normal progression with the tail is from the middle outwards, but a ♀ from Cyrene, 3.ii., has the whole tail in pin, and a ♂ from Bulawayo, 31.i., has new centres and the remainder growing together; in one or two examples the central feathers are behind the rest.

Dr Erwin Stresemann, who has made a special study of the moult in this species, writes (*in litt.*, 1.ii.1968): 'After reaching Rhodesia in November or early December, all specimens undergo a complete moult, usually starting in the first half of January and lasting about thirty days. Most specimens have a completely fresh plumage in March, when just a few are still growing the outer primaries. This proves that not only the adults have a complete moult in Rhodesia, but also the first-winter birds.' This is also true of specimens from the asiatic part of the breeding range wintering elsewhere in East Africa. The change in some birds, however, appears to be very irregular. A ♂ from Mt Maroto, Uganda, 24.i., has renewed pp. 1-6 in the right wing only, has pp. 7-9 growing in the left and p. 10 new in both; the right wing ss. are new but ss. 4-5 are old in the left. A ♂ from Parasa Riv., Uganda, 16.ii., shows a similarly asynchronous change in the wing but, like the last, is completing a normal tail moult.

One from Yavello, Ethiopia, 10.ii., has finished, but another from the same place and date seems only to have renewed the tertials (still growing) and tail. A ♀ from Disa on the Blue Nile, 15.iv., is left with pp. 3-6 old in the left wing. Among spring migrants one from Saudi Arabia, 27.iv., has all pp. old in the right wing and pp. 3-10 old in the left, though tertials, ss. and tail are new.

**Distribution.** From E. Mediterranean eastwards through the Caucasus, Iran, Transcaspia, Russian Turkestan to the Tarbagatai and Altai Mts; south to N.E. Afghanistan, N. Baluchistan, and eastward through the Tian Shan mountain system to W. Sinkiang and N. Mongolia. Migrates southwest through N.W. India and Pakistan, S. Iran, Iraq and Arabia to winter in N.E. Africa from Somalia and S. Ethiopia to Kenya and Rhodesia.

NOTE. *S. c. volgensis* Domaniewski (Saratov, S.E. Russia, 1915) may be acceptable but I have seen no material from the breeding-grounds. It is said to be paler and larger, the wings of 16 ♂♂ from W. Siberia being given as 72-79 by H. Johansen (*Jour. Ornith.*, 95: 107). Very few W. European birds fall within this range. An eastern form *rubicola* Stresemann (Kuldja, W. Sinkiang, 1928) has been described but is placed by Vaurie (1959) in the synonymy of *icterops*. Nor did Meinertzhagen (1954: 208) find it satisfactory: as he comments, there is considerable individual difference in the tone of the mantle plumage in all WHITETHROATS, the fresh bloom of new plumage wearing quickly.

## THE LESSER WHITETHROAT

This confusing group of small warblers is broadly divisible into three ecotypes. One is characteristic of lowland grassy regions with bushes and trees (*curruca, blythi*); another prefers arid, almost desert conditions (*minula, margelanica*); and the third inhabits sparsely wooded slopes in mountainous country (*althaea*). The characters identifying these three broad types are far from clear-cut; indeed, they are of the subtly intergrading kind which one associates with geographical races having a continuous Continental distribution. Dementiev (*L'Oiseau* (1935) 317-19), treated them as conspecific, though general practice has been to regard *Sylvia althaea* as distinct. The most recent review, that of Vaurie (1954: 9-11, and 1959: 259-63), regards *curruca, minula* and *althaea* as separate species each with two or more geographical races.

The mountain form *althaea* is a little larger than the others, and is generally somewhat darker and more greyish-brown on the mantle than *curruca*, so that there is less contrast between the grey 'cap' and brownish back. The desert form *minula* is slightly smaller than the others, but eastwards it merges with *margelanica*, some of which match the largest *althaea* in size. These desert forms are a paler, sandier brown above than their steppe-country ally *blythi*, which itself is a brighter, warmer brown than its western representative *curruca*. There are slight differences in

wing-formula, involving a generally longer 1st p. and shorter 2nd p., in the eastern and alpine populations; and in *minula*, *margelanica* and *althaea* the white of the outer tail-feathers tends to be purer, less dusky, than in *curruca* and *blythi*. These characters, however, are far from constant; and in short, there is no single character or combination of characters which will serve to define any of these forms precisely.

Vaurie's preference for three separate species is based on recent collecting by Koelz in Iran, where apparently the breeding-ranges of all three ecotypes overlap to a considerable extent—especially in Mazanderan at the southeast corner of the Caspian Sea, in Khorasan, the Zagros, and probably also Transcaspia. We can accept that two or more ecotypes may occur in the same area, but the criterion for regarding them as good species must be whether or not the different kinds breed true in the regions where they overlap. There is at present no evidence that they do, and indeed such is the intergradation between *curruca* and *althaea* in the Taurus Mts and Asia Minor, and between *blythi* and *minula* in parts of Iran and Turkestan, that one suspects interbreeding must be rife in marginal habitats over very wide areas.

Bird (*Ibis*, 1937: 76) found Lesser Whitethroats common in the Asia Minor mountains. Three collected near Gaziantep at 4,000–5,000 feet, 20–24.iv.1935, I regard as *curruca-althaea* intergrades. The mantle is very like *althaea* from the Punjab and Kashmir; the head, nape and rump are very grey and the mantle grey-brown, but the outer tail-feathers are dusky and in two the 2nd p. falls between 5th/6th as in *curruca*, the other having the formula 2nd between 7th/8th, which is more characteristic of *althaea*.

Five mid-April birds collected by C. G. Danford near Anascha in the Taurus Mts show a similar mixture of characters, and one dated 25.iii.1876 has the mantle and outer tail-feathers typical of *althaea* but an abnormally long 2nd p. falling between 4th/5th! Two others, 3.iv. and 17.iv., are very close to *althaea* (2nd p. between 5th/6th and 6th/7th); and three, 14–18.iv., are closer to *curruca* in all respects. A breeder from Yozgat, Turkey-in-Asia, 26.vi.1918, is *althaea*, and a wintering ♀ from the Riv. Mareb, Eritrea, 13.x.1951, is nearer to this form on plumage than to *curruca*.

Four specimens (named *curruca*) collected by Dr P. A. Buxton at Amara, on the Riv. Tigris, are in fact *blythi-minula* intergrades, like many others collected as migrants in Iraq, Arabia and Iran According to Meinertzhagen (1954: 209) nominate *curruca* also occurs on both passages in S. Arabia, especially the Aden Protectorate, and may winter there.

Such is the variation that even after careful comparisons with museum material it is impossible to name to one's complete satisfaction some of the specimens taken on migration or in winter quarters between the Near East and peninsula India. The most convenient and natural arrangement is to regard the Lesser Whitethroats as forming a single species, and in view of the intergradation to keep the number of geographical races as few as possible.

Other forms have been described, including *caucasia* Ognew and Banjkowski (Transcaucasia), *halimodendri* Suschkin (Khirghiz Steppes), *jaxartica* Snigirewski (Syr Darya), *telengitika* Suschkin (Chuira Steppe, S.E. Altai) and *zagrossiensis* Zarudny (Zagros Mts, Iran), but this proliferation of races in so highly variable a species can serve no practical purpose. According to Whistler and Ticehurst (*Ibis*, 1933: 554-6) the name *affinis* Blyth (India, 1845), formerly used for the Siberian race *blythi*, is a synonym of *Sylvia althaea* Hume.

## **SYLVIA CURRUCA** (Linnaeus)

## *Lesser Whitethroat*

*S. curruca curruca* (Linnaeus)

Crown slate-grey contrasting with dark brownish-grey mantle; lores and ear-coverts dark brown to blackish-brown contrasting with the cap in well-marked examples; sometimes a faint greyish-white eye-stripe. Under parts whitish with a pale pinkish-buff suffusion on breast and flanks; under tail-coverts with brown centres. Wing feathers dark brown with paler fringes, tertials greyish-brown with greyish-white fringes in fresh plumage; axillaries white tinged pinkish-buff. Tail dark grey-brown, sometimes contrasting with greyish upper tail-coverts, with a variable

amount of dusky white on inner web of outer and white spot at tip of penultimate feathers (fig. 1).

Habitat similar to *S. communis* but also occurs in tall, thick hedgerows, gardens and shrubberies. Often found in young conifer plantations in central Europe. Call-note a persistent, hard *tak, tak*; also a hoarse *churr*. Song a loud, rattling, reiterated *chikka-chikka*, usually preceded by a soft, low, musical warbling, and sometimes combined with a sequence of thin, squeaking notes (*Handbook*, 2; 87); prefers a higher song-post than WHITETHROAT.

Differs from WHITETHROAT in its greyer appearance, the slate-grey cap contrasting with darker ear-coverts, and absence of broad rufous fringes from the tertials. *See Plate II inset.*

**Colours of soft parts.** Bill: slate-black, base of lower mandible paler. Legs: dark bluish lead-colour. Iris: pale brownish-grey (*Handbook*, 2: 89).

**Measurements.** Wing, ♂♀ 61-68 (British birds rarely exceed 66). Tail, ♂♀ (50) 52-58 (60). Bill, 10½-13. Tarsus, 19-21. Tail slightly rounded, 5-8. Wing/tail ratio of 300 birds, 80-94. See Tables on pp. 66, 68.

**Weight.** British bird observatories report on weights as follows: Portland, average of 25 spring migrants, 10.9 (9.3-12.9) gm.; Dungeness, average of 26 autumn migrants, 12.3 (9.1-14.4) gm.; Sandwich Bay, average of 78 birds, 12.5 (8.8-14.5) gm.

**Wing-formula** (pp. ascendant). Emarginated 3rd-5th. 1st p.=to 4+p.c. (once 7+p.c.).

Wing-point usually 3rd=4th (4th occasionally ½ shorter). 5th, 1-2½; 6th, 4-5; 7th, 6½-8; 8th, 8½-10; 10th, 11½-14.

2nd, 3-5½, almost invariably falls between 5th-6th or=6th (see Table on p. 29). Notch on inner web of 2nd, 16-18, falls well below ss.; on 3rd, 15-16, falls about 9th-10th; on 4th, 13-14, falls about 8th-9th.

CAUTION. Birds completing wing-moult in August and September may give a completely false wing-formula (2nd between 7th-8th or even shorter), leading to a wrong racial determination. Care must be taken that moult is complete by examining the bases of pp. 8-9 in both wings and the inner ss. for signs of the waxy sheaths.

**Moult** (pp. descendant). Complete post-nuptial. Probably from mid-July (a Romsey, Hants., bird has just started, with pp. 1-3 in pin, 27.vii.) but some have only recently begun in mid-August. A ♂ from Surrey, 19.viii., has nearly finished wings and tail; one, Boughton, Norfolk, 23.viii., is not quite so far advanced but another from the same place, 24.viii., has almost finished.

A Norwegian ♀, N. Osterdal, 5.ix., seems much behind English birds, having pp. 1-5, s. 1 and two middle pairs of rectrices new, with pp. 6-8, s. 2 and the rest of the tail growing.

One from Troödos, Cyprus, 5.viii., is well advanced with pp. 7-9 and tertials well grown and the rest of the wing apparently new; p. 1, outer and penultimate tail-feathers are just out of sheath. Another, 24.viii., has renewed only pp. 1-3 with pp. 4-5 and the outer tail-feathers growing.

Young birds have an autumn moult of body-feathers and wing-coverts, and some 1st-winter appear to renew the tail in January-February whilst in Africa. According to *Handbook* (2: 89) the body feathers, tertials and s. 6, lesser and median wing-coverts, often the middle tail-feathers and rarely the whole tail are moulted by adults at this time, or even as late as March-April.

**Distribution.** Europe north to 64° N.-66° N. in Norway, Sweden, Finland and N.W. Russia, south to the Pyrenees, S. France, Italy, Balkan Peninsula and Caucasia. Intergrades with *althaea* in the Taurus Mts and elsewhere in Asia Minor. Winters in Egypt, Sudan, Ethiopia and Eritrea, and is recorded from N. Nigeria. Migrants in Arabia show a mixture of *curruca-blythi* plumage types. Accidental in Faeroe Is, Madeira, Algeria and Tunisia.

**Movements of European Lesser Whitethroats.** The preferred or 'standard direction' of all European populations of the LESSER WHITETHROAT in autumn is to the southeast. This orientation is already evident in birds departing from Britain, the heaviest concentration being in the area Suffolk-Kent, as shown by the high totals of 'bird-days' at Minsmere, Sandwich Bay and Dungeness compared with other east and south coast bird observatories, where also the relatively low average weights of such Lesser Whitethroats as do occur indicate a preponderance of drift arrivals.

Ringing at Ottenby, Öland, has revealed a concentration of Swedish birds along the eastern shore of the Mediterranean, in the Lebanon: but curiously, all recoveries of British birds in this area to date belong to the spring migration (22.iii. to 23.iv.). With a single exception (Eastbourne, Sussex, to Alexandria, Egypt, between 22.viii. and 6.xi.1965), the autumn ones are grouped in S. Austria and N. Italy. A *pullus* ringed at Amager, Denmark, 10.viii.1953, was at Famagusta, Cyprus, six weeks later; a Finnish bird, 3.vii.1959, was at Aleppo, Syria, 15.i.1960; and birds from central Germany have occurred in N. Italy and at Alexandria. All recoveries prior to 1955 were plotted and discussed by Brickenstein-Stockhammer and Drost (1956), and all British recoveries to date are shown in fig. 3. See also Davis (1967).

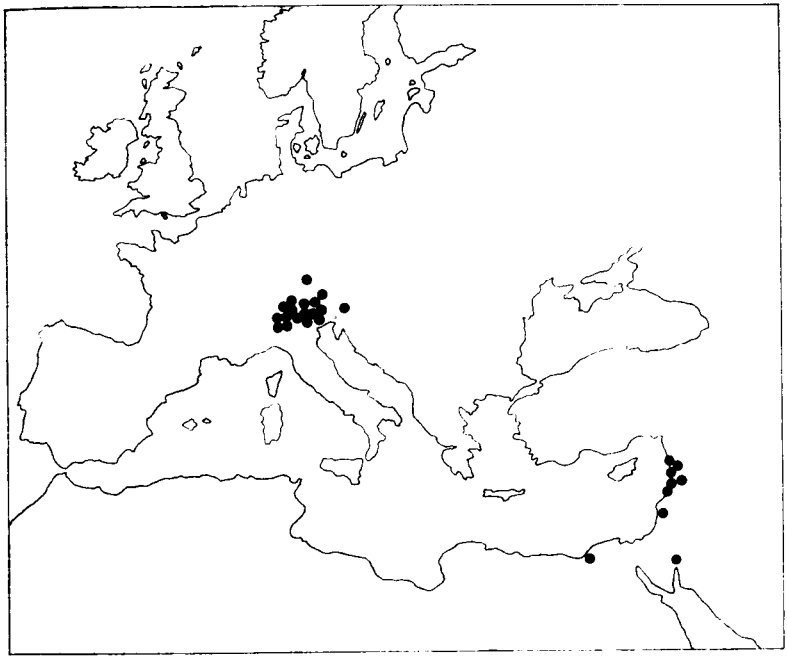

Fig. 3—LESSER WHITETHROAT

Recoveries of birds ringed in England and reported abroad up to the end of 1967. All autumn migrants are from S. Austria and N. Italy (29.vii.—28.ix., one 14.xi.) except for one in Egypt (6.xi.); and all spring migrants are from Israel and the Lebanon (22.iii.—23.iv). *Map drawn by Roderick Faulkner*

*S. curruca blythi* Ticehurst and Whistler

The eastern or 'Siberian' LESSER WHITETHROAT is a brighter brown, not so grey-brown, as *curruca*, some specimens inclining to rufous.

**Measurements.** Wing, ♂♀ 59–69, mostly 62–67. Tail, ♂♀ (50) 52–62, mostly 55–58. Bill, 11–13. Tarsus, 20–22 (23). See Tables on pp. 66, 68.

**Wing-formula** (pp. ascendant). Emarginated 3rd–5th. 1st p. 1–5½ + p.c.

Wing-point 3rd=4th. 5th, ½–1; 6th, 2–3; 7th, 4–6; 8th, 6½–8½; 10th, 10–11.

2nd, 4–6½, is shorter than in *curruca* and falls between 6th–8th (see Table on p. 29). Notch on inner web of 3rd often falls between 8th–9th.

**Moult** (pp. descendant). Complete post-nuptial. One from Fao on the Persian Gulf, 14.viii., has finished except for ss. 4-6 and outer tail-feathers (which are short), and some moult on throat, breast and head.

