

In Twelve Sections.

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BRITISH BIRD BOOK

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200 PLATES IN COLOUR AND
NUMEROUS PHOTOGRAPHS,

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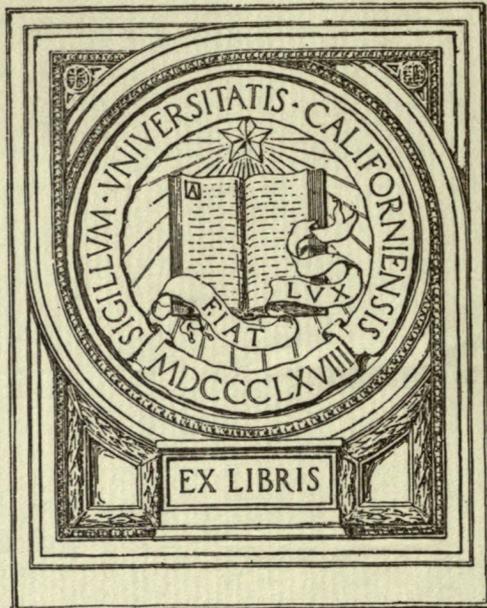
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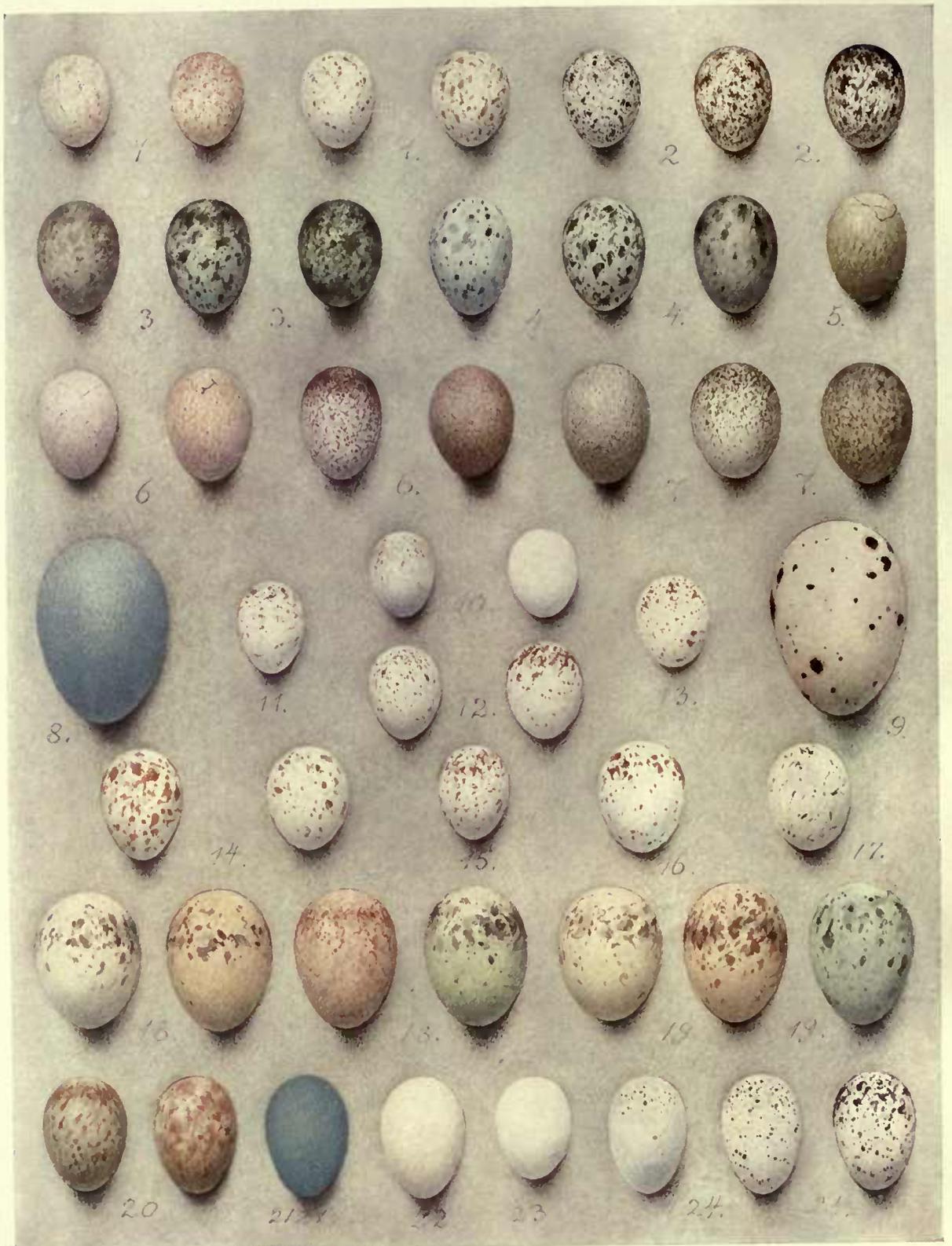
A COMPLETE WORK ON THE BIRDS, NESTS
AND EGGS OF GREAT BRITAIN

London and Edinburgh ~ T. C. & E. C. JACK



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Egg Plate D

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|------------------------|----------------------|
| 1. Willow-warbler | 13. Marsh-tit |
| 2. Wood-warbler | 14. Great-tit |
| 3. Reed-warbler | 15. Blue-tit |
| 4. Marsh-warbler | 16. Nuthatch |
| 5. Sedge-warbler | 17. Bearded-reedling |
| 6. Grasshopper-warbler | 18. Redbacked-shrike |
| 7. Savi's warbler | 19. Woodchat-shrike |
| 8. Starling | 20. Flycatcher |
| 9. Oriole | 21. Pied-flycatcher |
| 10. Longtailed-tit | 22. House-martin |
| 11. Coal-tit | 23. Sand-martin |
| 12. Crested-tit | 24. Swallow |

THE WARBLERS

[ORDER: *Passeriformes*. FAMILY: *Turdidæ*. SUB-FAMILY: *Sylviniæ*]

UNIV. OF
CALIFORNIA

PRELIMINARY CLASSIFIED NOTES

W. P. PYCRAFT.

NOTICE.

In order to render the Notes on Distribution more complete, the range of each species outside its breeding area will be briefly indicated. What additions are necessary to the preceding Distribution Notes, those in Vol. I., will be made in the form of Addenda at the end of the work. Owing to misleading statements that have been made, it is necessary to repeat here what was said in the Preface:—that “a *detailed* account of the *geographical distribution* of our birds lies outside the scope of the work, which professes to deal comprehensively only with their *habits*” (Vol. I., p. iv.). But the Summaries given provide recent information, especially as to the distribution of British local races, which is not available in any other work on British Birds.

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breast and abdomen whitish; but the former is suffused with a delicate rosy buff hue. The flanks are light brown and the under tail-coverts whitish buff. The iris is light rusty buff, and the legs are of a buffish flesh-colour. After the autumn moult the grey of the head is marked by a brown hue, and the rose-colour of the breast is conspicuous by its absence. Length 5.5 in. [140 mm.]. The female differs from the male chiefly in having the head brown, like the back, and the rest of the plumage duller. The juvenile plumage resembles that of the adult, but is of a darker brown above, while the major coverts and secondaries have decidedly redder margins than in the adult. The tail feathers are also margined with brown, especi-

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1. Willow
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5. Sedge-v
6. Grassh
7. Savi's v
8. Starling
9. Oriole
10. Longtai
11. Coal-tit
12. Crested

NOTICE

In order to render the Notes on the following more complete
a copy of each article inside its folder will be placed
in the folder. When attention is directed to a particular
article those in Vol. II will be made in the form of
a list at the end of the work. Owing to the large amount
of space taken up by the notes it is necessary to restrict what was
to be included in the Notes to a few articles of the most
importance. It is hoped that the notes on the work, which
are to be published separately, will be of use to all.
It is hoped that the specimens were made recent information
as to the distribution of British birds which is
available in our notes on British birds.

THE WARBLERS

[ORDER: *Passeriformes*. FAMILY: *Turdidæ*. SUB-FAMILY: *Sylviinæ*]

UNIVERSITY OF
CALIFORNIA

PRELIMINARY CLASSIFIED NOTES

[J. L. BONHOTE. W. FARREN. F. C. R. JOURDAIN. F. B. KIRKMAN. W. P. PYCRAFT.
E. L. TURNER.]

WHITETHROAT [*Sylvia communis* Latham. *S. cinerea* Bechst. Peggy-whitethroat, nettle-creeper, splitstraw, windlestraw, nettlemonger, straw-mouse. French, *fauvette grise*; German, *Dorn-Grasmücke*; Italian, *sterpazzola*.]

i. Description.—The whitethroat can be distinguished at any age by the fact that the 'bastard' or first primary never extends beyond the tips of the primary coverts, and by the pale chestnut edgings of the wing-coverts and secondaries. (Pl. 47.) The male, in spring, has the upper parts brown, washed with ochre, save the head, which is ashy grey, with a slight tinge of ochre. The tail feathers are sepia-brown, margined with ochre, except the outermost, which are white, with an oblique white band along the inner web. The wing-coverts are sepia-brown, those of the median and major series having broad rust-coloured margins; the inner secondaries are similarly coloured, while the primaries have similar, but very narrow, margins running along the free edge of each feather. The throat is pure white, the fore-breast and abdomen whitish; but the former is suffused with a delicate rosy buff hue. The flanks are light brown and the under tail-coverts whitish buff. The iris is light rusty buff, and the legs are of a buffish flesh-colour. After the autumn moult the grey of the head is marked by a brown hue, and the rose-colour of the breast is conspicuous by its absence. Length 5.5 in. [140 mm.]. The female differs from the male chiefly in having the head brown, like the back, and the rest of the plumage duller. The juvenile plumage resembles that of the adult, but is of a darker brown above, while the major coverts and secondaries have decidedly redder margins than in the adult. The tail feathers are also margined with brown, especi-

ally near the tip. The under parts are duller than in the adult, the throat being of a dirty white, the breast and flanks greyish buff. The outer tail feathers are brownish white. [W. P. P.]

2. Distribution.—The whitethroat is generally distributed as a breeding species over the whole of Europe, with the exception of the north of Scandinavia and Russia, and over Western Asia as far as the Yenesei; but east of the Caucasus and the Urals the representative form has been separated under the name of *S. communis icterops*, Ménétr. It also nests in small numbers in the Mediterranean islands and North-West Africa. In the British Isles it is plentiful throughout Great Britain and Ireland, except in the north of Scotland, but is extending its range there, and now breeds in small numbers in E. Sutherland and W. Ross. It breeds regularly in Skye, and has been recorded as nesting on Barra in the Outer Hebrides in 1900, but not in the Orkneys or Shetlands. Outside its breeding range it is found not only in the countries along the West African coast and the whole Nile Valley, but also in Central Africa, and on one occasion has been met with as far south as Damara-land. [F. C. R. J.]

3. Migration.—A summer visitor to the British Isles. The first arrival of any numbers on the south coast of England usually takes place about the middle of April, and from then until the latter half of May they are continually passing through and settling down in their breeding quarters. In Scotland and Ireland it seldom arrives before the beginning of May. The return migration commences towards the end of July, the adult birds probably leaving first as the emigrating flocks in September are largely composed of young. By the end of September our breeding birds have practically all left, and the birds met with in October are probably migrants passing through from Northern Europe. [J. L. B.]

4. Nest and Eggs.—The usual site is low down, almost on the ground, in rank vegetation, small bushes, hedgerows and thickets, but occasionally a nest is found at some height above it. It is built of bents, grasses, and roots, well lined with horsehair, and is always deep internally. (Pl. XVIII.) The work of construction is done usually by both sexes. Eggs usually 5, less commonly 4 or 6, greenish in ground-colour and speckled or marbled with ochreous and leaden shell-marks. There are, however, many varieties, including white or bluish without markings, or only blotched with ash-grey, boldly blotched and spotted with dark brown. A well-known pink type with red-brown markings has also occurred in several places. (Pl. C.) Average size of 100 eggs, $\cdot 75 \times \cdot 54$ in. [$19\cdot 1 \times 13\cdot 7$ mm.]. The breeding season begins early in May, but usually not till the second half of the



Photo by E. L. Turner

Whitethroat and its nestlings



Photo by F. B. Kirkman

Whitethroat's Nest

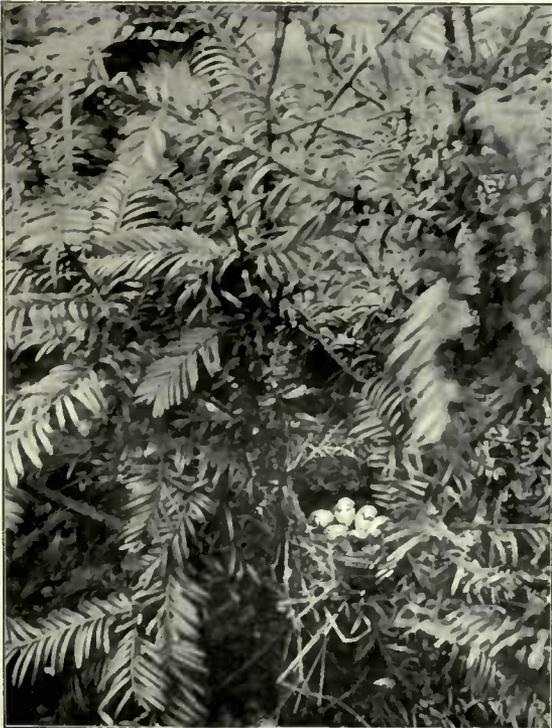


Photo by W. Farren

Lesser-whitethroat's Nest

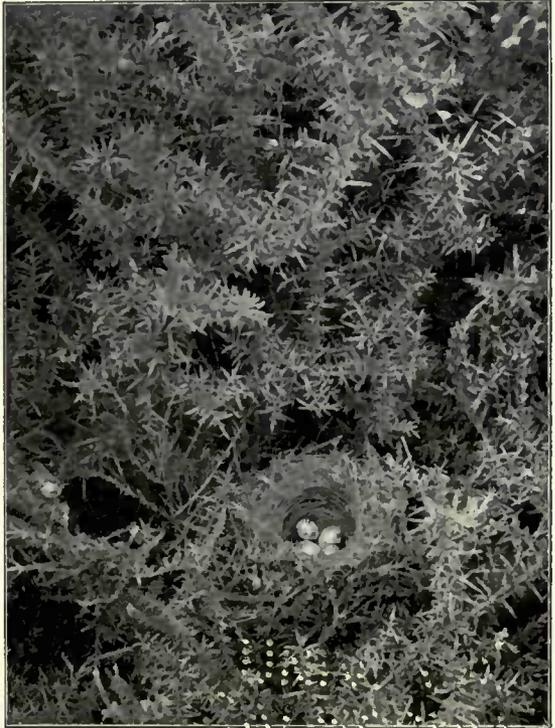


Photo by H. Bentham

Dartford-warbler's Nest

month. Incubation lasts 11-13 days (W. Evans, *Ibis*, 1891, p. 58), and is performed by both sexes. Usually single brooded. [F. C. R. J.]

5. **Food.**—Insects of various kinds and their larvæ, and in the autumn the smaller soft fruits, such as raspberries, blackberries, and elder berries. The food supplied to the young by both parents consists principally of insects and their larvæ. [E. L. T.]

6. **Song Period.**—From time of their arrival in April till about the end of July. [E. L. T.]

LESSER-WHITETHROAT [*Sylvia curruca* (Linnæus)]. Peggy, hazel-linnet. French, *bec-fin babillard*; German, *Zaun-Grasmücke*; Italian, *bigiarella*].

1. **Description.**—The lesser-whitethroat may always be distinguished from the greater-whitethroat in that the first or 'bastard' primary is longer than the primary coverts, and further by the grey head. (Pl. 49.) The male, in spring, has the head slate-grey, the rest of the upper parts greyish brown. The wings and the tail feathers are brownish grey, the innermost secondaries being broadly, and the major coverts and primaries narrowly, edged with brown. The rump and tail-coverts are brownish grey, slightly lighter than the back, and the tail feathers are edged with the same colour, the outermost being whitish, having the outer web pure white, the inner with an oblique smoke-coloured band, the penultimate feather occasionally has a white spot at its tip. The under parts are whitish, pure white on the throat, faintly washed with pinkish buff on the fore-breast, and light buffish brown on the flanks, while the under tail-coverts are white. The iris is light brown, and the legs a uniform bluish leaden-grey. After the autumn moult the plumage is somewhat browner, but the fore-breast and flanks have a faint wash of lavender-pink and pale buff. Length, 5.25 in. [133 mm.]. The sexes are alike, but the female is slightly duller. The juvenile plumage scarcely differs from that of the adult, but the upper parts are of a uniform dull ashy brown, and the white of the outer tail feather is more marked. [W. P. P.]

2. **Distribution.**—This species breeds in Great Britain, the Continent of Europe (except Spain, Portugal, and S. Italy), and in Asia from Palestine and Asia Minor to Manchuria and Kashmir. The Western race, *S. curruca curruca* (L.), does not breed farther east than the Urals and the Caucasus, where it meets the western limits of at least two Eastern races, *S. c. affinis* (Blyth) and *S. c. minula* (Hume). In Great Britain its range is limited, for though very numerous in some parts of the South

of England, such as the home counties, it is scarce in Devon and absent from Cornwall, while it is only a rare straggler to the western side of Wales and becomes decidedly scarce in the northern counties of England, though it has bred occasionally in Durham and Northumberland. Reliable records of nesting from Scotland beyond the border counties are few indeed and need further confirmation, while as a breeding species it is unknown in Ireland. Outside its breeding range the species occurs in Algeria occasionally on passage, but the great majority make their way through Egypt up the Nile Valley and along the Red Sea to winter quarters in Nubia and the Egyptian Soudan. [F. C. R. J.]

3. Migration.—This species is a summer visitor to those portions of our islands where it breeds. As its principal wintering quarters are in North-east Africa, it arrives in this country, as might be expected, from the south-east, and is usually first noticed in Kent or one of the home counties during the latter half of April, but the main arrival takes place during the first week in May. The return journey is undertaken during August and the first half of September, though solitary individuals have been recorded from Scotland as late as the 10th October. (*Ann. Scot. N. H.*, 1908, p. 134.) It has been recorded as occurring in Fair Isle as early as April 23, and as late as October. (*Ann. Scot. N. H.*, 1910, p. 193.) [J. L. B.]

4. Nest and Eggs.—Built in thick hedges, bushes, etc., at no great height. Compared with that of the whitethroat it is flat and slight, built of dry stalks and grasses and lined with roots and grasses, occasionally also with hair. (Pl. XVIII.) Both sexes take part in nest-building. (E. L. T.) Eggs, usually 5-6, sometimes only 4, very different from those of its allies. They are elongated in shape in many cases, white or creamy and blotched or spotted towards the big end with a roughly defined zone or cap of brown and grey markings. (Pl. C.) Average size of 100 eggs, $\cdot 65 \times \cdot 49$ in. [$16\cdot 5 \times 12\cdot 4$ mm.]. The breeding season begins early in May, but more generally after the middle of the month. Incubation lasts about 11-12 days and is chiefly performed by the hen, but the cock has been seen to share in the task (E. L. T.), and does so, according to Naumann, for a short time in the afternoon. Apparently only one brood is reared. [F. C. R. J.]

5. Food.—Insects and their larvæ. In the autumn soft berries and fruits. The food supplied to young, by both parents, consists entirely of insects and their larvæ. [E. L. T.]

6. Song Period.—From its arrival till the middle and sometimes the end of July. It has been occasionally heard up to the later part of August by C. and H. Alexander (*British Birds*, i. 371). [E. L. T.]

BLACKCAP [*Sylvia atricapilla* (Linnæus). Blackcap peggy, coal-hoodie.

French, *fauvette à tête noire* ; German, *Mönch-Grasmücke* ; Italian, *capinera*].

1. **Description.**—The blackcap differs from all the other British Warblers, the male in having a black cap, grey throat, and no white in the tail feathers—distinguishing it from the orphean warbler—the female and young in having a brown cap. (Pl. 48.) The male, in spring, has the crown black with a bluish gloss, the sides of the head, hind neck and back pure ash-grey, but the back is tinged with olive-brown. The wings are coloured like the back, but shade into dull grey in the wing-quills. The tail feathers are like the quills, but have narrow margins of olive-brown. The throat, fore-neck and mid-breast are pale grey, with a tinge of buff on the flanks. After the autumn moult the back and rump have a decided tinge of olive, and the abdomen a wash of light yellowish buff. Length 5·75 in. [146 mm.]. The female, in spring, differs from the male in having the crown of a dull umber, the nape and sides of the neck ash-grey. The under parts are ashy white, slightly tinged on the fore-breast and flanks with olive-ochre. In autumn the female is slightly browner. The juvenile plumage resembles that of the female, the crown being brownish buff ; the upper parts olive-grey, and the wings slate-colour, the wing-coverts and inner secondaries being edged with grey. The throat, fore-breast, and flanks rather light olive-buff. During the winter the young males acquire the black cap of the adult, though often the tips of the feathers are brown. [W. P. P.]

2. **Distribution.**—A summer visitor to the British Isles and the Continent of Europe (except the north of Scandinavia and Russia), the Mediterranean Isles, Asia Minor, Palestine, and W. Siberia, but partially resident in the Mediterranean basin, and also sedentary in the Azores, Cape Verde Isles, and N.-W. Africa, while a local race is found in Madeira and the Canaries, *S. atricapilla heineken* (Jard.). In Great Britain it is scarce in Cornwall, Pembroke, Carnarvon, and Anglesey, while in Scotland it has seldom been recorded as breeding north of the Forth, Clyde, and Tay areas, though isolated instances of nesting have been reported from Moray, Dee, and W. Ross, as well as the Orkneys and perhaps the Shetlands. In Ireland it is scarce, but occurs in widely separated localities, but not north of Fermanagh and Cavan or in the south-west. Outside its breeding range it occurs in Africa as far south as Senegal on the west, in the oases of the Sahara, along the Nile valley to Nubia, Abyssinia, Somaliland, and southward as far as Lake Nyassa in Equatorial Africa, as well as in Arabia. [F. C. R. J.]

3. **Migration.**—This species is a summer visitor to Great Britain, though solitary individuals have been known to winter in Devon and Cornwall. It is one

of our earliest migrants to arrive, and the first individuals are generally recorded before the end of March. The main immigration usually commences along the south coast during the second week of April and lasts about a month. The southward journey is undertaken by the bulk of individuals during September, but it is by no means unusual for solitary examples to be met with, even in Scotland, until the end of October or beginning of November. [J. L. B.]

4. **Nest and Eggs.**—The nest is generally placed rather higher than that of the garden-warbler, in bushes, undergrowth in woods, shrubberies, and lanes. It is built of bents and occasionally honeysuckle bark, lined with finer grasses and a little horsehair. (Pl. XIX.) Most of the work of construction is done by the hen, but the cock has been observed to help (H. E. Howard, *British Warblers*, p. 20; A. Ellison). Eggs, usually 4 or 5, sometimes 6 in number; yellowish white, clouded and blotched with different shades of yellowish brown and sometimes almost black spots and streaks. The scarce and beautiful red type has a salmon-pink ground and is similarly marked with pinky red. Pure white eggs or white with a few shell-markings also occur at times. (Pl. C.) Average of 100 eggs, $\cdot 76 \times \cdot 57$ in. [$19\cdot 3 \times 14\cdot 5$ mm.]. The breeding season begins late in April in the south, but usually not till mid-May. Incubation lasts about 15 days (H. E. Howard, *op. cit.*), and is shared by both sexes. Saunders says that two broods are reared, but this is certainly not always the case. [F. C. R. J.]

5. **Food.**—On their arrival in spring they subsist principally on berries of common climbing ivy, *Hedera helix* (H. E. Howard). Their diet comprises insects, their larvæ, and soft berries. In its southern winter quarters the species feeds on peaches, figs, oranges, and the berries of the pepper-tree (Saunders's *Manual*). The young are fed by both parents on insects and their larvæ. [E. L. T.]

6. **Song Period.**—Immediately after arrival in mid-April till the end of July. It has been heard by C. and H. Alexander on 31st August 1907 at Tunbridge Wells (*British Birds*, i. 371). [E. L. T.]

GARDEN-WARBLER [*Sylvia hortensis* (Bechst.).¹ Nettlecreeper, Peggy (generic). French, *fauvette des jardins*; German, *Gartengrasmlücke*; Italian, *beccafico*].

1. **Description.**—The garden-warbler may be distinguished by its sober

¹ By strict rule of priority the name should be *Sylvia borin* (Boddaert), and the name *Sylvia hortensis* should be applied to the orphean-warbler, now called *Sylvia orphea*. Custom, however, has sanctioned *hortensis* for the garden-warbler, and *orphea* for the orphean. As both these names correspond to the English equivalents, there is an obvious advantage in retaining them.—ED.



Photo by Riley Fortune

Blackcap's Nest



Photo by E. L. Turner

Hen blackcap on her Nest



Photo by F. B. Kirkman

Garden-warbler's Nest

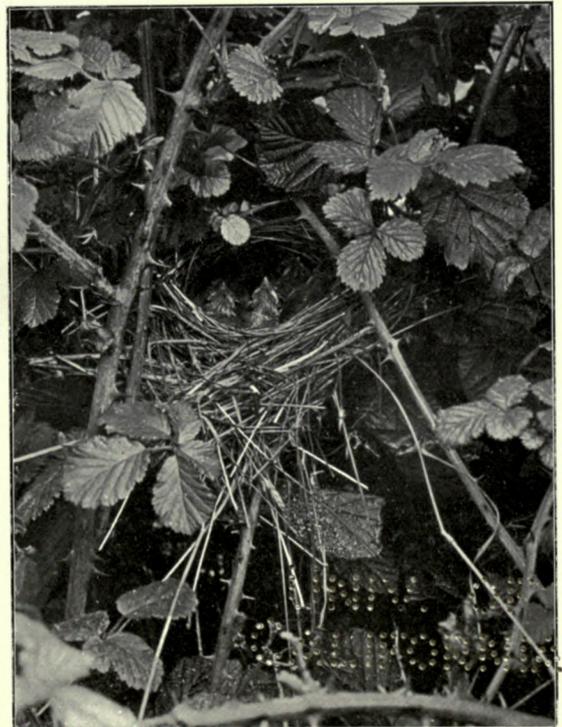


Photo by F. B. Kirkman

Garden-warbler's Nest with young

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olive-brown coloration, and the fact that the 'bastard' or first primary never exceeds the major coverts in length. (Pl. 50.) The male, in spring, is olive-brown above, the wings and tail being somewhat darker, while the primaries have whitish tips. The sides of the head incline to ashy grey, and there may be a faint buff superciliary streak. The throat, fore-breast, and flanks are of an ochreous buff, while the centre of the breast, abdomen, and under tail-coverts are greyish white. After the autumn moult the upper parts incline to russet-brown, the throat, breast, and abdomen are pure white, while the fore-breast and flanks are of a pale greyish brown. Length, 5.75 in. [146 mm.]. The sexes are alike. The juvenile plumage differs from that of the adults in that the fore-breast and flanks are decidedly yellower; the throat and under tail-coverts are buff-coloured. [W. P. P.]

2. Distribution.—Generally distributed as a breeding species over the Continent, with the exception of the extreme north of Scandinavia and Russia, and the southern parts of the Italian and Balkan peninsulas. It also breeds locally in N.-W. Africa and W. Siberia and possibly W. Persia. In Great Britain it is generally distributed, but only breeds in the Tamar valley in E. Cornwall and is scarce in N. Devon, Pembroke, and the counties along the N. Wales coast, while in Scotland, though commoner than the blackcap in the south, and recorded breeding as far north as the Tay area, it is absent from the Outer Hebrides, the mainland north of the Great Glen and the Orkneys and Shetlands. In Ireland it is extremely local and little known, but has been known to breed in all four provinces. Outside its breeding range it occurs in S. Italy, Greece, Asia Minor and Palestine and in tropical and Southern Africa. It has been recorded from Damaraland, Lake Ngami, the Transvaal and Natal, but not from Cape Colony. [F. C. R. J.]

3. Migration.—This species is a summer visitor of somewhat restricted distribution in Great Britain. In our country it arrives rather later than its congener the blackcap, and is rarely seen before the middle of April, while the main body generally arrives during the second and third weeks of May. Notes of its departure in autumn are rather scanty, but it seems probable that the majority of our native birds have taken their departure by the middle of September. It has been recorded (*Ann. Scot. N. H.*, 1907, p. 190, and 1908, p. 135) from Fair Island and other places within the Scottish area during the latter half of September and as late as the 26th October, but it is more than probable that these were birds of passage from Scandinavia or Central Europe. [J. L. B.]