**Distribution.** W. Siberia north almost to the limit of forest growth; Kirghiz Steppes east to Semipalatinsk and Altai; N. Iran and Transcaspia. Winters S.E. Persia, Afghanistan, Baluchistan and peninsula India to Ceylon. A regular autumn drift-migrant to Fair Isle (Scotland) and eastern England, and once taken on the Tropic of Cancer in the Red Sea, 17.x.1907.

*S. curruca minula* Hume

The desert form is a sandier brown (greyish-sandy in fresh spring plumage) than *blythi*, but the two intergrade. The bluish-grey crown contrasts strongly with the blackish-brown lores and ear-coverts. The white part of the outer tail feathers is generally purer than in the foregoing races, not clouded with brown on the inner web (fig. 1).

**Colours of soft parts.** Bill: bluish-grey with black tip. Legs: dark brown to plumbeous-slate. Iris: pale yellowish-brown. Mouth: whitish-flesh.

**Measurements.** Wing, ♂♀ (56) 58-65. Tail, ♂♀ 50-58. Bill, 11-12½. Tarsus, 20-23. See Tables on pp. 66, 68.

**Wing-formula** (pp. ascendant). Emarginated 3rd-5th. 1st p. 1-6+p.c.

Wing-point 3rd=4th=5th (occasionally 5th ½ shorter). 6th, 1½-2½; 7th, 3½-5½; 8th, 5½-8; 10th, 8½-11.

2nd, 4½-7, falls usually between 7th-8th or=8th (see Table on p. 29).

**Moult** (pp. descendant). Complete post-nuptial. One from Puski Riv., Saryu, at 7,500 feet, 1.ix., has replaced pp. 1-3, has pp. 4-5 growing, and the tail and body are in moult. Some appear to undergo a partial wing (? and tail) moult in winter quarters, and these may be 1st-winter birds: a ♀ from Punjab, 4.v., has pp. 1-5 older and more abraded than the fresh-looking pp. 6-10, with outer and middle tail-feathers apparently new. A ♂ from Trucial Oman, Arabia, 11.iii., has new middle tail-feathers and the two outermost pairs growing, the rest being old.

**Distribution.** Central Asia from the Caspian Sea eastwards to Sinkiang, also Afghanistan, Russian Turkestan and Kashmir. Farther east it merges with *margelanica*. Winters in the northern part of peninsula India and S. Arabia.

*S. curruca margelanica* Stolzmann

In all respects as *minula* except for a longer tail and greater contrast between the blackish-brown wedge and white part of the inner web of the outer tail feathers (fig. 1). Upper tail-coverts more markedly greyish.

**Colours of soft parts.** Bill: dark horn with grey base to lower mandible. Legs: slate, dark plumbeous. Iris: grey. (F. Ludlow).

**Measurements.** Wing, ♂♀ 63-71 (72). Tail, ♂♀ 57-60 (62). Bill, 11-12½. Tarsus, 20-23. See Tables on pp. 66, 68.

**Wing-formula** (pp. ascendant). As in *minula*, except that 2nd p. is generally longer, falling between 6th-7th (see Table on p. 29).

**Distribution.** Intergrades with *minula*, but particularly well-marked specimens have been seen from Alexandrovski Mts in the Tian Shan system, and a number of localities from Kashgar eastwards in Sinkiang, Ningsai, Kansu, Outer and Inner Mongolia.

*S. curruca althaea* Hume

HUME'S LESSER WHITETHROAT greatly resembles the typical race except that some are a darker grey-brown, so that there is less contrast between cap and mantle, the two tending to merge on the nape. Some are more heavily suffused with pinkish-buff on the breast than *curruca*, and are olive-buff on the flanks. Upper tail-coverts are greyer. The amount of white on the outer tail-feathers varies from the dusky *curruca*-type to the pure *minula*-type even in the same populations (e.g. Taurus Mts, Kashmir, Punjab). Found in bush-covered localities up to 9,000 feet.

**Colours of soft parts.** Bill: bluish-black becoming slate-blue at base of lower mandible. Legs: dusky lead-colour, bluish-slate. Iris: pale greyish-yellow. Mouth: yellow.

**Measurements.** Wing, ♂♀ 63-71 (73), mostly 66-70. Tail, ♂♀ 52-61 (63), mostly 54-59. Bill, 11-13. Tarsus, 19-22. See Tables on pp. 66, 68.

**Wing-formula** (pp. ascendant). Emarginated 3rd-5th, and in many also on 6th. 1st p. 3-7+p.c.

Wing-point 3rd=4th=5th, but occasionally 5th ½ shorter, and rarely 3rd 1-1½ shorter. 6th, 2-3½; 7th, 4-7½; 8th, 6-9; 10th, 10-13.

2nd, 3-8, usually falls between 6th-8th, but is sometimes longer, between 5th-6th, in Asia Minor.

**Moult** (pp. descendant). Complete post-nuptial. A ♂ from Fort Munro, Punjab, 21.vii., has renewed pp. 1-6 and has pp. 7-8 growing; moult of ss. has just begun and the tail is complete except for the two outermost feathers. One from Sakesar, Punjab, at 4,900 feet, 29.vii., is more advanced in body-moult and has tertials and coverts new, but only pp. 1-3 complete with pp. 4-6 and s. 1 growing, and the three outermost tail-feathers short. Another, 9.viii., is at

a still earlier stage with pp. 1-5 and the tail-feathers (except for old outer and penultimate feathers) growing. A ♂ from 6,800 feet at Skardu, Baltistan, 14.viii., is similar to the Fort Munro bird above, while two from Srinagar, Kashmir, at 6,000 feet, 6.ix., have pp. 6-10 nearing completion, the tails new, and ss. in moult.

**Distribution.** Taurus Mts and probably elsewhere in Asia Minor, Transcaspia, Turkestan, Iran and N.W. Himalayas from Kashmir to Punjab, at elevations up to 9,000 feet. Winters throughout peninsula India to Ceylon.

LESSER WHITETHROAT—WING-FORMULA
Position of tip of 2nd p. in relation to tips of other pp.
(Expressed as %)

| *Race* | *n.* | *5th* | *5th/6th* | *6th* | *6th/7th* | *7th* | *7th/8th* | *8th* | *8th/9th* |
|---|---|---|---|---|---|---|---|---|---|
| CURRUCA .. | 40 | 2½ | 70 | 25 | 2½ | — | — | — | — |
| BLYTHI .. .. | 50 | — | 2 | 6 | 70 | 10 | 12 | — | — |
| MINULA .. .. | 45 | — | — | 1 | 17 | 20 | 40 | 22 | — |
| MARGELANICA .. | 20 | — | — | — | 55 | 20 | 20 | 5 | — |
| ALTHAEA .. .. | 45 | — | 4½ | 4½ | 24½ | 26½ | 31 | 6½ | 2½ |

## SYLVIA NISORIA (Bechstein)

## *Barred Warbler*

♂♂. Upper parts brownish-grey; rump, upper tail-coverts and some scapulars barred dark grey and tipped buffish-white. Sides of crown flecked whitish, ear-coverts and lores grey-brown. Under parts white, scalloped on sides of breast, belly and flanks with dark grey crescentic marks; under tail-coverts grey-brown with broad white fringes and tips. Wings dark brown with narrow greyish-white fringes and tips in fresh plumage; tertials and wing-coverts with dull wing-bar formed by broader whitish fringes and tips, and subterminal blackish brown bars; axillaries buffish-white, barred brown. Tail dark grey-brown, outer and most of inner web of outer feathers white, remainder (except middle pair) fringed white on inner web and with white lunate spot on tip.

♀♀. Browner on upper parts, less barred on under parts. Narrower white tips to tail-feathers; no barring on axillaries.

A large, robust, long-tailed warbler recalling WHITETHROAT in shape and actions. Haunts borders and clearings of deciduous and mixed woods where there is good undergrowth, particularly of thorns etc.; also in young plantations, parkland, hedgerows. In winter occurs in thorn scrub and arid bush country. Call-notes include typical *chak, chak* and churring note common to most of

the genus, also a highly characteristic loud, harsh chatter of alarm, *err-err-err*. Song, similar to GARDEN WARBLER's, but with more rapid delivery and shorter phrases, is usually delivered during short flights, and often begins and ends with a chattering note.

**Ageing.** Young are unbarred, except usually for traces on the under tail-coverts and lower flanks. They are more sandy grey-brown above and whitish below and have ss., tertials and wing-coverts edged and tipped with dull white, forming a distinct wing-bar. Traces of this plumage are sometimes retained into 1st-summer (see **Moult**).

**Colours of soft parts.** Bill: dark brown, base of lower mandible yellow or yellowish-brown, pale horn in young birds. Legs: dull yellowish-flesh, brownish-grey. Iris: pale to bright yellow in adults; dark or grey-brown in 1st-winter becoming paler towards the spring—but note that yellow-eyed birds have been reported occasionally in Britain in autumn.

**Measurements.** Wing, ♂♀ 83-90, rarely as short as 80 or as long as 93. Tail, ♂♀ 64-79, mostly 68-73. Bill, 15½-18. Tarsus, 24-26. Tail slightly rounded, 4-7. Wing/tail ratio of 100 birds, 77-86 (89). See Tables on pp. 66, 68.

**Weight.** Average of 50 1st-winter birds at Fair Isle B.O., 22.8 (18.8-31.0) gm., most between 20-25 gm.; average of 16 at Isle of May B.O., 24.5 (20.6-29.5) gm.

**Wing-formula** (pp. ascendant). Emarginated 3rd-4th, sometimes slightly 5th. 1st p. minute, about half p.c.

Wing-point 3rd. 4th, ½-2; 5th, 3½-5; 6th 6½-8½; 7th, 9½-12; 8th, 12½-14; 10th, 18-21.

2nd, ½-2½, very occasionally as long as 3rd, usually=4th or falls between 4th-5th. Notch on inner web, 14-16 from tip, =8th or 9th or falls between. Notch on inner web of 3rd falls about opposite 7th-8th.

**Moult** (pp. descendant). According to *Handbook* (2: 72), there is a complete moult in July-August. A ♂, Ashaira, Arabia, 13.viii., has new pp. and tail but only ss. 4-5 have been renewed, and head and under parts are finishing. One from Wadi Fatima, Arabia, 30.viii., has new wing and tail but is still in body moult. Another moult follows from December to April which varies much individually in extent, and in which the contour feathers are mostly renewed, together with a varying number of tail-feathers, tertials, and wing-coverts. Two ♂♂, Kenya, i, are replacing tertials and two pairs of tail-feathers.

An imm. ♂, Lake Rudoph, Kenya, iii., is renewing tertials and tail and has acquired a good deal of adult plumage on under parts, but not on nape, mantle or head. From Sudan there are: ♂, White Nile, 8.iii., in body moult only; adult ♂, Sinkat, 19.iii., completing middle pair of tail-feathers; ♂, Sinkat, 24.iii., showing irregular moult of ss. and tertials with a new tail; ♀, Port Sudan, 20.iv., practically unchanged from 1st-winter; imm. ♀, White Nile, 23.iv., with new tertials, the tail moulting, but body plumage as 1st-winter.

**Distribution.** Denmark, S. Sweden, S. Finland (rare), Germany, former Baltic States, Poland and W. Russia, south to Austria, Hungary, Czechoslovakia, N. Italy, Yugoslavia, Turkey, Asia Minor and Caucasus Mts; also eastwards across Kirghiz Steppes, Transcaspia, Iran and W. Siberia to Altai Mts, and in N.W. Mongolia. Winters from S. Arabia to N.E. Africa. A regular and not uncommon drift-vagrant (1st-winter birds only) to Faeroe Is, Shetland Is and Fair Isle (extreme dates, 3.viii. and 10.x.); less regularly seen east coast of Britain and scarce in the west (though there were ten or more in autumn 1967). Has occurred as far north as Jan Mayen, 12.viii.

NOTE. The race *merzbacheri* Schalow from Turkestan eastwards to Mongolia does not appear to be valid: it is said to be slightly greyer on crown and mantle in ♂♂ than European birds, but a number from Turkestan are equally brownish and quite inseparable.

**Movements of Barred Warbler.** This species is a comparatively rare breeding bird in S. Sweden and Denmark, but occurs regularly and in some years not uncommonly from the third week of August in Shetland, Fair Isle and Orkney, also along the east coast (especially Isle of May, Holy Island, and in Norfolk), and there is also evidence of 'onward passage' down the west coast (North Rona, Flannan Is, St. Kilda, Lewis, Barra and Irish Sea bird observatories). It has occurred as far west as Cos. Mayo and Galway. So far as I am aware there has been no record of an undoubted adult at this season: all the museum specimens I have seen, and the great majority of sight-records, are referred to 1st-winter birds, and I have postulated that this must be non-oriented post-juvenile dispersion (Williamson, 1959). Nisbet (1962), however, has suggested that the movement results from an oriented 'reversed migration' to the northwest, i.e. in the same direction as the spring passage through Europe. See the discussion in Davis (1967). The survivors of this movement must presumably move southeast eventually since the species is not recorded from N.W. or W. Africa, and is rare on passage west of N. Italy in the Mediterranean region.

## SYLVIA HORTENSIS (Gmelin)

## *Orphean Warbler*

*S. hortensis hortensis* (Gmelin)

♂♂. Mantle dark brown in spring, more greyish-brown with an olive tinge in autumn. Crown dull brownish-black, darker in spring than in autumn, when in some it is little more than dark

grey; merges with mantle coloration on hind-crown or nape (cf. *crassirostris*, *jerdoni*). Lores and ear-coverts black. Chin, throat and centre of belly white; rest of under parts whitish with pinkish-buff suffusion, darkest on flanks. Wings greyish-black narrowly edged and tipped greyish-white. Tail similar, all feathers except middle pair with white tip, largest on penultimate pair, and outer pair white with small brown wedge at base of inner web.

♀♀. Mantle browner, not so greyish; crown browner; wing and tail feathers browner. Buff of under parts usually more brownish, less pinkish.

Haunts open cork, *Ilex* and other woods or plantations (sometimes pines) with undergrowth; also olive-groves, orchards, gardens. In winter frequents riverside scrub and acacia scrub on borders of deserts. Alarm or scolding-note a hard, rattling *trrr*; also a BLACKCAP-like *tak*, *tak*. Song a loud, vigorous thrush-like warbling, without harsh or strident notes, chief feature of which is its repetitive character (*Handbook*, 2: 74).

**Ageing.** 1st-winter birds have crown browner than either ♂♂ or ♀♀, and more or less uniform with rest of upper parts.

**Colours of soft parts.** Bill: black above, bluish-grey below except for black tip. Legs: bluish-black, slate-grey, greyish-brown. Iris: pale yellow to yellowish-white; but some spring ♂♂ have dusky flecks giving the eye a pale grey appearance (P. Hope Jones), while there are others in which the eye is entirely dark (J. A. McGeogh, *Ardea*, 51: 248). Mouth: bluish-flesh.

**Measurements.** Wing, ♂♀ 72-83. Tail, ♂♀ 60-71, mostly 64-68. Bill, 15-18, mostly 16. Tarsus, 22½-25, mostly 23-24 (all races). Tail almost square, tips rounded. Wing/tail ratio of 150 birds, 78-91, eastern races giving slightly higher values than *hortensis*. See Tables on pp. 66, 68.

**Weight.** N. Portugal, average of 10, August-September, 19.8 (18.7-21.2) gm. (C. Mead). Spain, breeding ♂♂ 19.3 and 19.5gm. Vagrant at Portland 20.ix., 21.2 gm. (J. S. Ash).

**Wing-formula** (pp. ascendant). Emarginated3rd-5th.1st p.2½-8+p.c.

Wing-point 4th or 3rd=4th (occasionally 3rd ½-1½ shorter), rarely=5th. Otherwise 5th, ½-3; 6th, 5-7; 7th, 7½-10½; 8th, 10-13; 10th, 16-18.

2nd, 3½-7½, falls between 5th-7th. Notch on inner web of 3rd, 16-18 from tip, usually falls opposite 9th/10th pp.

**Moult** (pp. descendant). Complete post-nuptial, July to September, according to *Handbook* (2: 75); but Stuart Pimm, trapping at Coto Donana, Spain, found evidence of a 'suspended moult' in autumn migrants. A ♂, Morocco, 27.vi., has already replaced pp. 1-6 with pp. 8-9 in pin, ss. 1-3 growing, tertials and inner greater coverts new, and the tail in full moult except for the central pair. Another Moroccan ♂, 4.vii., has only pp. 1-2 new, however. In some the moult may be only partial as in *crassirostris*: a ♀, Timbuktu, French Sudan, 18.xi., has pp. 1-5 old and pp. 6-10 new; the tail is a mixture of old and new feathers; tertials, coverts and body are new but there has been no moult of ss. A ♂ from the same place, 23.xi., has completed a full moult. All spring birds are in very worn plumage and I can find no confirmation of the *Handbook* statement (also made by Jany, *Die Vogelwarte*, 1954, p. 198) that old and young have a complete pre-nuptial moult from February to May.