4. Nest and Eggs.—Often in gardens, shrubberies, outskirts of plantations, etc., and generally built rather lower than that of the blackcap, though occasionally

at a good height from the ground. Several nests have been found in tall ferns and also in ivy on walls. The materials used are long grass stalks bent round, and the lining consists of fine grasses and a few hairs. (Pl. XIX.) Both sexes share in building. (E. L. T.) Eggs, usually 5, less commonly 4 or 6, slightly larger and glossier than those of the blackcap with more distinct shell markings and lighter surface blotches and spots. Some eggs are almost white, with only a few faint yellowish cloudings or zones of small spots. (Pl. C.) Average size of 100 eggs, $\cdot 79 \times \cdot 58$ in. [$20\cdot 1 \times 14\cdot 7$ mm.]. Eggs may be found from about mid-May onward; often at the end of May or early in June. Incubation lasts 13 days and Bau (Ed. v. p. 78) says that the cock takes part during the afternoon. Only one brood is reared. [F. C. R. J.]

5. Food.—Insects and their larvæ, fruit and berries. The nestlings are fed by both parents entirely on insects and their larvæ. [E. L. T.]

6. Song Period.—From its arrival towards the end of April till the middle of July. It has been heard in August by C. and H. Alexander (*British Birds*, i. p. 367, and iv. p. 278. Cf. also *Zool.*, 1851, p. 3111). [E. L. T.]

DARTFORD-WARBLER [*Sylvia undata* (Boddaert). Furze-wren. French, *pitchou provençal*; German, *Provence-Grasmücke*; Italian, *magnanina*.]

1. Description.—The Dartford-warbler may be recognised at once by the dark brown coloration of the upper parts and the long, fan-shaped tail. (Pl. 50.) In the male, in spring, the upper parts are of a dark chocolate-brown, inclining to slate-grey on the head. The primaries and secondaries are of a dark sepia, the inner secondaries relieved by greyish brown margins. The throat, fore-neck, fore-breast, flanks, and under tail-coverts are of a dark chestnut-red. The tail is long and rounded, and the distal half of the outermost feather has a narrow white margin along its outer web, which is continued round on to the inner web. The legs and toes are of a reddish brown, and the iris is dark red. Length 5·1 in. [130 mm.]. The female and immature birds are of a much paler brown above, while the under parts are of a pale chestnut-brown. After the autumn moult more or less distinct white spots appear on the throat of both sexes, but these are lost by abrasion during the winter. The juvenile plumage resembles the adult in having the upper parts of a very dark brown, but of a duller, more 'sooty' hue, while the under parts are of a yellowish brown, darker on the throat and flanks. [W. P. P.]

2. Distribution.—A West European species, of which the British race, *Sylvia undata dartfordiensis*, is confined to the South of England and N.-W. France, while *S. undata undata* (Boddaert) inhabits the South of France, Spain, Portugal, Corsica, Sardinia, and Italy (except in the north). An African form, *S. undata toni* (Hart.), is found in Marocco, Algeria, and possibly Tunisia. It is stationary throughout its range, and in England was formerly found in all the southern counties from Cornwall to Kent, but has become extinct in Kent since 1891; while it also breeds in Surrey, Berks, and sparingly in Oxfordshire. It formerly nested in Middlesex, and still does so in Suffolk, close to the Norfolk border. Northward it is said to have bred in Worcester, and has been reported of late years as nesting in Salop, while it probably bred in Stafford about 1870; but in the northern part of its range it is partially migratory and liable to extermination in hard winters, so that its status has always been somewhat uncertain. [F. C. R. J.]

3. Migration.—This species has not yet been recorded on migration, though possibly in winter there may be southward movements within our isles. [J. L. B.]

4. Nest and Eggs.—Generally in gorse, but sometimes also in long heather, usually about 18 in. from the ground and not easy to see. The materials used are chiefly bents, lined with finer grasses and occasionally a little hair, wool, or a feather or two. (Pl. xviii.) Apparently, as in the case of the whitethroat, the male is an active partner in the work of nest building, and certainly constructs supplementary nests (J. M. Goodall). Eggs, usually 4, sometimes 5 or only 3, much like the whitethroat's, but smaller, less greenish, with a whiter ground and more distinct markings of umber-brown and lavender. Erythristic varieties of the egg, in which the ordinary markings are replaced by different shades of chestnut red and grey shell-marks, apparently do not occur in England, though common in Spain. (Pl. C.) Average of 100 English eggs, $\cdot 69 \times \cdot 52$ in. [$17\cdot 5 \times 13\cdot 2$ mm.]. The breeding season begins at the end of March, but more generally about mid-April and probably two broods are reared in most cases. Incubation is said to last 12-14 days, and in those cases where the sex of the sitting bird has been noted, was carried on by the hen. [F. C. R. J.]

5. Food.—Insects and their larvæ. In the autumn fruits and soft berries. The nestlings are fed by both parents on caterpillars and on insects generally. [E. L. T.]

6. Song Period.—From about the end of March till well on into the autumn, and has been recorded by Col. Mockler Ferryman as late as October 7. [E. L. T.]

BRITISH GOLD-CREST [*Regulus regulus anglorum* Hartert. *R. cristatus* K. L. Koch. Golden-crested wren, Tom Thumb. French, *roitelet huppé*; German, *gelbköpfiges Goldhähnchen*; Italian, *regolo*].

1. **Description.**—The adult golden-crested wren may at once be distinguished by the olive-green colour of the upper parts and the brilliant patch of yellow on the crown of the head, forming a crest. This crest is erectile, and has a curious glistening or satin-like sheen. (Pl. 51.) In the male the fore-part of this crest is lemon-yellow, passing backwards into orange-red. It is bounded on either side by a broad black band extending forwards to the base of the beak. The side of the neck and back are of a dark yellowish olive-green, while the tail- and wing-quills are dark greyish brown, the tail feathers have narrow margins of oil-green, and the secondaries a narrow line of oil-green along the free edge; the innermost are tipped with white. The median and major coverts have white tips forming a double white bar; that of the major coverts is broad and contrasts with a broad black bar running immediately along its hinder border and across the secondaries. The under parts are dull white, tinged on the throat and flanks with oil-green. Length 3·6 in. [91 mm.]. The female differs from the male in having the crest of a uniform lemon-yellow colour, and the under parts dull buff, paler on the abdomen. Young birds differ conspicuously from the parents in being duller and darker in colour and in lacking the brightly coloured crest. [W. P. P.]

2. **Distribution.**—Our local race of this European species is confined as a breeding species to the British Isles. It is very generally distributed in all wooded districts where conifers are present throughout Great Britain and Ireland, including the Isle of Wight, Anglesey, and the Isle of Man, while it has been recorded as nesting in many of the Inner Hebrides where fir plantations exist, but not in the Outer Hebrides, Orkneys, or Shetlands. [F. C. R. J.]

3. **Migration.**—Birds native to these islands have been separated from Continental examples as a local race, known as *Regulus r. anglorum*, by Dr. Hartert, *Bull. B. O. C.*, xvi. p. 11 (1905). To what extent our local race is migratory is uncertain. During September and October, however, the Continental form reaches our eastern shores in large numbers and passes through on its way to its winter quarters in South Europe and N.-W. Africa. A return migration, though in far smaller numbers, takes place every spring during March and April, but it is not yet known whether this immigration is that of Continental birds passing through, or of our own local birds returning to their breeding-quarters, though the evidence to hand seems to show that our native birds are in the majority. [J. L. B.]

4. **Nest and Eggs.**—Nesting-place, normally suspended beneath the end of a branch of some species of conifer, and almost invisible from below against the thick needle-covered branches. It is, however, also often found near the top of small conifers, among ivy on tree-trunks, in furze bushes and among creepers, while exceptionally it has been known to breed beneath a hooded-crow's nest (Ussher, *Birds of Ireland*, p. 19). The nest, a warmly lined little cup, is chiefly composed of green moss and spiders' webs, freely lined with feathers. Wool, horsehair, and lichens are sometimes used in small quantities. (Pl. xx.) Both sexes share in building (E. L. T.). The height from the ground is very variable (from 1 to 40 ft. at any rate). Eggs, 7 to 10 and occasionally 11 or 12 in number, white or pale ochreous in ground-colour, spotted with ochreous or reddish brown towards the big end, often so closely that the markings are confluent. (Pl. C.) Average size of 100 eggs, $\cdot 53 \times \cdot 40$ [$13\cdot 5 \times 10\cdot 2$ mm.]. Laying usually begins about the third week in April, while second broods may be looked for at the end of May. Incubation lasts 12-13 days (W. Evans, *Ibis*, 1891, p. 58) and is apparently performed by the hen: the cock has not been observed to take part. Two broods as a rule. [F. C. R. J.]

5. **Food.**—Insects. The young are fed by both parents largely on caterpillars, but often the food supplied is so minute as to be indistinguishable. [E. L. T.]

6. **Song Period.**—The song may be heard from early in February till the end of June, and at intervals from July to the end of October. [E. L. T.]

CONTINENTAL GOLD-CREST [*Regulus regulus regulus* (Linnæus). Woodcock-pilot, herring-sprat.]

1. **Description.**—Distinguished from the British form by the lighter and less olivaceous upper surface and larger size. (E. Hartert, *British Birds*, i. 218.)

2. **Distribution.**—This form is generally distributed over Continental Europe wherever coniferous woods exist, but has not been found breeding in the Iberian peninsula, south of the Pyrenees, or in Greece, while it is represented by allied races in Corsica and Sardinia, the W. Canaries, the Azores, and from Transcaspia to Turkestan, as well as in the Himalayas and Northern Asia to Japan. Although to a great extent sedentary in the southern part of its breeding range, extensive southern movements take place in the north, and it is found in winter in the Iberian peninsula. [F. C. R. J.]

3. **Migration.**—See under British gold-crest.

4. **Nest and Eggs.**—Does not breed in the British Isles.

FIRE-CREST [*Regulus ignicapillus* (Temminck). French, *roitelet à triple bandeau* ; German, *feuerköpfiges Goldhähnchen* ; Italian, *fiorrancino*.]

1. Description.—Though resembling the gold-crest this species may at once be distinguished by the broad superciliary stripe, the black bar before and behind the eye, and the bright patch of golden yellow on the side of the neck. It is altogether a more vividly coloured bird. (No plate.) In the male the crest is throughout of a fiery orange and has a satin-like sheen. It is bounded in front by a bar of dull gold followed by one of black, which is continued backwards in the form of a broad band bounding the sides of the orange crest. Beneath this bar runs the broad white superciliary stripe. Before and behind the eye is a short bar of black, the anterior bar having a <-shape. The upper parts are of a light yellowish oil-green, enlivened by a patch of golden-yellow on the side of the neck. The wing resembles that of the golden-crested wren, but the white bar of the major coverts is narrower and the inner secondaries lack the well-defined spot at the tip. The under parts are buff-white. Length 3·7 in. [94 mm.]. The female is duller than the male, and has a plain lemon-yellow crest, but may be distinguished from the female golden-crested wren by the broad white superciliary stripe and the black band before and behind the eye. There is no seasonal change of plumage. The juvenile plumage may be distinguished from that of the gold-crest by the black markings on the head, which are as in the adult. [W. P. P.]

2. Distribution.—During the breeding season this species is found over the greater part of Central and Southern Europe, North-west Africa, and Asia Minor. It has not been found nesting in Holland, Belgium, or Denmark, and is scarce in N. Germany, and entirely absent from Scandinavia and N. Russia. A distinct race is found on Madeira, and the Corsican form is also said to differ somewhat from the Continental race. In the Mediterranean region the fire-crest is resident throughout the year, but in the northern portion of its breeding range (France and Germany) it is, as a rule, a summer migrant only, wintering by the Mediterranean and only rarely remaining through the winter months. [F. C. R. J.]

3. Migration.—This species is a very irregular winter visitor to our southern and eastern shores. It is quite possible, however, that, from its close resemblance to the gold-crest, it may have often been overlooked. It is from Central and Western Europe that the stragglers which visit our shores probably come. It is more than likely that it enters this country by an east to west route, as several examples have been taken in the North Sea (J. H. Gurney, *Zoologist*, 1889, p. 173). Notwithstanding this, however, the majority of English occurrences have been noted in



Photo by Riley Fortune
Golden-crested-wren's Nest

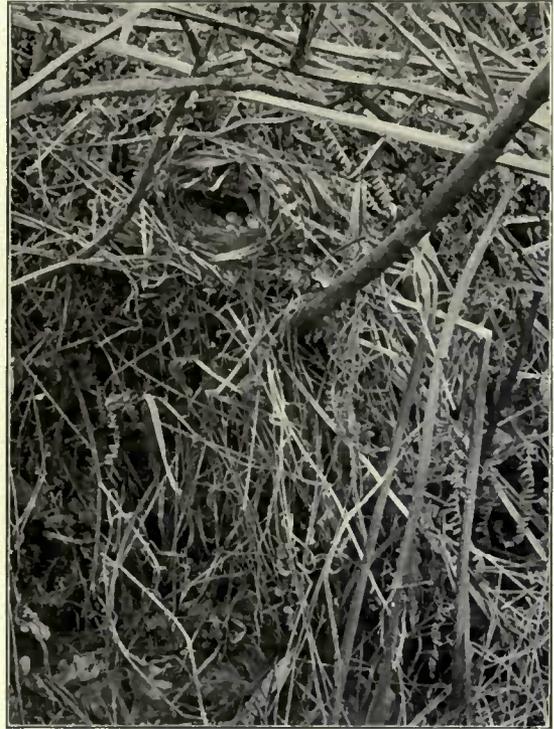


Photo by F. E. Daniel
Chiffchaff's Nest



Photo by F. B. Kirkman
Willow-wren at the entrance to its Nest in reeds

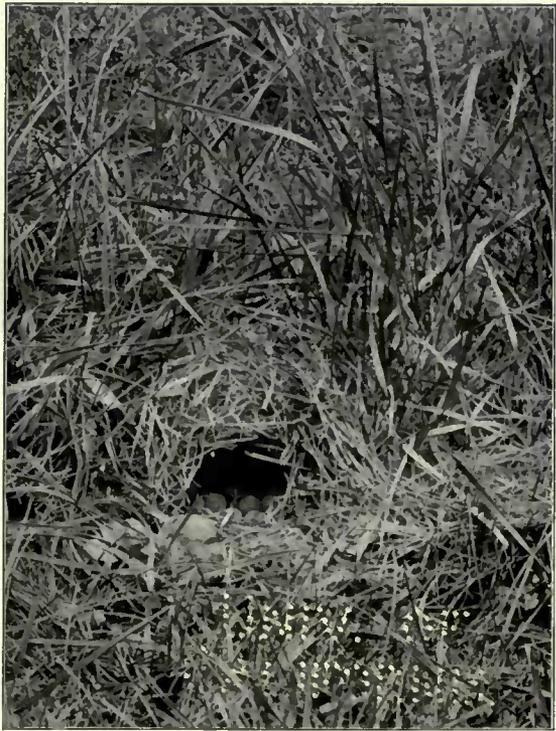


Photo by W. Farren
Willow-wren's Nest in grass

Cornwall and records of its presence on the east coast are decidedly few. Those that reach this country appear to be merely stragglers that have probably migrated in company with gold-crests, for out of 70 gold-crests taken in the North Sea on one occasion 5 proved to belong to the present species (Gurney, *Zoologist*, 1888, p. 225). No large rush of this species has ever been recorded, nor is there any evidence of a return migration in spring, though it has been taken in this country as late as April 9. [J. L. B.]

4. **Nest and Eggs.**—Does not breed in the British Isles.

5. **Food.**—Insects. [E. L. T.]

6. **Song Period.**—Does not appear to be recorded. [E. L. T.]

CHIFFCHAFF [*Phylloscopus collybita collybita* (Vieillot). *P. rufus* (Bechst.).

Chip-chop, choice-and-cheap, featherpoke. French, *bec-fin véloce*; German, *Zilpzalp*, *Weiden-Laubvogel*; Italian, *lui piccolo*.]

1. **Description.**—The chiffchaff bears a close resemblance to the willow-wren, from which, however, it may be distinguished by the fact that the outer margins of the third, fourth, fifth, and sixth primaries are emarginate, and the legs are blackish brown. (No plate.) The sexes are alike. Length 4·6 in. [117 mm.]. After the autumn moult the upper parts are olive-brown, slightly lighter and more yellow on the rump. The sides of the head are olive-buff, relieved by a paler superciliary stripe tinged with yellow above the eye. The wings and tail are greyish brown, each feather edged with olive-green, but the inner secondaries are broadly margined with olive-green. The under parts are whitish, the throat, neck, chest, and flanks tinged with a rich, warm buff, most conspicuous on the flanks, which have pale, but well-defined longitudinal stripes of sulphur-yellow. The abdomen is pure white, but the under tail-coverts are yellow. In the spring the plumage is somewhat green above, and paler below. In the juvenile plumage the upper parts are of a dull grey, slightly lighter and more olive on the rump and upper tail-coverts, while the wing and tail feathers have margins of olive-yellow. The throat is whitish washed with olive-yellow, the chest is dull olive-grey, and the flanks and abdomen are white, but the under tail-coverts are yellowish buff. The yellow tones in plumage of the young bird are particularly vivid at the time it quits the nest and especially so on the under parts, but soon after this hue is greatly reduced. [W. P. P.]

2. **Distribution.**—This species has a wide breeding range, being found throughout the European continent and Western temperate Asia. It is, however, divided into several local races, of which the present is the Western form,

which is found in the British Isles, in that part of the Continent which lies west of Austria and E. Germany, and also in Italy, Sicily, Sardinia, possibly in Algeria. In the British Isles it is a summer visitor to most of the wooded districts of England and Wales, but is practically absent from the Pennine range and the Cambrian mountains, and is scarce in Scotland, though it occurs both on the east and west sides as far as the areas of Forth and Clyde, but is only a rare straggler further north. It is found in the Isle of Man, and is a common summer visitor to the wooded parts of Ireland and locally plentiful there. In the southern parts of its range it is sedentary, but in western and mid-Europe it is a regular migrant, wintering in the Iberian peninsula, North-west Africa and Senegambia. Probably those which winter in East Africa belong to the Scandinavian form. [F. C. R. J.]

3. Migration.—Although a few individuals of this species pass the winter every year in the extreme south-west of England, occasionally also in Ireland and the Midlands (Ussher and Warren, *B. of Ireland*, p. 20 ; O. V. Aplin, *B. of Oxfordshire*, p. 68), it is generally considered as only a summer visitor. The first migrants, coming from South Europe and North Africa, are usually noted in the south-west of England about the middle of March, but the first great irruption does not take place till the last few days of the month. During the first half of April it arrives in large numbers and gradually spreads northwards, especially on the western side of England. In Scotland it is not met with in any numbers until the last few days of April, and its arrival in the north-east of England is often considerably later than in the milder parts of the country. By the end of April the breeding birds of these islands have all arrived, but during the earlier part of May many emigrate from our eastern shores on their way to breed on the Continent. The return migration takes place in a more leisurely manner, the birds leaving the country in small numbers during August and September, the greatest rush usually occurring during the later half of the last-named month. In Scotland it is not infrequently met with at a much later date; these birds are most probably not native bred, but the continental birds of passage. [J. L. B.]

4. Nest and Eggs.—Nesting place: normally at some little distance from the ground, but occasionally resting on it, though much controversy has taken place with regard to the point.¹ It is generally placed among bracken, brambles, creepers, accumulations of dead leaves in evergreen bushes or rank vegetation, and less

¹ See *Zoologist*, 1878, pp. 254, 350; 1891, p. 470; 1892, pp. 111, 150; the *Ornithologist*, pp. 144, 155, 87; and also *The Field*, 1892, lxxix. 432; 1894, lxxxiii. 735; lxxxiv. 44, 46, 128, 166, 197.

commonly in ivy on walls. It is globular in shape, with a rather wide opening at the side, and is more bulky than that of the willow-warbler, and chiefly composed of dead leaves, though moss, grass, stalks, and lichens are also used, and internally it is freely lined with feathers. (Pl. xx.) The work of construction is entirely, or almost entirely, performed by the hen. Eggs, usually 6, rarely 5 or 7, smaller and more glossy than those of the willow-warbler, white in ground-colour and finely spotted towards the big end with very dark purplish brown, and some violet shell-marks as a rule. Eggs in which the markings are more reddish brown occur at times, but require careful authentication. Average size of 100 eggs, $\cdot 61 \times \cdot 47$ in. [$15\cdot 5 \times 11\cdot 9$ mm.]. (Pl. C.) Laying begins from early in May to late in the month according to locality, and incubation, which appears to be performed by the hen alone, (H. E. Howard, *British Warblers*, ii. p. 19), lasts about 13 days. Although one brood is reared as a rule there are several instances on record of a second. [F. C. R. J.]

5. **Food.**—Insects and their larvæ, spiders, and, in autumn, berries. The young are fed by both parents on insects and their larvæ. [F. B. K.]

6. **Song Period.**—From shortly after its arrival till its departure in October, within an interval of silence, or comparative silence about the end of July and beginning of August. See also p. 70. [F. B. K.]

WILLOW-WARBLER [*Phylloscopus trochilus trochilus* (Linnæus).

Willow-wren, peep. French, *pouillot-fitis*; German, *Fitis-Laubsänger*; Italian, *lui grosso*.]

1. **Description.**—The willow-wren and chiffchaff are practically identical in plumage, but the former may always be distinguished from the latter by the pale brown coloration of the legs and the fact that only the third, fourth, and fifth primaries have emarginate outer webs. (Pl. 52.) In the spring, however, the colours of the willow-wren are purer, brighter in tone, the superciliary stripe is yellower, the under parts more yellowish white, and the flanks distinctly sulphur coloured. The sexes are alike. Length 4·9 in. [124 mm.]. The young willow-wren resembles the adult, and differs from the young chiffchaff in its greater brightness and purity of tone. [W. P. P.]

2. **Distribution.**—This, the typical form of the willow-wren, is a summer visitor to the British Isles and almost all the European continent, excepting North-east and South-east Russia, Turkey, and Greece. In Siberia and North-east Russia it is replaced by the next form. In Great Britain it is very plentiful and widely

distributed wherever there is cover, ranging as high as 1500 ft. in some districts and being absent only from the moors and mountains. It breeds regularly in the Isle of Man and the Inner Hebrides, has established itself in Lewis and been recorded as nesting on Barra, while it is known to have bred in the Shetlands and possibly also in the Orkneys. It has been known to nest in every county in Ireland. Outside its breeding range it winters in small numbers in the Mediterranean region, but the great majority pass on into Africa, where it is very widely distributed, and has been recorded from most regions in Central and Southern Africa, many penetrating south to Natal and Cape Colony. [F. C. R. J.]

3. Migration.—No summer visitor to this country seems to arrive in such myriads as the present species, and in consequence its movements are perhaps better known than those of most. Towards the end of March the first arrivals reach our shores, and during the whole of April they pass and spread through our islands in great waves of uncountable numbers. During the season, on nights suitable for observing bird movements, almost every lighthouse on the south coast, from the Scillies in the west to Kent on the east, will simultaneously record the passing of these birds in a continuous stream for hours at a stretch, and this not on one night only, but possibly for ten or more days during that one month. The journey of these wanderers is also noted as they pass northwards, and there seems little doubt that though their course is due north their front presents an oblique line with its western wing well forward. By the end of April our native birds have for the most part arrived, but during the end of April and early in May an emigration may be noted along our eastern seaboard. These are birds of passage, travelling N.E. on their way to N. Europe, and belong to the sub-species known as the Arctic willow-warbler. (See below.) The emigrants no doubt summer in the extreme north of Scandinavia or North Russia. As is the case with so many species, the return migration in autumn is far more difficult to trace, and vast rushes like those in the spring are never noted. Nevertheless the exodus is a steady one, and beginning early in August continues apparently without intermission till early in October. [J. L. B.]

4. Nest and Eggs.—Nesting place: normally on or close to the ground, among grass in hedge bottoms or on bank sides. It is, however, less commonly found at some little distance above the ground, sometimes in seedling conifers, ivy, creepers, old nests, etc., and has quite exceptionally been recorded at a height of 14 to 16 ft. The nest is domed, with entrance at the side, and is built of green moss with grasses interwoven, lined with grasses, a thick layer of feathers and occasionally

a horsehair or two. (Pls. xx. and 52.) The cock appears to take little or no part in the building. (F. B. K.) Eggs, usually 6 or 7, sometimes 5 and rarely 8, are white in ground-colour and spotted with reddish brown. Sometimes the markings take the form of fine freckles of light chestnut; at other times the spots are more sparingly distributed and are much darker, showing underlying shell-marks of violet-grey, and a scarce type has big blotches of pale chestnut. (Pl. D.) Average size of 100 eggs, $\cdot 60 \times \cdot 48$ in. ($15\cdot 2 \times 12\cdot 2$ mm.). Laying begins from the end of April to mid-May according to locality, and incubation, which lasts 12-13 days, is chiefly performed by the hen, but the cock takes her place for part of the afternoon (Naumann). One brood is usually reared, but a small proportion of nests may be found late in the season. [F. C. R. J.]

5. **Food.**—Insects and their larvæ, spiders, and in autumn a few berries, eaten probably when suitable insect food is failing (cf. Newstead, *Food of British Birds*, p. 24). The young are fed by both parents on insects and their larvæ. This species devours a large number of aphides and other injurious insects. [F. B. K.]

6. **Song Period.**—During the whole of its stay with us, with a period of comparative silence during July. [F. B. K.]

ARCTIC WILLOW-WARBLER [*Phylloscopus trochilus evermanni* (Bonaparte).]

1. **Description.**—Very closely allied to the ordinary form and not easy to distinguish from it, but generally longer winged, and in spring and summer greyer and less greenish in colour, while in autumn the distinction of colour is less apparent. [F. C. R. J.]

2. **Distribution.**—This race visits Great Britain only on migration, and breeds in the extreme north of Norway (Finmark), the Archangel Government and North-east Russia as well as in Siberia to the R. Kolyma. Outside its breeding area it occurs in the Balkan peninsula, and Egypt, and apparently ranges in winter to South Africa. [F. C. R. J.]

3. **Migration.**—See under willow-warbler.

WOOD-WARBLER [*Phylloscopus sibilatrix* (Bechstein). Wood-wren, oven-bird, yellow-wren. French, *pouillot siffleur*; German, *Waldlaubsänger*; Italian, *lui verde*.]

1. **Description.**—Resembling both the chiffchaff and the willow-wren, but larger, and with longer wings, the wood-wren may always be distinguished by the

sulphur-yellow colour of the superciliary streak, throat and flanks, by the short "bastard quill" or first primary, which does not exceed the major coverts of the primaries, and by the fact that only the third and fourth primaries have the vane emarginate. It is also brighter in coloration. (Pl. 53.) The upper parts are of a yellowish olive-green, rather brighter on the rump; the wings and tail feathers are dusky brown edged with yellowish green, markedly so on the inner secondaries which have a whitish fringe at their ends, as also have the primaries and tail feathers. Above the eye is a broad band of sulphur-yellow. The under parts are white, with the exception of the throat, which is of a clear sulphur-yellow, and the flanks, which are ashy grey washed with sulphur-yellow; the breast has a faint greyish tinge. Length 5.2 in. [132 mm.]. The female is rather duller than the male. There is no marked seasonal change of plumage. The juvenile plumage differs from that of the adult in being greener above and yellow below. [W. P. P.]

2. Distribution.—As a breeding species the wood-warbler is somewhat locally distributed in the British Isles and the greater part of Europe in summer, but is not met with in North Scandinavia or North Russia, while in the countries bordering on the Mediterranean as well as North-west Africa a Southern race occurs, whose limits are as yet undefined. In the British Isles it is chiefly confined to woodlands, especially where oak and beech are the prevalent trees, and there is undergrowth of bracken, but is decidedly local, and absent from W. Cornwall and Pembroke, though plentiful in parts of North Wales and Northumbria. In Scotland it has apparently increased its range, owing to the spread of plantations and breeds in suitable localities to Sutherland and Caithness, while it has been met with even in the Outer Hebrides. On the other hand, it is only a rare visitor to Ireland, but has bred in Queen's Co., Galway, and probably also Wicklow. Outside its breeding range it occurs in Africa on the west side as far south as the shores of the Gulf of Guinea and the River Congo; while on the eastern side either this or the southern race penetrates to S. Arabia and up the Nile Valley to Abyssinia. [F. C. R. J.]

3. Migration.—This species, which is only a summer visitor to our shores, is usually first seen during the latter half of April, but it is not until the first fortnight of May that it arrives in any considerable numbers. As its winter quarters appear to be along the West of Africa, or chiefly so, it is not surprising that our native birds arrive chiefly on our south-west coast. The average direction of their line of flight appears to be north-eastwards. There is no evidence of the route followed on the return migration, and records during the autumn are very scanty. The absence of notes during the height of the migratory season and such records as have



Photo by Riley Fortune

Wood-wren's Nest in a bank



Photo by E. A. Wallis

Wood-wren's Nest in weeds



Photo by W. Farren

Reed-warbler feeding its young

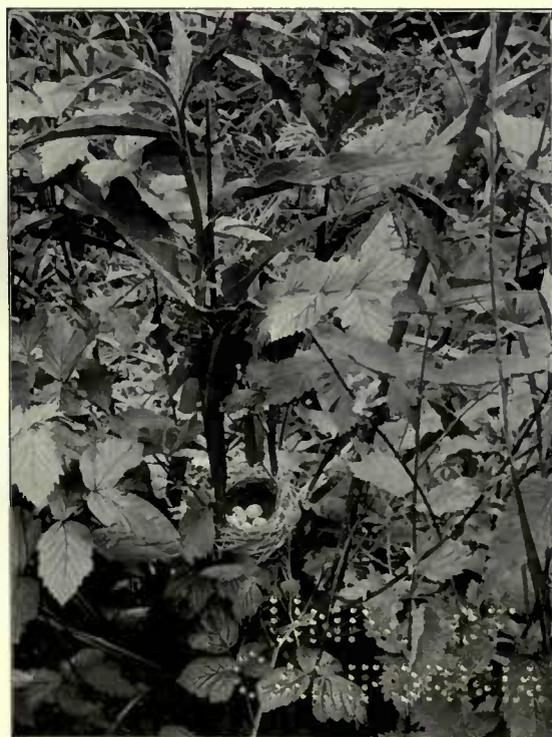


Photo by W. Farren

Marsh-warbler's Nest

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been published all point to the probability of the southward journey being undertaken as soon as possible, and by the middle of August they appear to have all left our shores. [J. L. B.]

4. **Nest and Eggs.**—Placed usually among dead bracken on a hillside in a wood, less frequently on level ground, and built of dead bracken, with a little grass and moss. In shape it resembles those of the other *Phylloscopi*. Internally it is neatly lined with dry grasses and sometimes a few horsehairs, but no feathers. Exceptionally this species has been reported as nesting under a tree-root or in a rabbit-hole! (Pl. XXI.) The cock has been seen to assist the hen in building. (E. L. T.) Eggs, usually 6 or 7 in number, rarely 8; ground-colour white, thickly spotted all over with dark red-brown, inclining to purplish, and so easily distinguished from those of the other leaf-warblers. (Pl. D.) Average size of 100 eggs, $\cdot 62 \times \cdot 34$ in. [$15\cdot 8 \times 8\cdot 6$ mm.]. Laying begins towards the latter part of May in most cases, though a few pairs have eggs by mid-May. Incubation lasts about 13 days, and is performed by the hen for the most part, though Naumann states that the cock relieves her in the afternoon. This, however, seems to need confirmation. One brood only is reared in the season. [F. C. R. J.]

5. **Food.**—Insects and their larvæ, upon which the young are also fed and by both parents. Berries appear to be eaten in the autumn. [F. B. K.]

6. **Song Period.**—From its arrival till early in July. It does not appear to resume its song before its departure, which takes place apparently early in August, if not sooner. [F. B. K.]

REED-WARBLER [*Acrocephalus streperus* (Vieillot). Reed-wren, reed-sparrow. French, *rousserolle éffarvatte*; German, *Teich-Rohrsänger*; Italian, *cannaiola*.]

1. **Description.**—The reed-warbler is with difficulty distinguished from the marsh-warbler, but it may generally be recognised by its browner coloration and the more or less distinct rufous hue of the rump. Further, in the reed-warbler the primaries are somewhat narrower, and the inner web of the second quill is distinctly emarginate, the emargination extending backwards to the level of the eighth quill. (Pl. 55.) The upper parts are of an olive-brown colour, inclining to rufous, especially on the rump. The primary coverts, quills, and tail are of a brownish grey colour, with more or less distinct margins of the same colour as the back. The throat and abdomen are white, but the fore-breast is of a light greyish buff, and the

flanks of a more rufous buff. The iris is dark brown and the legs and toes are lavender flesh-colour. Length 5·25 in. [133 mm.]. The sexes are alike. There is no seasonal change of plumage. The juvenile plumage differs from that of the adult in being decidedly more rufous than the adult; the under parts are buff-coloured, darkest on the flanks, and brightest on the under tail-coverts. The iris is dark greyish brown, and the legs are of light lead-colour. [W. P. P.]

2. Distribution.—A summer visitor to England and Wales (except some of the northern and western counties), and also to the Continent, south of the Baltic Sea, while an Eastern form ranges through Turkestan to Baluchistan and the Altai range. Probably it also nests in Algeria. In the British Isles it is absent from Scotland and Ireland, but is common locally in the southern and midland counties of England, where still water or slow-flowing streams fringed with reeds are met with. It is not found in Cornwall and only in one district of Devon, while in Wales it nests in Brecon and sparsely in a few localities in the north. In Shropshire and Cheshire it is not uncommon and has bred in Lancashire, but is local in Staffordshire and only found in S. Derbyshire, although on the east side of the Pennines it ranges up to Yorkshire, and has once even bred in Durham according to Tristram. Outside its breeding range it occurs not only on the borders of the Mediterranean but also in West Africa to Gambia, and on the east side south to Zanzibar, but does not visit South Africa. [F. C. R. J.]

3. Migration.—During the latter end of April solitary examples of this summer visitor may occasionally be seen, but it does not arrive in any numbers till the first half of May. Our breeding birds arrive almost entirely along the south-east coast, and records of fresh arrivals to the west of Hampshire are infrequent. It is rather a late autumn emigrant, and may be found in some numbers in suitable places up to the first week in October. [J. L. B.]

4. Nest and Eggs.—The normal nest is built round the stems of reeds at a height of from 1 to 3 ft. above the water-level, but it may also be found among rank vegetation and in the branches of osiers, lilacs, and other trees at varying heights up to 20 ft. in some cases. Many of these nests in trees are placed at a considerable distance from the nearest water. They are deep internally and are built of various materials, such as grasses, reed flowers, wool, and duckweed, lined with fine grasses or reed flowers and sometimes wool, feathers, or horsehair in small quantities. (Pls. XXI. and 55.) The work of building is performed by the hen, who is accompanied but not assisted by the cock. It is usual to find several nests not far from one another. Eggs, usually 4, sometimes 5 in number, while a few instances of 6 are recorded.

They are thickly blotched and marbled with olive-brown and ashy grey on a greenish white ground and sometimes have also a few blackish spots. A rare type has a pure white ground and in some specimens the markings form dense caps at the big end. (Pl. D.) Average size of 100 eggs, $\cdot 71 \times \cdot 53$ in. [$18 \times 13\cdot 5$ mm.]. Laying begins towards the end of May, but many birds are still building in the first half of June. Incubation lasts 13-14 days and is apparently performed by the hen. There is reason to believe that a second brood is occasionally reared in the southern counties, although one brood is perhaps normal. [F. C. R. J.]

5. **Food.**—Insects, especially small flies and aphides, and in the autumn berries. The young are fed by both parents on insects such as flies, lepidoptera, and occasionally small dragon-flies. [W. F.]

6. **Song Period.**—From the time of its arrival to about the middle of July. It has also been heard in September (*British Birds*, iv. 278: C. and H. Alexander.) [W. F.]

MARSH-WARBLER [*Acrocephalus palustris* (Bechstein). French, *rousserolle verderolle*; German, *Sumpfrohrsänger*; Italian, *cannaiola verdognola*.]

1. **Description.**—The marsh-warbler can hardly be distinguished from the reed-warbler. As a rule it is paler, more olive in tone above, and lacks the rufous tinge on the rump; the primaries are also slightly broader than in the reed-warbler, and the emargination of the inner vane of the second primary does not extend quite so far down the web. (Pl. 56.) The sexes are alike, and there is no perceptible seasonal change of plumage. Length $5\cdot 25$ in. [133 mm.]. The juvenile plumage differs from that of the same period in the reed-warbler only in that the under parts are more decidedly rufous. [W. P. P.]

2. **Distribution.**—Breeds locally in the southern counties of England and also on the Continent, but not north of the Baltic or lat. 59° in Russia, while it is rare in Southern Italy and absent from Greece. Closer observation has shown that its range in England is more extensive than was formerly supposed to be the case, and it has now been proved to breed in Kent, Surrey, Sussex, Hampshire, Wiltshire, Somerset, Gloucester, Worcester, Buckinghamshire, Oxford, and Cambridge. It may possibly also breed in Norfolk and will probably be found to nest in Dorset and Berkshire. It is most numerous in the western counties. Outside its breeding range in winter it is distributed through tropical Africa, south to Rhodesia, Portuguese East Africa, Natal, and Eastern Pondoland. [F. C. R. J.]

3. Migration.—This bird is such a scarce and local summer visitor to Great Britain that no details are forthcoming as to its migratory movements to and from these islands. It would appear to arrive about the beginning of June (Warde Fowler, *Zool.*, 1906, p. 401), and is thus our latest migrant. [J. L. B.]

4. Nest and Eggs.—Nesting place: among rank vegetation in osier beds, hedge bottoms and dry ditches, often in low-lying ground, but by no means invariably so. The nest is not nearly so deep as those of the other *Acrocephali*, and more resembles those of the *Sylvia*. It is attached to the stems of meadowsweet, osiers, willow-herb, nettles, and other plants at a height of 2 to 4 ft. from the ground by means of characteristic 'basket handles,' and is composed of dead grasses, lined with roots and a little horsehair. (Pl. XXI.) I do not find any note as to whether the male shares the work of building, but as his song ceases abruptly when nesting begins, it is probable that he takes his part. Eggs, 4 to 5, sometimes 6 in number, with a bluish or greenish white ground, boldly blotched with olive and violet-grey and numerous fine olive specks as well as a few blackish markings. (Pl. D.) Average size of 130 eggs, $\cdot 74 \times \cdot 53$ in. [$18\cdot 8 \times 13\cdot 5$ mm.]. In England the eggs are generally laid about the second or third week in June. The incubation period is variously given at from 13 to 15 days, and the hen takes the greater share, though relieved by the cock in the afternoon. Only one brood is reared. [F. C. R. J.]

5. Food.—Insects and their larvæ, and in autumn berries. The young are probably fed by both parents, no doubt on insects and their larvæ. [W. F.]

6. Song Period.—From arrival in end of May to early in July. According to Mr. W. Warde Fowler the male ceases to sing when the nest is built. I have heard one singing vigorously after the full clutch of eggs was laid, but Mr. Warde Fowler's observations extend over many years, and show that the rule is for singing to practically cease when the eggs are laid. The song period, as with other species, is protracted by reason of certain individuals nesting late, owing either to late arrival in nesting quarters or to their first attempts at nesting being disturbed. [W. F.]

SEDGE-WARBLER [*Acrocephalus schænobænus* (Linnæus). *A. phragmitis* (Bechst.). Sedge-bird, sedge-chat, chamchider, mock-nightingale. French, *bec-fin des joncs*; German, *Schilfrohrsänger*; Italian, *forapagliaie*.]

1. Description.—The sedge-warbler is easily recognised by its conspicuous buff eye-stripe, the black striation on the crown and back and the rufescent rump.

(Pl. 54.) The sexes are alike, and there is no seasonal change of plumage. Length 5 in. [127 mm.]. The upper parts are of a russet-brown shading into rusty-brown on the rump and upper tail-coverts. There is a conspicuous buff superciliary stripe bounded above by a black band, while the centre of the crown is marked by thin lines of black alternating with the russet-brown ground-colour. The lores, and upper margin of the ear-coverts are dusky, forming a dark band interrupted by the eye. While the hind-neck is almost unspotted, the feathers of the back have blackish brown centres forming well-marked striations. The wing-coverts are blackish brown margined with umber-brown, while the innermost secondaries are blackish brown margined with light umber; the rest of the secondaries and primaries are brown with paler edges, the primaries having narrow whitish brown tips. The tail feathers are dark umber with paler edges. The under parts are whitish, relieved on the sides of the neck and fore-breast by buff which acquires an umber tinge on the flanks and under tail-coverts. The juvenile plumage differs from that of the adults in that it is richer, and the sides of the neck and fore-breast are faintly spotted with brownish grey. [W. P. P.]

2. Distribution.—As a breeding species widely distributed throughout the British Isles and the Continent of Europe, excepting only the north of Scandinavia and Russia, the Iberian Peninsula and the southern parts of the Italian and Balkan peninsulas. It is also found in the summer months in Asia eastward to the Yenesei and south to Turkestan, and probably also breeds in North-west Africa. It is a common summer visitor to all parts of Great Britain, except the mountain systems, but becomes less numerous in northern Scotland and is decidedly rare in the low-lying parts of Ross and Sutherland. It is also found in the Isle of Man, locally in the Inner Hebrides, on Skye and the Orkneys, and has been met with on Barra. In Ireland, though irregularly distributed, it breeds in every county. Outside its breeding-range it is distributed in winter through Asia Minor, and tropical and Southern Africa, ranging south to the Congo, Angola, and Damara-land on the west, and German East Africa, Zambesia, and the Transvaal. [F. C. R. J.]

3. Migration.—This species, which is one of our commonest summer visitors, appears to arrive on our south coast in small parties. The large flocks, so conspicuous a feature of some other species, have not been noticed in the case of the sedge-warbler. Although there can be little doubt that the bulk of the birds enter this country from the south-west, yet in several seasons the earliest records have come from Kent, but it is more than probable that these were stragglers from a continental

migration (*B. O. C. Migration Reports*). The earliest arrivals reach our shores about the middle of April. The spring immigration lasts about six weeks, until the end of May, but may be said to be at its height during the last few days of April and the first week in May, and the evidence tends to show, though by no means conclusively, that the later immigrations are merely those of birds of passage *en route* presumably for Scandinavia. In Scotland and Ireland the date of arrival is about ten days to a fortnight later than it is on the south coast of England. The return migration to winter quarters in Africa takes place, so far as the bulk of our native birds are concerned, during the first fortnight of August, and this is furthermore very clearly demonstrated by the records from Ireland, where birds of passage would be very scarce, if not entirely absent (Barrington, *Migration of Birds*, p. 62). In Scotland and England, however, a considerable number pass through during the last fortnight of September and even during the first few days of October, but these are almost certainly on passage. [J. L. B.]

4. **Nest and Eggs.**—Nesting place: usually in rank grass, thick bushes, coarse vegetation, hedges, etc., often in low-lying and marshy spots, but also on hillsides at some distance from water. The height from the ground is also variable, but seldom exceeds 4 or 5 ft., and often the nest is built close to the ground. It is composed of moss, dead grasses, stalks, etc., mixed with willow-down and lined generally with hair, but sometimes with feathers or flowering grasses. (Pl. XXII.) It is built by the hen alone, closely accompanied by the male (H. E. Howard, *British Warblers*, Part I. p. 8), but Naumann states that both sexes build. Eggs, 5 or 6, rarely 7, not unlike those of the yellow-wagtail in colour, being very thickly and uniformly speckled with light or dark ochreous or yellowish brown. Some eggs have a mottled appearance, while black hairstreaks are frequently found at the big end. Pure white and also beautiful pink varieties have been occasionally met with. (Pl. D.) Average size of 100 eggs, $\cdot 70 \times \cdot 52$ in. [$17\cdot 8 \times 13\cdot 2$ mm.]. Laying begins about mid-May in the south and early June in the north of the British Isles, while exceptionally clutches have been taken quite early in May. Incubation lasts 13-15 days, and is chiefly performed by the hen, though the cock relieves her for two hours in the afternoon (Naumann). Although one brood is normal, there is little doubt that a second is sometimes reared. [F. C. R. J.]

5. **Food.**—Insects and their larvæ, especially flies such as Chironomi and others whose lives are partly aquatic. According to Naumann, the sedge-warbler, like its congeners, eats berries in autumn. The young are fed by both parents on insects. [W. F.]

6. **Song Period.**—From arrival to second or third week of July, and occasionally as late as the end of the first week of August. [W. F.]

AQUATIC-WARBLER [*Acrocephalus aquaticus* (Gmelin). French, *fauvette des marais*; German, *Binsen-Rohrsänger*; Italian, *pagliarolo*.]

1. **Description.**—The aquatic-warbler bears some resemblance to the sedge-warbler, but may be distinguished by the very broad superciliary stripe, the broad light brown stripe along the centre of the crown, and the striated rump. The sexes are alike. (No plate.) Length 4·9 in. [124 mm.]. The crown, as pointed out above, is marked by a central band of pale tawny buff, bounded on either side by a broad band of black, which in turn is succeeded by a broad buff superciliary stripe. The feathers of the rest of the upper parts are of a tawny buff, brighter on the lower back, rump, and upper tail-coverts, and broadly streaked with central shaft streaks of dark brown, less distinct on the rump and upper tail-coverts. The wing-coverts and inner secondaries are blackish edged with pale tawny buff. Primary coverts and quills dark brown with narrow tawny margins, broader in the secondaries. Tail feathers similarly coloured. Cheeks and under parts light tawny buff, a little whiter on the throat and abdomen. In the summer narrow blackish streaks appear on the foreneck and flanks, a very unusual feature in a warbler. The autumn plumage differs from that of the spring in that the buff colours are more intense. The juvenile plumage resembles that of the adult in autumn. [W. P. P.]

2. **Distribution.**—Hitherto this species has not been proved to breed in the British Isles, but is a summer visitor to the Continent south of the Baltic, though the evidence with regard to its nesting in Spain is contradictory, and it is absent from the Balkan Peninsula south of Herzegovina and the Danube. It apparently breeds in Sicily and Sardinia and probably also in North-west Africa. It is readily confused with the sedge-warbler, and it is possible that a few pairs may nest with us, as it has been obtained on a few occasions here in the summer months. It is found in winter in North-west Africa, but its range in this continent is still very imperfectly known, though probably it extends to its tropical area. [F. C. R. J.]

3. **Migration.**—This species, judging from the records, would appear to be an autumnal bird of passage of irregular occurrence to this country. If we except a young bird now in Mr. Jourdain's possession taken near Leicester during the summer of 1864 (Harting, *Ibis*, 1867, p. 468), a pair of adult birds in my own

collection, taken at Winchelsea on 8th and 11th August 1902, and several seen during a migration of other warblers near Rye on the 18th August 1905, all the records occur during the latter half of September and beginning of October. From its skulking habits and close resemblance to a sedge-warbler this species is doubtless often overlooked, and it probably visits us in small numbers every autumn. [J. L. B.]

4. Nest and Eggs.¹—Nesting place: in willow bushes or clumps of sedge, generally close to the ground in marshy places. The nest is very similar to that of the sedge-warbler, but is said to be rather smaller and deeper, built of bents, grasses, etc., mixed with cobwebs and down, and lined generally with hair and a few feathers at times. What part the cock takes in nest-building appears not to be recorded. Eggs, 4 to 6 in number, resembling those of the sedge-warbler and running into similar variations of colour, but the pink variety seems not to occur. Average size of 52 eggs, $\cdot 67 \times \cdot 51$ in. [17×13 mm.]. The breeding season is stated by Naumann to be earlier than that of the sedge-warbler in Germany, but our information with regard to this species is still very defective. The same authority gives the incubation period as 13 days, and observes that the cock sits little. Probably only one brood is reared as a rule. [F. C. R. J.]

5. Food.—Insects and their larvæ, and the young are probably fed on the same by both parents. [W. F.]

6. Song Period.—According to Naumann (*Vögel Mitteleuropas*, ii. 45) from April till July. [W. F.]

GRASSHOPPER-WARBLER [*Locustella naevia* (Boddaert). Reeler, cricket-bird. French, *bec-fin locustelle*; German, *Heuschreckensänger*; Italian, *forapaglie macchiettato*.]

1. Description.—The grasshopper-warbler may be distinguished from the sedge-warbler on the one hand, and the aquatic-warbler on the other, by its duller, more olive, coloration, the absence of a conspicuous superciliary stripe, and the slight barring of the tail. (Pl. 56.) There are slight sexual differences of coloration. The male is of a uniform reddish olive-brown above, each feather having a blackish brown centre forming an elongate spot, conspicuous on the crown and back, and arranged in a series of longitudinal lines; faint markings are also discernible on the hind-neck and upper tail-coverts, especially after the feathers have become somewhat abraded by wear. There is a faint superciliary stripe, whitish, and tinged with olive-

¹ These particulars are given as the bird may prove to breed.



Photo by W. Farren

Sedge-warbler entering its Nest



Photo by W. Farren

Grasshopper-warbler and nestlings

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yellow. The wing- and tail-quills are of a slightly darker brown than the rest of the upper parts, and margined narrowly on the tail, and broadly on the inner secondaries with a lighter olive-brown than the back; the tail is furthermore faintly barred. The under parts are whitish tinged on the throat and under tail-coverts with buff, and on the fore-breast with olive-yellow. The flanks are of the same hue as the back and unspotted. The throat is occasionally spotted, a character determined apparently neither by sex nor season. The amount and intensity of the spotting similarly varies. Length 5.4 in. [137 mm.]. The female is of an olive-umber above, of a gamboge-olive below, fawn-coloured on the fore-breast, and whitish on the abdomen. The juvenile plumage resembles that of the adults, but the upper surface is more fulvous, the under side yellower; in some the fore-breast is slightly spotted, a character apparently due to sex. [W. P. P.]

2. Distribution.—This species is a summer visitor in the British Isles, and also throughout continental Europe south of the Baltic and of about lat. 62° in Russia, but it appears to be absent from Spain south of the Cantabrian range, from Southern Italy and the Balkan Peninsula. Beyond the Urals and the Caucasus an Eastern race (*L. naevia straminea*) ranges at least as far as the Altai mountains. In Great Britain it is locally and irregularly distributed in suitable spots south of the Forth and Clyde areas, but becomes rare in the north of Scotland, although it has been met with as far as Arisaig on the west. It is not confined to low ground, but ascends the mountains up to 1500 ft. in Wales, and is locally plentiful in S. Northumberland, Durham, Norfolk, etc., but almost unknown in Cornwall. In Ireland it is widely distributed, and only becomes scarce along the west coast. Outside its breeding range it is found in autumn and winter in South Spain, but the chief winter quarters of the species appear to be in Morocco and Algeria. [F. C. R. J.]

3. Migration.—Although an annual summer visitor to our shores, this species is of so skulking a disposition that the course of its migrations is very difficult to trace. From its winter quarters in South Spain and North-west Africa it appears to arrive in this country in small parties during the last ten days of April and the first week of May. According to the *B. O. C. Migration Reports* it enters along the eastern half of the south coast and reaches its breeding haunts by following a course slightly to the west of north. Of the autumn migration there are no records sufficient to justify any general conclusions. It has been noticed on various dates between the middle of August and the 10th of October, but probably, as in the case of other species, our native birds leave very early, possibly in July, and these late records are those of Continental examples. [J. L. B.]

4. **Nest and Eggs.**—Nesting site: variable according to locality. Thus on the moorlands it is placed among long heather, on commons often low down in gorse bushes; in osier beds, plantations with heavy undergrowth and rank hedge bottoms or thickets, it is hidden among the rank grass tussocks, while in the Broad district it breeds close to the water among the thick growth of water plants as well as in open fairly dry places. It is, however, always an exceedingly difficult nest to find, although sometimes discovered by accident, and is generally quite invisible from above and approached from the side by the birds. It is composed of stalks and grasses, with a little moss or a few leaves in the foundation. (Pl. XXII.) What share is taken by the two sexes in building is not recorded. Eggs, usually 6 in number, sometimes only 5, speckled thickly over the whole surface with fine red-brown spots, which occasionally form a zone and in rare instances are replaced by bold blotches on a creamy white ground. (Pl. D.) Average size of 100 eggs, $\cdot 69 \times \cdot 53$ in. [$17\cdot 5 \times 13\cdot 5$ mm.]. Laying usually takes place during the last fortnight of May, occasionally about the middle of the month, and incubation, which lasts 16 days according to H. E. Howard, is performed by the hen, who is a very close sitter. One brood is usually reared, but there is evidence that in some cases a second is also produced. [F. C. R. J.]

5. **Food.**—The species is entirely insectivorous. The young are fed by both parents largely on small caterpillars when a few days old; but to begin with, the food supplied is very minute—probably aphides and tiny spiders. [E. L. T.]

6. **Song Period.**—From about the end of April till the beginning of August. [E. L. T.]

The following species and subspecies are described in the supplementary chapter on "Rare Birds" :—

Sardinian-warbler, *Sylvia melanocephala* (Gmelin).

Orphean-warbler, *Sylvia orphea* Temminck.¹

Barred-warbler, *Sylvia nisoria* (Bechstein).

Subalpine-warbler, *Sylvia subalpina* (Temminck).

Yellow-browed warbler, *Phylloscopus superciliosus* (Gmelin).

Pallas' willow-warbler, *Phylloscopus proregulus* (Pallas).

Greenish willow-warbler, *Phylloscopus viridanus* Blyth.

Siberian-chiffchaff, *Phylloscopus collybita tristis* Blyth.

¹ By the rule of strict priority the name of *S. hortensis* (which has generally been applied to the garden-warbler) belongs to this species.

- Scandinavian-chiffchaff, *Phylloscopus collybita abietinus* Nilsson.
 Eversmann's warbler, *Phylloscopus borealis* (Blasius).
 Rufous-warbler, *Agrobates galactotes galactotes* (Temminck).
 Brownbacked-warbler, *Agrobates galactotes syriacus* (Hemprich and Ehrenberg).
 Radde's bush-warbler, *Luscinola schwarzi* (Radde).
 Icterine-warbler, *Hypolais icterina* (Vieillot).
 Melodious-warbler, *Hypolais polyglotta* (Vieillot).
 Great reed-warbler, *Acrocephalus arundinaceus* (Linnæus).
 Savi's warbler, *Locustella luscinioides* (Savi).
 Cetti's warbler, *Cettia cetti* (Marmora).
 Pallas' grass-warbler, *Locustella certhiola* (Pallas).
 Temminck's grass-warbler, } *Locustella lanceolata* (Temminck).
 or lanceolate-warbler }

THE WHITETHROATS, BLACKCAP AND GARDEN-WARBLER

[BY E. L. TURNER]

WHEN Nature's spring season of Grand Opera commences, few performers would be more missed than the four warblers included in this chapter, should they absent themselves at the appointed time. Even the most casual wayfarer would feel an unwonted silence, though he might not be able to tell just which of the singers had failed, for the garrulous chattering of the whitethroats makes every copse and hedgerow alive with music, while the garden-warbler's richer notes, and the mellow, fluty song of the blackcap—so often mistaken for the nightingale, whose understudy he is—all these together produce that undercurrent of sound which delights the soul of every bird-lover, though his knowledge may not be sufficient to enable him to discriminate between one species and another.

They are a very difficult quartette for the student to differentiate. The whitethroat is the most prominent, because he is constantly slipping in and out of tangled hedgerows, chattering gaily as he hunts for food; twisting, turning, standing on tiptoe in order to seize some nice, juicy caterpillar; always graceful and dainty, the distinctive white throat revealed at every bend of his lithe body. He must chatter whether there be an audience or not; often hurling himself into the air with a joyous outburst of real song, which, in the case of some birds, may equal that of the garden-warbler. This song consists of a short prelude, then a ripple of sweetness, varying in quality considerably with the individual. Occasionally only long and patient watching, if the singer happens to be hidden from view, has enabled me to determine which of the two warblers was really singing. Sometimes I have seen the

Plate 47

Whitethroats, the lower figure being the
male

By G. E. Collins



whitethroat clinging sideways to a tall reed, exactly like a reed-warbler, where, with crest erect and body bent forward, he would fling his song at me. Both sexes chatter in a cheerful kind of way, and scold violently if you intrude on their privacy.

The lesser-whitethroat is quite the shyest of the group. It may be distinguished from the whitethroat by its smaller size, grey head, and the general contrast between the grey and white of its plumage. Its loud, rattling call; so like part of the chaffinch's song; may often be heard about our gardens, or along the high road where tall hedges abound, and wherever the undergrowth is thickest; but owing to the bird's skulking habits, it is more frequently heard than seen. This prolonged call often merges into the song proper, which is soft and sweet, and sometimes pitched so low that it has to be listened for. I have never seen the lesser-whitethroat singing on the wing. Mr. Eliot Howard says, "When the first males arrive they are very restless, travelling along the tops of such trees as elms, or amongst the fruit-trees in orchards, to which they are very partial, wandering from tree to tree in search of the *Chironomidæ*, halting only occasionally to sing. . . . Now in this peculiarity—namely, their liking for tall trees and the large area over which they wander when they first arrive—they differ from the whitethroat, and this characteristic is more interesting because, upon the arrival of the female, it becomes less pronounced."¹

Blackcaps and garden-warblers are seldom both common in the same locality, though their areas overlap in well-wooded districts. In Kent and Sussex I have found both nesting in the same garden, but in the Norfolk Broads district, while garden-warblers are very numerous near Hickling, the blackcap is seldom seen, whereas a few miles away blackcaps abound and garden-warblers are scarce.

These two species are larger than the whitethroats. The male blackcap is easily recognised by his black crown, and the female by a corresponding patch of brown; garden-warblers lack any such distinguishing mark, and are more uniformly olive brown.

¹ *British Warblers*. "Lesser-Whitethroat," p. 5.

The song of both these birds is infinitely superior to that of the whitethroats, though the same *motif* runs through each and all alike. Beginning in the melody of the lesser-whitethroat, it becomes more persistent in that of the whitethroat; taken up by the garden-warbler it is expanded, and the harmonies become subtler, sweeter, and more dignified. One April day, while hidden in order to photograph blackbirds, a garden-warbler, unconscious of my proximity, discoursed sweet music to me all day. The song was liquid and rapid, and at times he wove into it many of the blackbird's notes, so that I had to make an extra slit in my tent and satisfy myself continually as to the identity of the songster. There were intervals for light refreshment, when, standing daintily poised, he would seize a caterpillar from some apple blossom and then transform it into music! Now and again he warbled in a low, crooning voice with beak closed; just as a young robin does when learning to sing in the autumn.