**Distribution.** N.W. Africa (Morocco to Tripoli); Iberian Peninsula, central and S. France, Luxemburg, S.W. Switzerland, N. Italy, intergrading with *crassirostris* eastwards to Balkans. Winters in Sahara and tropical Africa. Vagrant to Madeira, Channel Is(Jersey), Germany (Heligoland) and England (Wetherby, Yorks., ♀ 6.vii.1848; Portland Bill, Dorset, 20.ix.1955; Porthgwarra, Cornwall, 22.x.1967).

*S. hortensis crassirostris* Cretzschmar

Greyer above than typical race, with the black cap more sharply defined. Less buffy on flanks and under tail-coverts. Slightly longer bill and tail.

**Ageing.** 1st-winter birds are browner above, head as mantle or a little greyer; buff fringes to tertials and greater coverts and to some feathers of mantle, rump and upper tail-coverts.

**Measurements.** Wing, ♂♀ 76-83 (85). Tail, ♂♀ 61-73, mostly 65-70. See Tables on pp. 66, 68.

**Moult** (pp. descendant). Complete post-nuptial. The earliest is a June ♀ from Smyrna, Asia Minor, with p. 1 growing and pp. 2-3 in pin. A ♂, Dardanelles, Turkey, 23.vii., has replaced pp. 1-6 and has pp. 7-10 completing growth; the tertials, coverts and body are new, but the ss. and tail appear to be moulting quite irregularly. There is a winter moult involving only part of the wing and tail, and such birds may be 1st-winter. A ♀, Kamisa, Sudan, 15.xii., has replaced pp. 4-10, s. 6, tertials, coverts and alula but not the rest of the pp. or ss. (except s. 1 in one wing), and the middle and outer pairs of tail-feathers are growing. This moult is proceeding in another Kamisa ♀, 17.xii., with pp. 5-6 new and pp. 7-10 nearly full-grown, but pp. 1-4 and all ss. belonging to the juvenile plumage: the body has moulted and there are two new feathers in the tail. A ♂, Massawa, Eritrea, 22.xii., has replaced pp. 4-10 and all ss. except s. 3; a ♀, Khafs, Arabia, 1.iii., has also replaced pp. 4-10, the tail and most ss.; a

♂, Tanb Is, Persian Gulf, 2.iv., with pp. 5-10 only new is still in tail moult, and other spring birds show a similar condition.

**Distribution.** Cyrenaica, Balkan Peninsula, Asia Minor, the Lebanon, Israel, Transcaucasia. Winters in Arabia and N.E. Africa.

## *S. hortensis jerdoni* Blyth

Upper parts purer grey than in other races; cap dense black and more extensive, invading the nape. Somewhat whiter on under parts. Tail longer; bill longer and well attenuated.

**Measurements.** Wing, ♂♀ 76-83. Tail, ♂♀ 65-73. Bill, 18½-21, mostly 19-20. See Tables on pp. 66, 68.

**Moult** (pp. descendant). Complete post-nuptial. A ♂, Fort Munro, Punjab, 14.vii., is well advanced in wing-moult (pp. 1-6 new, pp. 7-8 growing) but most of the body feathers are old; tertials and coverts are new and the tail is moulting irregularly. A ♀, Sakesar, Punjab, 29.vii., has renewed pp. 1-5, outermost tertial and middle pair of tail-feathers but very little of the body plumage. A ♂, Chaman, Baluchistan, 13.viii., has pp. 6-8 completing and pp. 9-10 out of sheath; ss. 5-6 are old but otherwise ss., tertials and tail are well advanced. Another from Sakesar, 17.viii., has the pp. and ss. moulting quite irregularly; and a ♀, Thang, Punjab, 25.viii., has practically finished, except that the tail is a mixture of old and new. There are a number of examples of partial wing-moult as in *crassirostris*, but from earlier in the autumn, and these probably refer to 1st-winter birds. A ♂, Hissar, Punjab, 25.ix., has renewed pp. 5-6 and had p. 7 in pin; the tertials are new but the rest of wing and tail old. Two birds from Umballah, Punjab, x., are renewing the outer pp. (pp. 5-10 in one case and pp. 6-10 in the other) and have a few tail-feathers growing. Similar birds are from Karachi, Sind, 26.x. (completing a change of pp. 6-10 and part of the tail); Thelum, Punjab, 29.x. (pp. 7-10 and tertials new and tail moulting); Ambala, Punjab, 29.x. (pp. 5-10, tail and tertials new, and body mostly new).

**Distribution.** Iran, Transcaspia eastwards to Russian Turkestan; Baluchistan and Afghanistan. Winters in peninsula India.

NOTE. Vaurie (1954: 1-3) has proposed the recognition of a fourth population, inhabiting Transcaspia and Iran (with the exception of Persian Baluchistan) with the name *balchanica* Zarudny and Bilkevitch, 1918 (type-locality Great Balkhan, W. Transcaspia). Except for slight plumage differences (which he admits are 'quite trivial') the character on which separation is made is the somewhat greater extent of slate-black from the crown on to the nape, where it is sharply delimited. When individual variation is allowed for there is really little consistent difference between *crassirostris* and *jerdoni*, and the nomenclatural recognition of a further intergrade seems hardly warranted.

## THE ARABIAN WARBLER

This bird has often been placed in a different genus, *Parisoma*, a composite and entirely unsatisfactory group, as shown by Vaurie (1957). According to Meinertzhagen (1949), the bird has all the characters of a true *Sylvia*. It is indeed so like the ORPHEAN WARBLER as to be separable only on details of structure: there is virtually no overlap in wing-length with *crassirostris*, the race of ORPHEAN WARBLER occurring within its range, and there is a different wing/tail ratio and wing-formula, while the present species has a shorter bill.

The typical form *leucomelaena* is Arabian: two other races have been described from Africa—*blanfordi* from the Red Sea Province of the Sudan, and *somaliensis* from Somalia. In assessing the African races the difficulty is to assemble birds which are at the same stage of plumage, since abrasion and bleaching make a great deal of difference to the tone of the upper parts. Only March-April specimens of *blanfordi* were available for examination, and these are decidedly greyer than April specimens from Arabia and have a cleaner 'cap'. Specimens of *somaliensis* from January-February look greyer and less faded than the browner *leucomelaena* from the same period, but they are in body-moult and the Arabian birds are not. The comparison should be made with fresh *leucomelaena* (e.g. August-September birds) and these show no real difference from Somalian birds; nor can I find any difference between four August *somaliensis* and two September specimens from the Taif Plateau, Arabia. The African birds tend to be smaller than the Arabian, but there is some overlap which could no doubt be increased if a larger series were available.

It seems to me that *blanfordi* is reasonably distinct, but that *somaliensis* is better regarded as a synonym of *leucomelaena*.

**SYLVIA LEUCOMELAENA** (Hemprich & Ehrenberg)

*Arabian Warbler*

*S. leucomelaena leucomelaena* (Hemprich & Ehrenberg)

♂♀. Mantle dark grey-brown. Head sooty blackish-brown, merging with mantle and not a clear-cut cap as in *S. hortensis* (which it much resembles). Ear-coverts and region round eye

black. Under parts creamy, becoming whiter in middle of belly, and washed with greyish-brown on sides, flanks and vent. Under tail-coverts dark grey-brown with broad whitish fringes. Wings dark brown; tertials, inner ss. and greater coverts narrowly fringed greyish-white in fresh plumage. Tail blackish-brown, central pair darkest, outer pair tipped white unless very worn. Three long rictal bristles, and nasal hairs prominent: they are much finer in *S. hortensis*.

A bird of secretive behaviour, inhabiting low thorn scrub and acacia; according to Meinertzhagen (1954) the song and nesting-habits are undescribed. He could not detect any field-characters by which the species could be distinguished from passage ORPHEAN WARBLERS. In a museum series *leucomelaena* is generally darker than ♂♂ *crassirostris*, the race of ORPHEAN WARBLER occurring in Arabia, and the dark cap is not so clearly defined; but many ♀♀ *crassirostris* would be very difficult if not impossible to separate in the field.

**Colours of soft parts.** Bill: black, base of lower mandible bluish-grey. Legs: greenish-olive, olive-grey. Iris: dark brown, pale umber. (Some labels record an outer whitish ring.)

**Measurements.** Wing, ♂♀ 65-75. Tail, ♂♀ 63-74 (77). No ♀♀ had wing above 71 or tail above 70. Bill, 12-14½. Tarsus, 20-22½. Tail rounded, outer about 7-9, penultimate about 4-5. Wing/tail ratio of 60 birds, 93-105. See Tables on pp. 66, 68.

**Wing-formula** (pp. ascendant). Emarginated 3rd-7th. 1st p. 9-12+ p.c.

Wing-point 4th=5th (occasionally=3rd, more frequently=6th), otherwise 3rd, 1-3; 6th, ½-1½; 7th, 1-3½; 8th, 3-6; 10th, 7½-9½.

2nd p., 7-10½, falls below 8th and often below 10th.

**Moult** (pp. descendant). Complete post-nuptial. Among Arabian birds, a ♂ from Najran, 25.vii., has pp. 1-4 and s. 1 new and the tail moulting, but not the tertials or coverts; a ♂ from Birka, 10.viii., has replaced pp. 1-6 (pp. 7-9 well grown) with ss. 1-3 new and the rest in pin, tertials and coverts new and the tail complete except for the outermost feathers. One from Lahej, 13.viii., has renewed pp. 1-6 (the remainder and ss. old) and tertials and tail are growing; while a ♀ from Najran, 25.viii., has renewed pp. 1-7 and tertials but none of ss. and has the whole tail moulting. Two ♂♂ from the Taif Plateau, 28.viii. and 1.ix., are very close with pp. 1-5 new, pp. 6-7 and s. 1 growing, and the tails nearly finished.

A ♀ from Wagher, Somalia, 23.viii., has pp. 1–6 new, together with tertials and s. 6, with pp. 7–8 and s. 1 nearly fully extended; while a ♂ from the same locality, 28.viii., has virtually finished. Another Somalia bird, 2.i., has renewed tertials and s. 6 and has a new tail growing. Two ♂♂ from Ashaira, Arabia, 12–13.i., are very fresh and appear to have recently completed a full moult.

**Distribution.** Arabia, resident from Midian in the west through the Hejaz to Yemen and Aden; also Somalia in N.E. Africa.

*S. leucomelaena blanfordi* Seebohm

A cleaner grey than the typical race, and has a better marked cap; the wing and tail are shorter—wing, ♂♀ 61–68; tail, ♂♀ 58–68.

**Distribution.** Sudan.

## **SYLVIA NANA** (Hemprich & Ehrenberg)

## *Desert Warbler*

*S. nana nana* (Hemprich & Ehrenberg)

♂♀. Upper parts sandy greyish-brown, rump and upper tail-coverts warm sandy-buff. Lores and region round eye grey. Under parts creamy, washed with buff on flanks, and with yellowish-buff on belly and under tail-coverts. Wings dark brown, tertials warm sandy-buff with blackish-brown shaft-streaks. Tail dark brown, with white on outer three feathers, but central pair similar to tertials.

Found in desert and semi-desert; rather skulking. Inhabits acacia in Wadi Araba south of Dead Sea (D. I. M. Wallace). Song said to be rich and pleasant, not unlike WHITETHROAT's (Dresser).

**Colours of soft parts.** Bill: yellowish-horn, culmen and tip and nostrils dark. Legs: straw-yellow. Iris: yellow. Eye-ring: white.

**Measurements.** Wing, ♂♀ 52–61. Tail, ♂♀ 44–53. Bill, 9½–11½. Tarsus, 18–21. Tail only slightly rounded, 3–5. Wing/tail ratio of 110 birds, 80–93. See Tables on pp. 66, 68.

**Wing-formula** (pp. ascendant). Emarginated 3rd–5th, slightly on 6th. 1st p. 1–6+p.c.

Wing-point 3rd=4th=5th, though 5th occasionally ½-1 shorter. 6th, 1½-3; 7th, 3-5½; 8th, 5-7½; 10th, 8-11½.

2nd, 2-4, usually between 6th-7th, occasionally between 5th-6th. Notch on inner web of 3rd falls opposite tips of ss.

**Moult** (pp. descendant). Probably post-nuptial. A ♂ from Jodhpur, India, 21.i., has all the tail feathers half grown.

**Distribution.** Kalmuk and Kirghiz Steppes, Aral-Caspian region, Transcaspia and Russian Turkestan to Sinkiang, central Mongolia and Ningsia in central Asia; south to E. and S. Iran, W. Afghanistan and Baluchistan. Winters from Egypt eastward to the deserts of N.W. India and Pakistan, including the Red Sea region, Somalia, Arabia, Iraq and the Persian Gulf. Has occurred once in Sweden (Ottenby, Öland), 20.x.1961, and once in Finland (near Turku), 26.x.1963.

*S. nana theresae* Meinertzhagen

Darker and greyer above than the typical race, whiter and less creamy below. Vaurie (1959) mentions intermediate specimens from Rajputana on 4.iii.

**Distribution.** Breeding range unknown: the type-locality is Sind and the few known specimens were wintering, i. and ii.

*S. nana deserti* (Loche)

Very different from *nana*. Upper parts pale sandy (upper tail-coverts rufous), and under parts purer white. Dark shaft-streaks on middle tail feathers and tertials are less prominent.

**Colours of soft parts.** Bill: pale flesh or creamy, with the culmen light brown. Legs: creamy or pale yellow, with the claws darker. Iris: bright yellow.

**Measurements.** Wing, ♂♀ 54-55. Tail, ♂♀ 48-50. Bill: 10-11. Tarsus, 19½. (Six specimens examined.)

**Distribution.** Sahara Desert from Algeria to Tripoli. Accidental on the border of Cyrenaica and Egypt, in Italy, and on Porto Santo Is near Madeira.

## RUPPELL'S AND SARDINIAN WARBLERS AND THEIR ALLIES

In discussing the relationships of the SARDINIAN, CYPRUS and MÉNÉTRIES'S WARBLERS, Vaurie (1954: 11-14) regards all three as being very closely allied. Meinertzhagen (1954: 212-13) goes even

further and makes them conspecific, in spite of objections to this step first raised by Hartert and Steinbacher (1934).

MÉNÉTRIES's WARBLER *S. mystacea* replaces the SARDINIAN WARBLER *S. melanocephala* in the lower Volga basin, Caucasia and the Near East to Russian Turkestan and Afghanistan. The CYPRUS WARBLER *S. melanothorax* is confined as a breeding bird to the island of that name, where neither of the others occurs, except on passage.

Speaking of the CYPRUS WARBLER, Vaurie (*op. cit.*) says: 'Whether or not *melanothorax* is conspecific with *melanocephala* is a matter of opinion. To me the two forms appear to be very closely related and, being geographical representatives, can be treated as conspecific.' There appears to be nothing in their actions or behaviour which would distinguish one from the other (G. K. Martin and F. J. Walker, *in litt.*), but as behaviour and habits are similar between other forms of *Sylvia* acknowledged to be good species (e.g. *undata* and *sarda*), this is perhaps not a good criterion.

To my mind, *melanothorax* is much closer to RUPPELL'S WARBLER *S. rüppelli*, and the two might well have diverged during a long period of isolation, perhaps in Cyprus and Crete respectively. The latter may later have invaded other Aegean Is and the mainland of Greece (though whether it now breeds there seems doubtful—*Handbook*, 2: 91), and has colonized parts of Asia Minor and the Near East. It certainly occurs in Cyprus on passage, but whether or not it breeds is in doubt. In any event, it is now sufficiently distinct from *melanothorax* for the two to stand as good species.

My view that the two are more closely related to each other than either is to the SARDINIAN WARBLER is based on the striking similarities in plumage-pattern. The ♂♂ of both have black heads, and black 'bibs' on the throat and upper breast. The 'bib' is lacking in the SARDINIAN WARBLER, and although clearly defined in *rüppelli*, has become broken up with broad white feather tips in *melanothorax*, and has been extended in many ♂♂ specimens. The pinkish lower breast of *rüppelli* is reflected in some *melanothorax*, particularly those which are less densely mottled below. The ♂♂ of both have pronounced whitish fringes to the tertials, ss. and greater coverts, a feature lacking in the SARDINIAN

WARBLER. The ♀♀ of the two are almost identical except in size, having dark greyish heads and pale brown fringes to the tertials and coverts, also absent from ♀♀ *melanocephala*. Neither species has the tail so markedly rounded as in the SARDINIAN WARBLER, while the wing/tail ratio is different.