But it is in the blackcap that this gift of musical expression reaches its highest pitch. As a singer he is second only to the nightingale, and there are some who would not make even that exception. But with each of the *Sylviinæ*, individuals vary very much in their gift of song; so some blackcaps give of their best without stint, and what a 'best' it is! Coming from the depths of a tangle of bramble and briar, it would seem as if the beautiful soul of the wild rose had found expression in song.¹ It has been said that "Birds never seem quite to belong to this world," and truly the blackcap might be a stray visitor from the Choir Invisible.

"And now 'twas like all instruments,
Now like a lonely flute;
And now it is an angel's song
That makes the heavens be mute."

—Coleridge.

But birds are no saints after all. See them when possessed with

¹ James Lane Allen.

anger and jealousy at the approach of a hated rival, or when some ancestral claim to territory is disputed! Those two great causes which have set all creation ablaze from time immemorial—the Eternal Feminine and the Rights of Property—will rouse the nerves and highly strung temperament of any bird to a perfect frenzy of excitement. They may have been close comrades, and undertaken a long and perilous journey together—for the males of these four species arrive before the females—but the first appearance of the latter means discord! Even female whitethroats will fight together for their territory.¹ They are all jealous of their breeding-areas, though perhaps the lesser-whitethroat is the least pugnacious, because more sparingly distributed. But in a certain district which I know well, where garden-warblers and lesser-whitethroats are both numerous and their breeding areas circumscribed, males of either species fight desperately, both amongst themselves and with each other. Here we come face to face with one of the great problems of bird life. Take any given area and watch it carefully year by year. The actual number of breeding birds in that locality varies little. Some of them will rear two or, in the case of swallows, three broods a season, yet their numbers are not increased the following year. From personal observation I doubt if more than a very small percentage of the young birds of any species actually reaches maturity. Their natural foes are legion, apart from man. This wastefulness of nature is simply appalling. If we consider the restlessness and anxiety which go to make up any bird's ordinary existence, surely when stripped of glamour and romance, it is the most strenuous of lives, and as a result of all this immense reproductive energy, the average only is maintained.

Difficult as it may be to distinguish between the songs of these four warblers, some of the slight variations in the call-notes produced by each are even more perplexing. These, however, may be mastered after a while; but the infinite variety of sounds produced, and the exquisite modulation that a bird's voice is capable of during the breeding

¹ *British Warblers*. E. Howard: "Whitethroat," p. 9.

season—even such harsh-voiced birds as shrikes and hawks—can only be grasped by those who are willing to spend hours and days watching the intimate life of these elusive beings.

The whitethroat's ordinary call-note is an angry "*churr*," which invariably greets the intruder who approaches too near its home. When the young are hatched this changes to an anxious "*teck, teck*," and both parents will flutter round and round, feigning injury, thus endeavouring to distract attention, a habit common to all these warblers when danger threatens the nestlings.

The lesser-whitethroat's alarm-note is very much like that of the whitethroat, and consists of a rapid clicking sound uttered several times in succession when the bird is very anxious for the safety of its brood. The garden-warbler gives vent to a plaintive note, "*bit, bit, bit*," if the nest is disturbed, which changes to an angry "*teck*" varied by a low, vibrating "*churr*," similar to the sound produced by lightly drawing the finger over a stringed instrument; the throat feathers are puffed out, and the bird's whole manner shows alarm and agitation. The young, when only a few days old, utter a faint "*mew*," which gradually changes to "*teck*" as they increase in strength. The adult garden-warbler will also feign being wounded when the young are threatened. The alarm-note of the blackcap is a bold "*tack, tack*," and it otherwise expresses anxiety in much the same way as the garden-warbler.

None of these birds have any particularly brilliant colours which can be said to catch the feminine eye and entangle her soul; but the attitudes assumed by the males are often very beautiful, and whatever special attractions each may possess are used to their full advantage. The sable crest of the blackcap is at all times expressive of emotion. The whitethroat will puff out the silvery white feathers of his throat, and display them as much as possible. In the case of all four species the males' courting attitude consists mainly in spreading out each and every feather of the wings and tail, sometimes drooping them, or trailing them along the ground, thus making the best of whatever personal attractions each one may possess. Sometimes they throw themselves

Plate 48

Blackcap (male)

By A. W. Seaby



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into the air and descend with outspread wings and tail, and occasionally pursue the female with faint cries; but she, as a rule, goes stolidly on with whatever interests her at the moment, now and again responding with a curious cry, as if impatient of all this fuss. When these methods fail the males change their tactics—cease showing off, and commence wooing with love-songs. Sometimes two will vie with each other; and often this singing is more effective than all the previous display, for the lady wooed generally goes off with one or the other, while the defeated bird takes his rebuff philosophically—unless slain by his rival—and goes swashbuckling elsewhere.

The excitable whitethroat adds to his performance a curious aerial dance which can frequently be witnessed during the early part of May. He will hurl himself into the air—hence, perhaps, his local name of “singing sky-rocket”—where he remains, poised like a hawk, for some seconds; then descends a little way, rising again and again, then drops like a stone, only apparently to rebound still higher. I have watched this beautiful performance for whole mornings on the great wide Norfolk marshes, where only a few tall trees intercept one’s view of the passionate whitethroat’s wooing.

The lesser-whitethroat confines his love-making to more secluded places, but he is equally persistent in a quiet way. The garden-warbler seems less excitable than either the whitethroat or the black-cap; but, like the others of the group, it puffs out cheeks and throat and displays its wings and tail. This bird is less pugnacious than the black-cap, which may perhaps account for the fact that it seldom frequents the same localities as its rival. All four have a habit of picking up and carrying to the female a bit of dead grass, as if to show her that their intentions are serious and honourable.

This business of courtship happily settled, the pairs soon turn their attention to housekeeping. All four species are very similar in their nesting habits, yet each has its own little individual peculiarities. The male whitethroat, for instance, is particularly fussy, rushing here and there in an excited state, and beginning various nests on his own

account. One of these "cock's nests" I found as early as April 30th, almost complete; with bits of cocoon silk and wool dotted about the structure, but no horsehair lining. Ten days later a female accompanied the male to this nest; he seemed to be recommending it to her as a desirable residence, fluttering round with crest raised and cheek feathers puffed out. From time to time during the next week both birds added to it; but evidently something did not suit, and they shortly commenced another one some sixty feet away, in a low tangle of bramble and reed. The nest is begun at the top and varies considerably in beauty of construction; sometimes consisting only of dry grass with a horse-hair lining, but often beautifully decorated with bits of cocoon silk, or willow-flower. It may be completed in a few days or two weeks, according to circumstances; windy weather, for instance, always delays the whitethroats building.

The nest is usually placed in rough undergrowth, of bramble and briar, or amongst nettles; hence the bird's local name of "nettle-creeper." I once found a nest on the open marsh amongst sedge and rushes. Probably the builders had been driven from a small plantation near, where accommodation was limited and whitethroats were numerous; or else the hen rather loved a more open situation: in any case, she liked sunning herself on the nest, and often used to spread out her wings, open her mouth wide, and drink in floods of sunshine; a habit not uncommon amongst many birds, and one that must be very hygienic and may account for their good voices! This sun-bath proper must not be confused with panting due to exhaustion, as no distressing signs are ever visible, but rather every manifestation of keen enjoyment.

The lesser-whitethroat's nest is generally placed somewhat higher than that of the whitethroat. It is found amongst bushes and rough undergrowth, and also in tall thorn hedges, where the difficulty of discovering it is largely increased; for such a frail structure may easily escape detection. This nest is perhaps the smallest, and certainly the most fragile, made by any British bird.

Owing to their retiring habits, lesser-whitethroats are very apt to forsake if disturbed. I think they begin more nests than their congeners, for I have found six in one small area; but these may be merely the result of the male birds' surplus energy.

In 1909 I photographed a lesser-whitethroat's nest in a tall, impenetrable thorn hedge. This dwelling was just ready for eggs, when a pair of envious blackbirds came and planted their coarse and clumsy nest on the same site, partly including the daintier structure in their own, and driving away the smaller and weaker birds. There was no lack of room in the hedge for both; but might was right. Perhaps the blackbirds had prior claim. In 1910 they built again almost in the same place, but the whitethroats went elsewhere.

Some years ago a male lesser-whitethroat appeared in my tiny roadside garden, and for three weeks sat in a bush calling loudly all day for a mate! Not content with this he built a nest in a tall, variegated box shrub, which was complete but for the lining. At the end of three weeks he appeared with a mate; together they lined the nest, and ultimately reared a family of four. The situation of this nest was quite the last one would have expected so shy a bird to select, being close to my front door and the high road.

A pair of lesser-whitethroats have been recorded as using the same nest two years in succession.¹ In this instance the male did not relieve the female when brooding. Quite recently a nest of this species was discovered at Hayling Island containing ten eggs which had been laid in five days: evidently, two hens had utilised the same nest.²

The garden-warbler and blackcap are very similar in their nesting habits. Both alike love the edges of woods where the tangle is thickest; the garden-warbler is also partial to shrubs and low growing fruit-bushes. Their nests are rather larger and more loosely constructed than those of the two whitethroats. That of the garden-

¹ *Ornith. Monat. Schrift.*, 1877, p. 122 (Th. Wetzell).

² *British Birds*, July 1910.

warbler is begun at the bottom, and consists of fine dried grass stalks on the outside, with finer strands often ending in the dead flower-spikes inside, and then a lining of horsehair; but it is often so insecurely placed, and so frail altogether, as greatly to endanger the safe upbringing of the family. This fact may account for the late broods, too late to be successful, that are sometimes found: for this bird rears only one family in the summer.¹

The garden-warbler, like its congeners, begins a good many nests before finally deciding on the right situation, and is very liable to forsake if disturbed or too closely watched. Many are begun by the male, who, perhaps more than is the case with any of the other *Sylviae*, does the hard work and brings most of the rough material; while the hen—also a characteristic trait in this group—arranges the interior, with feminine precision, and directs operations. Sometimes the nest is completed in a few days, but now and again time seems no object and the pair while away several days in love-making and other amusements. The love of tree-creeping, for instance, is very pronounced in some garden-warblers. I watched a pair for several days in May 1909. They flew to the base of a large oak and commenced hopping up in a clumsy manner when compared with an adept in this sort of sport like the tree-creeper; their efforts had to be assisted by many flutterings of the wings, accompanied by a flirt of the tail and a loudly uttered "*tech*." The whole performance looked like a poor attempt at mimicking a past-master in the craft. Nevertheless they did succeed in scrambling up the trunk as efficiently perhaps as any bird, not supplied by nature with climbing irons like those of the tree-creeper and nuthatch, could be expected to do. This game went on during intervals of nest-building; but when family cares commenced, all frivolity ceased and the pair settled down diligently to business. They fed their young on insects, which were often caught on the wing, thus proving themselves to be far more accomplished flycatchers than tree-creepers.

¹ Naumann, *Vögel Mitteleuropas*, ii. 167.

The blackcap's nesting habits may be more easily observed than those of the garden-warbler, as the former are somewhat less shy. Unlike the garden-warbler, the male takes very little part in the nest building, but sits near and sings. Occasionally, however, he makes supplementary nests—mere platforms, upon which he has been known to sit and sing. But so artistic a singer could hardly be expected to be an expert artisan—you can't have everything in one individual; the female blackcap, however, seems well content with her mate, and willing to work for him. Then, too, he is a born fighter; few birds so jealously guard their own territory. In fact he is an ideal knight, full of courage and address, a regular "Young Lochinvar,"

"So faithful in love, and so dauntless in war,"

who would sing or dance away any female heart. No sooner is the prosaic building and furnishing of the nest completed—in which he certainly takes some part,—than the male blackcap shares equally with his russet-crowned mate the arduous duties of incubating, and later on of brooding and feeding the young. There is no shirking of responsibilities here; the artist becomes merged in the husband and father; his song loses its vitality till after the first brood is fledged, when there is another song-period from the end of June till the end of July; while on the Riviera the first sounds that greet our ears on a January morning may be the mellow flute of the blackcap, the artist in him once more triumphant.

As the males of all four species share not only in incubation, but in brooding and feeding the young, and seeing that they also take some part in building the nest, they may fairly claim to be considered model mates.

In the case of the whitethroats, I have seen one of the parents brood, while the other brings food; usually the one which brings food takes its companion's place on the nest. As the family increases in size and strength, both parents are constantly employed from dawn till dark. I have seen them still carrying food to the nest at 8.45 on a

May evening. As with all these small warblers, I have generally found the female whitethroat more courageous when a camera has to be faced. The males will always forage for the females; but it is some time before they screw up their courage to the point of going themselves to the nest.

While engaged in feeding the young, lesser-whitethroats often perform very curious acrobatic feats. They may be seen clinging to a bit of coarse vegetation in a vertical position, and so thrusting food down the eager gaping throats. The other members of this family usually perch on the nest in order to do this, but the lesser-white-throat's habits are more akin to those of the bearded-tit. I once called an old Sussex farm-labourer, who had assisted me in photographing a nest, to witness the curious acrobatic feat mentioned above, and did not miss the opportunity of rubbing in a little information as to the use of birds in general. He grunted, and said—"They be tarrible amongst t' peas." I tried hard to convince him that so slender-billed a bird could no more consume peas than he could crack a cocoanut. He gazed at me in a stolid bovine manner, merely reiterating—"They *be* tarrible amongst t' peas." One must evidently begin instilling knowledge into folks when they are young.

It is always difficult to know just what becomes of young birds when fully fledged. Where two broods are reared—as is the case with blackcaps, the first family usually keeps with one or other of the parents, generally the male, till the second family requires attention. If one brood only is produced, the young are tended by both parents long after they are capable of fending for themselves. It is after the young leave the nest that the parents' duties are most arduous and their anxieties doubled. The common enemies of this group are stoats, weasels, birds of prey and cats. When just fledged the little birds sit about on the ground, or flit clumsily to cover. Blackcaps remain in the nest nine days,¹ whitethroats and garden-

¹ *British Warblers*. Howard: "Warblers, Blackcaps," p. 25.

Plate 49

Lesser-whitethroat feeding young

By G. E. Collins



warblers rather longer. In this they differ from tits and birds building in holes generally, the young of which do not leave the nest till well able to fly; consequently young warblers are peculiarly helpless, and the mortality amongst them at this age is appalling.

As summer merges into autumn and insect food becomes scarce, the *Sylviinae* remove to gardens and hedgerows where soft fruits and berries abound; old and young alike may be found in little parties, mixed with others of the warbler tribes. Mr. Howard says of blackcaps and lesser-whitethroats—"There is no better place to study them during the last few weeks before they leave this country than among the elder bushes. Here they come in search of food, and here they have full scope for their exuberant spirits. At this time of the year they—lesser-whitethroats—are far more noisy than during the spring and summer: not that they sing, . . . but they are frequently uttering their call-note, which is harsher than the one used in the spring, and bears so much resemblance to the corresponding note of the blackcap at this period, that it is sometimes most difficult to distinguish between them. The blackcaps appear to be afraid of their pugnacity, and more often than not retire from their presence."¹

By and by as September advances their numbers decrease, and we wake up one morning to find the whole company of light-hearted minstrels has vanished, scared by

"The autumn scented haze
That hangeth o'er the hollow in the wold."

DARTFORD-WARBLER

[E. L. TURNER]

The Dartford-warbler being a unique species is best treated apart from the other members of its genus (*Sylvia*). It was first identified from a specimen shot on Bexley Heath, near Dartford, in Kent, on

¹ *British Warblers*. Howard: "Warbler, Lesser-Whitethroat," p. 15.

the 10th April 1773, by a friend of Latham's, but it was not until 1806 that the nest was first discovered in England, when Montagu found it in Devonshire. With regard to Kent, Dr. Ticehurst says—“We must now consider that, as far as our county is concerned, the Dartford-warbler is extinct, disappearing as a breeding bird in 1891. So little migratory is it that it can only occur now as the merest straggler, and it is significant that since it disappeared as a breeding bird, not a single specimen has been recorded.”¹

This comparatively little-known warbler is resident all the year round, but extremely local in its habitat. It has been known to breed in all the southern counties, but for some reason or other has a decided preference for Hampshire; so extremely local is it that Lieutenant-Colonel Mockler Ferryman—to whom I am indebted for notes on the breeding habits of this bird in that county—says—“The area in which Dartford-warblers were located covers, roughly, three square miles; the birds, however, were not found everywhere, but seemed to favour certain localities, especially during the breeding season. It would be natural to suppose that the birds would be found on some of the other large gorse commons in the neighbourhood, but though I have visited many, I have never come across Dartford-warblers in any of them.”

It is an extremely shy bird out of the breeding season, skulking in and out of the high gorse bushes it loves to frequent. In general appearance it resembles a very dark wren with an abnormally long tail, and somehow this very length of tail gives to the Dartford-warbler just that touch of dignity and grace which the delightfully fussy little wren lacks. During the nesting period these birds are not so shy; then, when disturbed, they will perch on some point of gorse and remonstrate boldly with the ill-bred person who is so rash as to intrude upon their domestic affairs. The angry, uplifted crest, orange-coloured iris, and slender, rapier-like bill, together with an air of offended dignity, mark this otherwise tiny and inconspicuous warbler

¹ *Birds of Kent*, p. 43.

as one of the Avian aristocrats—not forcing himself obtrusively upon society in general, but immediately on the defensive and able to maintain his honour if attacked. He is unique in appearance, and once seen, could not be confounded with any other species.

Like another very local bird—the bearded-tit—although by no means uncommon in the districts it frequents, while rearing two broods at least each season, the Dartford-warbler does not materially increase in numbers. This is partly accounted for by heath-fires which sometimes sweep across its nesting areas, dealing death and disaster; but, without doubt, severe winters and late, cold springs destroy a great many. After a late fall of snow in April 1908 these birds ceased to exist in certain localities where they formerly seemed numerous. This was notably the case in some of the high, wind-swept, gorse-clad heaths of Surrey and Sussex. Dr. J. H. Salter, writing from Andernos, Gironde, observes that “upon these extensive heaths, which cover several square miles, there must be some hundreds of pairs of Dartford-warblers, their numbers not being kept down here as in England by occasional severe winters.” It has also unfortunately suffered—perhaps more than any other small bird—from the greed of the private collector, as the following extract from the *Zoologist* will show: “Mr. C—— told me that his collectors in the Churt district in the 'sixties sent him some sixty or seventy clutches, including two with cuckoos, all taken in that district. After 1869 a very large forest fire destroyed the tract of furze-covered heaths where the birds had been so common. A large number of birds were shot by collectors. Mr. C——'s collection contained a splendid series of nests and eggs—some forty clutches, the remainder of those he received having been exchanged or given away. It is hardly a matter of wonder that this species has become so rare in Surrey in view of the wholesale destruction with which it appears to have been pursued about this period, but it is evident that it was then extremely abundant in that neighbourhood.”¹

¹ *Zoologist*, 1901, p. 250.

The italics alone are mine! Can anything too strong be said in condemnation of those who "collect" on such principles? But if a St. Francis were to arise from the dead and preach to them instead of to "his little brothers, the birds," I doubt if ever he would make any impression!

The flight of the Dartford-warbler is feeble and undulating as it flits from bush to bush, sometimes hovering an instant over the point of gorse on which it means to alight, spreading the tail fan-wise for a moment. This appendage, like that of the warblers in general, is very expressive of emotion, being frequently jerked upwards if its owner is seriously disturbed in mind. Mr. H. Alexander tells me he has only once seen them mount high up into the air, and that was about the time of pairing, when he watched a couple flying together to a height of about sixty feet or more.

The scolding call-note, so often described as "*pit it chou,*" changes frequently to "*pit, cha, cha,*" a vibrating sound like the low, angry "*chur*" of the whitethroat. This note is not confined to the nesting season only, for the bird will scold in the same way if disturbed during the winter months.

The song of the male is not obtrusive, but rather a subdued liquid warble, which, if undisturbed, he will keep up for a considerable time. Short bursts of song are often uttered on the wing, but he does not *hurl* himself into the air when singing like the ecstatic whitethroat. The song is best heard towards sunset; then, perched on a spray of gorse, the bird pours out its whole soul. Now and again he sings in the open, from the outermost branch of a pine tree, and occasionally executes a kind of aerial dance which more or less resembles that of the whitethroat. Mr. Kearton says—"Should any object calculated to excite the surprise of the male happen to be near the nest when he returns, he may sometimes be heard to sing, even while his bill is crowded with insects."¹

Males, reared by Montagu in captivity, began to sing with the

¹ *Nature Pictures*, 102.

Plate 50

Garden-warbler (left) and Dartford-
warbler (right)

By G. E. Collins



appearance of their first adult feathers, and continued singing till October, frequently for hours together. "The notes were entirely native, consisting of considerable variety delivered in a hurried manner and in a much lower tone than I have heard the old birds in their natural haunts. This song is different from anything of the kind I ever heard, but in part resembles most that of the stonechat."¹

Seebohm describes his first acquaintance with the Dartford-warbler as follows:—"At Biarritz I found them frequenting the reeds on the banks of a small lake. The first sight I had of one was that of a little dark bird with a fan-like tail, suddenly appearing amongst the reeds, crossing a small patch where they had been cut down, and as suddenly and silently disappearing amongst the reeds on the opposite side. The note was so musical that for a moment one might imagine that a nightingale was beginning to strike up a tune. Now and then we saw the bird appear for a moment above the reeds as if thrown up by a battledore, but it dropped down again and disappeared as suddenly."²

When in the courting attitude the male spreads out his long dark fan-like tail so that the white tips and outer margins of the two exterior feathers are brought into view, the throat feathers are puffed out and appear then much brighter. "During those displays to the female, the male constantly trails the outspread tail and half-spread wings along a low bush or across tangled grass uttering all the time a low sweet song. This trailing of the tail is more noticeable perhaps in the Dartford-warbler, because as a rule he carries his graceful appendage at 'half cock,' much in the same way that the wren holds his apology for a tail."³

The nest is usually placed about eighteen inches from the ground, either amongst gorse-bushes or heather. Mr. Kearton says—"I have seen several specimens built in rough heather, and my friend, Mr. Howard Bentham, who has given the species a great deal of attention, and has probably found more nests than any other man in the

¹ *Dictionary of British Birds.*

² *British Birds, Seebohm.*

³ E. Hart (*in litt.*).

country, tells me that something like three-fourths of those he has discovered have been built in heather and the remainder in furze.”¹

In general structure the nest resembles that of a whitethroat, but is somewhat more solidly constructed, being composed of goose grass (*galium*) interspersed sparingly with moss, wool, and a few feathers. Sometimes the building materials consist entirely of fine grass bents, but the nest varies considerably in neatness and compactness. Neither is it always so very well concealed. Those found by Dr. Salter in the neighbourhood of Andernos “were placed in poor scrubby gorse about two feet from the ground, and not in the tall dense covers which I had searched”: he also records another nest which he discovered “quite by accident, in poor thin gorse of the autumn-flowering variety, a compact well-built nest, not at all well concealed.”

Lieut.-Colonel Mockler Ferryman describes two nests which he pulled to pieces after the young had flown as follows:—“I discovered that a little moss and wool as well as a few small feathers were interwoven among the grasses in the bottom and in the side of the nest, but these materials were not visible until the grasses were pulled apart. Nests in which young birds have been reared do not appear to flatten out at the rim but rather to sink in the middle, the weight of the birds causing the sides of the nest to stretch from top to bottom, so that they become quite thin. Thus an old nest from which the birds have flown looks a much more flimsy structure than a new nest. Looking down into a nest of fully fledged young birds, one sees a mass of black feathers below the rim of the nest, the only break in the colour being the yellow eye of the fledgling.”

The first nest is built about the middle of April, and the second in June or July. Two broods are usually reared in the season, and Booth says—“If deprived of their first nest one pair will continue attempting to rear a brood till late in the season, even after having been robbed of three or four sets of eggs.”²

¹ *Nature Pictures*, 102.

² Booth's *Notes on Birds*.

Dr. Salter put up young birds just able to fly on April 27th near Le Ponge; but he considered the usual date for eggs to be about the last week in April, and that this single early nest was abnormal. Mr. Jourdain has also seen young birds on the wing in Spain as early as April 7th, but in England they do not seem to be fledged before the first week in May.

The food of the young consists chiefly of insects and their larvæ, including moths, which both birds bring, though the male appears to be the bolder of the two. While, however, he flies to the top of a bush, protesting loudly with crest erect and angry jerking tail, the female will slip quietly through the undergrowth and administer food surreptitiously, but she is often not a whit behindhand, giving vent to her emotion in language that is no more choice than that of her mate: and when the young are fledged, both parents seek to lure away the intruder from the skulking brood by a variety of pretences, tumbling over, or fluttering along the ground, uttering a harsh "*tac, tac, te, te,*" which is louder in the male than in the female.

During autumn and winter the behaviour of these birds seems to depend largely on circumstances. Some pairs keep near the vicinity of their breeding-place all the year, others leave the high grounds for sheltered valleys; sometimes the necessity of procuring food forces them to the seashore, and during a long spell of cold they will even resort to cottage gardens and hunt among bushes and fallen leaves for insect food. In the autumn they feed upon soft fruits, as do the Sylviinæ in general. Where an isolated couple keep to one given spot all the year round, as was the case with a pair watched by Messrs. C. J. and H. S. Alexander in Ashdown Forest, the natural inference is that they pair for life, and that the young are driven away to pastures new.

THE GOLDEN-CRESTED WREN

[E. L. TURNER]

The goldcrest is the smallest of European birds, but its tiny body contains a mighty spirit!

The mystery of migration indeed never seems so profound as when we contemplate the long journeys by land and sea that this "scrap of valour," weighing only seventy-six grains, cheerfully undertakes. It is not gifted with great powers of flight, and in its ordinary daily life just flits from tree to tree, seldom crossing large open spaces. Yet in the autumn vast flocks occasionally arrive on the east coast between September and November. "On such occasions," writes Howard Saunders, "bushes in gardens on the coast are covered with birds as with a swarm of bees, crowds flutter round the lanterns of lighthouses, and the rigging of fishing-smacks in the North Sea is thronged with weary travellers."

It seems as if, when they are seized with the migration impulse, birds for the time being are endowed with an almost supernatural physical strength or nerve-force; else how could the two-inch wings of the goldcrest beat across the North Sea from Scandinavia; or over the Mediterranean from North Africa? One is silent before this vast problem and can only reverently ask

"What Lamp had Destiny to guide
Her little children, stumbling in the dark?"

Gätke¹ speaks of an immense migration of goldcrests in 1882, which began on September 8th and reached its climax on the night of the 28th, when, he says—"Perhaps the simile of a snow-storm may help to convey an idea of the scene."² Throughout the whole of October of that year a similar unprecedented migration

¹ *Manual of British Birds*, 2nd ed., p. 57.

² *Heligoland as an Ornithological Observatory*, pp. 317, 318.

of this species, repeatedly increasing to vast hordes like those seen in Heligoland, was reported from all stations on the east coast of Great Britain—from Guernsey northward to Bressay, the central island of the Shetland group, representing a migration column of nearly 680 miles in width." Gätke accounts for the phenomenal migration of these birds by the fact that their breeding area is of enormous extent, "reaching from the South of France and England through Central and Northern Europe up to the limit of the pine forests, and in the same parallels of latitude through Asia as far as Japan.

The return journey is made in April, and again Gätke's inimitable description is well worth quoting:—

"Suddenly through the silence of a mild clear evening the fine clear note of our little goldcrests is heard, and soon afterwards the bird is seen rising from the neighbouring bushes, through the still luminous sky; at measured intervals its call-note—" *hüt—hüt—hüt*"—is heard as it flies off in slightly ascending spirals over the neighbouring gardens; then from every bush the cry is answered in loud clear tones, and from all sides its travelling companions wakened for the journey rise upwards, following in the wake of the earliest starter—the latter, however, when the answering voices have announced that all the sleepers are aroused, ceases circling about, and rises, with breast erect and brief rapid strokes of the wings, almost vertically upwards; soon all assemble in a somewhat loose swarm, the call-notes are silenced when the last straggler has joined the departing flock and the tiny wanderers vanish from sight. While we are listening to their call-notes growing fainter and fainter in the distance, and straining our eyes for one last look at the little songsters, the first faintly gleaming stars appear in their stead in the deep transparent ether above. Later still, as we gaze upwards to the night sky sown with innumerable points of light, we imagine that those myriads of shining worlds are all that moves between us and the Infinite, while all the time

in the heights above us are travelling thousands, nay millions, of living creatures towards one fixed goal—small and weak like this little goldcrest of ours, but all guided as surely as are the farthest gleaming stars.”

What a *réveillé*, what a responsibility for the tiny sentinel whose duty it is, “Hurling defiance at Vast Death,” to rouse this host of atoms for a journey, the magnitude and perils of which would strike terror into the stoutest-hearted aviator of modern times!

The goldcrest is resident and fairly common wherever fir plantations abound, but our native bird is rather darker on the upper surface than the continental race. During autumn and winter goldcrests are very sociable, and hunt in little flocks of their own kind or in company with titmice. They are not at all shy, and show no embarrassment when watched; in fact no birds show less fear of man, but owing to their diminutive size, rapid warbler-like movements and olive-green colouring, they frequently escape detection.

Most birds, if you suddenly stop short in your walk to watch them, will immediately fly away; not so the goldcrest. He slips in and out of the interlacing growth of some hedgerow—a very favourite hunting-ground—searching the underside of a leaf or twig within two or three feet of a passer-by. He has a special liking for rose-trees and diligently hunts round one after another in pursuit of green-fly, sometimes singing merrily if it is springtide, and his brave little heart responds to the season's call. He will allow the observer to approach closely and inspect his green robe and golden crown; for, in spite of his mere seventy-six grains, the “Golden-crowned Knight” bears on his brow that stamp of royalty which may well be envied by the mighty eagle!

One January morning, whilst cantering across a bit of moorland, I found myself in the midst of a swarm of these birds; some were merrily disporting themselves in a belt of firs, but by far the greater number were on the ground, creeping in and out of the dead bracken

Plate 51

Goldcrests

By A. W. Seaby



or slipping up and down the stalks, continually pecking at something. At a distance they looked like mice, and but for their ceaseless chatter I should have passed them unnoticed. Even when I suddenly checked my pony they evinced no concern, until she lowered her head into their midst and gave vent to a prolonged snort. This offended the goldcrests' dignity; they immediately arose *en masse* and joined their companions in the trees.

The ordinary food of these birds consists of minute insects, for which they diligently search every tree and shrub that seems a likely hunting-ground. In their manner of feeding they resemble the Warblers. For although they may be seen hanging upside down like the Tits, as a rule they slip along a branch, stretching out head and neck after the dainty manner of a chiffchaff or whitethroat—garrulous also, as is the latter bird. Indeed though akin to the Warblers, from which family they scarcely differ in structural characteristics, yet in their manner of life and habits goldcrests also strongly resemble the Titmice.

From my window almost any day I can see goldcrests feeding high up amongst the branches in a fir plantation; not indeed rivalling the Tits in acrobatic feats, though choosing them as companions rather than members of the Warbler family. This may be another proof that intelligent adaptation to circumstances in time tends to variation of species. Perhaps by and by the golden kinglet will forget that he sprang from an aristocratic Warbler family, and develop into a bourgeois Tit proper.

Mr. Newstead¹ found that the goldcrest fed largely on American blight during the autumn and winter months, and remarks—"It does not as a rule remain for any length of time in the infested trees, but pays frequent visits during the day, spending the intervals in more secluded spots. Out of five birds examined all contained insects of the injurious group, besides spiders and fragments of beetles. On migration, Gätke says—"The rubble at the base of

¹ *Food of Some British Birds*, pp. 23, 24.

the cliff is alive with them, and they disposed themselves merrily among the vessels and boats on the shore, actively pursuing aquatic insects in the sea-wrack which is washed up by the tide, even to the very edge of the foaming waves.”¹

The nestlings receive a very liberal diet of flies and insects in general—especially those tiny spiders which abound in evergreen shrubs. Small caterpillars also are sometimes brought.

When feeding the young, I have often seen the adult birds hawking for flies in mid-air, and they are really quite expert fly-catchers, but I have never observed them disporting themselves in this manner out of the breeding season.

Early in February the male begins his short shrill song, which consists of two notes repeated five or six times, and ending in a rapid trill. It is unmistakable when once heard, but *might be* confounded with the great tit's call-notes, for even in this respect the goldcrest resembles the titmice more than the warblers. His song contains no real melody, but is merely a “joyful noise” entirely lacking in the polished harmonies of his more musical brethren. But penetrating as the goldcrest's song undoubtedly is, the bird itself is often difficult to see amongst the thick foliage he delights to frequent. He sings regularly from February until June, and again from August till the middle of October.

About the beginning of March these birds cease to be gregarious, and are then only to be seen in pairs. The crest of the male is lemon-yellow with a beautiful central band of orange, lustrous as if worked in silk. The head of his little mate lacks the orange centre. When courting, the male displays this superior emblem of royalty to full advantage. He also puffs out the feathers of his back and flanks: which, being unusually long and soft, give him the appearance of a ball of down. He then shivers his wings and drags them along the branch upon which he happens to be showing off after the approved manner of lovesick Warblers. Sometimes this attitude

¹ *Heligoland as an Ornithological Observatory*, p. 317.

strikes the beholder as being entirely dictated by vanity, and at other times it seems to suggest that the wooer is wholly at the mercy of the wooed—on bended knee, as it were; in this instance royalty itself stooping to conquer.

The goldcrest's nest is usually suspended *beneath* a branch of some evergreen tree, where it swings like a hammock, swayed to and fro by every breeze, though not exposed to rough winds, as the branch chosen is generally in a sheltered situation. Both birds take part in its construction, and with the exception, perhaps, of the long-tailed tits, this nest is the most elaborate and beautiful thing of its kind. Both parents also feed the young; but in some cases I believe the female does most of this work, though, as the male often goes further afield in his search after food, perhaps there is an equal division of labour.

Some years ago my attention was attracted by a pair of these birds which were flying regularly to and from a cedar tree. Each arrived simultaneously, with a tiny indistinguishable bit of *something* which it deposited *somewhere* close by, and then departed with empty beak. Although standing only a few feet from the spot where they settled, I could not see what became of the material brought; though I was certain that a nest was in fact being built before my very eyes. After forty minutes of vain watching, the sun shone out brightly—it was about 5 A.M.—and suddenly I caught a glint of iridescent cobweb beneath a dark bough. Approaching the spot carefully, and not daring to touch the branches, I all but put my face into the most fairy-like string-bag imaginable. There hung an outline of the cradle that was to be, just sketched out in cobwebs. It consisted of four twisted silken ropes attached to four lateral pendent twigs; between these lines, and connecting them, was an intricate network of single strands of cobweb. On this delicate spherical framework the builders continually fixed minute bits of moss and lichen; and as if by magic the structure rapidly grew in density. Unfortunately I was unable to revisit the nest for some days, by which

time the exquisitely felted nursery was finished. It is perhaps not to be wondered at that, when the six or eight lively youngsters reared within are nearly fledged, the bottom of the dainty nest sometimes wears through—nursery floors surely require stronger joists than cobwebs—with the result that some of the brood are suddenly deposited on the lower branches of the tree, or even on the ground beneath. When such an accident occurs, the little ones have to be rounded up to a place of safety by the anxious parents. This was the case with two nests that I found in May 1908, each within a few feet of each other, in a fine old low-branching yew-tree.

On May 26, 1910, I almost stepped into a nest lying on a narrow path bordering a dyke in Norfolk. The tiny twisted ropes by which this nest had been suspended were broken, so that “down came cradle and babies and all.” Had not the mother flown up almost from beneath my feet, I should not have seen this wrecked nursery. I put the nest, which contained seven young ones, under some sheltering nettles away from the footpath, and watched the parents, who immediately continued feeding their dislodged brood regardless of my presence. My camera was on the opposite side of a wide dyke by a nuthatch’s nest, and while crossing the plank which bridged the dyke, I fell in. By the time I recovered from this unexpected ducking, the light had gone, and though I exposed one or two plates, they were failures.

Being very anxious about the safety of the young goldcrests, I did what seemed to me a very wise thing—knocked the bottom out of a box about eight inches deep, and placed the four walls round the nest, so as to prevent the half-fledged birds from straying. The event proved disastrous, for when I returned on the 27th five of them were dead; while the two strongest, which had managed to surmount this obstacle to their freedom, were being fed by their parents in the tangled undergrowth about twenty yards away. I have mentioned this incident in order to illustrate the fact that birds vary considerably in intelligence. There was no reason why the

adult goldcrests should not have fed those in the nest as well as the two which had escaped; probably another pair would have done so, for I have often adopted some such means to protect birds of various kinds, and generally with success.

There is no prettier sight to be seen in the bird world than a family of young goldcrests when fledged. They are so ethereal in appearance—just like animated puff-balls: and when the whole brood is in your hand, their combined weight is as nothing! Their call-note is, however, loud and penetrating, and may be heard some distance away. As is the case with the common wren, the goldcrest's voice is greatly disproportionate to its size, especially when young.

Once when creeping with bent back beneath some young conifers, hearing a shrill "cheep, cheep" above my head I suddenly straightened myself and found I was face to face with seven of these tiny birds huddled together on a branch, waiting to be fed. I wish they had stayed, but the moment that our mutual surprise was over, the dainty vision fled in seven different directions.

Lord Lilford tells how he once came upon a dozen goldcrests "clustered together for warmth beneath the snow-laden bough of an old yew-tree, to the under surface of which the uppermost birds were clinging by their feet whilst the others clung to them and to one another so as to form a close feathery ball." He then says that, taking this cluster of birds for an old nest, he touched it with his stick, whereupon they dispersed, but without alarm, and no doubt soon resumed their previous formation, which he was sorry to have disturbed.¹

One day late in October I was surprised and delighted to see eight or ten goldcrests suddenly invade one of my aviaries which contained four short-eared owls. Luckily for the invaders the owls were not hungry, but merely interested spectators. With faces screwed half round, till their eyes were one above the other in a vertical line—a position which must give to these wise-looking birds such a varied point of view—the owls intently followed every move-

¹ *Birds of Northamptonshire*, vol. i. p. 135.

ment of their fairy visitors during the twenty minutes or so of their stay. What the goldcrests found to eat I cannot imagine, but the apparently bare ground provided this merry little party with abundant food for conversation at any rate.

Sometimes when strolling through the dark winter woods, every footstep deadened by the thick carpet of pine needles or wet leaves, the silence will suddenly be broken by a very babel of shrill voices, and on looking up you will see the branches of some overhanging pine alive with small birds—tits, goldcrests and others of their kind. But the merriest sounds will come from the kinglets and coal-tits; for of all the Titmice family, the latter birds seem the favourite companions of the goldcrest; perhaps because both are almost exclusively insectivorous. They may remain some time in one spot, or move rapidly on; their cheerful laughter ringing through the desolate aisles—but with no unholy mirth—then, as their sounds die away into the distance, silence once more settles down upon the waiting woods; and the tall dark inscrutable pines, rigid as sentinels, show no sign of gladness or sorrow at the passing of this little band of wanderers.

THE FIRE-CREST

[E. L. TURNER]

The fire-crest seems to be a rare straggler to these shores, but perhaps is sometimes overlooked, owing to the general resemblance between it and the goldcrest. In March 1907 Mr. H. S. Alexander and I watched a pair of fire-crests near Tunbridge Wells several days in succession. Each time we went in search of them they were hunting the same tall hedgerow for food, and allowed us to come quite close after a little patient stalking. The broad white eye-stripe and black streak on either side of the head readily distinguished them from some goldcrests near at hand. There was also a slight difference between the call-notes of the two species, the “*zit-zit*” of the fire-crests seemed fainter,

less shrill, and pitched in a lower key than the goldcrests'. Naumann gives to both species a second call-note used only when sitting—"se, se, se," or "sre, sre, sre." He says, too, that the song of the fire-crest is louder, shorter, and simpler than that of the goldcrest: probably, however, as the two fire-crests I saw and heard were strangers in a strange land, they felt less expansive than they would have done if quite at home.

In general habits both birds are akin; but, at any rate with us, the fire-crest is not so sociable as the goldcrest, being seen only singly or in pairs. Bailly, however, says that numbers of fire-crests arrive in Savoy during autumn and winter, and are decidedly gregarious. . . . "They arrive in couples, male and female, or in threes and fours at a time, and frequently in troops of from eight to a dozen individuals. When migrating these birds often associate with the common species. Like the latter they approach dwelling-houses, frequent gardens, parks, and orchards, and sustain themselves on the same food. During very cold days they are in the habit of puffing out their feathers so as to appear twice their natural size. The two sexes travel together, and are very much attached to each other."¹ This latter remark still further tends to prove that many species *do* pair for life, even though more or less migratory. But evidently this bird is more conservative than the goldcrest, and prefers the old régime to launching out into new-fangled ways and mixing with all sorts and conditions of birds; for, after all, the Tits and their allies are just a little free and easy.

"Their manners have not that repose
Which stamps the caste of Vere de Vere."

The first specimen of a fire-crest obtained in England was killed by a cat in a garden near Cambridge in August 1832, and exhibited with much *éclat* before the Zoological Society that year. Fame comes in curious ways and often too late. Surely a strange irony of fate that a new bird should be added to the British list by the so-called "harmless necessary cat"!

¹ Bailly, *Ornithologie de la Savoie*, ii. p. 454. (Fire-crest.)

WILLOW-WARBLER, WOOD-WARBLER
AND CHIFFCHAFF

[BY F. B. KIRKMAN]

These three species are summer visitors. Long before the fall of the leaf they have, with the exception of an occasional chiffchaff and willow-warbler,¹ left us for their winter homes in Southern Europe or Africa. All three are tiny elfin birds, with soft hues of buff, and green and olive, that make them seem one with the foliage through which they are wont to creep, searching every leaf, and about which they love to frolic like fairies dancing in the sunbeams, glad simply to be and do.² So alike are two of them—the willow-warbler and chiffchaff—that they are not easily distinguished even by experienced eyes. It is only when they sing that uncertainty ceases. Then there can be no mistake.³

The song of the chiffchaff is simplicity itself; it consists of two notes "*chiff*" and "*chaff*," or slight variations of these, which are partly due to differences in pitch. A. H. Macpherson heard three chiffchaffs in August "singing at once, all in a different pitch. No. 1 was about a semitone above No. 2; No. 2 about a quarter of a tone above No. 3, the interval being the same in all cases."⁴ For Mr. W. H. Hudson the two notes vary "as slightly in tone as two taps of a hammer on an anvil delivered with equal force on the same spot."⁵ Other good observers also limit the song to two notes oft repeated. Naumann, however, syllables it as follows:—"Dilm, delm demm, dilm, delm, demm, döl m, delm, dilm, delm, demm" . . .⁶ and Bailly as "*zip, zip, zap, zap, zeup,*

¹ The wood-warbler and willow-warbler are usually called respectively wood-wren and willow-wren. The wren proper belongs, of course, to quite a different family.

² The scientific name of the genus is *Phylloscopus*, from Greek φύλλον, "a leaf," and σκοπός, "one that looks at." It might be rendered "leaf searchers."

³ For the difference between the three species see the "Classified Notes." No illustration of the chiffchaff has been included in the book, because, subject to the slight differences indicated in the Descriptions of the "Classified Notes," the drawing of the willow-wren suffices for practical purposes. As the number of plates is limited, this unimportant omission was a gain.

⁴ Quoted by W. Warde Fowler in his *Year with the Birds* (2nd edition, p. 172), who adds, "As my correspondent is a violin player, as well as an ornithologist, his observations may be taken as accurate."

⁵ *British Birds*, p. 75.

⁶ *Vögel Mitteleuropas*, ii. p. 105.

zeup, zeup, zeup, zeup."¹ Both these renderings give the bird distinctly more than two different notes. It has seemed to me, at times, that a third note was uttered, but not strongly marked, and it may have been due to change in the direction of the sound.

The series of notes uttered, in the separate phrases, are by no means always repeated in the same order or number. One bird to which I listened attentively (June 27) repeated in an unvarying order the first six notes of every phrase:—"chiff, chaff, chaff: chiff, chaff, chaff." With this may be compared Naumann's "*Dilm, delm, demm: dilm, delm, demm.*" But the remaining notes of the phrases varied in both order and number. The following are examples:—

	(7)	(8)	(9)	(10)
. . .	chaff,	chaff,	chiff,	chiff.
. . .	chaff,	chiff,	chaff,	chiff.
. . .	chaff,	chiff,	chiff,	chiff.
. . .	chaff,	chaff,	chiff.	
. . .	chiff,	chiff,	chaff.	
. . .	chiff,	chaff,	chaff.	
. . .	chiff,	chaff,	chiff.	
. . .	chiff.			

This singular melody is uttered by the little performer with untiring good-will; and as he sings, perched often on the top of a high tree, he turns his head from side to side, as if anxious that every part of his audience should in turn be favoured with the full sound of his voice. The movement of the head no doubt accounts for the ventriloquistic powers ascribed to the bird by some observers,² and possibly also, as already suggested, for the variations in its notes that are not due to alterations in pitch. It may be added that, at the beginning and end of its song, the bird is often heard to utter a few low muttered notes, which have been syllabled variously as *frûi, frûi, frûi*, or *derr-derr-derr* or *hedededet*, renderings that show incidentally how differently the same sound may present itself to different naturalists.³

¹ Bailly, *Ornithologie de la Savoie*, ii. p. 435.

² *Ibid.*, ii. p. 435.

³ Naumann, Bailly, *loc. cit.*; Howard, *British Warblers*, Part II., p. 31.

Though the song of the chiffchaff is not remarkable for its musical quality, it possesses nevertheless a special charm, because more than any other it heralds the return of spring. The chiffchaff is the first of the summer visitors to make itself heard in our woodlands—some days before we see the first swallow, or hear the first “cuckoo.” Its song has a borrowed charm. That of the willow-wren’s owes all to its own beauty. It is a little rippling warble, sweet, and somewhat plaintive; a short, soft strain that sinks to its end in notes that seem to become too tender for utterance, and so pass gently into silence:

“That strain again; it had a dying fall”—

line aptly quoted by the American naturalist Mr. John Burroughs, who during a visit to our Isles was struck by the beauty of the willow-wren’s song. It “has a dying fall; no other bird song is so touching in this respect. It mounts up round and full, then runs down the scale, and expires upon the air in a gentle murmur.”

Before passing to the song of the wood-wren, let us note that occasionally the chiffchaff has been heard to add to its own notes the song of the willow-wren, either complete or in part. One bird repeated the “*chiff, chaff*” three or four times, then suddenly broke off into the willow-wren’s descending scale, but always before this was completed returned to the “*chiff, chaff*.” Similarly the willow-wren has on arrival been heard singing but a few notes, “and those notes curiously like the notes of the chiffchaff.” As both species are no doubt descended from one stock, it may be that these early or trial notes of the willow-wren are ancestral in their character, and as such not unlike the chiffchaff’s song, which is evidently much nearer to the primitive than its congener’s. But the reproduction of the willow-wren’s song by the chiffchaff must be explained in some other way, by mimicry, perhaps, or by hybridisation.¹

The wood-wren is easily distinguished from the chiffchaff and willow-wren by its larger size and brighter coloration. But were this

¹ *Zoologist*, 1908, p. 190 (H. Meyrick), p. 226 (W. W. Fowler), p. 268.

not the case, its song would at once serve to remove any hesitation as to the bird's identity. It has been described by Gilbert White as a "sibilous shivering noise in the tops of tall woods," the final notes being accompanied by a sympathetic shivering of the wings. The bird then looks as if it were trembling with emotion, as if it were seeking to free its inmost aspirations in streams of harmony, and could not. A tragic spectacle of fettered genius. In its soul a symphony, but in its throat a sibilous, shivering noise. And yet, if more closely watched, the wood-wren seems well content; it sings, peers up to some leaf, hovers beneath it on misty wings, picks off a grub, alights upon a twig, swallows its grub, sings, then eats, then flits, and so wanders through the foliage, rejoicing in its shivering notes and shivering wings, rejoicing in its grubs, and rejoicing in judicious alternation of its joys. The wood-wren is the embodied spirit of the leafy tops; it is leaf made bird, and its song is the voice of leaves, pleasing as such, and nothing more.

The full song of the wood-wren, above described, has been syllabled "*wheou, wheou, wheou,—ip, sip, sipp, sipsip, sipsipp, srrèèèèèè.*" Generally the latter part alone is uttered, and occasionally only the first three loud clear "*wheous.*"¹ The fact that the two parts are usually sung separately makes it possible, of course, to regard them as two distinct songs.²

Though the songs of the three species differ, their call-notes are much alike, a soft, plaintive "*hweet,*" which I have certainly heard used as an alarm-note by the willow-wren, and which according to Naumann is equally so used by the wood-wren. The latter has in addition a note syllabled by Mr. Jourdain as "*tee, tee,*" used by the hen as an alarm-note corresponding to the "*whoo-it*" of the willow-wren. To this "*whoo-it*" the latter occasionally adds the "*hweet,*" making "*whoo-it, whoo-it, hweet, whoo-it,*" interpreted by Mr. Jourdain as "There is danger about. There is danger about. Where are you, my dear? There is danger about." The wood-wren also adds the "*hweet*" in the

¹ F. C. R. Jourdain (*in litt.*).

² *British Birds*, ii. p. 226 (H. W. Mapleton).

same way to its "tee." All three species have certain notes of love, war, and fear which have yet to be exactly compared and syllabled. Reference will be made to some of them in the following pages.

It is noteworthy that of these three warblers the willow-wren, which has alone reached to excellence of song, is the one which has thrived most in the struggle for existence. It far exceeds in numbers the wood-wren and chiffchaff, and, indeed, as pointed out by Mr. Bonhote,¹ none of our summer visitors appear to arrive in greater myriads. Day after day, all along the south coast from Kent to Land's End, thousands upon thousands pour into our Isles, sometimes in a continuous stream for hours at a time. During its stay with us the willow-wren is to be heard almost everywhere, and frequently in areas from which the chiffchaff and wood-wren are entirely absent. Again, where all three occur it is, outside certain localities, by far the most abundant.

It is not possible to speak with any certainty as to the cause of the numerical superiority of the willow-wren. Those that visit us are drawn from a much wider area than the chiffchaff and wood-wren, for the species appears to be distributed right through the African continent. But this is to be considered rather as an effect of the cause we are seeking than itself a cause. Ultimate analysis will probably reduce the cause to a question of diet. All three species are insect feeders. The wood-wren lives almost entirely, at least in this country, upon trees, especially oaks and beeches. Both these trees, like most others, harbour insects that are peculiar to them. Now if the species has come to confine its diet mainly to these insects, this fact alone would limit its spread, and consequently its increase. The same applies, though to a less extent, to the chiffchaff, which is seldom, if ever, found established away from the near vicinity of large trees. The willow-wren, on the other hand, is seen almost everywhere, on gorse or hawthorn-covered commons, in reed-beds, and woodland.

¹ See the "Classified Notes."

If we admit the plausibility of the above explanation, the puzzling fact yet remains that there is much old timber in this country still awaiting its wood-wren or chiffchaff. It may be that the birds, old and young, persist in returning each year to their former haunts, and spread out from it only to the limits of timber growth. If there is much timber near together, and close to it good sites for nests, such as bracken, bushes, tufts of grass, then, as in parts of N. Wales or Delamere Forest in Cheshire, the chiffchaff or wood-wren, or both may be numerous.¹ If not, if around the timber to which the birds return, and where they stay, there is a wide untimbered space, then it is clear that a limit is at once placed upon the numerical increase of the birds, the more so as each pair insists upon exclusive possession of a given area. Thus the unsuccessful pairs will find themselves with an inadequate food-supply and will consequently be unable to breed offspring fit to survive. This explanation may or may not prove to be correct. The right explanation can be the result only of a close study of the facts, and this has yet to be made. It is enough here to state the problem, which is of considerable importance and interest, as it raises in a particular form the general question as to why one species of a genus is more successful than another.

It is perhaps hardly necessary to add that the fact of its early arrival is not likely to affect appreciably the relative numerical position of the chiffchaff. Though a certain number of individuals arrive as early as the middle of March, and no doubt perish if a spell of hard weather supervenes, yet the bulk do not reach us till the end of this month and the early part of April, when large numbers of willow-wrens are also making their appearance. The wood-wrens, possibly the least numerous of the three, arrive last, the first comers not being seen usually till mid-April, and the main body till May.

The males arrive from ten days to a fortnight before their mates,

¹ Coward, *Fauna of Cheshire*, vol. i. p. 141; Forrest, *Fauna of N. Wales*, pp. 94-5.

and each proceeds at once to occupy the area, no doubt the same as the previous year, in which its nest is to be built. This it holds against all comers, driving out trespassers with fury, even though they be its grown-up offspring. Fights are frequent. Rival chiffchaffs have been seen approaching each other, with jerking wings and outspread tail, with excited hurried hops from twig to twig, each uttering, by way of defiance, little squeaks enforced by throaty rattling noises. If neither is to be alarmed into flight by mere menace, they close, tumbling one over the other in the air or on the ground, their bills clicking loudly.¹ Disputes between pairs in adjacent areas may of course continue through the breeding season, for, as already pointed out in connection with the winter-estates of the robin, the boundaries that satisfy one pair do not necessarily satisfy its neighbours. Objection is taken not only to trespass by individuals of the same species, but frequently to that of others. I have seen (May 5) a willow-wren perched on a twig, with its tail erect, slowly wave its wings, as if trying to dry them,—quite a different movement from the rapid jerks of the chiffchaff—and then, having in this peculiar fashion signified its determination to begin, dart upon a whitethroat and seek to drive it away. Both the willow-wren and chiffchaff, and no doubt also the wood-wren, will not hesitate to attack species much larger than themselves. If, however, the big bird chooses to take the attack seriously, and turns, then the vigour of the small assailant's onslaught will often be surpassed by the precipitation of its retreat.

All three species have elaborate love displays, but so far only those of the chiffchaff have been recorded in any detail.² The cock of this species may be seen following his mate with quivering wings, and protesting his love in notes that have been likened to "buzzing." He follows, buzzes, and makes a dart. But the lady who, meanwhile, with like quivering wings, has been encouraging him in loud, unceasing, plaintive notes, now becomes all discretion, "You dare, sir! Well,

¹ H. E. Howard, *British Warblers*, Part II. This work contains the only complete studies of some of our Summer Warblers that exist, which are models of close observation.

² By H. E. Howard, *op. cit.*

Plate 52

Willow-warbler building its nest

By G. E. Collins



take that and that." And he retaliates. There is a mimic combat, just clicks of the beaks, and nothing more, corresponding to the playful slaps of Mary-Jane and the sportive digs of John. But the cock is not content merely to buzz and quiver his wings. He can do better. In moments of intense feeling he will set himself in a very upright position on some convenient perch, droop his wings, erect the feathers on head and back and throat and breast, and so turn himself into a little animated powder-puff. From the back of the powder-puff there projects a wide-fanned tail, which is slowly moved, from side to side. But though love makes the chiffchaff, like his human brother, strike attitudes which are neither romantic nor even impressive in the eyes of third parties, it has also power to transform him into a thing of beauty. Such he appears when, either in silence or uttering love-notes, he floats, a very elfin of the woods, in graceful curving flight, on outspread, slowly moving wings to where his love is waiting and calling.

The wood-wren has a nuptial flight which its longer wings and brighter hues make prettier even than that of the chiffchaff. Sometimes it sings in flight, the slow movements of the wings seeming, as it were, to beat time to its notes. No doubt the willow-wren is not behind the other two in its displays, but full particulars as yet are lacking. Like both, it also stands suppliant with quivering wings, and, according to Bailly,¹ will move its tail from side to side after the manner affected by the chiffchaff. But it appears to differ from the latter in substituting for the rapid wing-jerks the waving motion already described as being a preliminary to its combats. In the case of both these species, as in the case of the robin and others, it will be noted that certain actions are used to express both love and pugnacity.

It may safely be assumed that these warblers pair for life, returning each year to the same haunt. The displays indulged in are, therefore, not courting actions in the strict sense, except in the case of individuals that arrive unmated. Primarily, they are simply modes

¹ *Ornithologie de la Savoie*, ii. 440.

of expressing the passion felt by the bird, and consequently occur at any time during the breeding season. The chiffchaff has been seen "jerking his wings and uttering his courting-note" even before the arrival of the hen.¹

It is the latter who constructs the nest, with little or no help from her mate. According to the observations of Mr. H. E. Howard, the cock chiffchaff's contribution to the joint work appears to give more annoyance than satisfaction to the hen. I have twice watched the hen willow-wren engaged in building, and in both cases the cock contented himself with singing and feeding in a tree, while his wife busily collected material upon the ground beneath, and carried it to the nest. Still, there is good evidence that some cocks share in building, if others do not.² This probably applies to all three species, and not only in respect to nest-building, but incubation also.

The same individuality within the species is shown in the choice of a nesting site. Normally, the wood-wren and willow-wren build upon or close to the ground, the chiffchaff well above it, sometimes a few inches, sometimes a few feet. But birds, no more than men, permit themselves to be bound by rigid rule. A willow-wren will build several feet above the ground, a chiffchaff in actual contact with it, and a wood-wren is reported to have made its home under it—twelve inches down a rabbit-hole. In this case the nest had not the usual dome.³ Let us add that those willow-wrens and wood-wrens which build upon the ground sometimes pay a heavy penalty. I once found a nest of the former species built in a little hollow, such as would be made by a horse's hoof. It contained six young. After a heavy rainfall I went to revisit it, and, as I approached, knew from the lamentations of the parents that evil had befallen. The young were there, all drowned, and the ants—Nature's finishing touch, not mine—were busy picking and carrying away their brains.

Unlike the warblers described in the preceding and following

¹ H. E. Howard, *op. cit.* Part II. p. 12.

² E. L. Turner (*in litt.*).

³ *British Birds*, ii. p. 380 (W. S. Medlicott).

chapters, the three present species build domed nests, beautiful little homes of grass (Pl. 52 and xx.), moss, bracken or leaves, concealed in tufts of grass, under a tangle of weeds or creepers, or in a bush, and warmly lined, in the case of the wood-wren with grass, and perhaps a little hair; in the case of the other two with feathers, sometimes a hundred or more. The rejection by the wood-wren of feathers as a lining is a curious fact, seeing that otherwise it resembles its two congeners so closely in its nesting habits.