On the other hand, the relationship of *mystacea* to *melanocephala* seems to be close, the Near East race *momus* providing the link. Many ♂♂ *momus* show the pinkish flush below which occurs to a greater or lesser degree in the very variable ♂♂ *mystacea*, while some ♀♀ *momus* have the grey of the head suppressed, thus approaching ♀♀ *mystacea*. Neither has pale or bright edgings to the tertials and greater coverts, and both possess well-rounded tails. The moustachial streaks prominent in most ♂♂ *mystacea* are not very obvious in the less pigmented birds, and are almost completely occluded by the white underparts in *momus*.

Vaurie keeps *mystacea* a distinct species, citing structural differences from *melanocephala* in support of this treatment: they are, however, of the kind which are highly adaptive, such as bill-length, wing-formula and wing/tail ratio. Meinertzhagen regards them as conspecific, and indeed some I have examined from winter quarters in Somalia and the Sudan are very difficult to place, and suggest that intergradation may occur. The crux of the problem seems to be whether only one, or both, breeds in the same areas of Israel and Jordan. According to Meinertzhagen, *momus* is a common bird in the Jordan Valley, and it breeds north to Syria and the Lebanon; according to Hartert *mystacea* has been found breeding just north of Jerusalem, and Vaurie thinks these records may represent a secondary expansion westwards from Iraq, where it is common. It would appear that such overlap as exists must be very slight, and if there is not virtual allopatry there is at least a suggestion of intergradation from one form to the next. It might be more realistic to regard *mystacea*, *momus* and *melanocephala* as geographical representatives of the same species; but as custom is to treat as full species until the contrary is firmly established, I have followed this course in the present instance.

Apart from *momus*, the SARDINIAN WARBLER has been divided into several races, but only two of these seem acceptable. They are *norrisae*, a distinctive but highly restricted Egyptian form;

and *leucogastra* (which Vaurie synonymizes with the typical race) in the Canary Is. The birds of E. and W. Canary Is show certain differences, as indicated on p. 46, probably due to the climatic extremes of the two areas; and although the name *leucogastra* (type-locality Tenerife) was given to the western group, in which the differences from nominate *melanocephala* are least pronounced, the name should be applied to the Canary Is population as a whole. For further discussion of the relationships of these birds see Volsøe (1951: 98–9) and Vaurie (1954: 13).

**SYLVIA RUPPELLI** Temminck

## *Rüppell's Warbler*

♂♂. Upper parts French-grey, slightly tinged brown on mantle. Crown, lores, ear-coverts, chin and throat black, relieved by a prominent white moustachial stripe. Rest of under parts creamy white with a rosy tinge, centre of belly pure white, flanks pale grey tinged with pink. Wings black; tertials, innermost ss. and greater coverts broadly, and pp. narrowly, fringed and tipped greyish-buff to greyish-white. Tail black, central pair and outer webs of others tinged grey and fringed whitish, with much white in outermost feathers (fig. 1).

♀♀. Upper parts medium brown. Crown greyish-brown mottled with black. Ear-coverts, region round eye and sides of neck grey. Chin and throat creamy-buff admixed with black in some; moustachial stripes whiter. Upper breast pale buff, flanks browner, centre of breast and belly creamy. Wing and tail brownish-black, tertials edged buffish-brown.

Haunts thick scrub of rocky slopes and gullies: in winter in gardens, hedges, cane-breaks and scrub of all sorts. Scolding note similar to SARDINIAN WARBLER's but louder and harsher, occasionally terminated by a musical *pit, pit.* (Has been compared to a few slow turns of a wooden 'bird-scarer'.) Song also similar to *melanocephala*, but fuller and more musical (*Handbook*, 2: 91). Flight straight and less undulating than SARDINIAN WARBLER's: 'back of bird in flight has appearance of being convex, as opposed to concave in Sardinian' (M. Barclay and H. Pease, *Ibis* 1938: 144–5).

**Ageing.** 1st-winter ♂♂ have crown browner, less black, than adult ♂♂, and grey of upper parts and wing-coverts browner; feathers of throat are more fringed with white.

**Colours of soft parts.** Bill: brownish-black, base of lower mandible light brown or flesh. Legs: light or reddish-brown. Iris: dull orange. Eye-ring: orange-red.

**Measurements.** Wing, ♂♀ 64-71 (♂♂ to 73). Tail, ♂♀ 54-64. Bill, 13½-16, mostly 14-15. Tarsus, 20-22. Tail somewhat rounded. Wing/tail ratio of 75 birds, 81-94 (mostly 85-91). See Tables on pp. 67, 68.

**Wing-formula** (pp. ascendant). Emarginated 3rd-5th. 1st p. minute, rarely as long as p.c.

Wing-point 3rd=4th (occasionally 4th ½ shorter). 5th, 1-2; 6th, 4-6; 7th, 7-9; 8th, 9½-11½; 10th, 12½-15.

2nd, 1½-3 (occasionally=wing-point), usually falls between 5th-6th. Notch on inner web of 2nd falls between 10th-ss.; notch on inner web of 3rd falls between 8th-9th or=9th.

**Moult** (pp. descendant). Complete post-nuptial, September to November, according to *Handbook* (2: 92); but a ♀ from Smyrna, Turkey, 16.vii., has already renewed pp. 1-2 and has pp. 3-4 and tertials in pin. In spring some ♂♂ have blacker primaries than others—blackish-brown not faded brown, but less dark than tail-feathers or head—and these may be 1st-winter birds which have undergone a moult in winter quarters. Spring ♂♂ from E. Mediterranean and Asia Minor show evidence of occasional renewal of tertials and innermost ss.

**Distribution.** Crete and Aegean Is south to Rhodes; formerly Greece. Asia Minor and doubtfully Israel. On passage Cyprus, Cyrenaica, the Lebanon and N.W. Arabia to winter quarters in N.E. Africa. Casual in Iraly and Sicily, and once in Finland (Oulu, 7-8.vi.1962—*Orn. Fennica*, 40: 31-2).

## SYLVIA MELANOTHORAX Tristram

## *Cyprus Warbler*

♂♂. Upper parts dark brownish-grey. Crown, lores and ear-coverts black, bordered below by pronounced white moustachial stripes. Under parts mottled black and white to an individually variable extent: throat and upper breast black with a few white tips, lower breast and much of belly black with broad white

fringes and tips, under tail-coverts similar. Flanks grey suffused pinkish-brown, and in some there is a faint pinkish suffusion on lower breast. Wings blackish-brown; tertials, innermost ss. and greater coverts margined broadly, and pp. narrowly, with pale grey-brown or dull white. Tail black with white in outer and penultimate feathers (fig. 1).

♀♀. Upper parts medium brown, head darker and often mottled with black. Ear-coverts sooty. Throat and upper breast mottled with black but to a less extent than in ♂♂, so that most of the lower breast and belly are greyish-white. Flanks and sides pale brownish-grey. Tertials etc. fringed pale brown.

Haunts bundo, orange plantations, reed-beds and in fact any scrub, from coast to *c.* 6,000 feet in the mountains. Closely resembles SARDINIAN WARBLER in its habits and has a similar action of cocking the tail almost at right-angles to the body. CYPRUS WARBLER ♂ has primaries broadly edged white and belly and vent are silvery white, but ♀♀ are indistinguishable from SARDINIAN ♀♀ in winter though faint crescentic markings on throat help to separate them in spring. Restless, skulking in thick cover, constantly uttering a harsh *szack* or *zigg-zigg* note. Song varied, some notes reminiscent of WHITETHROAT, delivered from inside bush or from topmost twig (F. J. Walker, G. K. Martin).

**Ageing.** Some ♂♂ (probably 1st-summer) are as described above but have worn brown wing-feathers (except for new tertials), while others (probably adult) are very sooty, almost black above, and have apparently had a more recent wing-moult. The juvenile is a plain sooty brown bird.

**Colours of soft parts.** Bill: upper mandible blackish, lower greyish-horn tipped black or blackish with silvery cutting-edges. Legs: blackish horn, dark flesh. Eye-ring: bright brick-red; outer orbital ring of white feathers. Iris: chestnut (F. J. Walker).

**Measurements.** Wing, ♂♀ 55-61. Tail, ♂♀ 49-57 (60). Bill, 12-14 (15). Tarsus, 19-21 (22). Tail rounded, 6-8. Wing/tail ratio of 31 birds, 88-98 (mostly 92-95). See Tables on pp. 67, 68.

**Wing-formula** (pp. ascendant). Emarginated 3rd-4th and often 5th. 1st p. 1½-6+p.c.

Wing-point 3rd=4th, sometimes=5th. 5th, ½-2; 6th, 3-5½; 7th, 5-7½; 8th, 6-8½; 10th, 9-11.

2nd, 2-4, usually falls between 5th-6th or=6th. Notch on inner web of 2nd falls below ss. (Very few unworn specimens were available for examination.)

**Moult** (pp. descendant). The post-nuptial moult is curiously incomplete, in some apparently involving the outer five pp. Thus a ♂, 29.vii., has pp. 1-4 old and pp. 5-6 growing with pp. 7-8 in pin; the greater coverts are new, the other coverts and tertials moulting, and all the tail-feathers except one (old) are growing. A ♀, 23.vii., is moulting the tail and tertials only and there is none or very little body moult. Another ♀, 2.vii., has pp. 1-4 old and pp. 5-10 moulting quite irregularly; the wing-coverts, tertials and tail are in moult but the body is not far advanced. One, 7.viii., however, appears to be moulting quite normally with pp. 1-7, ss. 1-2, tertials, coverts and tail new, and pp. 8-10, ss. 4-6 and alula growing. Another, 20.ix., has pp. 1-7 new and 8-9 growing with 10 in pin, and is moulting coverts and head. A ♂, 12.xi., has pp. 5-10, s.6, tertials and tail (except for one old feather) new. Two spring birds show a similar state of affairs: ♂, 16.iii., with pp. 5-10, ss. 5-6, tertials, coverts and middle tail-feathers new (no body moult); and ♂, 2.iv., which has also renewed ss. 5-6 (and s. 1 in one wing), tertials, inner greater coverts, and outer pair of tail-feathers.

**Distribution.** Cyprus. Has occurred in Asia Minor, the Lebanon and Israel, but apparently only in winter.

## SYLVIA MELANOCEPHALA (Gmelin)

## *Sardinian Warbler*

*S. melanocephala melanocephala* (Gmelin)

♂♂. Mantle dark grey suffused to a varying extent with dark brown. Head glossy black including lores, region below eye, and ear-coverts. Chin and throat white, under parts whitish washed with grey, the extent and tone varying individually, and most marked on sides of belly and flanks. Crural feathering pinkish-brown. Wing dark brown; tertials, inner ss. and greater coverts fringed dark grey. Tail blackish with white on three outer feathers (fig. 1).

♀♀. Upper parts brown, tinged greyish on rump; grey head, lores and ear-coverts, sometimes marked with black on the crown. Under parts white, suffused brownish-buff on sides, breast and flanks. Under tail-coverts brown with broad white fringes. Tail blackish-brown, darker than wings; tertials etc. narrowly fringed rufous brown.

A few ♂♂ from Mediterranean Is (Palma, Balearic Is, 8.iv.; Syracuse, Sicily, 14.xi.) are much paler grey above than typical birds, and much whiter below with a delicate pinkish flush: in these respects they are close to the race *momus*.

One of the characteristic birds of Mediterranean scrub, in open woodland with good undergrowth, thickets, vineyards, gardens etc.; frequently associated with cistus and tree-heath. Often exceedingly skulking. Fans the tail during its short flights; cocking of tail and frequent raising of crown-feathers noted in Fair Isle bird. Behaviour and steep forehead reminiscent of WHITETHROAT. Song similar but more sustained, mixture of modulated warbling of musical notes and hard rattling ones of the same quality as its characteristic harsh, stuttering, scolding-note which, according to Dresser, resembles the winding of a clock. (See I. J. Ferguson-Lees, *Brit. Birds* 60: 480–1). *See Plate III.*

**Ageing.** 1st-winter ♂♂ are said to be rather browner on crown, nape and upper parts than adults, but variation among the latter is wide; combined with browner, more abraded wing and tail feathers, however, and sullied white of outermost tail feathers, this feature may be diagnostic. An immature ♂ in body-moult, Ajaccio, Corsica, 23.x. is similar to ♀ except for blue-grey coming into mantle and upper tail-coverts, and dull black crown admixed with brown. 1st-winter ♀♀ have very little grey on head and rump, the former being sometimes uniform with mantle, and the white portions of the outer tail feathers are dusky. See p. 56.

**Colours of soft parts.** Bill: black, base of lower mandible pale horn. Legs: olive-brown, flesh-brown, light tan. Iris: reddish-brown, yellowish-ochre. Eye-ring: crimson, reddish-brown; 'orbital ring and eyelids salmon-pink in adult, pinkish-brown in juvenile' (*Handbook*, 2: 95). Eyelids also described as orange.

**Measurements.** Wing, ♂♀ 53–62 (64), mostly 55–60. Tail, ♂♀ 54–65 (67), mostly 56–63. Bill, 11½–13½ (14). Tarsus, 19–22. Tail well rounded, outer usually 11–14 (once 18), penultimate 5–8 (once 11), next about 4 shorter than middle pair. Wing/tail ratio of 180 birds, all races, 95–112. See Tables on pp. 67, 68.

**Weight.** N. Portugal, 1st-winter ♂ 17.ix., 10.8 gm. (C. Mead).

**Wing-formula** (pp. ascendant). Emarginated 3rd–6th, though often only very slight on 6th, and in some not discernible. 1st p. 1–5½+p.c.

Wing-point 3rd=4th=5th, with 3rd or 5th rarely a shade shorter. 6th, 1-3; 7th, 3½-5; 8th, 5½-7½; 10th, 8-10.

2nd, 3½-6 falls between 6th-8th (once=9th). Notch on inner web, 14-17 from tip, falls well below ss. tips; notch on 3rd, 12-15, is also below ss. tips.

**Moult** (pp. descendant). Complete post-nuptial, finishing about end of August in birds trapped at Cape San Vito, Trapani, Sicily (Oxford Univ. Sicilian Exp.). A ♀, 19.viii., was left with ss. 5-6 and two tertials in pin, though the tail was still in moult. A ♂, 23.viii., has renewed pp. 1-5, tertials, s. 1 and middle two pairs of rectrices, with the remainder and pp. 6-7 and s. 2 well grown. Another adult, 25.viii., had completed all except s. 6, but a ♂ on 26.viii. had an old wing and all the tail feathers in sheath. One on 27.viii. was completing pp. 8-10 and tertials, with ss. new except 5-6 (in pin). A ♂, 28.viii., had progressed as far as p. 6 and s. 1 (in pin), with tertials moulting, and had all the rectrices in pin; a ♀, same date, was finishing s. 6 and outermost and penultimate rectrices, but only the two middle pairs were new. A ♂, 29.viii., had completed the wing and was finishing the tail feathers from inside outwards. A few others between these dates showed moult of tail and tertials only. There is probably a partial moult in winter quarters: ♀♀ from Biskra, Algeria, 16.xii., and Barce, Cyrenaica, 24.ii., have the whole of their tails growing, the wing-feathers being worn in both cases.

**Distribution**. Mediterranean Europe from Iberian Peninsula east to Bulgaria and Asia Minor, and in N. Africa from Morocco east to Cyrenaica. Also Balearic Is, Corsica, Sardinia, Malta, Sicily; on passage Cyprus. Some winter in Sahara, Egypt, N. Iraq. Accidental Switzerland, England (Lundy, N. Devon, ♂ 10.v.1955), Scotland (Fair Isle, 26-27.v.1967). Possibly breeds in Rumania and S. Ukraine.

*S. melanocephala leucogastra* (Ledru)

♂♂ in winter, Palma and Tenerife, are a darker grey-brown above than typical race or ♂♂ from the E. Canary Is of Gran Canaria, Fuerteventura and Lanzarote, which are decidedly greyer. Similarly winter ♀♀ from Tenerife are much darker brown above than ♀♀ from Gran Canaria, which are dark greyish-brown.

Compared with typical *melanocephala* E. Canarian birds are greyer, not so blackish above; and have sooty not glossy black caps; under parts are whiter with less grey on flanks and a faint pinkish-buff tinge; and there is less white on the tip of the inner webs of outer tail feathers.