The hen chiffchaff, when sitting snugly in her couch of feathers, has been heard to utter a quiet, contented, purring note, which can only be heard a few feet away.¹ This interesting fact may be found to be true of many other species, and it shows, incidentally, how much has still to be learnt even about our commonest birds. We have hardly yet learnt to see or hear them, with close attention.

The cocks of all three species will feed their hens when incubating, and seem at times, with masculine cunning to profit by the occasion in order to persuade them to quit the nest and sport awhile in the leafy shade. *Amaryllis* is often not unwilling. The cocks also take their share in feeding the young, but individuals vary in their zeal. One cock willow-wren that I watched brought insects to the nest as often as his mate, entering it invariably by the same route as she, and each time celebrating the completion of his task by a song. Another could not summon courage to go at all. While the little hen, once accustomed to my presence, went busily backwards and forwards, he executed a series of false starts, quitting his perch, flying a yard or two, turning almost a somersault, and darting back to his perch. At last, with a great effort, he reached a twig opposite the nest, a fat green grub conspicuous in his beak. Now, said I, he is going. He started, turned the usual semi-somersault, sped back, and, overcome by his feelings, swallowed the grub himself.

All three species feed their young on insects and their larvæ, which they find chiefly among the foliage, sometimes hovering

¹ H. E. Howard, *op. cit.*

prettily beneath the leaves, but usually creeping under, and reaching up to them. All will frequently catch their prey in the air. I have seen a willow-wren break off a song, which he had begun when on the ground, to flit upwards after a fly. All again may be seen hopping in search of food upon the ground, the wood-wren less often than the others, and very rarely when leaf is well out, and food abundant in the tree-tops.

When the young are discovered, the parents will sometimes feign injury in order to draw the intruder away from the nest. I have seen this more than once done by the willow-warbler; and it is asserted on the authority of Naumann to be the habit both of the chiffchaff and wood-wren. A detailed description of the actual postures assumed by one bird, a hen willow-warbler, has been given by Mr. Kingsley Siddall.¹ This bird flew on to a wooden paling, and instead of fluttering away as is usual, stood on her right leg, the left hanging behind her. The right wing hung as if broken, the tail-feathers were spread out, and those on the throat and rump puffed out. The head was inclined to one side, the bill slightly opened, and from it there issued "several curious squeaky little calls," which were quite unlike the usual plaintive notes of alarm. As soon as the bird judged the danger over, she flew off to a tree near by, and uttered the usual call. Detailed descriptions of this kind are of great value, because they make it possible to compare an animal's various modes of expression. In the case of the willow-wren the puffing of the feathers and spreading of the tail no doubt also form part of the love-display, possibly also the squeaking notes. Such comparisons may further prove to throw light on the origin of the feigning instinct itself, and from this to the fundamental unsolved problems of evolution there is but a step.²

The young remain in the nest about a fortnight. On one occasion I inadvertently startled a nearly fledged brood of willow-warblers

¹ *British Birds*, iv. p. 119, where a diagrammatic sketch of the posture is also given.

² For a detailed discussion of the origin of the feigning instinct, see Lloyd Morgan's *Habit and Instinct*, p. 248.

Plate 53

Wood-warbler feeding its young

By A. W. Seaby



from the nest before the time. They at once scattered, and concealed themselves in the grass so effectually that I searched in vain. No sooner had they left the nest than one of the parents, no doubt the mother, all ruffled with anger, and uttering notes of menace, flew almost within a foot or two of my face. The cock was also angry, but less bold, as might be expected, for he was the same that failed so signally to pluck up enough courage to carry food to his young. Here it will be noted that the birds abandoned the method of feigning injury. There may have been something in the circumstances to account for this, or it may have been an individual peculiarity.

Once out of the nest the young, able to fly only very short distances, remain, at least for a few days, on or close to the ground, and are there fed by their parents. They are probably more exposed at this time to their various enemies, cats, weasels, rats, the crow tribe, and other birds and beasts of prey, than at any other, for they attract attention by their repeated calls for food. When discovered they flutter a little way, seek to hide, and sometimes are content to tuck their heads in a tuft of grass, being apparently under the impression that, if they cannot see, they cannot be seen. Later, as their wings grow stronger, they mount up into the trees, where they are comparatively safe, and where they may be seen in little family parties waiting to be fed. (Pl. 53.)

Later still they begin to roam, sometimes with Tits or other species. In the autumn, willow-wrens, young and old, are frequently to be seen in our gardens, and a curious habit which they there display has been put to use by the naturalist-photographer. It is that of chasing individuals of other species, with whom they chance to meet. The chase "seems more than half play, but the pursued bird does not always appreciate this; then there are angry cries, and sometimes feathers fly. Sparrows object a good deal; Tits are the favourite game, and they take it better. This curious fancy for chasing Tits may be turned into an opportunity for

photographing the willow-wrens. Food for the Tits can be put near some dahlia-stick, or convenient perching-place, and the presence of the Tits as they come to feed is very likely to attract the willow-wrens to the spot.”¹ The willow-wren’s curious fancy is possibly the result of force of custom; it finds it difficult to forget that it is no longer in its nesting area, where every intruder is a trespasser.

The wood-warblers, though the last to arrive in the spring, are the first to depart in the autumn. All appear to have gone before the end of August, that is, by the time when the chiffchaffs and willow-warblers are only beginning to leave. The emigration of both the latter goes on till October, and occasionally individuals stay with us throughout the winter. Montagu saw a pair of chiffchaffs in S. Devon in January “busied in catching small winged insects, which a bright day had roused in great abundance about some fir-trees.” Two years later (1808) a pair were seen in the same fir-trees. Similar occurrences have been noted by subsequent observers, who have corrected Montagu’s statement that the chiffchaffs are “wholly silent in the winter.” It is possible, therefore, in our Isles, to hear the herald of spring even in the middle of winter.²

THE MARSH-WARBLERS

[BY WILLIAM FARREN]

The small group of warblers which constitute the genus *Acrocephalus* all frequent more or less marshy country. They are lively, merry birds, and although very secretive in their habits, generally keeping to the cover of reed-beds and osiers or the dense masses of vegetation peculiar to damp places, they betray their presence by their

¹ Granville Sharpe: *Birds in a Garden*, p. 108, in which are photos taken by the device above mentioned.

² Ussher and Warren, *Birds of Ireland*, p. 20.

characteristic babbling song, which, day and night from April to August, forms the chief part of the concert of bird voices in fen and by river-side. From August to the time when they leave us for the winter they are silent, and it then requires very close observation to discover their whereabouts.

Three species, the sedge-, reed-, and marsh-warbler are regular summer migrants to this country. The sedge-warbler is the commonest and most widely distributed, being less specialised in its nesting operations than the reed-warbler, to which reeds are almost a necessity. The marsh-warbler is rare, and was not known to nest in this country until comparatively recent years, but now in favoured localities where the conditions are sufficiently varied all three species may be found nesting together.

On the strength of occasional visits two other species have a claim to inclusion in the British list, the aquatic-warbler, somewhat smaller and more brightly coloured than the sedge-warbler and very similar to it in general habit, and the great reed-warbler, which except for its superior size resembles its commoner congener in habits and appearance. There is in fact a strong family resemblance in general habit throughout the whole group, and although each species is characterised by traits providing ample means of identification, yet the generic characters are so strong, and often show themselves in so unexpected a manner, that preconceived ideas of specific habits are constantly being dispelled.

As with most other warblers, the two sexes do not appear to migrate together, the males arriving in their nesting quarters from one to two weeks before the females. Migration is singly or in small companies, which are probably interspersed with mixed flocks of other migrants. The first to come is the sedge-warbler. A few may occasionally arrive in the middle of April, but there is no serious influx until the 20th to the 25th of the month. The first reed-warblers follow a few days later, and there is a gradual increase in number of these two species throughout May. The marsh-warbler is a very late

comer, and although it is too rare and information on the subject too scanty for definite assertion, yet it seems fairly clear from the careful observations of Mr. W. Warde Fowler that the males do not arrive until the last week in May, and the females a few days later.

Whether or not the time for spring migration is made known to birds by the natural promptings of the pairing season, the one follows so closely on the other that when migrating birds arrive in their breeding quarters they settle down at once to some detail or other of this the most important business of the year. At any rate no time is lost by the *Acrocephali*: directly the males arrive they find suitable nesting places. It may be that they settle in the first suitable place, or more likely return near to the neighbourhood where they were reared. I do not think it is necessarily within very definite limits, as it not infrequently happens that a locality may be inhabited one year and deserted the next, and this without any alteration in the natural conditions.

In 1909 there were some five or six pairs of sedge-warblers, twelve or fourteen pairs of reed-warblers, and a pair of marsh-warblers nesting in a certain small overgrown osier-bed. In 1910 a diligent search resulted in the discovery of a single pair of sedge-warblers, the sole representatives of the genus. However this may be accounted for, the choice of the nesting place rests with the males, as where they settle on their arrival there they may be found throughout the season. They spend the time prior to the arrival of the females in establishing a claim to a more or less definite area, fighting and driving away trespassers of their own species. The sedge-warbler is said to drive away other species, even such as thrushes and hedge-sparrows.¹

Resentment is, however, chiefly directed against others of their own kind; and as in the case of sedge- and especially reed-warblers several nest in a comparatively small area, territories frequently adjoin, and much squabbling results.

While not occupied with these disputes, and searching among the

¹ Howard, *British Warblers*, Part I. p. 7.

Plate 54

Sedge-warbler

By A. W. Seaby



herbage and on the ground for the various insects and other small creatures which form their food, they freely make known their presence by much singing, which may be taken as serving the double purpose of advertising their claim to the spot, and guiding or attracting the females when they arrive. Presuming that this is correct, and therefore that their finding mates depends on the females being attracted in this way, one wonders how they would proceed if after due time their endeavours failed. Would they remain bachelors in lonely possession of an eligible building site, or seek better fortune in pastures new? According to Naumann there is good reason to believe that every year many reed-warblers remain unpaired. If this is correct, failure on the part of males to attract females might account for it.

Although the males will chatter and even break into song when food-hunting, they make their serious vocal efforts when perched on some favourite reed or bush untroubled by other cares save the keeping of a watchful eye on trespassers. The sedge-warbler selects not only a favourite bush but a particular branch on which to perch whilst singing. Every morning in the spring and summer of 1908 I passed a small island on the bank of the upper Cam. One morning towards the end of April I heard the first sedge-warbler notes of the year, and at the same time discovered the singer perched on a low branch of a sallow bush. The next morning he was on the same branch, and all through the nesting season I seldom missed him. Sometimes only his call-note came from the herbage, but as a rule he was on the old perch singing or preening his feathers. Towards the end of May his song slackened considerably, but increased again late in June and early in July, and although the bird was no longer to be seen owing to the thick summer growth, the song generally came from the direction of the original branch. Fragments of song were heard as late as the 10th of August.

The females are even more skulking than the males, for which reason it is very difficult to know exactly when they arrive, or to see

much of the courting, which appears to commence at once or very soon after.

The love-displays are not elaborate. One may occasionally see a male of either sedge- or reed-warbler with his crest erect, feathers puffed out, and his tail drooping low when he rests on a stem, or spread fanwise as he drops down through the herbage in pursuit of the female. Both male and female frequently call to each other, the call-notes being similar, except, perhaps, for a slightly harsher tone in that of the male.

Other males venturing near, either from curiosity or deeper design, are vigorously attacked and driven away by the male in possession.

The sedge-warbler makes clearer his excitement by being extra fussy and combative, the reed-warbler by showing more than his usual graceful agility, running sideways up or down a slanting reed, swinging neatly into different acrobatic attitudes while clinging with his feet, or flitting stealthily from reed to reed just above the water. It is said that the female sedge-warbler is very exacting, querulously increasing her call if the male does not follow closely, and also that the male often picks up a dead leaf and carries it during periods of his follow-my-leader courtship.¹ This latter habit is shared by birds of other families, and I have always regarded it as an instinctive association of the gathering of nest material with sexual activity. However this may be, the sedge-warbler does not fulfil the promise of this apparently zealous architectural activity, for although he fussily accompanies his wife on her excursions to and from the nest with building material, he does little or nothing towards helping her.

The date of the commencement of nest-building varies with our three species. The sedge-warbler starts early in May, and has its nest completed and a full clutch of eggs by the 18th or 20th; the reed-warbler must, perforce, wait for the growth of the reeds, which, as a rule, are not high enough for nest-building until the end of the month

¹ Howard, *British Warblers*, Part 1. p. 8.

or the beginning of June; while the marsh-warbler, the late-comer, seldom commences until the second week in June.¹

Building is, as a rule, quickly accomplished, although it may vary according to necessity and position. Usually a second nest, built to replace one that has been destroyed, will be completed very quickly. Naumann records a nest of the reed-warbler built in two or three days, and gives about two days as the time taken by the sedge-warbler.² I have known a second nest of the marsh-warbler, when the first had been destroyed, completed in three days.

The two reed-warblers are the master-builders of the *Acrocephali*; their nests suspended over the water on three, four or five reeds are wonderful examples of a high development in the evolution of nest-building; things of beauty born of extreme specialisation in habitat, they form with the tall, graceful reeds and their waving blue-green foliage, a picture, the decorative quality of which is hardly equalled, certainly not excelled by the nest of any other European bird. The nest of the reed-warbler especially is a most beautiful structure. The reeds on which it is suspended are woven into the outer walls of the nest. It is nearly always made of the dead flower-heads of old reeds which are tightly and firmly woven so as to form a clean, rounded, and slightly incurved rim, and a smooth, deep interior. Sometimes a little wool or moss is worked into the outside near the bottom, and sometimes a little hair is added inside, but the commonest form has only the seed-heads for lining. The depth of cup and incurved rim are necessary, for the frail reeds are blown hither and thither by the wind, and sometimes bent so low that the nest almost touches the water, but the eggs are saved from falling out by the special shape of the nest; and the mother-bird, her head and tail only showing above the edge, sits on unconcerned in the roughest gale.

The great reed-warbler does not nest in this country, so I need

¹ These dates refer to the southern counties. In the north and northern midlands they are slightly later.

² Naumann, *Vögel Mitteleuropas*, ii. pp. 38, 68.

say but little of its nesting habits. As before stated, it is a much larger bird than our reed-warbler; its voice, its nest, and the reeds among which it builds are also on a larger scale. The nest is composed of coarse, dead grass and fibre, and is not so neat as that of our bird; it often has a very deep foundation, which tends to a conical formation at the base. This foundation is, in some instances, so deep as to make the whole nest measure as much as twelve inches in height.

The sedge-warbler does not always keep to marshy ground; it may be found nesting in broken hedgerows and in bushes on the banks of dry ditches. I have found a nest three feet from the ground in a privet bush in the middle of an orchard, far removed from water, or even damp ground of any kind. This, however, is somewhat exceptional; it loves best rough, wet ground, covered with rushes and sedge, and sallow and willow bushes. The nest, as a rule, is substantially built, and is placed from one to two feet from the ground in a low bush, a clump of sedge or other vegetation where there is good, solid support. Examination of a large number of nests, however, reveals considerable variation from the type in material and bulk—from a substantial structure with thick walls and spreading foundation of dry bents with much moss and occasionally a lining of feathers, to a frail nest of the garden-warbler type. There is variation also with regard to position and support. The most interesting development is abandonment of the solid support for a very decided imitation of the method of the reed-warbler. I have found a nest clearly suspended, three feet from the ground, on the stems of a tall, reed-like grass; and in *Pictures of Bird-Life*, by R. B. Lodge, page 67, is a photograph of a nest suspended on reeds. Dr. A. G. Butler, in *British Birds, Their Nests and Eggs*, Part I. page 118, writes, "Of the many nests which I took on the Ormesby Broads in 1885 and 1886, nearly all were suspended precisely like those of the reed-warbler."

The marsh-warbler normally builds a nest of the reed-warbler type, but usually among mixed herbage instead of reeds. Its

favourite plants are meadow-sweet, comfry, willow-herb, and various willows and osiers. Of these last, according to Mr. Warde Fowler, it shows a predilection for *Salix triandra*, the other osier commonly found in withy-beds (*S. viminalis*) being less suitable.¹ As the stems of these plants afford more support than reeds, the attachment is not of so fine a nature as is that of the nest of the reed-warbler. The whole structure is, in fact, less compact than that of the latter species; the commonest materials are rather coarse, dry bents, as used by some of the warblers in other genera (*e.g.* blackcap and garden-warbler); sometimes a little moss or wool is introduced into the exterior, and generally there is a slight lining of horse-hair and fine fibrous roots.

Several stems of the supporting plants are woven into the nest and thus pass through its outer walls, but the main attachment is to two or three, generally two, large stems; that part of the upper rim of the nest which passes round these stems is stretched and separated from the main rim of the nest. The loops thus formed have been most aptly described by Mr. Warde Fowler as "basket-handles."² They form a very characteristic feature, and, together with a general looseness of structure, will always serve to distinguish the nest from that of the reed-warbler. With regard to position of the nests of the two species, there would be no difficulty in identification if the reed-warbler never departed from its usual habit of building in reeds over water.

Naumann wrote³ that he had never seen a reed-warbler's nest in reeds *not* over water, but mentions one built in thin, vertical twigs mixed with nettles, and one in the stems of *Typha angustifolia*.⁴ From his special mention of these two nests, he apparently did not know that it is by no means unusual in this country for the reed-warbler to nest in such plants, and also others normally affected by the marsh-warbler. I think it extremely

¹ *Zoologist*, 1906, p. 406.

³ Naumann, *Vögel Mitteleuropas*, ii. 68.

² *Ibid.*, p. 407.

⁴ The lesser reed-mace.

improbable, however, that the latter species ever makes its nest in reeds, although there is a record in the *Zoologist* by Mr. H. Beeston of two nests, supposed to be of the marsh-warbler, found in the centre of a reed-bed through which flowed a small stream, "suspended about four feet above the ground, to four or five reeds, exactly like a reed-sparrow's nest." One nest with two eggs was found and taken on June 7th, another nest was found on June 15th with five eggs. From this Mr. Beeston concluded that there must have been two pairs in the reed-bed, "as there was not sufficient time . . . for the same pair of birds to have constructed a new nest and completed a second clutch of five eggs, unless it is possible for the birds to have made the nest in three days and then commenced laying immediately it was completed, which seems scarcely feasible."¹ This, however, if a marsh-warbler, it might have done, as I shall show later.

These nests and eggs were said to have been identified by Dr. Bowdler Sharpe, and if correctly so, prove that *palustris* does occasionally nest in reeds and over water too.² The reed-warbler certainly does nest occasionally in reeds not growing *in* water and also not infrequently in other plants and bushes far removed from it. I have found nests in small reeds over dry ground, in the branches of pollard willows, in tall overgrown osiers (a colony of several nests 10 to 15 feet from the ground), in growing corn, in lilac bushes in a garden separated from the river by a busy road, in rushes, in bamboos, and also in a tangle of bramble and rough herbage³—the latter quite a typical marsh-warbler site, and probably because the situation lent itself to a special structure, this nest was decidedly of marsh-warbler type; that is, it was less compact than the usual reed-suspended nest, but lacked the marsh-warbler "basket-handles." It will thus be seen that although sufficiently

¹ *Zoologist*, 1907, pp. 446-449.

² Mr. F. C. R. Jourdain (*in litt.*) records a nest with eggs of the marsh-warbler found in the west of England in 1910, built in reeds by a riverside; "in exactly the site usually occupied by the reed-warbler."

³ "I have known a colony on a hillside quite half a mile from a river, and others among lilacs in a garden a hundred feet above the Trent."—F. C. R. Jourdain (*in litt.*).

Plate 55

Reed-warbler at its nest

By G. E. Collins



George Edward Collins
1899

distinct in their usual form, nests of the two species occasionally approximate not only in structure and material, but also in the nature of their site and surroundings.

According to Naumann, the reed-warbler does not, as a rule, build again if the first nest is destroyed, although he records an instance of a pair doing so.¹ So keen an observer as Naumann must have had good reason for making this statement, but I doubt if it would bear investigation. Systematic destruction of several nests in a definite area—*e.g.* an isolated reed-bed—would be a reliable test, but the drastic nature of the process would hardly commend it.² It is a fact well established by observation that the marsh-warbler not only replaces a destroyed nest by a fresh one, but builds again close to the same spot. It has even been known to do what practically amounts to building a new nest on top of a disturbed one. Mr. Warde Fowler records the finding of three nests with eggs on the 20th and 21st of June 1898. "From one of these nests the eggs gradually disappeared between June 25th and 28th when I cut it out of the meadowsweet, and found the egg of a cuckoo buried under a fresh lining. . . . As it was clear that the removal of the marsh-warbler's eggs was not due to any human being, it may probably be put down to the cuckoo."³ The inference is a fair one, as any other marauder would hardly have left the cuckoo's egg. It is fair to assume also that the marsh-warbler abandoned the nest in its altered state—*i.e. minus* its own eggs and *plus* that of the cuckoo—and instead of building afresh, put in the new lining on top of the cuckoo's egg with a view to using it for a fresh clutch. In 1909 I kept fairly close observation of the operations of a pair of marsh-warblers in a small marsh near Cambridge. Their first nest was found on June 14th, and contained four eggs and one of a cuckoo. The latter was removed, and, whether due to this or not remained a

¹ Naumann, *Vögel Mitteleuropas*, ii. 68.

² "H. S. Davenport has noticed that in building the *second* nest the reed-warbler uses the material of the first."—F. C. R. Jourdain (*in litt.*).

³ *Zoologist*, 1906, p. 403.

mystery, the nest was deserted, and a second one was found half-built within a few feet three days later. The new nest contained three eggs on the 23rd and five on the 26th. Ten days later this nest had been destroyed and a third one partly built. Then there intervened a week of continuous heavy rain which apparently drove the marsh-warblers to temporarily abandon nesting operations, after which they built a complete new nest on the top of the one last constructed, but for some undiscovered reason abandoned it.

The eggs of the various species forming the group show fairly good specific characters. Those of the marsh-warbler more nearly resemble eggs of the great reed-warbler than of the reed-warbler. If there is any approximation between the reed-warbler and the marsh-warbler, it is when the former species produces eggs—which it does occasionally—with pale grey blotches on an almost white ground; but I have seen none with the small dark spots characteristic of the marsh-warbler.

The incubation period of the whole group is about thirteen or fourteen days. Mr. Warde Fowler gives fourteen or fifteen days for the marsh-warbler.¹ The females do the greater part of the incubating, the males relieving them for a few hours during the day.

I have watched reed- and sedge-warblers feeding their young in the nest, and like all insect-eating birds their visits are frequent, food being brought at intervals of two or three minutes, the males bearing a full share of the task. Both species not only collect insects from the herbage and the ground but also catch them on the wing. I have several times seen reed-warblers feed their nestlings with small dragon-flies. These are crammed, wings and all, into the mouths of the young birds. The fæces of the nestlings are removed from the nest by the adults, sometimes swallowed, but generally carried away and dropped.

The young of all the *Acrocephali* leave the nest early, often before they can fly, and show considerable agility in climbing among the

¹ *Zoologist*, 1906, p. 408.

stems of reeds and other plants. It has been stated¹ that young sedge-warblers are very playful, and even indulge in a set game—a sort of tilting match in which two take part at a time, while the others look on.

Whether any species of this genus ever rears two broods in a season in this country is not definitely proved, but I think it probable that the sedge-warbler does so occasionally. When searching a neglected osier-bed late in June 1909 I found some young sedge-warblers among the bushes, and an empty nest showing signs of young having been reared in it; a nest with three eggs and one of a cuckoo, another nest with three fresh eggs, one with one egg and yet another nest built and ready for eggs. While these may have been second nests of birds that had reared one brood, they may equally well have belonged to late arrivals, for the immigration of sedge-warblers is often protracted to the end of May. Mr. H. E. Howard² thinks it probable that two broods are sometimes reared, as some of the males indulge in a second courtship in July exactly similar to the usual spring courtship, which is responded to by the females as in the spring.

Retiring as all the *Acrocephali* undoubtedly are, their wonderful industry in song suggests that the skulking is not so much for concealment as because their livelihood is so closely connected with the insects and small aquatic creatures that abound on the ground and on the stems of plants. But when singing they frequently leave the cover for more exposed positions; the reed-warbler may be seen perched on a high reed, and sometimes it sings as it flits from reed-bed to reed-bed.³ The sedge-warbler will mount higher in its favourite bush to scold an intruder, and occasionally in its excitement break out into song in the midst of its scolding. It also has a pretty habit of flying straight up after the manner of the whitethroat, singing in the air for a brief spell, and also as it drops back, pipit-like, into the

¹ *British Warblers*, Howard, Part I. p. 10.

² *Ibid.*

³ Miss E. L. Turner (*in litt.*) records a reed-warbler singing on its way to the nest, and continuing its song for a short time while brooding.

cover of the rushes. I have seen the great reed-warbler fly from the reeds and sing in the branches of willows and white poplars, while the marsh-warbler is notoriously given to singing in the branches of high bushes and trees.

All are night songsters; in fact there is hardly any time in the twenty-four hours when they are really silent—the quietest times being in the chill of dawn, and the hottest hours of noon.

With the brilliant exception of the marsh-warbler the song of the *Acrocephali* is more fascinating than melodious. When analysed, there is much that is harsh and incoherent, especially in the song of the sedge-warbler. Both reed-warblers have higher-pitched voices, and less of the grating notes of the sedge-warbler; the great reed-warbler, however, has a harshness of its own, a rattling note quite distinct from that of any other of its congeners.

The general impression one receives of the family song is a running alternation of chattering, scolding notes, “*chew-chew-chew-gurrh, gurrh,*” and sudden bursts of babbling sweet-toned song, that seem to include a blending of the characters of the songs of other birds, all of which change back again to the “*jabber-jabber-jabber, chew-chew-chew, gurrh,*” with a sudden stop, always where least expected. It is easy to start a sedge-warbler off again by throwing something into its hiding-place—a plan that seldom fails to bring forth a torrent of protesting notes, even as an imitation of a cock-crow sets all the cocks within hearing crowing, in defiance of the imitator, and against each other. Indeed there seems much in the singing of male birds comparable with the crowing of cocks.

I recall a hot sultry June afternoon in an overgrown withy-bed. As I stood in the midst of a veritable jungle of 15 to 20 feet osiers, I could see three reed-warbler nests and as many male birds, each with feathers erect, drooping tail, and throbbing throat pouring out a melody of defiance (or what seemed like defiance) to each other. From the surrounding osiers other birds which I could not see were

also singing, and altogether it formed the greatest orchestra of reed-warbler song I have ever heard. There being so many nests in so small an area, no doubt caused a stimulus to the habit of preservation of territorial rights, and consequently to its manifestation in song.

All the members of the family are given to mimicking the songs of other birds. An imperfect ear for music makes it difficult for me, personally, to distinguish anything beyond a mere blending of strange notes. I have been unable to identify the owners of the borrowed notes. But others with better ears have done so with certainty. In the song of the sedge-warbler have been distinguished the songs of such birds as the whitethroat, blackbird, chaffinch, tree-pipit, and the call-note of the partridge.¹ Charles Kingsley, who knew the songs of birds, even perhaps more intimately than is conveyed in his poetical impressions in "A Charm of Birds," wrote of the sedge-warbler, "And the sedge-bird, not content with its own sweet song, mocks the song of all the birds around."²

Other sounds are also mimicked, *e.g.* the croaking of frogs. I have heard the great reed-warbler in Southern Spain uttering what struck me very forcibly as an imitation of the *parx, parx*, of the frogs that abound in the swamps.

The greatest mimic, and the greatest songster of the group, so great in fact that it may rank with the blackcap and nightingale, is the marsh-warbler. Strange that this bird, so like the reed-warbler in appearance as to make it almost impossible to distinguish dry skins of the two species one from the other, differs from it so essentially in bearing and general nesting habits, and has moreover a song which, although having much in common with all the species of the family, yet possesses a melody of a richness and variety that places it for comparison outside the whole group. When I first heard it, it gave me the impression of the song of a reed-warbler with the voice and execution of a blackcap, but I have already confessed

¹ *British Warblers*, Part I. p. 12.

² *Prose Idylls*, Kingsley, p. 96.

to my bad ear for music, and will quote from one of our best authorities on the songs of birds, Mr. Warde Fowler.¹ "It is more silvery, high-pitched, sweet, and varied than that of any other species of warbler with which I am acquainted," and "The alarm-note is much like that of the sedge-warbler, but higher in pitch and less grating—a kind of musical crake. . . . When much excited, the birds, or possibly the male only, would utter a musical and pleasing chirrup in the middle of the usual crake, and once or twice I have known a bird almost break into song, as the sedge-warbler sometimes does when angry."

Limited as the marsh-warbler may be to mimicking the songs of those birds which may be living in its vicinity, yet from the published records of various observers it would appear to have been fortunate in the variety of its neighbours. Even if a fair discount be allowed for the imagination of the recorders, the list is still a formidable one, and the authorities are good. Where not otherwise stated it may be taken that the imitation was of the "song" of the species given.