Breeds in tamarisk scrub, and in bushes on edges of cultivation and lava-flows; also in the *Erica* zone above 2,500 ft (Tenerife).

**Colours of soft parts.** Bill: light horn. Legs: yellowish-brown. Iris: yellow, light or dark hazel. Eye-ring: brilliant red.

**Measurements.** Wing, ♂♀ 53-59. Tail, ♂♀ 56-62 (65). See Tables on pp. 67, 68.

**Wing-formula** (pp. ascendant). Emarginated 3rd-5th, very slightly on 6th. 1st p. 5-7+p.c.

Wing-point, 4th=5th, 4th occasionally a shade shorter. 3rd, ½-1½; 6th, 1; 7th, 3-5; 8th, 5-7; 10th, 7½-9.

2nd, 6-7, mostly=9th (once between 8th-9th, once between 7th-8th). Only five specimens were fresh enough for examination, but these indicate a consistently longer 1st and shorter 2nd pp. than in the typical race.

**Moult** (pp. descendant). Probably complete post-nuptial, from late May to about mid-July. A ♂ from Lanzarote, 13.v., is extremely worn and bleached, and ♂♂ from the same island, 30.xi. and 24.ii., are similarly abraded. A ♀, 12.viii., is in tail-moult.

**Distribution.** Canary Is.

*S. melanocephala momus* (Hemprich and Ehrenberg)

♂♂. Much greyer above than typical race and whiter below, with much less greyish wash on sides of belly and flanks, and in some a pinkish suffusion on belly.

♀♀. Paler brown above than typical race, whiter below, with sides and flanks pinkish-buff rather than pinkish-brown.

BOWMAN'S WARBLER affects luxuriantly wooded localities rather than open scrub: often in association with tamarisk.

**Colours of soft parts.** Bill: dark slate or blackish, light blue-grey at base of lower mandible and along cutting-edges. Legs: brownish-grey, reddish-brown, dirty olive. Iris: light brown, pale reddish-brown. Eye-ring: dingy orange-red.

**Measurements.** Wing, ♂♀ 53-59. Tail, ♂♀ 51-60, mostly 53-57. Bill, 11½-13. Tarsus as in typical race. See Tables on pp. 67, 68.

**Distribution.** Syria, Israel and Jordan; partial migrant, some wintering in Sinai Peninsula, Egypt, Sudan and Aden.

*S. melanocephala norrisae* Nicoll

♂♂. Paler and a sandier grey-brown above than typical race; whiter, washed with pinkish-buff below.

♀♀. Bright sandy-brown above; a heavy wash of sandy-buff on breast, sides and flanks.

**Measurements.** The nine specimens seen (only one ♀) measured: wing, 55-57; tail, 53-60; bill, 11-12½.

**Moult** (pp. descendant). Probably complete post-nuptial. The above birds, collected in January, were all in very worn plumage.

**Distribution.** Restricted to the type-locality, Lake Birket Qarun, El Faiyum, Egypt.

NOTE. The race *pasiphae* Streseman and Schiebel (Canea, Crete, 1925) falls within the range of individual variation so far as plumage is concerned: it is said to be smaller, but the wing-length given, 55-60, agrees with the range for most *melanocephala*. The name *carmichael-lowi* Clancey (E. Basilicata, S. Italy, 1947), founded on slight plumage differences, is likewise a synonym of nominate *melanocephala*.

## **SYLVIA MYSTACEA** Ménétries

## *Ménétries's Warbler*

♂♂. Upper parts dark grey often suffused brown on nape and occasionally also on mantle. Crown, forehead, lores and ear-coverts dull black. Under parts varying from white with pinkish flush on breast and sides to pinkish-white with a much stronger, almost terracotta colour, pervading throat and upper breast, sides and flanks. Such birds have a white chin and white moustachial stripes. Under tail-coverts grey with long white fringes reaching well down tail. Wings dark brown; tertials, inner ss. and greater coverts with pale greyish or greyish-brown edgings. Bastard-wing dark brown edged greyish-white. Tail dark brown with much white in outer feather and white tips to next two (fig. 1).

♀♀. Greyish olive-brown above, forehead rusty brown. Under parts whitish suffused buff on breast and brownish-buff on flanks.

A bird of the plains and lower slopes of the mountains, favouring tamarisk bushes. When on the wing carries its tail very high (Dresser). Very restless, uttering a *tak-tak* note when alarmed.

**Ageing.** Young similar to ♀ but with pinkish suffusion on breast.

**Colours of soft parts.** Bill: brownish horn, base of lower mandible pale straw. Legs: light brown, pinkish-brown or flesh. Iris: generally noted as brown or light brown, once as light reddish-brown. Eye-ring: orange, pale brick-red.

**Measurements.** Wing, ♂♀ 54-62. Tail, ♂♀ (50) 51-61 (62). Bill, 10-12. Tarsus, 18-20 (21). Tail rounded, outer 7-9. Wing/tail ratio of 76 birds, 89-103. See Tables on pp. 67, 68.

**Weight.** Vagrant, N. Portugal, 1st-winter ♂ 13.ix., 10.6 gm. (C. Mead).

**Wing-formula** (pp. ascendant). Emarginated 3rd-5th, in some slightly on 6th. 1st p. 2-6+p.c.

Wing-point 3rd=4th=5th, though 5th occasionally slightly shorter. 6th, 1-3; 7th, 3½-5½; 8th, 5-7; 10th, 8-10.

2nd, 3-5, usually falls between 6th-7th or may=either; occasionally falls between 7th-8th. Notch on inner web, *c.* 15, falls well below ss. tips.

**Moult** (pp. descendant). ♂♂ from localities in Arabia are in moult on 19-20.i.; one has body and tertials moulting and the tail is new, while the other has new body plumage, tertials and tail, but the outer and penultimate feathers short. Another moulting the tail only is from near Ahwaz, S.W. Persia, 30.iii.

**Distribution.** Lower Volga Riv. in S.E. Russia south to N. Caucasus, Transcaucasia, Iraq, Jordan, Israel; Iran east to Afghanistan, north through Transcaspia to the Aral Sea, and east to Tadzikistan. Winters in S. Arabia, Sudan and Somalia, and has occurred in Egypt and the Pamirs. There is one record for W. Europe, a 1st-winter ♂ trapped at Morais, Macedo de Cavaleiros, N. Portugal, 13.ix.1967 (C. Mead).

## SYLVIA CANTILLANS (Pallas)

## *Subalpine Warbler*

*S. cantillans cantillans* (Pallas)

♂♂. Upper parts blue-grey with a dark brown tinge, especially on mantle. Lores and ear-coverts a little darker; a small chestnut 'eyebrow'; white moustachial stripes. Chin, throat and breast pinkish-chestnut to dark terracotta, this colour extending over sides of belly and flanks; centre of belly and under tail-coverts whiter, suffused brownish-pink. (There is a relatively rare pink phase in which the brown pigment appears to be suppressed:

specimens have been seen from N. Italy, 30.viii., Tunisia, 22-24.iv., and Sardinia, 12.v.; while D. I. M. Wallace sketched one at Estartit, Costa Brava, in May 1960.) Wings dark brown; tertials and greater coverts with pale brown fringes. Tail dark brown, the three outer feathers showing some white (fig. 1).

♀♀. Browner above, much whiter below than ♂♂. Throat, sides of breast and flanks suffused pinkish-buff, vent buffish-white. Some are more brightly coloured below, approximating to some of the less saturated ♂♂, and these show the white moustachial stripes well.

A bird of xerophytic and often thorny scrub on arid hillsides in Mediterranean (see detailed study by Beven, 1967). Also in moist shady localities with scattered trees; open woodland with luxuriant undergrowth; hedgerows and streamside vegetation. Resembles a rather long-tailed WHITETHROAT in its flight and movements and has a similar song-flight; some observers refer to its 'short-necked' appearance, and it often 'cocks' its tail like DARTFORD WARBLER. Song more sustained and musical than WHITETHROAT'S, often without harsh and rattling notes. Calls: a bird at Fair Isle gave a sharp *chep* in the field, and a quiet WHITETHROAT-like *churr* in the hand: alarm-note a repeated *chat-chat* or *chit-chit*.

**Ageing.** Allowing for individual variation, 1st-winter ♂♂ do not differ from adults, except perhaps in the browner, abraded wing and tail feathers. 1st-winter ♀♀ are olive-brown on mantle with the head greyish-brown and a greyer nape, the sides of the neck greyish-white. Chin and throat white, the latter flushed with buff; sides of breast and flanks orange-buff, centre of breast and belly more whitish: this colour, together with the absence of dark ear-coverts, should serve to distinguish such birds from young LESSER WHITETHROAT. The fringes to tertials and greater coverts are a paler brown than in adults, and the white portions of the tail are sullied with brown. For differences between these and ♀♀ and young *S. conspicillata* see p. 56.

**Colours of soft parts.** Bill: dark horn above, purplish flesh at base of lower mandible, cutting-edges yellow. Legs: pale or yellowish-brown. Iris: pale or buffish brown. Eye-ring: bright red, but dull gold in juveniles.

**Measurements.** Wing, ♂♀ 53-62, mostly 57-60. Tail, ♂♀ 49-59, mostly 53-55. Bill, 9-12, mostly 10-11. Tarsus, 18-20 (21). Tail rounded, outer about 6-9, penultimate 3-6. Wing/tail ratio of 45 birds, 85-98 (mostly 91-95). See Tables on pp. 67, 68.

**Weight.** Average of 12 late August birds, 11.4 (9.0-14.4) gm. (Oxford Univ. Sicilian Exp.). Average of 4 spring ♂♂ at Fair Isle 10.8 (9.2-12.6) gm. Average of 161 in N. Portugal, late August-September, 9.5 (7.6-14.0) (C. Mead).

**Wing-formula** (pp. ascendant). Emarginated 3rd-5th. 1st p. from $2\frac{1}{2}$— to $3\frac{1}{2}$+p.c.

Wing-point 3rd=4th (4th occasionally a shade shorter). 5th, $\frac{1}{2}$-$2\frac{1}{2}$; 6th, $2\frac{1}{2}$-$5\frac{1}{2}$; 7th, 5-$7\frac{1}{2}$; 8th, 7-$9\frac{1}{2}$; 10th, 10-14.

2nd, 1-$3\frac{1}{2}$,=5th or 6th or falls between. Notch on inner web 14-15 from tip falls opposite pp. 9-10; notch on inner web of 3rd, 13-14 from tip, falls opposite pp. 8-9.

**Moult** (pp. descendant). Complete post-nuptial. One. rom Trapani, Sicily, 26.viii., has finished except that s. 5 is only half-grown; another, 30.viii., has completed pp. 1-7 and the rest, with ss. 3-6 and the outer and penultimate tail feathers are nearly full-grown (Oxford Univ. Sicilian Exp.).

**Distribution.** Iberian Peninsula, S. France, Italy, Sicily, Corsica, Sardinia. Also occurs (? passage) in Malta and the Balearic Is. Accidental in Switzerland, Greece, Holland, Germany and Norway (? race). Partial migrant, some moving to W. Africa (specimens seen from Gambia, French Niger and Tangier). Occurrences in Great Britain and Ireland are discussed below, pp. 53-5.

*S. cantillans inornata* Tschusi

This race is orange-brown on the under parts, lacking the pink tinge usual in *cantillans* (though some from Portugal and S. Spain match N. African birds). ♀♀ are pale orange-brown, without pinkish, below. Measurements and wing-formula are as in the typical race: wing/tail ratio of 36 birds 87-100, mostly over 93 (cf. *albistriata*). In forests of cork oak and Atlas cedar with good secondary layer.

**Distribution.** N.W. Africa from Morocco through Algeria and Tunisia to Tripoli.

*S. cantillans albistriata* (C. L. Brehm)

♂♂. Dark chestnut-brown below, this colour being mostly confined to throat and breast, and clearly demarcated from the

more whitish belly. There is much less colour on the sides and flanks than in the typical race. The white moustachial stripes are broader, and the feathers of throat and breast are often flecked with white tips.

**Measurements.** Wing, ♂♀ 56-65, mostly 59-63. Tail, ♂♀ 50-59, mostly 52-57. Bill, 10½-12, mostly 11-11½. Wing/tail ratio of 50 birds 84-94, mostly 87-92 (cf. *inornata*). See Tables on pp. 67, 68.

**Wing-formula** (pp. ascendant). Emarginated 3rd-5th. 1st p. from 3— to 1+p.c.

Wing-point 3rd=4th (4th occasionally a shade shorter). 5th, ½-2; 6th, 3-5; 7th, 5½-8; 8th, 7-10; 10th, 10-13.

2nd, ½-4, usually=5th or 6th or falls between; once between 6th-7th, once=4th. Thus the stated difference that 2nd p. is longer than 5th in *albistriata* and not shorter as in *cantillans* (*Handbook*, 2: 98; Vaurie (1959), 267) is entirely unreliable.

**Moult** (pp. descendant). Complete post-nuptial. One from French Sudan, 16.ix., is in quite fresh plumage. A ♀, Coto Donana, 23.ix., showed arrested moult of ss. 4-5 in both wings (S. Pimm).

**Distribution.** S.E. Europe from Yugoslavia and Albania south to Greece, the Aegean Is, Crete, Asia Minor and Syria. Partial migrant, on passage through Cyrenaica, S. Libya, Egypt and Cyprus; wintering specimens seen from Nigeria. Two from Sicily belong to this form, and it has been obtained in Malta, 4.ix.1914. It has occurred in the British Isles (see below).

NOTE. The name *moltonii* Orlando (Sardinia, 1937) is apparently based on specimens which fall within the rather wide range of individual variation of nominate *cantillans* (Vaurie, 1954: 14).

**Occurrences in Great Britain and Ireland.** There have been 27 records of Subalpine Warblers in Great Britain and Ireland, all but six of them since 1951. Their distribution is most interesting and worthy of comment. Unusually for a species of Mediterranean origin, Scotland has had most with 12, followed by England 8, Ireland 5, Wales 1 and Isle of Man 1.

The surprising feature is that 20, including 13 of the Scottish ones, are from the spring and summer. Birds in 1964 at Portland Bill (Dorset), 19.iv., and Fair Isle (Shetland), 23.iv., were much in advance of the previous earliest date, 3.v., shared by Tarbatness (Ross) and St. Agnes (Scilly Is). A ♀ at the Isle of May (Fife) from 16-22.vii.1958 supplies the latest date.

The preponderance of spring over autumn records, and the distribution of the majority at Fair Isle (7), east side of Scotland (4) and Norfolk (2), strongly suggests an approach from the southeast of spring migrants 'overshooting' their normal range in anticyclonic weather. The form concerned is therefore as likely to be *albistriata* as *cantillans*, and particular attention should be paid to

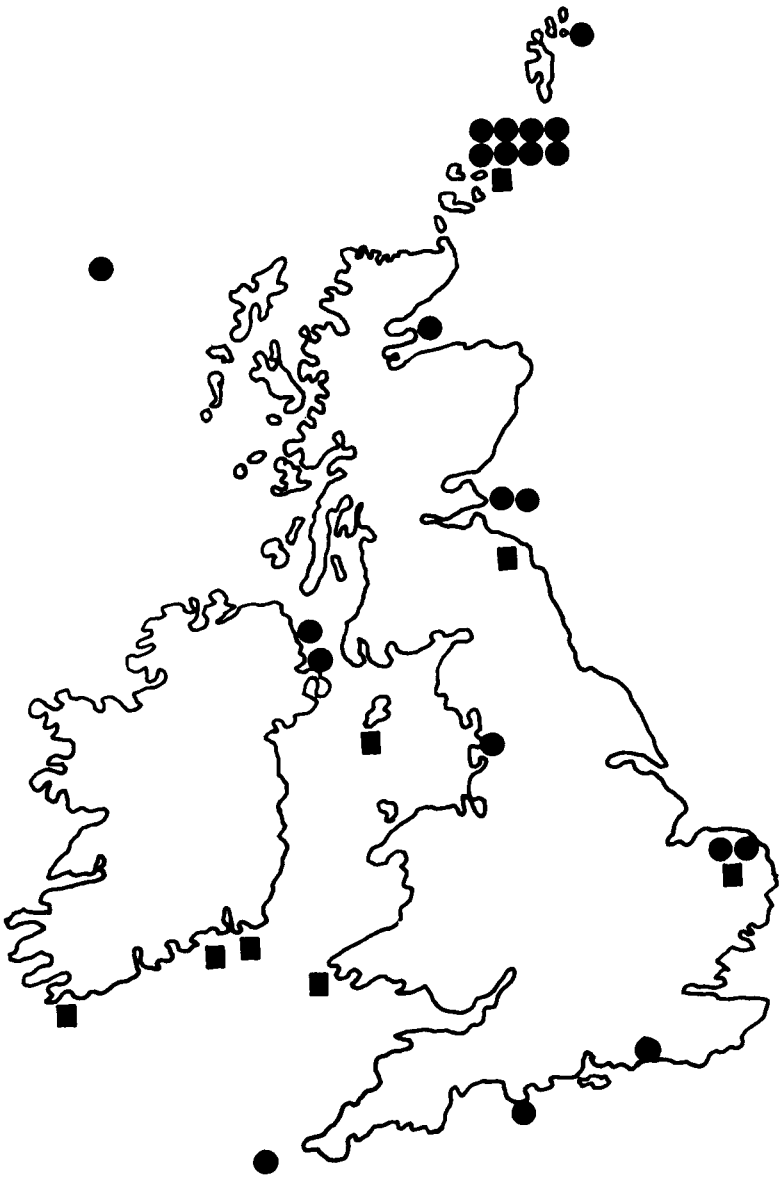

Fig. 4—SUBALPINE WARBLER
Distribution of records in Britain and Ireland

● Spring ■ Autumn

the subspecific identification of future occurrences in the north and east. The appearance in Britain of birds from the E. Mediterranean population is all the more remarkable in view of their unique spring migration northeastwards from the French Sudan etc., through Egypt and Cyrenaica, the heading then changing to north or northwest. See map and discussion in Meinertzhagen (1954) pp. 211-12.

Five of the eight autumn appearances are from the Irish Sea basin. This pattern of vagrancy on the part of S. European species is often associated with anticyclonic weather over France and southeast wind in St George's Channel, so that these records may represent post-juvenile dispersion of the typical race *cantillans*. Similar weather may have been responsible for individuals of the same race 'overshooting' in spring along the Channel coast and in the Irish Sea. The St Kilda ♂, 14.vi.1894, said to have been taken after a strong south-west gale, is in the British Museum (Nat. Hist.) and has plumage characteristics of the typical race.

The Fair Isle bird of 20-27.v.1951 I tentatively placed as *cantillans* because the 2nd p. was 1½ mm. shorter than the 5th: the weather situation suggested an approach from the southeast (*Brit. Birds*, 45: 260-2). But this supposed wing-formula distinction is now seen to be unreliable, and on plumage its affinities were with *albistriata*. It had broad white moustachial stripes; the dark reddish-chestnut of the underside was 'in the form of a "bib" whose margin was clearly defined, not merging with the pinkish-buff below'; the sides of breast and flanks had a 'delicate pinkish-buff suffusion;' and at 64 mm. the wing was long for the typical race. I have seen the description of the ♂ captured at Hauxley, Northumberland, on 2-3.xi.1963 (the latest autumn appearance), and consider this also had the plumage of *albistriata*. The race of the single Norwegian bird (Akerøya, Oslofjord, 14.v.1966) was apparently indeterminate: it arrived with other southern and southeastern species 'overshooting' in anticyclonic weather (G. Lind, *Sterna*, 4: 387-96).

## **SYLVIA CONSPICILLATA** Temminck

## *Spectacled Warbler*

*S. conspicillata conspicillata* Temminck

♂♂. Head like *S. curruca*, lores black and ear-coverts almost so, crown and forehead grey, hind-crown and nape browner. Mantle a richer, almost rufous brown; lower back and rump greyish-brown. Throat white, but lower part showing grey; occasionally whitish moustachial stripes are prominent and may cause confusion with *S. cantillans*. Upper breast pink; sides and flanks brownish-pink becoming paler, more pinkish-white, in middle of belly and under tail-coverts. Wings and tail dark brown;

broad chestnut fringes and tips to tertials, inner ss. and greater coverts. Outer tail feathers white and next two white-tipped.

♀♀. The grey portions are obscured by brown feather tips, the grey showing most on the lores and ear-coverts, but sometimes also on the lower throat. Throat suffused buff. Sides and flanks rufous-buff.

Frequents dry localities with low scrub, particularly *Salicornia*, and is shy and secretive. Song a short high-pitched warble, uttered from the top of a bush or whilst hovering. Alarm call a characteristic rattle recalling WREN.

**Ageing.** Young resemble ♀♀ but are browner, and entirely without grey (see note on young SUBALPINE WARBLER, p. 51). In 1st-winter and ♀♀ the best distinction from *S. cantillans* is the colour of the closed wing, this appearing uniformly grey-brown in the SUBALPINE WARBLER, but having a bright rufous patch similar to the WHITETHROAT in *S. conspicillata*, formed by the broad chestnut fringes of tertials, coverts and ss. The outer tail-feathers are pure white, not dusky as in ♀♀ and immature *S. cantillans* (J. J. Swift, *Brit. Birds*, 52: 198–9).

CAUTION. ♀♀ and young *melanocephala*, *cantillans* and *conspicillata* can be easily confused in autumn. Sharrock (1962), in a detailed note on plumage and behavioural differences, says that ♀♀ and 1st-winter SARDINIAN can seem very dark, long-tailed and heavy in the field: ♀♀ have a rufous eye-ring (present but less prominent in young) but no rufous in the wing, while 1st-winter birds show a whitish wedge-shaped mark at the base of the lower mandible. Immature SUBALPINE and SPECTACLED are daintier, more like LESSER WHITETHROAT in appearance and grey crown, though both lack the dark ear-coverts of that species. The tail-cocking, which continually exposes white under tail-coverts, is characteristic of SUBALPINE, which has wholly brown wings and no marked eye-ring; while young SPECTACLED have a rufous panel in mid-wing and a noticeably whitish eye-ring.

**Colours of soft parts.** Bill: dark horn, yellowish or flesh along the cutting-edges and at base of lower mandible. Legs: yellowish-flesh (autumn), light reddish-brown (spring). Iris: variously noted as light brown, bright reddish-orange (spring), yellowish-brown, dull yellowish-ochre (autumn). Eye-ring: whitish.

**Measurements.** Wing, ♂♀ 50–58. Tail, ♂♀ (43) 45–53 in spring, but to 56 (58) in autumn. Bill, 10½–13. Tarsus: 17½–19. Tail rounded, outer 6–9½. Wing/tail ratio of 63 birds, 83–109, mostly 89–96 in birds from Europe and Near East, and mostly 98 or over in N. Africa. See Tables on pp. 67, 68.

**Weight.** Average of 3 late August birds, 9.2 (8.7–10.2) gm. Oxford Univ. Sicilian Exp. 1st-winter ♂, N. Portugal 7.ix., 8.0 gm. (C. Mead).

**Wing-formula** (pp. ascendant). Emarginated 3rd–6th. 1st p. 1–5+p.c.

Wing-point 3rd=4th=5th, though 5th is sometimes a shade shorter. 6th, 1½–3; 7th, 3½–5; 8th, 5½–8; 10th, 8–10.

2nd, 2–4,=6th or 7th or falls between. Notch on inner web about 15 from tip, falls well below tips of ss.

**Moult** (pp. descendant). Complete post-nuptial. A ♂ from Malta, 5.viii., has replaced pp. 1–4, with pp. 6–7 in sheath, and ss. and tail in moult. One from Trapani, Sicily, 22.viii., has replaced pp. 1–3 with pp. 4–5 and the two middle pairs of rectrices growing, and the remaining rectrices and s. 1 in sheath. Another, dated 25.viii., was only a little further advanced with pp. 6–7, s. 1 tertials and four inner tail feathers growing, pp. 8–9 and the two outer pairs of rectrices being in sheath (Oxford Univ. Sicilian Exp.). One from Jenin, Palestine, 7.ix., has practically finished, p. 9 being short. A ♂ from Laghout, Algeria, 21.x., has finished except for the tail.

Canary Is birds have an earlier breeding season and a correspondingly early moult. Two from Isla Graciosa, 1.vi., have replaced pp. 1–4, tertials, greater coverts and middle rectrices, and pp. 1–6, tertials, greater coverts and all the tail feathers (but outer and penultimate are short), respectively. A ♂ from Fuerteventura, 17.vi., has pp. 1–4, tertials, greater coverts and some middle rectrices new, with pp. 5–7 and outer three rectrices growing; ss. and other coverts have not yet started. All are in advanced body moult.

**Distribution.** W. Mediterranean basin and islands: in Europe from Iberian Peninsula east to Italy, and in Africa from Morocco east to Tunisia. Also in the Near East in Israel, Jordan, and perhaps Sinai and N.E. Egypt. There is an isolated population in the Canary Is. Partial migrant, wintering in Saharan oases, Egypt, Jordan, and occurring in Cyprus on passage. Vagrant to Iraq.

### *S. conspicillata orbitalis* (Wahlberg)

♂♂. Dark grey-brown above, less rufous than the typical race, and more sooty-grey on the throat and head. Rather variable, some ♂♂ from Madeira being very greyish on the mantle, though most are only a little darker than the typical race.

**Colours of soft parts.** 'Legs flesh, irides hazel', is noted on one label.

**Measurements.** Wing, ♂♀ 50-56. Tail, ♂♀ 47-53. Bill, 11-12½. Tarsus, 17-19.

**Moult** (pp. descendant). A ♀ from St. Vincent, 14.i., has just started, with p. 1 new and pp. 2-3 nearly full grown; tertials and greater coverts have been replaced, and all the tail feathers are growing. A ♂ from San Iago, 25.ii., has pp. 1-3 new and s. 1 nearly full grown; tertials, greater coverts and middle rectrices are new. A ♂ from St. Vincent, 2.iv., has only recently begun, with pp. 1-2 and tertials new and some tail feathers growing; but this is probably late, as another April bird is in entirely fresh plumage. Since many January birds are badly worn there must surely be a moult during February-March; but a number of birds from April-June are equally worn, so that a complete post-nuptial moult is also likely in some cases.

**Distribution.** Cape Verde Is; Madeira.

NOTE. Madeiran birds were given the name *bella* Tschusi, 1901, but the population does not appear to differ from that of Cape Verde Is. Vaurie (1959) regards Canary Is birds as intermediate and includes them with *orbitalis*, but I cannot see that they differ materially from the typical race, and they certainly do not agree in colouration with specimens from the Cape Verde Is. Bannerman (1963) includes them with *orbitalis*, however.

## SYLVIA DESERTICOLA Tristram

## *Tristram's Warbler*

*S. deserticola deserticola* Tristram

♂♂. Head and upper parts bluish grey, washed with brown on mantle, becoming orange-brown on scapulars and rump. Upper tail-coverts grey. Lores blackish, moustachial stripes white. Under parts dark terracotta in breeding dress, except for whitish chin, mid-belly and under tail-coverts; but paler in fresh plumage, pinkish-brown on throat and breast, warm pinkish-buff on flanks, centre of belly whitish. Wings dark brown, tertials blackish-brown broadly fringed rufous, greater coverts and bases of inner ss. with broad pale brown fringes; bastard-wing edged white. Tail dark brown with a variable amount of white on the outer feathers.

♀♀. Browner on mantle and a little paler beneath.

Resembles *S. undata* in general habits, frequenting bush-covered localities. Call a sharp *chit* or *chitit* (K. D. Smith). After moult appears pale above (effect of pale feather fringes and strong light) and uniformly dull whitish beneath. Restless, but keeping to cover. (C. Headlam.)

**Colours of soft parts.** Bill: brown, lower mandible yellowish. Legs: flesh-brown, bright brownish-yellow. Iris: light brown, bright yellow.

**Measurements.** Wing, ♂♀ 50–57. Tail, ♂♀ 50–59. Bill, 10–12. Tarsus, 18½–20. Tail slightly rounded, 6–9. Wing/tail ratio of 10 birds, 99–108. See Tables on pp. 67, 68.

**Wing-formula** (pp. ascendant). Emarginated 3rd–6th. 1st p. 2–4+p.c.

Wing-point 3rd=4th=5th, though 5th occasionally 1 shorter. 6th, 1–1½; 7th, 3½–4½; 8th, 5½–6½; 10th, 8½–10. (Very few unworn specimens available.)

2nd, 3½–5, falls between 7th–8th, once=7th.

**Moult** (pp. descendant). One from oasis of El Galea, Algeria, 2.1., is in entirely fresh plumage.

**Distribution.** Algeria and Tunisia in Aurés Mts and Saharan Atlas.

*S. deserticola maroccana* Hartert

Said to be darker above and below, with rufous fringes of tertials and coverts narrower, and white in outer tail-feathers much reduced. The specimens seen were too worn to determine whether these are good characters or fall within the range of individual variation.

**Distribution.** Grand Atlas Mts, W. Morocco.

NOTE. *Sylvia ticehursti* Meinertzhagen 1939 (*Bull. B.O.C.*, 59: 69 and 71: 47), known only from the unique type collected at Tingher, Ouarzazate District, Moroccan Sahara, 24.xi., is a freshly moulted example of *S. deserticola*, perhaps slightly less reddish on mantle than a ♂ in similar new plumage from Oued, Sudan, 29.xi.1856.

## THE DARTFORD WARBLER

It is perhaps only to be expected that in a species which is highly sedentary and very local in its distribution there will be a rather wide and inconsistent variation in plumage. This is so in the DARTFORD WARBLER, which ranges from S. England through France to the Iberian Peninsula and Italy, occurring also in several of the Mediterranean islands and N.W. Africa. Over this region seven races have been described on plumage differences, but in view of the high degree of individual and group variation this number seems quite unrealistic.

There appear to be three broad trends and probably the most satisfactory course is to recognize each of these by name, acknowledging that there will be a certain amount of intergradation between the populations so named, and that within these populations atypical examples will occur. The best feature for taxonomic purposes is the mantle plumage, and in making comparisons due allowance must be made for the state of wear. There is a 'Continental' type, slate-grey with a brownish wash which largely disappears with wear, represented by *undata*, embracing the birds of S. France, most of Spain, S. Portugal, Italy, Corsica, Sardinia and Malta; a dark brown 'Maritime' type *dartfordiensis* which includes the breeding populations of S. England, N. and W. France, N. Spain, N. Portugal, probably S.W. Spain and the Balearic Is; and a greyish-brown 'Desert' type *toni* extending across N. Africa from Morocco east to Tunisia.

Vaurie (1954, 1959), following Witherby, included the birds of S. Spain with *toni*. While it is true that a number from this region approach N. African birds in mantle coloration, none that I have seen are a perfect match, being colder, more slaty in tone; and in view of the wide variation within the 'Continental' aggregation from predominantly brown-washed to predominantly greyish plumage at the same season, I feel it is more realistic to place them with *undata*, the type-locality of which is Provence. The populations designated by *naevalbens* Clancey (Taranto, S.E. Italy) and *corsa* Laubmann (Corsica) conform with this trend and should be regarded as synonyms of *undata*. Similarly, as shown by Vaurie (1954), *tingitana* Rothschild (Spanish Morocco) falls within the range of individual variation found among N. African birds and should be placed as a synonym of *toni*.

On the western fringe of Europe the mantle plumage is darkest brown in some Portugese birds, but in this country many are akin to *undata*. Those from S. England, N. and W. France and N.W. Spain are brighter in tone, more chocolate brown, in both autumn and spring, and as there is no difference between English and French birds the name *aremorica* Crette de Palluel (Brittany) becomes a synonym of the older *dartfordiensis*. It is curious that three January birds from Majorca in the Balearic Is are quite inseparable from English birds, while three March ♂♂ from

Gibraltar are also exceedingly brown above, so that the only realistic approach seems to be to call all these brown-backed fringe populations *dartfordiensis*.

The species is dimorphic in the plumage of the under parts, there being a rich dark terracotta type, and a pinkish-brown type with paler feather-tips. The dimorphism is probably sexual, since the majority of the former are sexed ♂♂ and of the latter ♀♀. Among ♂♂ the darkest and most heavily saturated are *dartfordiensis*, with *toni* appearing somewhat browner in series, and *undata* rather paler and brighter. Among ♀♀ the pinkest birds are *undata*, both *toni* and *dartfordiensis* having an orange-buff wash on breast and flanks.

**SYLVIA UNDATA** (Boddaert)

## *Dartford Warbler*

*S. undata dartfordiensis* Latham

♂♂. Upper parts chocolate-brown, head and nape more slatey, especially in worn plumage. Lores, ear-coverts and sides of neck slate-grey, white moustachial stripes. Under parts dark brownish-pink, feathers (of throat especially) with small white tips; flanks browner, centre of belly whitish. Under tail-coverts brownish-grey with whitish fringes; axillaries slate-grey tinged pink. Wings brownish-black; tertials and greater coverts broadly fringed rufous; lesser coverts brownish-grey; bastard-wing blackish brown edged white. Tail black, outer pair with dull white fringes, next two pairs white-tipped (fig. 1).