A comical croak suggestive of a jackdaw, starling, chaffinch (call), goldfinch (call), greenfinch (twitter followed by an attempt to produce its call), sparrow, linnet, reed-bunting, corn-bunting (very distinct), skylark (and call), tree-pipit, white-wagtail, yellow-wagtail (call), thrush (call), blackbird, whitethroat, redstart (call), nightingale, black-cap, whinchat (u-tic-tic), sedge-warbler, great-tit, swallow, nuthatch, green-woodpecker and partridge (call—very exactly), and "those bubbling notes of the nightingale, which always occur in the song of the marsh-warbler." To these may be added an imitation of the sharpening of a scythe, and the croaking of a frog.

This habit of mimicry did not escape the older observers, for Count Mühle's description of its habits in Bree's *Birds of Europe* includes the following passage: "It is a master of imitation, and knows quite well how to blend in a delightful whole the different songs of

¹ *Zoologist*, 1906, pp. 408-9.

the surrounding birds." Also M. l'Abbé Caire, quoted in the same work: "This species sings most admirably, imitating with exactitude the notes of the goldfinch, the chaffinch, and the blackbird, as well as all the other birds which frequent its neighbourhood. Its song is richer in variation than that of the nightingale, and it can be listened to from morning till night."

Is it possible that such a bird can have been overlooked, as has been suggested so often during the last few years in Ornithological journals? The facts point rather to gradual establishment—a slow up-hill struggle—that has resulted in it becoming a rare annual visitor to two or three counties, and an occasional straggler to others. It is more delicate than the reed-warbler, and rarer than that species wherever it occurs, and its establishment in a fresh country or district would on that account be slow and uncertain. If we presume, as there is good reason for our doing, that they arrive in their nesting quarters unpaired, the males preceding the females, then the chance of females finding the spots chosen by the males must be considerably less in the case of a scarce than a fairly numerous species; this refers of course to localities not previously occupied for nesting purposes. Even if the similarity of the bird to the reed-warbler may have caused it to pass unnoticed, or its nest to be accepted as a loosely constructed reed-warbler's in a somewhat unusual situation, the eggs, strikingly distinct from those of any other British bird, would have led to its identification. And moreover, the song so enthusiastically described by continental and English observers surely cannot have been mistaken for that of the reed-warbler by the many good field-workers in this country of the last seventy or eighty years.

GRASSHOPPER-WARBLER

WITH A NOTE ON SAVI'S WARBLER

[E. L. TURNER]

Bound up in the lithe and speckled body of the grasshopper-warbler is a whole tiny bundle of contradictions. It is at the same time the most skulking of birds, yet one of the easiest to watch when busied with parental duties, and quite the least difficult of the warblers to photograph as soon as the young are hatched. Personally I am most familiar with this bird in the marsh-lands; yet it is not confined to these districts, but frequents also dry soils, heaths, moorland hills, common hedgerows, and the outskirts of plantations.

Stevenson speaks of it as a rare bird in Norfolk about the year 1852,¹ yet it is common enough now in the Broadland, though curiously uncertain in numbers; one year quite numerous in any given locality, while during the next perhaps scarcely one pair will be heard in their usual haunts, whereas the following season they may be as common as ever. This is characteristic of the species everywhere.

The grasshopper-warbler is more often heard than seen. From the midst of a low sallow bush there comes a curious monotonous rhythmical sound, now rising and falling, or gradually becoming a rapid crescendo; sometimes close at hand, then apparently dying away in the distance. This is the song of the grasshopper-warbler which, when once heard, can never again be confused with the chirping of a real grasshopper, although quite unlike a bird's so-called "warble." It is as if the sound were wound upon a reel inside the singer, and gradually drawn out in one long continuous thread. Hence its local name of "Reeler,"—*not* because this song is like the spinning of a

¹ *Birds of Norfolk*, vol. i. p. 106.

Plate 56

Marsh-warbler (left) and Grasshopper-
warbler (right)

By Winifred Austen



fisherman's reel, as the modern countryman will tell you ; but rather because of its resemblance to the noise of the reel used by the hand-spinners of wool in olden days.

This curious reeling song of the male bird is best heard late in the evening or early in the morning, though he sings at any hour of the day and night. As the long marshland twilight merges into the short summer night this low persistent song of the grasshopper-warbler is one of the mystic sounds which seems only to emphasise the silence which for a short time broods over the great, lonely, wind-swept marshes ; where the skies are spangled all over with diamond dust, and the wraiths of departed vikings come sweeping up from the sea, silently wrestling with each other till the sun rises and scatters them. *Then*, just before dawn, the grasshopper-warbler can most easily be watched, for at that hour he is less shy ; and by stealing carefully through the rough undergrowth up to the bush wherein he is skulking, and remaining motionless, you may watch this shy artist and see how he produces his song. By and by he will creep up to the top of the bush and reel, puffing out his throat and moving his head rapidly from side to side all the while. This turning of the head while singing, and consequent throwing of the voice in all directions, bewilders the listener when he is trying to locate the sound, and leads him to credit the grasshopper-warbler with ventriloquial powers, which to a certain extent he may be said to possess ; because though the singer is stationary, yet the voice *seems* to come from various points at the same time.

This reel is usually maintained for about twenty seconds, more or less, but I once timed a bird in Barton Broad and found he kept up his sustained trill for three-and-three-quarter minutes. Macgillivray says that on one occasion he heard a bird which reeled for twenty minutes. Any movement on your part will at once drive the bird down into the depths of the bush, from which it is very difficult to dislodge him. You may beat about with a stick, but he will either remain in hiding, or, creeping through the tangle, fly a little way,

then drop to cover once more. So seldom does he fly to any considerable distance, we cannot help endorsing Mr. Warde Fowler's opinion that this bird, as well as several of the other Warblers, would "gradually lose the use of their wings as genuine organs of flight if it were not for the yearly necessities of migration."¹

The grasshopper-warbler's usual mode of progression is characteristic and unique. It runs through the herbage with a smoothness and rapidity that is almost mouselike, but the dainty and graceful manner in which the bird threads its way through intricate foliage lacks the mechanical movements of a mouse. A quick ear will detect the rustling of leaves and grasses some time before the grasshopper-warbler itself appears. Often as I have watched this fascinating bird, the exact way in which it glides through a perfect forest of rushes and rank grass still remains a mystery; but certain it is that the bird *runs*, and does not *hop*, and that its movements are more like those of the ghost of a mouse than any living thing.

Although the plumage of the grasshopper-warbler is not conspicuous, yet the attitudes which the male assumes when courting are very beautiful. On the approach of a female he spreads out wings and tail till he resembles a small but elegant fan, and the curious rhythmic movement accompanying this display resembles the play of a fan. While there are no brilliant colours to attract, yet the regular dark markings on head and back have a considerable æsthetic value of their own, as each feather is raised or puffed out. At any rate these charms accomplish their purpose; for although the hen, like all well-conducted females, appears to take no notice of the efforts of the male to attract attention, nevertheless the sober and restrained colour scheme of her lover has its desired effect, and the couple soon settle down to their quiet and sequestered life. Neither gaudy clothes, nor a specially melodious voice in her mate are a necessity to the hen bird's domestic happiness, and both eschew the dubious pleasures of society.

¹ *A Year with the Birds*, p. 156.

The grasshopper-warbler, like so many of the Warblers when wooing the female, often carries about a bit of dry grass in his bill. The reason of this habit does not seem to me at all mysterious. Other species do the same thing—especially magpies. It is quite evident the males wish the females to know that the serious business of life must commence.

The nest, which both birds assist in building, is most carefully concealed and very difficult to find, unless you happen to see the old birds carrying material to and fro. It is placed wherever the tangle is thickest and varies considerably in composition. I have before me two nests which I took last year after the young had flown. One is carefully made of dead sedge-blades, at one point most skilfully interwoven in a kind of chequer pattern—more like that of Savi's warbler, to be hereafter described,—but slightly interspersed with bits of moss on the outside, the deep two-inch cup being lined with dry grass. This was taken from a somewhat wet marsh, the nest itself situated several inches above ground. The second is a large loose structure of moss and dry grass, broader, shallower, and twice as bulky as the first. In fact no one at a glance would imagine these two nests had been built by the same species. The brooding bird looks very tiny on the nest and appears to be almost lost in its depths, only her beak and the tip of her tail are visible above the rim unless something occurs to startle her.

Both birds assist in brooding and feeding the young, and are very bold in their defence. Once I had to drop my cap on to the hen before she would leave her nest. On rare occasions when disturbed the grasshopper-warbler will fly straight from the nest, but always creeps back again through the thick tangle, slips silently into her place, and with a little shiver of the wings settles down once more. She also has a way of ruffling up her body feathers till she looks like a fluffy ball. Both male and female are in fact most fascinating birds to watch, perhaps because so unexpectedly confiding when once their usual reticence is broken through.

A charming little incident, which occurred to me on June 3, 1909, shows how curiously bold the parents can be in defence of their young. I was hidden within three reed-thatched hurdles, watching and photographing a pair of these birds engaged in feeding a lively brood of six. As the eldest knew all that was necessary for self-preservation, and fearing that he might impart his knowledge to the rest, I put him in my coat pocket. After an hour or so I placed him in my hat, which rested on my knees. He soon perched on the brim and began to call for food. Before long, to my great astonishment, I saw the hen bird come creeping, mouse-like, through my shelter, attracted by the cries of her first-born. She was just about to give him a juicy green caterpillar, but finding herself face to face with a horrid human being, flew off. The youngster complained bitterly, and I remained motionless. The mother crept back directly, and, climbing to the top of the camera, called the little one to her and fed him. I then replaced him within the shelter, but a few inches further away from my face. It was not long before the courageous mother returned with some food, which she gave him, keeping one eye on me all the time. As I had secured several photographs, I decided not to try the hen bird's feelings any longer, and, after fixing a ring on the young one's leg, replaced him in the nest. This business occupied several minutes, during which the mother crept round and round, or with fluttering wings feigned injury, all the time uttering a curious weasel-like cry, and coming so close to me that I might have caught her. The male bird also showed great anxiety, and frequently, when feeding the young in the nest, rapidly displayed his tail-feathers, looking towards the camera and protesting vigorously. The female fed the brood from the far side of the nest, the male generally from the near; on no occasion could I secure a photograph of both together, one always slipped away the moment a faint rustling among the herbage announced the presence of the other.

The food supplied to the young consists of small green

caterpillars with a varied assortment of flies, and woodlice. Sometimes one tit-bit is brought at a time; but often the parents arrive with a whole assortment of dainties, which are placed inside the gaping mouths and gently pushed down the throat. Sometimes the whole amount of food is temporarily placed inside one bird's gape, and rapidly distributed amongst the rest of the brood, a method of feeding which I feel must be so disappointing to the first recipient. This habit is common to many species, and doubtless saves time. Until the young ones are a few days old the grasshopper-warblers feed and brood alternately, though towards 11 a.m. the hen usually broods for a considerable time.

The young have three black spots on the tongue, one on its tip and two above, placed like the three points of a triangle. Two broods may sometimes be reared in a season. I have found a nest with five eggs as early as May 13th, and the keeper of Hickling Broad sent me word of a nest with four young and two eggs on July 28, 1909; also of two nests, one containing eggs, the other young birds, on August 10, 1910. These instances do not, of course, amount to absolute proof that the grasshopper-warbler is double brooded, for they may have been merely belated attempts to bring off a single brood; especially as during July 1910 some of the marshes were under water for three weeks.

Nestling birds utter at first a very feeble squeak, though the call, sharpened by hunger and jealousy, is anything but faint! The alarm-note of the parents is a sharp "*t'whit, t'whit,*" rapidly repeated, which often had the effect of making the little ones crouch down in the nest; but the curious long-drawn weasel-like cry of the hen, when *really* alarmed for the safety of her brood, was unlike that of any bird I have ever watched. The instinct, which prompts their parents to skulk in the undergrowth, is very early developed in the nestling; for when only five or six days old, if alarmed, they will slip out of the nest into the dense vegetation, where it is almost impossible to trace them; and as their unusually long legs seem greatly to assist

their retreat, in a very few seconds faint squeaks may be heard on all sides of the nest, so that we might almost credit the young with ventriloquial powers, as well as their parents.

The hen bird is said to do all the feeding of the young after they leave the nest, while the males "lead a lazy life singing and playing with one another."¹ Amongst the reed-beds and swamps of the fen country, however, where insect life teems in overwhelming millions, young grasshopper-warblers are soon able to fend for themselves; in which case it is not to be wondered at that the males are soon singing and amusing themselves day and night after the comparatively short period of family cares. Perhaps, too, the plentiful supply of food in the marshes may account for the fact that in the Broads district these birds are probably double-brooded. As autumn approaches they become increasingly difficult to observe, and their skulking habits are more pronounced; but by the end of September few if any are left in the country.

Savi's warbler, which belongs to the same genus (*Locustella*) as the grasshopper-warbler, is now apparently extinct as a British species; but a short account of it, even though it prove to have only an historical interest, will not be out of place.²

This warbler derives its name from the Italian naturalist Savi, who in 1824 first recognised it as a distinct species.

Formerly the birds were regular visitors to our eastern counties, but the draining of the fens drove them from their favourite haunts. A specimen shot in 1856 seems to have been the last one obtained in this country, although its presence has been recorded as late as 1872.

Yarrell describes Savi's warbler as closely resembling the grasshopper-warbler in its habits, generally skulking in the thickest herbage and reluctant to take wing; but, unlike the latter bird, it never seems

¹ E. Howard, *British Warblers*, Part I. p. 22.

² The description and distribution of the species will appear in the supplementary chapter on "Rare Birds."

to have left the marshy grounds, but sticks closely to the wildest and most inaccessible reed-beds. Its curiously shaped nest, however, was known to the sedge cutters long before the bird itself was identified. They called it the "Brown" "Red" or "Night-reeler." It arrived about the middle of April, and at its first coming was not shy until actually nesting.¹

About the middle or end of May nidification began, and the eggs were laid towards the close of that month or the beginning of June. The nest was cup-shaped and deep, with a large foundation placed low in the sedge: it was composed throughout of dry sedge-blades, and these so firmly entwined that the structure was very lasting. Lining there was none, but the leaves forming the inside were somewhat finer than those of the exterior. Count Casimir Wodzicki likens its nest to that of a moor-hen in miniature. He gives also a graphic account of its habits. It is never for a moment still, now on the ground, now on a reed; in spring it will flutter in the air like a whitethroat and creep along a reed-stem from below to the tip. It is passionate and pugnacious; in the breeding time following its mate or rival to the very feet of the observer. Both sexes take part in incubation, and sit so closely on the nest that they may be easily studied.²

Mr. Salvin, who observed it in Algeria, says—"On approaching the margin of the reeds, its peculiar rattling note might be heard in any direction. The bird when uttering this cry climbs to the very tip of a reed, often choosing the tallest, where it sits, if not disturbed, for several minutes without changing its position. In this locality the nests can only be found by wading in mud and water up to the middle, and then it is quite a chance to find one" (*Ibis*, 1859, p. 304).

Mr. Jourdain, who has met with this species in Holland and Spain, tells me that the male is very tame and confiding—"He will perch on the top of a big reed and reel away with widely open mouth

¹ Yarrell, vol. i. p. 395.

² *Journal für Ornithologie*, 1853. Extraschrift, p. 50.

and swelling throat, turning his head from side to side like the grasshopper-warbler; but unlike the latter bird, Savi's warbler will allow of a close approach without showing any signs of disturbance. As for the trill, the striking point about it is that it runs on quite continuously for a couple of minutes or so, soon recommencing. It is louder than that of the grasshopper-warbler, and possesses a more metallic click."

HEDGE-SPARROW

[ORDER: *Passeriformes*. FAMILY: *Accentoridæ*]

PRELIMINARY CLASSIFIED NOTES

[F. C. R. JOURDAIN. F. B. KIRKMAN. W. P. PYCRAFT. A. L. THOMSON]

BRITISH HEDGE-SPARROW [*Accéntor modularis occidentális* Hartert; *Prunella modularis occidentalis* (Hart.).¹ Dunnock, dykie, hedge-creeper, hedge-chanter, hedge-poke, hedge-batty, shuffewing, cuddy, etc. French, *mouchet*; German, *Hecken-Braunelle*; Italian, *passera scopajola*.]

1. Description.—The hedge-sparrow is to be distinguished rather by the general sombreness of its plumage, than by any distinctive marks, the head, neck and fore-breast being of a brownish slate-colour, while the back is ochreous, with broad striations of umber-brown. The sexes are alike, but the female is somewhat duller. (Pl. 57.) There is no seasonal change of coloration. Length, 5·5 in. (140 mm.). The slate-grey head and nape are streaked with brown, and the ear-coverts are brown, the ochreous ground-colour of the back has a rufous tinge; the rump is of a uniform olive-brown. The quills and tail are dusky brown, with pale brown margins, narrow on the primaries, broad on the inner secondaries. The major-coverts are marked like secondaries, each feather having a more or less conspicuous buff white spot at the tip of the outer vane. The throat, neck, and fore-breast are slate-grey, the flanks pale brown, striated with umber-brown. The lower breast and abdomen are dull greyish white, and the under tail-coverts greyish brown, with hoary fringes. The juvenile plumage resembles that of the adult, but lacks the slate-grey on the head and under parts, and is generally browner and more spotted. [W. P. P.]

2. Distribution.—Although this species is distributed over the greater part of Europe, the British race is only known at present to be resident in the British Isles. It may, however, possibly be found also to inhabit Normandy and Brittany

¹ Preferred to *Accéntor* by Dr. E. Hartert, because the latter term was applied first to the Dippers.—ED.

(cf. Hartert, *British Birds*, iii. p. 315). It is very generally distributed and sedentary throughout Great Britain and Ireland, and owing to the increased area of woodland in Scotland has increased in numbers even in the north. It breeds now regularly in the Orkneys, the Inner Hebrides, and on some of the Outer Hebrides (nests were found on Barra in 1892), but is absent from the Shetlands. In Ireland it is one of the most generally distributed birds, and breeds even on the marine islands (Ussher). [F. R. C. J.]

3. Migration.—There is no evidence of migration beyond our shores, but in the autumn there may possibly be southerly movements within the British area. The autumn immigrants from abroad belong to the Continental form. [A. L. T.]

4. Nest and Eggs.—Nesting site: generally among evergreen bushes, thick hedgerows, stick heaps, and occasionally in ivy or hollows in old walls, stony banks, etc. The characteristic nest is chiefly composed of moss and dead grasses, upon a foundation of fine twigs, and is warmly lined with hair and wool as a rule, and exceptionally with feathers. The cock is said to assist the hen in building, but more evidence is required. Eggs, usually 4 or 5 in number, in some districts only 3, and rarely 6. They are a beautiful deep, clear blue in colour, without markings, but white varieties have occasionally been found. (Pl. C.) Average size of 100 eggs, $\cdot 78 \times \cdot 58$ in. [$19\cdot 8 \times 14\cdot 7$ mm.]. The eggs are often found towards the end of March in the south and early in April in the north. Incubation, which lasts from 11 to 13 days, is said to be performed by both sexes, but our information is very defective. At least two broods are regularly reared, and often a third. [F. C. R. J.]

5. Food.—Insects, spiders, and seeds. That the species eat worms has been disputed. A number have been seen together feeding among beds of seaweed and rocks upon a small species of shrimp (*Country Life*, 1906, Dec. 1). The diet is probably more varied than is supposed, but exact evidence is lacking. The young are fed by both parents, chiefly, at least, on insects. [F. B. K.]

6. Song Period.—Chiefly in the spring, but the song may be heard at all seasons, least frequently during the period of moult, July-August. [F. B. K.]

CONTINENTAL HEDGE-SPARROW [*Accentor modularis modularis* (Linnæus). *Prunella modularis modularis* (Linnæus).

1. Description.—Distinguished from the British form by its lighter colour, the throat and chest being of a lighter grey, the abdomen more whitish, the flanks slightly lighter, so that the brown stripes are more evident. In the coloration of the upper surface there is no constant difference. These colour differences are more

marked in the males than in the females. The bill is generally less thick and powerful than in the British form. The latter, moreover, has the second primary much longer (4 to 7 mm.) than the seventh, whereas in the Continental bird the difference is much less appreciable, the second being usually not more than 2 mm. longer (E. Hartert in *British Birds*, iii. p. 313). [F. B. K.]

2. Distribution.—The Continental race which visits our eastern coasts is found breeding throughout Europe as far as the tree limit (*i.e.* about 70° N. lat.) in the north, on the east to the Urals and the Black Sea, and on the south to the Mediterranean. It is, however, absent from Spain south of the Guadarrama range and from the southern part of the Balkan peninsula. In Italy it breeds only in the mountainous parts of the north. It breeds also in the mountains of Corsica and Sardinia, but not in Sicily. In the northern part of its range it is only a summer visitor, wintering in the southern portion and rarely visiting N.-W. Africa. A few are sedentary in Germany, and many winter in France, but most of the northern breeding birds winter in the Mediterranean region. [F. C. R. J.]

3. Migration.—A winter visitor, sometimes in large numbers, from N. Europe to our east coast, but on the S.E. coast there is no evidence of direct immigration or of any migratory movement. In April 1908 Mr. Eagle Clarke (*Ann. Scott. Nat. Hist.*, 1908, p. 82) recorded the arrival of many, no doubt of this race, at Fair Isle. The return emigration in spring is less noticeable. [A. L. T.]

The following is described in the supplementary chapter on "Rare Birds" :—

Alpine-accentor, *Accentor collaris collaris* (Scopoli). *Prunella collaris collaris* (Scopoli).

HEDGE-SPARROW OR DUNNOCK

[F. B. KIRKMAN]

If the hedge-sparrow, or, to call him by one of his local names, the dunnock, were a human being applying for a situation, there can be no doubt that his success would be insured by the unimpeachable nature of his "characters," as the following selection will show:—

From W. Yarrell.—"It is unobtrusive and harmless, of an amiable disposition, and deserves protection and support."

From W. Macgillivray.—"This familiar, gentle and modest little bird, the very emblem of innocence, is perhaps the most despised of all our native species. Had it swaggered along in a red jacket, or screamed from the top of every eminence, or throttled all the smaller birds that came in its way, it would no doubt have attracted the regard of many who scarcely deign to look upon it."

From the Rev. C. A. Johns.—"He quarrels with no one, . . . unobtrusive and innocent, he claims no notice,—dreads no resentment; and so through all the even tenor of his way he is, without knowing it, the favourite of children, and of all the good and gentle."

After reading these eulogies, it is difficult not to regard the dunnock as a feathered saint—a bird apart, elect, predestinate. And yet, somehow, his virtues leave one indifferent. Mingled with the odour of sanctity is an odour of pious mediocrity. It is, therefore, with a sense of relief that one finds, on nearer acquaintance, that the hedge-sparrow is neither a saint nor a smug, but simply a bird.

Certainly he is unobtrusive, inasmuch as he does not force himself upon one's view. His sober coloration and his habit of feeding in a quiet, mouse-like manner in sheltered spots, help to make him inconspicuous. But he is not a silent bird for those who listen for his voice. His familiar song, uttered from the top of a hedge or bush, or other prominent perch, may be heard all through the year, even when the

snow is on the ground. And what Gilbert White called his "piping, plaintive" call-note, does at times actually force itself upon the attention, especially when uttered in high-pitched tones by the excited little assemblies, of three or four or more, that are not infrequently met with during the autumn and winter.

No doubt, also, the terms "innocent and harmless" are rightly applied to the hedge-sparrow, considered from the point of view of the horticulturist. The species has, in fact, been semi-officially placed among those "which are wholly innoxious and more or less strictly beneficial."¹ But with respect to other individuals of his own species, he is neither more innocent, harmless, gentle, modest, amiable, nor less pugnacious than the majority of birds. John's statement that he quarrels with no one, based perhaps upon a similar, though less sweeping statement by Macgillivray, is far from exact. Dunnocks not only fight furiously among themselves in the spring, but later in the breeding season, and also in the autumn. The fights in the spring are easily explained by love rivalry. But not so those that take place later. I noted, for instance, two engaged in a fierce tussle on June 18th. A touch of comedy was introduced into this particular affair in the shape of a fledgling house-sparrow. At the moment when the hedge-sparrows, after an interval for refreshments, were preparing to close once more, the young glutton had the effrontery to come, with fluttering wings, and beg food from both. His intervention passed, of course, unheeded, and presently he was left begging to thin air, the fight having ended in the rout and pursuit of one of the combatants. Hostilities may have in this case been due to trespass by one of a pair into the nesting area of another pair, or to the attempts of an unmated bird to thrust his attentions upon a mated hen. Neither of these explanations accounts satisfactorily for the autumn combats, unless these are to be regarded as preliminary to the late breeding which sometimes takes place from October to January.² The hedge-sparrow, let us add,

¹ R. Newstead, *Food of Some British Birds*, p. 16. Board of Agriculture.

² See above, vol. i. p. 50; and Nelson, *Birds of Yorkshire*, vol. i.

does not lack the courage and the ability to defend himself against individuals of other species. One has been seen to attack a bantam and drive him from the grain scattered for the poultry.¹ I have seen even the robin, most combative of birds, turn tail to a hedge-sparrow whose patience he had exhausted. Not that the latter has the militant spirit of the robin, who, owing to the peculiar circumstances which have been described in the chapter devoted to him, is exceptionally pugnacious. On the other hand, enough has been said to show that the hedge-sparrow is not exceptionally pacific.

It has always seemed to me that the bird has a somewhat high-strung, excitable, fidgety disposition, to which it gives frequent expression in spasmodic jerks or flirts of the wing. These are so noticeable that they have given it one of its popular names—shuffle-wing. Gilbert White to the contrary notwithstanding, these flicks of the wing occur at all seasons, and become most marked in moments of excitement, as, for instance, when the bird is in a fighting mood. Then they are frequently repeated, and are accompanied by the familiar piping note uttered in a high, angry key.

It is more than probable that the writers quoted at the head of this chapter would have modified their estimates of the dunnock's character, if they had had an opportunity of witnessing the vivacious and dashing manner of his love-making. I have seen him standing on the ground, his feathers puffed out, and his wings quivering with emotion, while his mate hopped or danced about behind him, making feints as if to peck, till, with a final playful rush, she drove him away. After which—as is the manner of birds—they adjourned for refreshments. This occurred on March 31st, when the pair had already built their nest. But the cock is not content merely to make himself heroically big and quiver his wings. He performs a nuptial flight that in its grace of motion resembles that of the chiffchaff.² He seems to float through the air towards his mate on outspread slowly

¹ Nelson, *Birds of Yorkshire*, vol. i. p. 100.

² H. E. Howard, *British Warblers*, Part II., Chiffchaff, p. 14.

Plate 57

Hedge-sparrow

By G. E. Collins



moving wings—no longer merely a hedge-sparrow, but (at least for *her*) a glory of grey and brown.

Further observation will no doubt show that this account by no means exhausts the love-displays of the dunnock. They are worth investigation, and possibly would have been known, had it not been for that unfortunate reputation for smug respectability with which he has been afflicted.

Having set out to undermine the hedge-sparrow's established reputation, it is perhaps best to do it thoroughly. It will no doubt come, then, as a shock to "all the good and gentle" of which, according to the Rev. C. Johns, the hedge-sparrow is, without knowing it, the favourite, that a pair of these birds have been detected in the act of stealing grass from the nest of a blackbird. But it is right to add that thefts of this kind are not peculiar to hedge-sparrows. Mr. E. Selous, who relates the above fact, states that he has also seen a blue-tit pilfer a blackbird's nest, and a hen chaffinch appropriate for its own use the whole material collected by a pair of goldcrests. "Nests, in process of building by one bird, are looked at by others as useful supplies of material for their own—little depôts scattered over the country."¹ And Miss Turner tells me she has seen a pair of yellow-wagtails impudently pilfer the down from a duck's nest, though the owner was in it. The hedge-sparrow, therefore, is no worse than his fellows, and no better. He is, in short, as I began by pointing out, simply a bird.

There are few nests that seem more beautiful than his, when it stands revealed with the blue gems of eggs lying snugly within, and there seem to be few nests so frequently robbed, though often well concealed. The eggs no doubt have a special attraction for children, so they have apparently for rats and mice. "I have known," writes Lord Lilford, "of seven out of eleven clutches of eggs of this species thus destroyed in one season." The exposed positions in which the nest is sometimes placed, added to the conspicuous

¹ *Bird Life Glimpses*, p. 205.

colour of the eggs, must also betray them to feathered egg-stealers, such as the various members of the Crow Family.

It is uncertain to what extent the cock helps the hen in the construction of the nest. Perhaps, as in the case of other species, the share he takes in this and in incubation varies from individual to individual. But, like his mate, he works assiduously to fill with insects the gorgeous orange-red mouths of the nestlings. If these mouths are more closely examined—they are worth it, for they are as beautiful in their way as the eggs, and as interesting—there will be found at each of the two tips of the forked back extremity of the tongue a small black spot. Such spots are found on the tongues of the young of other species, of the skylark, for instance, which show not two but three, the third being at the tip. The presence of these spots has yet to be satisfactorily explained.