♀♀. Upper parts slightly paler brown and crown browner than in ♂♂, under parts considerably paler (see p. 58).

A bird of heaths with dense heather (*Calluna*) and often gorse (*Ulex*). Extremely secretive; has a weak, undulating flight, usually close to the ground, the long tail bobbing up and down in characteristic top-heavy fashion; tail usually carried cocked-up, and frequently flicked. Song and call-notes are not unlike those of WHITETHROAT but have a distinctive quality; former is more metallic and musical, including series of liquid, mellow bubbling notes, and is sometimes delivered during display-flight; latter

include a grating, rather metallic *chirr* and a hard, incisive *tucc*, becoming a rapid repetitive note when excited (*Handbook*, 2: 98–9). Habitat and population in S. England in recent years have been discussed by Tubbs (1963, 1967). *See Plate IV.*

**Ageing.** 1st-winter and adult plumages are alike, but as adults have a complete post-nuptial moult and young do not, 1st-winter are often recognizable by their very worn tails. Under parts of juveniles are brownish-buff, paler in middle of belly, darker on flanks.

**Colours of soft parts.** Bill: dark brown, base of lower mandible yellowish. Legs: pale to brownish-yellow, claws dark brown. Iris: varying from yellowish-brown (♀) to red (♂). Eye-ring: varying from brown (♀) to orange-red (♂). Inside of mouth: yellow.

**Measurements.** Wing, ♂♀ 48–54 (56). Tail, ♂♀ 55–68 (71). Bill, 10–12. Tarsus, 18–21, mostly 19–20. Tail graduated, outermost and next three feathers shorter than central by about 15, 10, 6, 4 respectively, though outer and penultimate sometimes as little as 11, 6. Wing/tail ratio of 125 birds, 110–132, mostly 116–128. See Tables on pp. 67, 68.

**Weight.** Average of 4 October birds at Portland B.O. 9.4 (9.2–10.1) gm. Average of 3 at Dungeness B.O., October–November, 9.5 (8.6–10.1) gm.; one March, 10.9 gm. Average of 9 late August–September, N. Portugal, 9.0 (8.4–9.8) gm. (C. Mead).

**Wing-formula** (pp. ascendant). Emarginated 3rd–6th. 1st p. 4–7+p.c.

Wing-point usually 4th=5th=6th, though 6th frequently to 1 shorter, and 3rd sometimes as long but more often 1–2 shorter. 7th, 1–2; 8th, 4–5; 10th, 6½–8.

2nd, 5–7½, falls between 8th–10th or=10th.

**Moult** (pp. descendant). Complete post-nuptial. Two birds from Le Conquet, W. France, 21. and 22.ix., have replaced pp. 1–6 and 1–7 respectively, and have the rest growing. The first still has old inner ss. and the outer and penultimate tail feathers finishing; the other has ss. 4–6 growing (6 in pin) and a new tail, but is still in body-moult. A ♀ *undata* from Murcia, Spain, 1.xi., has finished except for short outer and penultimate tail feathers, and a ♀ *toni* from Algiers, 5.x., is at a similar stage.

**Distribution.** S. England, N. and W. France; many birds from Portugal, S.W. Spain and the Balearic Is belong to this form—see the resumé on p. 60.

Main nesting haunts in S. England are Hampshire (New Forest) and Dorset, in good years extending into Surrey, Sussex, Wiltshire, Devon. Numbers are much reduced in severe winters (see Parslow, 1967). Has occurred Ireland (Tuskar Rock, Co. Wexford, ♀ 27.x.1912) and Holland (Hoophuizen, 4.iv. 1959).

*S. undata undata* (Boddaert)

The typical race is dark grey washed with dark brown above, the tips wearing and leaving a very slaty breeding-plumage. A bird of the *maquis* of the Mediterranean region. Measurements etc. as for the previous race.

**Distribution.** Spain, S. France, Italy, Sicily, Corsica and Sardinia. (See resumé on pp. 59-61).

*S. undata toni* Hartert.

Upper parts decidedly greyish-brown in fresh dress, wearing darker, but never so slaty as *undata*. Under parts paler, more yellowish-brown, with more white on belly in autumn, becoming brighter, more reddish, in spring. Measurements, wing-formula and moult as in *dartfordiensis*.

**Colours of soft parts.** Bill: blackish-horn, base of lower mandible orange. Legs: dull orange. Iris: cinnamon-brown. Eye-ring: brick red.

**Distribution.** Coastal ranges of N. Africa from Morocco to Tunisia, wintering on the northern borders of the Sahara.

## MARMORA'S WARBLER

MARMORA'S WARBLER *S. sarda* is obviously very closely related to the DARTFORD WARBLER *S. undata*. They do not appear to differ in behaviour and habitat, but as they are sympatric over parts of their range (coastal N.E. Spain, Tunisia, Corsica, Sardinia, S. Sicily and the Balearic Is) they have attained specific identity.

It is interesting to speculate on how speciation may have arisen: *sarda* is strongest in the Mediterranean Is and is either rare or accidental on the Continents. In *undata* the situation is reversed, and *sarda* may have arisen as a result of lengthy isolation in one or more of these islands, *undata* reinvading later. There is a close parallel in the difference in plumage between these two birds and

the endemic CHAFFINCHES of Tenerife and Gran Canaria, where the older form *Fringilla teydea* is blue-grey above and below, rather like *sarda*, while the more recent colonist *F. coelebs tintillon* retains the pinkish-brown under parts of Continental races. The likeness of the two cases may be pure coincidence, or it may be due to convergent adaptation as a result of long isolation on mountainous islands.

## **SYLVIA SARDA** Temminck

## *Marmora's Warbler*

*S. sarda sarda* Temminck

♂♂. Upper parts blue-grey washed with dark brown, greyest on crown, nape and rump. Under parts paler blue-grey, feathers of chin and throat with whitish tips, centre of belly whitish. Sides of belly and flanks (and sometimes breast) with a slight pinkish-brown wash, more marked in some birds than others. Wings dark brown; tertials, inner ss. and greater coverts with rufous-brown fringes. Tail blackish-brown, outer and penultimate feathers outlined with dusky white.

♀♀. Browner above and below, the grey largely restricted to breast and lower throat, the white tips more prominent. Belly and flanks dull pinkish-brown.

Resembles DARTFORD WARBLER in general habits and where the two occur (e.g. Sardinia) is found in more mountainous country. Song said to be less grating; call-note a single *tik*.

**Ageing.** Juveniles differ from young of DARTFORD WARBLER in being paler (not rusty) brown above, and white (not buffish-brown) below.

**Colours of soft parts.** Bill: dark horn, base of lower mandible flesh. Legs: yellowish-brown, bright orange-yellow, yellowish-flesh.

Iris: yellowish-brown, bright reddish-ochre. Eye-ring: dull red. Inside of mouth: orange-yellow.

**Measurements.** Wing, ♂♀ 50–58 (60). Tail, ♂♀ 54–66. Bill, 10–12. Tarsus, 19–21½. Tail well rounded, outer 10–13, penultimate 4½–6½. Wing/tail ratio of 48 birds, 106–119. See Tables on pp. 67, 68.

**Wing-formula** (pp. ascendant). Emarginated 3rd-6th. 1st p. 3-7+p.c.

Wing-point usually 3rd=4th=5th, but 3rd sometimes 1 shorter and 5th rarely 1-2. 6th, 1-2½; 7th, 3-5; 8th, 5½-6½; 10th, 7½-9½.

2nd p., 3-7, =7th or falls between 7th-9th. Notch on inner web 13-16 from tip falls well below tips of ss.

**Moult** (pp. descendant). Complete post-nuptial. A ♀, Corsica, 26.x., still has the outer and penultimate tail feathers short of full length.

**Distribution.** N.E. Spain (Costa Brava), Corsica, Sardinia, S. Sicily, Pantellaria and coastal Tunisia. Wanders in winter to the northern edge of the Sahara in S. Tunisia and Algeria. Vagrant in S. Spain, Italy, Malta and W. Egypt.

*S. sarda balearica* von Jordans

Smaller than typical race, ♂♂ less blue-grey and more like ♀♀ beneath. Both sexes have a stronger pinkish wash on the breast.

**Measurements.** Wing, ♂♀ 46-52. Tail, ♂♀ 51-60. Bill, 10-13, mostly 12, and therefore slightly longer than in *sarda*. Tarsus, 17½-20, mostly 19, and therefore slightly shorter than in *sarda*. Wing/tail ratio of 15 birds, 106-122. See Tables on pp. 67, 68.

**Moult** (pp. descendant). Complete post-nuptial. A ♂ from Mallorca, 9.vii., has pp. 1-3 new (p. 4 in pin) and all tail feathers except the old middle pair growing. Others, 8-10.vii., are extremely worn. Another ♂, 22.vii., has renewed pp. 1-4 (p. 5 in pin), tertials and greater coverts, and the whole tail is moulting with the middle pair nearly complete; the other coverts and body are also in moult. A ♂ from Palma, same date, has completed pp. 1-5, tertials and greater coverts, and again the whole tail is moulting from the middle outwards.

**Distribution.** Balearic Is.

TABLE 1

MEASUREMENTS—WING AND TAIL

| SPECIES/RACE | WING n. | WING mean | WING s.d. | WING theoretical range | TAIL n. | TAIL mean | TAIL s.d. | TAIL theoretical range |
|---|---|---|---|---|---|---|---|---|
| *atricapilla* .. .. | 95 | 73.00 | 2.20 | 66—80 | 95 | 59.06 | 2.36 | 52—66 |
| *dammholzi* .. .. | 35 | 75.51 | 2.55 | 68—83 | 36 | 61.17 | 2.20 | 55—68 |
| *pauluccii* .. .. .. | 14 | 70.61 | 2.31 | 64—78 | 14 | 60.21 | 2.38 | 53—67 |
| *heineken* .. .. .. | 36 | 69.39 | 2.16 | 63—76 | 35 | 57.66 | 2.20 | 51—64 |
| *atlantis* .. .. .. | 20 | 73.00 | 2.32 | 66—80 | 18 | 58.72 | 2.70 | 51—67 |
| *borin* .. .. .. | 112 | 77.53 | 2.52 | 70—85 | 109 | 55.41 | 2.10 | 49—62 |
| *communis* .. .. | 84 | 69.15 | 1.71 | 64—74 | 86 | 60.00 | 2.37 | 53—67 |
| *icterops* .. .. .. | 74 | 72.04 | 2.27 | 65—79 | 72 | 61.60 | 2.32 | 55—69 |
| *curruca* .. .. .. | 63 | 64.48 | 1.55 | 60—69 | 65 | 54.77 | 1.96 | 49—61 |
| *blythi* .. .. .. | 88 | 64.30 | 2.28 | 57—71 | 87 | 56.41 | 2.46 | 49—64 |
| *minula* .. .. .. | 78 | 61.56 | 1.90 | 56—67 | 78 | 54.04 | 2.04 | 48—60 |
| *margelanica* .. .. | 21 | 66.90 | 2.12 | 60—73 | 22 | 59.05 | 1.50 | 55—64 |
| *althaea* .. .. .. | 57 | 67.67 | 2.00 | 62—74 | 57 | 56.44 | 2.28 | 50—64 |
| *nisoria* .. .. .. | 128 | 86.33 | 2.31 | 79—93 | 126 | 70.44 | 2.62 | 63—78 |
| *hortensis* .. .. .. | 50 | 77.76 | 2.70 | 70—86 | 49 | 65.53 | 2.61 | 58—73 |
| *crassirostris* .. .. | 60 | 79.38 | 2.26 | 73—86 | 60 | 66.87 | 2.63 | 59—75 |
| *jerdoni* .. .. .. | 55 | 78.96 | 1.62 | 74—84 | 53 | 68.64 | 2.43 | 61—76 |
| *leucomelaena* .. .. | 38 | 68.76 | 2.39 | 61—76 | 40 | 68.35 | 3.32 | 58—78 |
| *blanfordi* .. .. .. | 35 | 65.23 | 1.91 | 59—71 | 33 | 63.64 | 2.26 | 57—70 |
| *nana* .. .. .. | 119 | 56.59 | 1.83 | 51—62 | 119 | 48.79 | 2.00 | 43—55 |

TABLE 1—*continued*

MEASUREMENTS—WING AND TAIL

| SPECIES/RACE | WING n. | WING mean | WING s.d. | WING theoretical range | TAIL n. | TAIL mean | TAIL s.d. | TAIL theoretical range |
|---|---|---|---|---|---|---|---|---|
| *rüppelli* .. .. .. | 79 | 67.61 | 1.74 | 62—73 | 81 | 59.33 | 2.30 | 52—66 |
| *melanothorax* .. .. | 33 | 58.33 | 1.71 | 53—63 | 31 | 54.29 | 2.22 | 48—61 |
| *melanocephala* .. .. | 200 | 57.49 | 1.72 | 52—63 | 194 | 59.38 | 2.55 | 52—67 |
| *leucogastra* .. .. | 17 | 56.18 | 1.47 | 52—61 | 17 | 60.00 | 2.17 | 54—67 |
| *momus* .. .. .. | 26 | 55.54 | 1.82 | 50—61 | 28 | 54.79 | 2.36 | 48—62 |
| *mystaceae* .. .. | 75 | 58.07 | 1.67 | 53—63 | 79 | 55.35 | 2.41 | 48—63 |
| *cantillans* .. .. | 85 | 57.80 | 2.00 | 52—64 | 88 | 53.64 | 1.98 | 48—60 |
| *albistriata* .. .. | 59 | 61.10 | 1.74 | 56—66 | 60 | 54.62 | 2.04 | 48—61 |
| *conspicillata* races .. | 137 | 53.65 | 1.73 | 49—59 | 134 | 49.96 | 2.77 | 42—58 |
| *deserticola* .. .. | 21 | 52.95 | 1.94 | 47—59 | 21 | 54.48 | 2.66 | 46—62 |
| *undata* races .. .. | 139 | 51.30 | 1.53 | 47—56 | 135 | 62.53 | 4.08 | 50—75 |
| *sarda* .. .. .. | 53 | 53.57 | 2.05 | 47—60 | 50 | 59.44 | 2.81 | 51—68 |
| *balearica* .. .. .. | 20 | 48.80 | 1.54 | 44—53 | 15 | 55.80 | 2.66 | 48—64 |

TABLE 2

MEASUREMENTS—BILL AND TARSUS

| SPECIES/RACE | BILL n. | BILL mean | BILL s.d. | BILL theoretical range | TARSUS n. | TARSUS mean | TARSUS s.d. | TARSUS theoretical range |
|---|---|---|---|---|---|---|---|---|
| *atricapilla* | 122 | 14.31 | 0.75 | 12 —16½ | 40 | 21.40 | 0.81 | 19 —24 |
| *communis/icterops* | 72 | 13.17 | 0.68 | 11 —15 | 22 | 21.55 | 0.69 | 19½—23½ |
| *borin* | 66 | 13.76 | 0.67 | 12 —16 | 17 | 20.76 | 0.66 | 19 —22½ |
| *curruca* races | 128 | 11.66 | 0.75 | 9½—14 | 59 | 20.42 | 0.81 | 18 —23 |
| *althaea* | 55 | 12.21 | 0.63 | 10½—14 | | (as for *curruca*) | | |
| *margelanica* | | (as for *curruca*) | | | 14 | 21.18 | 1.10 | 18 —24½ |
| *nisoria* | 100 | 16.74 | 0.67 | 14½—18½ | 53 | 24.92 | 0.90 | 22 —27½ |
| *hortensis* | 48 | 16.25 | 0.80 | 14 —18½ | 39 | 23.46 | 0.53 | 22 —25 |
| *crassirostris* | 56 | 17.30 | 0.80 | 15 —19½ | | (as for *hortensis*) | | |
| *jerdoni* | 56 | 19.72 | 0.73 | 17½—22 | | (as for *hortensis*) | | |
| *leucomelaena* | 42 | 13.27 | 0.60 | 11½—15 | 31 | 21.42 | 0.62 | 19½—23½ |
| *blanfordi* | 33 | 12.70 | 0.41 | 11½—14 | | (as for *leucomelaena*) | | |
| *nana* | 85 | 10.19 | 0.48 | 8½—11½ | 35 | 19.20 | 0.63 | 17½—21 |
| *rüppelli* | 62 | 14.52 | 0.62 | 12½—16½ | 20 | 21.08 | 0.49 | 19½—22½ |
| *melanothorax* | 27 | 13.00 | 0.62 | 11 —15 | 14 | 19.54 | 0.60 | 17½—21½ |
| *melanocephala* races | 107 | 12.58 | 0.74 | 10½—15 | 43 | 20.86 | 0.94 | 18 —23½ |
| *mystaceae* | 66 | 11.08 | 0.68 | 9 —13 | 31 | 19.23 | 0.71 | 17— 21½ |
| *cantillans* | 78 | 10.50 | 0.64 | 8½—12½ | 45 | 19.07 | 0.63 | 17 —21 |
| *albistriata* | 25 | 11.20 | 0.43 | 10 —12½ | | (as for *cantillans*) | | |
| *conspicillata* | 92 | 11.66 | 0.61 | 10 —13½ | 40 | 18.58 | 0.49 | 17 —20 |
| *deserticola* | 18 | 10.81 | 0.64 | 9 —12½ | 12 | 19.21 | 0.57 | 17½—21 |
| *undata* races | 126 | 11.00 | 0.50 | 9½—12½ | 55 | 19.70 | 1.33 | 15½—24½ |
| *sarda* | 50 | 11.00 | 0.48 | 9½—12½ | 33 | 20.24 | 0.66 | 18½—22 |
| *balearica* | 20 | 11.78 | 0.73 | 9½—14 | 12 | 18.92 | 0.73 | 16½—21 |

## KEY TO THE GENUS *SYLVIA*

A. Tertials *with* contrasting broad rufous or sandy fringes

6th p. emarginate

Middle tail-feathers as tertials .. .. Desert (p. 38)

Middle tail-feathers *not* as tertials

Wing/tail ratio more than 110 .. .. Dartford, Marmora's (pp. 61, 64)

Wing/tail ratio less than 110 .. .. Spectacled, Tristram's (pp. 55, 58)

6th p. *not* emarginate .. .. .. .. Common Whitethroat (p. 18)

B. Tertials *without* contrasting broad rufous or sandy fringes

7th p. emarginate .. .. .. .. Arabian (p. 36)

7th p. *not* emarginate

Sides and flanks orange-buff to terracotta

Notch on inner web 2nd. p. falls opposite 9th–10th pp. .. .. .. .. .. Subalpine (p. 50)

Notch on inner web 2nd p. falls well below ss. tips Ménétries's (p. 49)

Sides and flanks *not* orange-buff to terracotta

1st p. shorter than p.c.

Under tail-coverts barred .. .. Barred (p. 30)

Under tail-coverts *not* barred

Crown with some black .. .. Rüppell's (p. 42)

Crown entirely without black .. Garden (p. 15)

1st p. longer than p.c.

Without white in tail .. .. .. Blackcap (p. 10)

With white in tail

Wing well over 70 mm. .. .. Orphean (p. 32)

Wing well under 70 mm.

Throat mottled with black .. Cyprus (p. 43)

Throat *not* mottled with black

Legs bluish or lead, tail rounded 5–8 Lesser Whitethroat (p. 24)

Legs brownish or flesh, tail rounded 9–14 .. .. .. .. Sardinian, Ménétries's (pp. 45, 49)

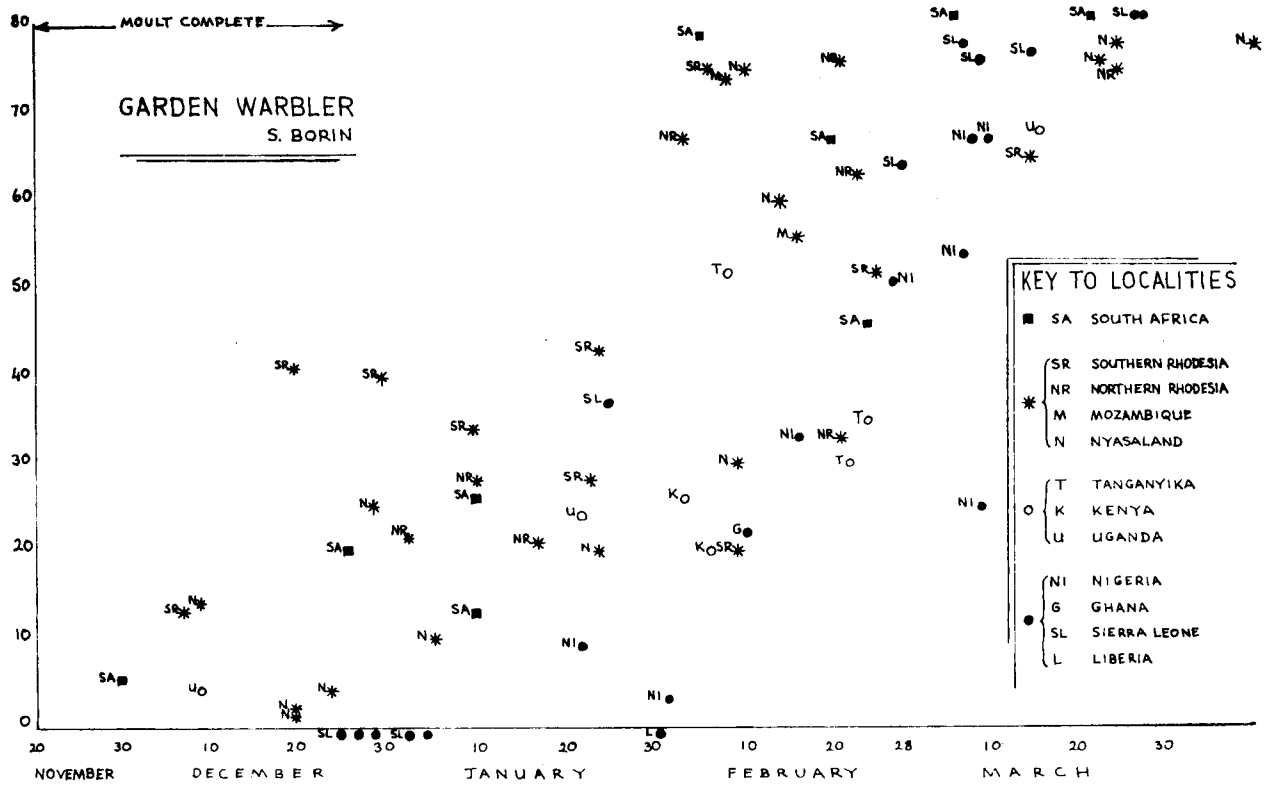


Fig. 5

Chart showing progress of moult in the GARDEN WARBLER *Sylvia borin*. For explanation, see caption below fig. 4.

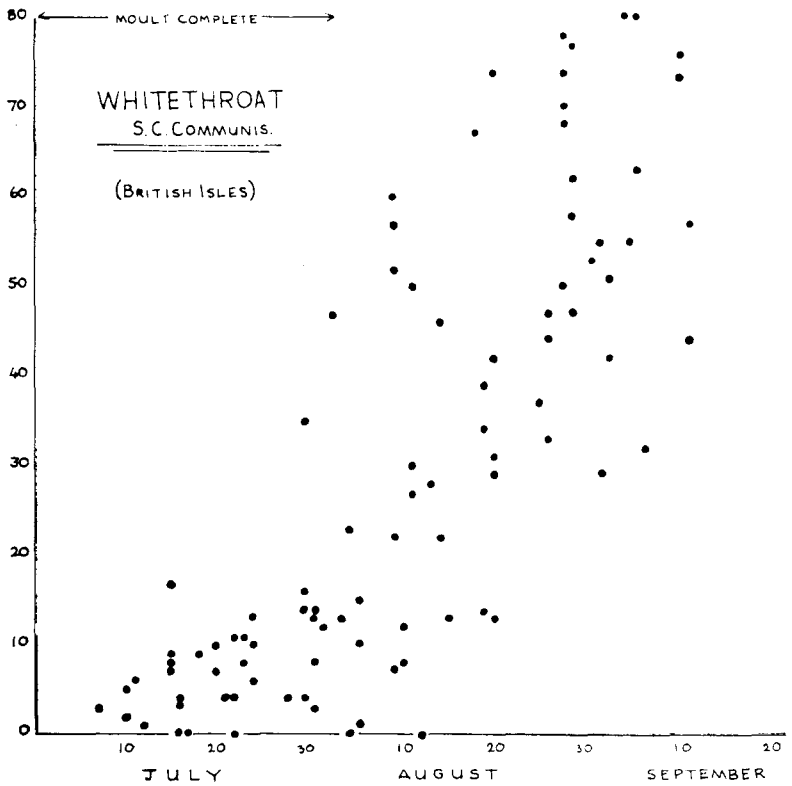


Fig. 6

Chart showing progress of moult in the COMMON WHITETHROAT *Sylvia communis*, based on British examples. The stage reached in the wing-moult (vertical scale) has been assessed by allowing 5 points for each fully-formed new feather, one for a new feather still in pin, and 2, 3 and 4 for intermediate stages of growth as appropriate. The value plotted against time (horizontal scale) is therefore the number of points scored by each bird out of a possible 80 for ten new primaries and six new secondaries.

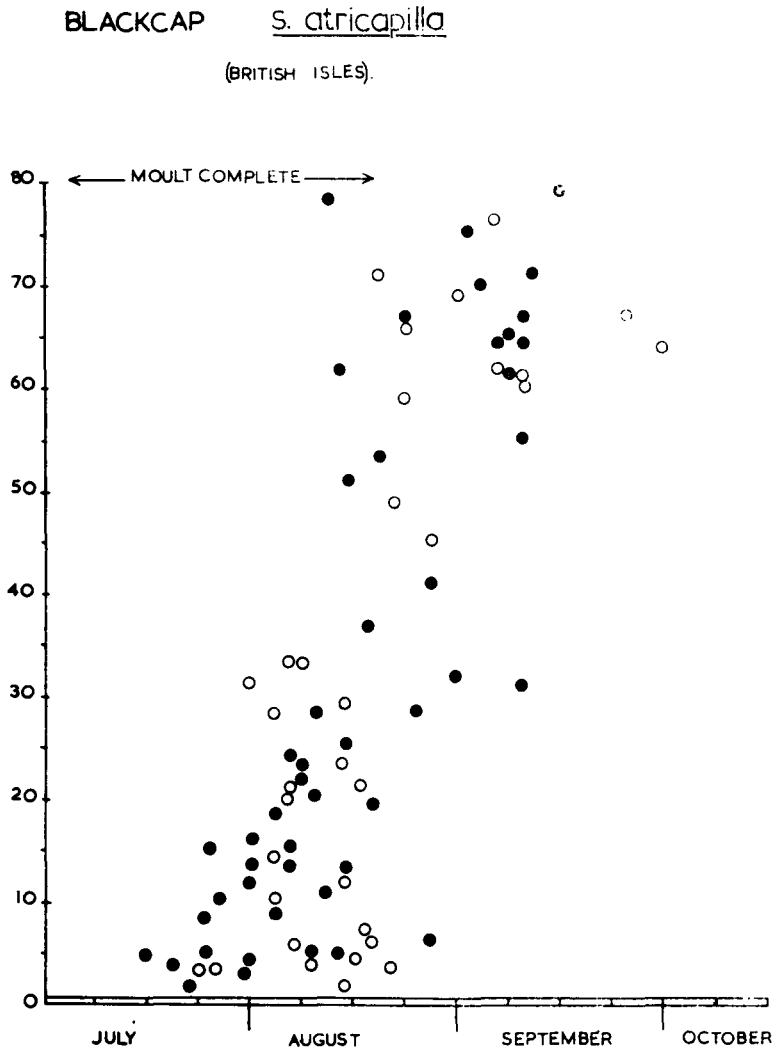


Fig. 7

Chart showing progress of moult in the BLACKCAP *Sylvia atricapilla*, based on British examples. (From data supplied to B.T.O. Moult Enquiry.) The filled circles represent ♂♂, the open circles ♀♀. The method of 'scoring' is explained at the foot of Fig. 6.

## ACKNOWLEDGEMENTS

The taxonomic information contained in this guide was compiled during a lengthy examination of the skins in the national collection, and I am grateful to Mr. J. D. Macdonald, Keeper of Birds at the British Museum (Natural History), Cromwell Road, London, S.W.7., for the facilities afforded me, and to his staff for their kind assistance. I am also grateful to Colonel R. Meinertzhagen for permission to examine material in his collection, also kept at the British Museum, and to Mr. Rodger Waterston for access to birds in the Royal Scottish Museum, Edinburgh.

The late Stephen Boddy greatly assisted the work in preparing the Tables of Measurements on pp. 66–68, and I am very glad to have had advice and help on a number of points from Mr. D. I. M. Wallace and Mr. Peter Hope Jones, who kindly read the MS. Once again Mr. Eric Hosking has very kindly donated photographic studies of *Sylvia* warblers to illustrate the guide. I am again indebted to Mr. Robert Gillmor for the cover and title page designs. The drawings of the tail-feathers (fig. 1) and the moult charts (figs. 5 – 6 and 7) were kindly prepared by Mrs. Catherine Cowdy and Miss Madeleine Wheeler.

A particular vote of thanks is due to Mr. G. K. Martin and Mr. P. J. Walker, who studied and put at my disposal observations they made on *S. melanothorax* whilst serving in Cyprus. The wardens of the British bird observatories kindly supplied the weights given in the guide, and the sections on moult owe much to a number of contributors to the B.T.O. Moult Enquiry, and particularly to Mr. R. Dowsett and Mr. A. R. Ludlow (working in Rhodesia and Nigeria respectively), and the Oxford University Sicilian Expedition of 1962. It is a pleasure to acknowledge the assistance of the staff of Holywell Press while the guide was being printed.

## REFERENCES


BANNERMAN, D. A. (1963). *Birds of the Atlantic Islands.* Edinburgh.

BEVEN, G. and ENGLAND, M. D. (1967). Studies of less familiar birds. 143. Subalpine Warbler. *Brit. Birds*, 60: 123-9.

BRICKENSTEIN-STOCKHAMMER, C. and DROST, R. (1956). Uber den Zug der euröpaischen Grasmüchen *Sylvia a. atricapilla, borin, c. communis* und *c. curruca* nach Beringungsergebnissen. *Die Vogelwarte*, 18: 197-210.

DAVIS, P. (1967). Migration seasons of the *Sylvia* warblers at British bird observatories. *Bird Study*, 14: 65-95.

DRESSER, H. E. (1902). *A Manual of Palaearctic Birds.* Part 1. London.

HARTERT, E. and STEINBACHER, F. (1932-38). *Die Vogel der paläarktischen Fauna. Ergänzungsband.* Berlin.

MEINERTZHAGEN, R. (1949). *Parisoma* in *Sylvia. Bull. B.O.C.* 69: 109.

MEINERTZHAGEN, R. (1954). *Birds of Arabia.* Edinburgh.

NISBET, I. C. T. (1962). South-eastern rarities at Fair Isle. *Brit. Birds*, 55: 74-86.

SHARROCK, J. T. R. (1962). The field-identification of Sardinian, Subalpine and Spectacled Warblers in Autumn. *Brit. Birds*, 55: 90-2.

SOUTHERN, H. N. (1951). Melanic Blackcaps in the Atlantic Islands. *Ibis*, 93: 100-108.

SPENCER, R. (1963). Report on bird-ringing for 1962. *Brit. Birds*, Supplement 1963, 56: 477-540.

TUBBS, C. R. (1963). The significance of the New Forest to the status of the Dartford Warbler in England. *Brit. Birds*, 56: 41-48.

TUBBS, C. R. (1967). Numbers of Dartford Warblers in England during 1962-66. *Brit. Birds*, 60: 87-9.

VAURIE, C. (1954). Systematic notes on Palearctic birds, No. 11. Sylviinae: the genus *Sylvia. Amer. Mus. Nov.* no. 1692.

VAURIE, C. (1957). Notes on the genus *Parisoma* and on the juvenal plumage and systematic position of *Parisoma plumbeum. Ibis*, 99: 120-122.

VAURIE, C. (1959). *The Birds of the Palearctic Fauna.* Order Passeriformes. London.

VOLSØE, H. (1951). The breeding birds of the Canary Islands. *Vidensk. Medd. fra Dansk Foren.*, 113: 1-153.

WILLIAMSON, K. (1959). The September drift-movements of 1956 and 1958. *Brit. Birds*, 52: 344-77.

WILLIAMSON, K. and WHITEHEAD, P. (1963). An examination of Blackcap movements in autumn 1959. *Bird Migration*, 2: 265-271.

WITHERBY, H. F., JOURDAIN, F. C. R., TICEHURST, N. F. and TUCKER, B. W. (1938). *The Handbook of British Birds*, Vol. 2. Warblers to Owls. London.

# INDEX OF SCIENTIFIC NAMES