The nestlings become fledglings in a fortnight, or rather less, and may then be found scattered in the grass, where they call loudly and repeatedly for food, a habit which, though it has the advantage of indicating their whereabouts to their parents, may also bring them less welcome visitors. I once found a young hedge-sparrow thus engaged at the edge of a high-road, and he chose rather to resent than otherwise my well-meaning efforts to move him to less dangerous quarters. As a second brood is reared by hedge-sparrows, the young of the first must soon be left to their own devices, unless, as in the case of other species, they continue to be fed by the cock while the hen is building the new nest, or repairing the old.¹

Of the subsequent movements of the young, and the habits of the species between the breeding seasons, little is known. The birds may be seen alone, in pairs, and small parties. The immigrants of the Continental race that appear on our eastern coasts in the autumn have been observed in small flocks of twenty to thirty.² But

¹ For evidence that the species may lay more than once in the same nest, see *British Birds*, iv. 77, and the *Bulletin de la Soc. Zool. de France*, 1903.

² Nelson, *Birds of Yorkshire*, i. p. 100. See also the "Classified Notes."

the relations between old and young, and the cause of the disputes that take place have yet to be ascertained.

Hedge-sparrows appear, comparatively speaking, to suffer little from the effects of cold weather. This is due to the fact, proved both by post-mortems and observation, that, besides eating insects, they feed largely upon seeds, which they pick up from the ground, thus aiding the gardener in his eternal war upon weeds. According to Naumann, they swallow the seeds without shelling, the work of grinding being done by the gizzard with the aid of the bits of grit that are swallowed. Naumann, who kept the species in captivity, observed that this habit of swallowing seeds whole was not due to any softness of the bill. The latter is hard and sharp-edged, and able without difficulty to cut through a grain of millet.¹ The hedge-sparrow population is kept down not only by the frequent destruction of clutches already mentioned, and by the mortality among the young, but no doubt by a large mortality among the adult birds due to their habit of feeding on the ground in sheltered places, where they are pounced upon by the waiting cat—the most inveterate enemy of the feathered tribe.

¹ *Vögel Mitteleuropas*, i. p. 79.

THE STARLINGS

[ORDER: *Passeriformes*. FAMILY: *Sturnidæ*]

PRELIMINARY CLASSIFIED NOTES

[F. C. R. JOURDAIN. F. B. KIRKMAN. W. P. PYCRAFT. A. L. THOMSON]

STARLING [*Sturnus vulgaris* Linnæus. Stare, shepster or sheepstare, starnel, gyp; brown starling (juv.). French, *étourneau*; German, *gemeiner Star* or *Sprehe*; Italian, *storno*.]

1. **Description.**—The pointed, somewhat flattened beak, glossy black and white-spangled plumage, and the dull reddish-brown legs serve to distinguish the adult starling from all other British birds. The sexes scarcely differ. There is a seasonal change of plumage due to abrasion. (Pl. 58.) Length 8·6 ins. (218 mm.). The male, in spring, has the black ground-colour burnished with metallic reflections—green on the head and scapulars, purple on the interscapulars. The throat, fore-neck, and breast of a rich dark metallic purple changing to steel-blue, and steel-green on the lower breast, abdomen, and flanks. The feathers of the crown and nape are lanceolate, those of the hind-neck and interscapulars and rump are tipped with buff, while the scapular feathers have V-shaped buff tips. The feathers of the under surface are more or less conspicuously tipped with white: on the under tail-coverts these white spots give place to cream-coloured margins. As the season advances these buff and white markings are gradually lost by abrasion. The wing-coverts are dark metallic green and narrowly margined with buff. The primaries are black with a narrow edge of buff along the outer web, and a spot of brownish-grey near the tip, while the inner secondaries have a mole-grey tinge broadly margined with metallic green, and a narrow line of buff along the free edge. Tail feathers mole-grey, margined black, and with a narrow line of buff along the free edge. The beak is yellow, the iris hazel, legs brownish-red. After the autumn moult the brown markings above and the white below, by their greatly increased development, tend to obscure the metallic hues of spring and summer, and the beak assumes a dusky hue.

The female differs in having the metallic hues less conspicuous, and in that the abrasion of the brown and white tips to the feathers is less complete, while the beak never attains the full yellow colour of the male. The juvenile plumage differs conspicuously from that of the adult, being of a greyish-brown colour, darker on the flanks and fore-breast, while the throat and abdomen are white. After the autumn moult they resemble the adults, but the metallic lustre is much less developed; further, the head has dull purple instead of intense dark green reflections, and the feathers of this region and on the throat are not lanceolate. [W. P. P.]

2. Distribution.—Opinions are much divided as to what races of this widely distributed species should be recognised. It breeds in the Færoes, the British Isles, and the whole of the European continent, except the Iberian peninsula (to which it is only a winter visitor) and South Italy, as well as a great part of Western Asia. Dr. Sharpe recognised two forms in the British Isles, the green-headed (*S. vulgaris*) and the purple-headed (*S. menzbieri*), but these distinctions seem to have no geographical significance. On the other hand, the Færoese, Azorean, Caucasian, Crimean and Balkan races seem to be well grounded, and several races are found in Western Asia. In the British Isles it is a resident species, now very generally distributed throughout England and Wales, although formerly only known as a rare visitor in winter to the most northern counties (Northumberland and Cumberland), some parts of Wales, and the Devonian peninsula. The history of its distribution in Scotland has been carefully studied by Mr. J. A. Harvie-Brown in the *Annals of Scottish Natural History*, 1895, pp. 2, 92. From this paper it is evident that colonies have existed for nearly a century in the Shetlands and Orkneys, and that it was abundant in the Outer Hebrides in 1841. From these stations waves of migratory birds have colonised the adjoining territories, meeting other waves which have gradually worked their way upward from the south. It is plentiful in the Isle of Man and has increased its range in Ireland, where Ussher states that it now breeds in every county, though still scarce in Donegal, Kerry, West Cork, Waterford, and Wexford. On the Continent it is only a summer visitor to the northern part of its breeding range, wintering in Southern Europe and North Africa, but in the southern part it is resident and only subject to local movements. [F. C. R. J.]

3. Migration.—The British migrations of our starlings have been worked out in great detail by Mr. Eagle Clarke in the *Report of the British Association*, 1903, pp. 291-298. They are as follows: (1) *Movements of our breeding birds*. As early as June flocks of the young broods may be seen (see p. 132). These lead a roving life,

visiting the coast and elsewhere. They grow into larger flocks, young and old, which wander in search of food, and later of a winter abode, many resorting to the west and south of Great Britain and Ireland. To what extent our resident birds remain in or near their breeding haunts during the winter has yet to be ascertained. (2) *Migration from and to West and Central Europe; arrival in autumn and departure in spring.* Vast numbers come across the southern waters of the North Sea by a more or less direct east-to-west passage and appear on the coast of England from the Humber southward. The immigration continues from the last week of September to early in November and even later, and takes place chiefly during the daytime, not infrequently lasting from dawn till dusk. Many of these birds winter in various parts of England, many again pass along our southern shores, some to diverge south across the Channel on their way to S.-W. Europe, others to pass north to Ireland, which they enter by way of Wexford in large numbers. The return movement is very little in evidence as compared with the arrival. It takes place from mid-February to the end of March. (3) *Migration to and from North-west Europe; arrival in autumn and departure in spring.* The birds that reach us from the north-west arrive in a series of "rushes" on our east coast from Shetland to Humber, and even further south, and so overlapping the east-to-west migration already described. The immigration continues from early October to mid-November, thus occurring slightly later than the east-to-west. The birds arrive during the late hours of the night and early morning in company with various Thrushes, Finches, and other species and spread west and south. Some reach the Hebrides and others of the Western Isles, some go to Ireland, which they reach from the west or north-east, either after travelling down the western seaboard of Scotland, or from the Galloway coast, after an overland flight across N. Britain. Some again descend the east, and to a lesser extent the west, coast of England, finally crossing the Channel to S.-W. Europe. There are, therefore, among the immigrants both from North Europe and from Central Europe birds of passage which skirt our shores on their way to the same destination. The return movement of the northern birds, whether winter visitors or birds of passage, takes place between mid-March and the end of April, beginning, therefore, about a month later than the east and west emigration. The Irish birds are an exception to this rule, as they begin to move north as early as mid-February. The return, like the arrival, is by night, thus offering a marked contrast to the east and west migration, which is performed by day. (4) *Migration from and to South Europe; arrival in spring and departure in autumn.*—In the latter part of February to early April immigrant starlings come from their winter quarters in



Photo by N. F. Ticehurst

Nesting colony of starlings under stones on the beach at Lambholm, Orkney



Photo by Riley Fortune

Starling's Nest in the hole of a wall. Front stone removed

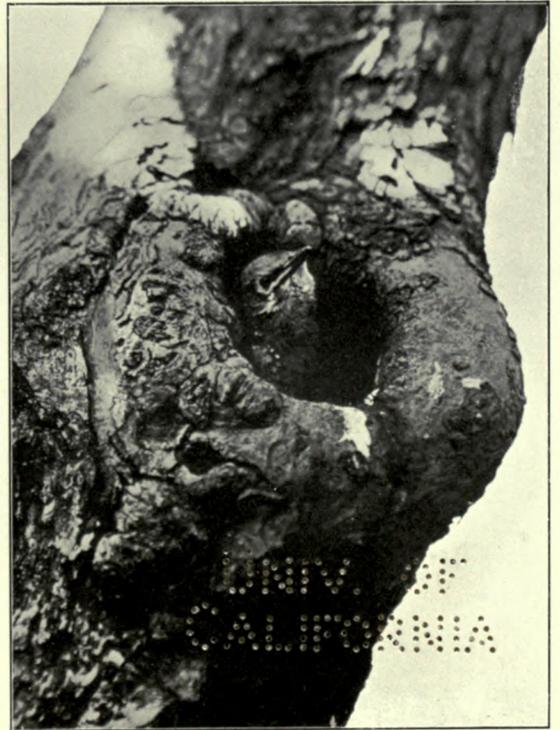


Photo by E. L. Turner

Young starling at the entrance to its nest hole in a tree

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Southern Europe to breed in our Isles. They quit our shores from late July to mid-September, travelling at night or in the early morning. Some are probably from Ireland. The later emigrants, those going south, from the end of September on, are, as above stated, birds of passage from Central or Northern Europe. (5) *Movements due to cold weather*.—In addition to the three separate migrations above described, there are later movements either to the south and west of England and Ireland, or to south of the Channel, that are occasioned by spells of severe weather, and may, therefore, occur at any time during the winter. (6) *Erratic movements*.—Occasionally flocks overshoot our western limit and are seen far out in the Atlantic. In October 1870 a large flock was seen three hundred miles west of Scilly. These movements afford but another instance of the fact that the migratory instinct does not always work true. [F. B. K.]

4. **Nest and Eggs**.—Nesting place: almost any convenient hole. In the open country holes in trees or rocks are utilised, but as the number of these is limited, many pairs breed in buildings, under eaves, in ivy, among the foundations of rooks', magpies' or woodpigeons' nests, in haystacks, and occasionally in open nests among the branches of thick trees. Nesting-holes of the woodpeckers and swifts are also frequently annexed and the owners ejected, while nesting-boxes, if large enough, are promptly occupied. Along the coast the starling has been found nesting in stone-heaps and under the loose boulders on the beach, and in sea-caves, or even in burrows in the ground, as well as in rabbit-warrens. The nest is carelessly built of straw, and sometimes grasses, leaves, or a little moss. Feathers, hair and wool may be found in small quantities in the lining, and some birds appear to decorate the nest with blossoms or green leaves. (Pl. XXIII.) Both sexes share in the work of building. Eggs, usually 5 to 7, rarely 8 in number, and pale glossy blue in colour. Some varieties are very pale and appear almost white, while others show traces of reddish spots. (Pl. D.) Average size of 50 English eggs, $1.19 \times .84$ in. [30.2×21.3 mm.]. Laying begins from mid-April onward, and both sexes share in incubation, which lasts 12-13 days, while fledging takes 21-22 days (S. E. Brock, *Zoologist*, 1910, p. 118). There are many instances of broods being hatched during the winter months. The great majority of birds rear one brood only, but in some districts a second brood appears to be regularly produced, and a few late nests are to be met with everywhere. (See the *Naturalist*, 1889, pp. 366-373; *Field*, 1898, vol. xcii., p. 365; *Zoologist*, 1900, 433; *id.* 1876, 5165.) [F. C. R. J.]

5. **Food**.—Insects and their larvæ, including wireworms, weevils, various moths, and other insects of an injurious kind, earthworms, small molluscs and

garbage. The evidence shows that the species occasionally eats wheat, which has been found in the stomachs of specimens shot. They rarely touch oats or barley. (*Zoologist*, 1910, p. 144.) They undoubtedly display a certain partiality for cherries, and will take raspberries, figs, and sometimes pears (*Zool.*, loc. cit.). I have also seen them pecking at late apples. They eat berries of various kinds with zest, e.g. mountain-ash, yew, elder, etc. (cf. Coward, *Fauna of Cheshire*, i. p. 228). Gray, in his *Birds of the West of Scotland*, states that he has seen them not only devour eggs of ground birds, such as larks and yellow-hammers, but also, which may be forgiven them, drag young sparrows out of the nest and devour them at leisure. But any misdeeds they may commit are completely overbalanced by their destruction of insect pests. In severe weather the birds often resort to the shore and feed on small molluscs, and possibly what else they can find. The young are fed by both parents on a variety of food: insects and their larvæ, earthworms, small garden snails and brown slugs, spiders, bread, and garbage. (See also p. 131.) In the stomachs both of old and young large quantities of plant remains, for instance grass, are found. [F. B. K.]

6. Song Period.—All the year with a period of silence, or partial silence, during the moult in July-August. Between the breeding seasons the birds sing in flocks as well as alone. [F. B. K.]

ROSE-COLOURED STARLING [*Pastor roseus* (Linnæus).

French, *martin roselin*; German, *Rosenstar*; Italian, *storno roseo*.]

1. Description.—Differs from all other British birds in the strongly contrasted areas of rose-pink and black. Sexes alike. (Pl. 60.) Length 8 ins. (203 mm.). The male in spring has the head, neck and fore-breast glossy violet-black, the wings, tail-coverts and tail, and under tail-coverts steel-green, the rest of the plumage rose-pink. The crown feathers are elongated and form an erectile crest. The female is duller than the male and has a shorter crest. After the autumn moult the brilliancy of the plumage is obscured, the feathers having sandy-coloured margins which are gradually lost by abrasion, revealing the beautiful livery of spring and summer. The juvenile dress differs conspicuously from that of the adult in being brown, with darker wings and tail. The chin and throat are white, the rest of the under parts pale brown, mottled on the flanks with darker brown. [W. P. P.]

2. Distribution.—It is difficult to define exactly the breeding limits of this bird, as its nesting appears to be regulated by the presence or absence of the *Ortho-*

ptera on which it chiefly feeds. It has been known to nest at irregular and uncertain intervals in Italy (1875), Hungary (in 1837 and also recently), Slavonia, Dalmatia, and Croatia occasionally, probably in Albania, frequently in Roumania, Bulgaria, and S. Russia, as well as from Asia Minor east to Turkestan and North Persia. It is also said to have bred in the Cyclades and in Switzerland. Outside its breeding range it has occurred in flocks at rare intervals in other parts of Europe, chiefly south of the Baltic and North Seas, but has been known to visit the Russian Baltic provinces, Finland, and Lapland, and has also been recorded from North Africa, and winters in India and Ceylon. [F. C. R. J.]

3. Migration.—A rare and irregular visitor on migration, chiefly in the summer months. The records are for all parts of the British Isles except that there is only one for Connaught and none for the Outer Hebrides; the great majority, moreover, are for the eastern side of Great Britain (cf. Saunders, *Man. Brit. B.*, 2nd ed., 1899, p. 229; Ussher and Warren, *B. of Ireland*, 1900, p. 229; Nelson, *B. of Yorks*, 1907, p. 222; and Forrest, *Fauna N. Wales*, 1907, p. 170). As regards the origin of the irregular visitations of this species, it has been remarked that “as a rule its arrival has taken place between May and October, and the visitors to our shores appear to have been birds which had separated from flocks of their own species and joined those of starlings, etc.” (Saunders, *loc. cit.*). The birds which occur in a similar erratic way on Heligoland have been accounted for as being individuals which have overshot their normal spring immigration into South-eastern Europe. A few young birds of the year, still in their grey plumage, have been recorded from Heligoland. [A. L. T.]

4. Nest and Eggs.—Does not breed in the British Isles. For some description of their nesting habits see p. 137.

5. Food.—Insects, especially the various kinds of grasshoppers and locusts, earthworms, fruit, including cherries and mulberries (von Nordmann), and, in India, grain (Dresser). The young are fed by both parents on insects, usually locusts and grasshoppers. [F. B. K.]

6. Song Period.—Does not appear to be recorded.

THE STARLING

[F. B. KIRKMAN]

Seen at a little distance, a starling appears to be a plain-hued, unattractive, somewhat absurd-looking bird. Seen nearer, it becomes almost handsome. But let the sun's rays fall upon its plumage at a certain angle and they set it afire with an iridescent splendour of greens and purples that would shame Solomon in all his glory. This living gem, glowing and gleaming in the fresh green foliage of some high bough, is one of the unforgettable sights that Nature vouchsafes to those who see the rarer beauties in her works.

The fact that individual starlings vary greatly in their coloration : that some have more green about the head, others more purple, has led to the conclusion, now generally popular, that there are in our Isles two forms, the British or green-headed form and the Continental or purple-headed form, the latter having green ear-coverts. Some writers, carried away by their patriotic feelings, have credited the alien or purple-headed form with most of the misdeeds that have from time to time, rightly or wrongly, been ascribed to the starling, and, in order to show up the alien character of the misdoer more clearly have even at times confused him with the Siberian form. But as the Siberian bird, *Sturnus vulgaris poltaratskyi*, to give him his full official title, has purple ear-coverts, and is not recorded to have entered Europe, it may safely be taken for granted that he has never done any damage to English cherries. Nor is there satisfactory evidence that a purple-headed race exists in Europe, intermediate between our green-headed form and the Siberian, for examination of a large number of specimens from various parts of North and East Europe and Great Britain shows that there is in these districts every variation from purple-headed to green-headed existing side by side.¹

¹ E. Hartert, *Vögel der Paläarktischen Fauna*, i. p. 42.

Though there is no proof that a distinct Continental subspecies visits us, it is true that extraordinary numbers of starlings, coming in part from Northern and in part from Central Europe, pour into our Isles during October and November, many staying with us during the winter, others passing on into South-western Europe. They come in thousands, and in hundreds of thousands. On the night of Oct. 12-13, 1910, one flock streamed past the Eddystone Lighthouse continuously for ten and a half hours. Sixty-seven perished at the lantern, and, after striking, uncounted numbers disappeared into the sea.¹ Again, on Nov. 4, 1881, an enormous host, estimated at a million birds, came off the sea at Redcar. It extended in a dense mass for over two miles, and passed westward, darkening the sky, the whizzing of its myriad wings sounding like the rumbling of thunder. These great movements, which have been fully detailed in the "Classified Notes," may be partially resumed at any time during the winter under pressure of severe weather.² Numbers of starlings then resort to the sea-coast to feed on small mussels, and anything else they can find. Numbers, again, migrate in masses to the south and west of England, some crossing the Channel into France, or to the sheltered corners of Ireland. "All day long, through the falling snow, the race for life has been watched streaming towards Kerry, whose peninsulas and islands enjoy that freedom from frost which makes them the last resort of refugees."³ But the small black countless forms speeding wearily on through the whirling white flakes, so soft and yet so fatal, do not always win to safety. Where the snow lies heavy, locking up the land, thousands may be found starved to death, heaped in loads beneath some fence, or choking the holes of rabbit-warrens, into which they had crept for warmth and shelter.⁴

Starlings are not gregarious only as migrants, but at all times, between the breeding seasons, they may be seen in flocks, small or great, almost everywhere, in the open spaces of our towns, in the country,

¹ *British Association Report*, 1903, p. 295.

² Nelson, *Birds of Yorkshire*, i. p. 217.

³ Ussher and Warren, *Birds of Ireland*, p. 79.

⁴ *Ibid.*, D'Urban and Matthew, *Birds of Devonshire*.

along the coast. The species is easy to recognise, when in the air, by its comparatively short triangular wings, its rapid direct flight varied by smooth glidings and the precision with which a compact flock, acting as one bird, will alter its formation or direction. On the ground the flock usually spreads into loose order when feeding. But in cold weather, when the soil is hard, I have seen the birds move forward, running or making rapid hops, close together in an irregular line, and in a great hurry, those at the back frequently flying forward over the others and alighting in front, themselves shortly to pass back once more into the rear ranks, possibly an unexpected result of their efforts, which they proceeded to rectify only to find themselves in due course again in the same position.

Starlings are frequently to be seen feeding in company with other species, especially rooks, jackdaws, and lapwings. But they preserve their unity, and, when they take wing, their serried bands manœuvre unbroken amid the more open ranks of the bigger birds. These congregations of different species are a familiar sight in autumn and winter, and are interesting in that they provide an example of the extension of the social sense, from the individuals within the species to the species themselves—the cause being possibly the very primitive feeling that the greater the number the greater the safety. The feeling may be vague only, semi-conscious, but yet strong enough to impel a flock, say of starlings, to enter a field where flocks of other species have alighted rather than an adjacent one, equally suitable as a feeding ground, but unoccupied.¹

When feeding on the ground starlings walk or run with a somewhat nautical roll, but they will often take several rapid hops when in a hurry. This may be seen when one bird rushes up to see what treasure another has unearthed, or, as above mentioned, when several are moving quickly forward in a pack. They will also hop when running is difficult, for instance, in rough pasture,² along the woolly back

¹ For what may be called the social amenities displayed at gatherings of rooks, daws, and lapwings, see vol. i. p. 30.

² *Field*, 1874, July 18.

of a sheep, or, as in the case of one I noted, along the narrow ridge of a roof. Naumann observed that they never raise both feet at the same time.¹ Their hops, in short, lack finish.

In their mode of progression starlings resemble closely rooks and daws, which also walk more often than they hop. They differ from the species of Thrushes which frequent the same feeding grounds, for these hop much more often than they run, and seldom, if ever, walk. It is difficult even to imagine a fieldfare or a redwing walking in the manner of a starling. Yet all three species may often be seen feeding in the same field and seeking the same food. How these differences arose is a question that would provide matter for interesting speculation, but it would take us considerably beyond the subject of this chapter.

The starlings' method of seizing their prey depends upon whether it is looked for upon or under the ground. When the former, the beak is habitually thrust into the grass more or less open, as shown in Mr. Seaby's drawing. It is thus ready to close without loss of time upon the insect in view, when there is one in view, for often, to all appearance, the bird seems to prod here and there in the grass at a venture; and the object of thrusting the mandibles apart being, presumably, to disturb as much ground as possible or to give a persuasive squeeze to any likely tuft, or root.

When hunting for grubs beneath the surface of the soil the starling will drive the bill in closed, then open the mandibles, thus making a little pit.² Captive birds have been seen to adopt the same method to reach dainties hidden under an open hand placed flat upon the floor. They insert the bill between the fingers and force them apart with considerable strength, then peer in to see what is there. When the birds are feeding on the grass, it is, of course, difficult to know what actually occurs. Do they merely make these little pits on the chance of finding something in them, or do they know

¹ *Vögel Mitteleuropas*, iv. p. 10.

² I have not seen them do this. The evidence will be found in the *Zoologist*, 1876, 4837, 4877-9, 4925, 5005.

where their prey is likely to be? They certainly at times appear to know, for they have been observed repeatedly to drive the bill "deep into the soil and with a circular movement worm out a fat grub."¹ In this case there was clearly no preliminary inspection of the inside of the pit; the birds seem to sense the fat grubs, deep though they lay.

More puzzling still is the undoubted fact, which I witnessed repeatedly in the case of a couple of starlings hunting for worms on a close-cut tennis-lawn, that they will drive the beak deep into the soil with the mandibles apart. The worm would appear as the bill was withdrawn. One would imagine that the deeper the mandibles went in the further they would be thrust apart, the greater the amount of soil between them, and the greater, therefore, the difficulty of bringing them together, so as to grasp the intended victim.

While feeding, starlings are notoriously peevish. Watch a number collected, for instance, on a refuse-heap, where, being close together, it is easy for two birds to catch sight of a tit-bit at the same time. Almost every second there will be angry screams, as one or more couples spring in the air, their beaks wide open. But they seldom come to blows. A brisk spring into the air, a good scream, and their feelings are at once relieved. Next moment they are moving about as if nothing had occurred.

Though starlings find most of their food on or under the surface of the ground, they will also hawk for flies in the air, pausing in mid-flight, and, as far as my observation goes, snapping upwards. They occasionally pick their food off the water, much after the manner of gulls.

The various flocks, small or great, of starlings that we see about the fields, after the breeding season is over, disappear from their feeding grounds during the course of each afternoon. If one of these flocks is kept under observation, it will be seen to fly off towards the same quarter day after day. Flocks that have adjacent feeding grounds may fly off in different directions, or to the same

¹ A. H. Patterson, *Wild Life in a Norfolk Broad*, p. 223.

Plate 58

Starlings

By A. W. Seaby



destination; or, again, they may accompany each other a certain distance and then divide, one going to the right, the other to the left. Flock after flock has been seen speeding every evening above and along a valley, each pursuing the same straight course, but, as a rule, dividing at a given point, always the same, one party going southward, the other south-eastward.¹ This procession of flocks along a given line may at given points be joined by other flocks that fly into it from either side as a tributary stream flows into a river. The succeeding flocks, small and great, thus augmented, fly forward to their final destination—the common roosting place, usually a wood, bushes, or a bed of reeds. If the roost is situated near the sea, the flocks reach it, of course, only from one or two quarters; if inland, they may arrive from all quarters, and, in either case, from distances varying from some miles to much less than a mile, according to the position of their feeding grounds.²

The flocks, small and great, which continue to arrive near the roost for an hour, more or less, before sunset do not, as a rule, at once descend into it, but circle over and about it, awaiting the arrival of the later flocks. The serried bands turn and twist, and sweep about the sky, every bird in the flock executing exactly the same movement at exactly the same time, as if obeying one common will. Several flocks will unite to form one large flock, which grows greater still by the addition of incoming bands. This huge mass, composed perhaps of hundreds of flocks, and of hundreds of thousands of birds, will none the less still act as one. Seen at some distance, it has almost the appearance of being itself a living creature—some gigantic amœba floating in space. At one moment it stretches its enormous length at ease across the heavens, at another it gathers itself together, as if contracted by fear, recoils, and suddenly disappears wholly, its hue merging into that of the sky; then suddenly flashes again into view, expands, advances, whirls up,

¹ *British Birds*, ii. p. 122.

² The average distance of one roost from another is estimated at about 8 miles by Mr. H. E. Forrest (*Zoologist*, 1900, p. 131). See also *British Birds*, ii. p. 122.

and down, to right, to left, and again is gone. At times it throws out great shapeless feelers or "processes" that seem to palp the air for unseen prey, or it floats at rest with long slow undulations, the last evening rays sending shivering gleams along its flanks. At last, as if unable to endure its own immensity, it rends itself in two. The masses swing asunder, again to join, and it may be again to part. So the great hosts range on till sunset, when sometimes in one mass, sometimes band after band, all the birds will rush, with a whirring of wings, like a hurricane into the roost.

The three most striking features of these remarkable displays are the sudden changes in shape effected by each flock, the changes in colour including those of light and shade, and the marvellous simultaneity of movement to which both change in shape and colour are due. That many thousands of starlings can by concerted orderly movements suddenly alter the shape of the mass, or again by a swift simultaneous alteration of the angle of the wings in regard to the light alter its colour, so that, if this colour assimilates with the sky behind, the whole flock vanishes almost instantaneously from view, is in itself an astonishing fact, and grows none the less so when one seeks the explanation. Unlike an army of men, the starling host has no word of command or bugle-note, no known external stimulus whatever to set it in simultaneous motion, yet its military precision would shame a regiment of veterans. It is inconceivable that there can be a leading bird, whose movements are watched and imitated; he would not be seen by large numbers, and even if he were, it is equally inconceivable that his will should dominate thousands to whom he was totally unknown. It may be that the starlings possess some sense of which we know nothing, a spirit of the flock, which moves them at one and the same time to act in one and the same way, and which animates not only a flock, but a union of flocks. This sense, if it exists, is by no means peculiar to starlings, and is to be found more or less in all birds that are gregarious.

In any account of the daily arrival of starlings at their roost allowance must be made for considerable variation. The procedure is not fixed. If, for instance, there are trees or hedges near the roost, the flocks will on arriving often descend into these, and fill them with life and music, quitting them again to race in changing shapes about the sky. Sometimes they will alight in the fields around,¹ or, as in the case of those that roosted on Cramond Isle, in the Firth of Forth, assemble on the mainland, before flying across the intervening water.² Sometimes they will pour in a continuous stream into the roosting trees or reed-beds from the adjacent trees or hedges,³ or, as I have described, will shower into it from the sky. The evolutions may be omitted, a flock arriving and dropping straight into the roost.² These, and other variations, have yet to be closely studied. They are evidently due in part to the local conditions of the roost, and probably in part to changes in the weather.

Nature has not forgotten to introduce into the peaceful evening ceremonial of the starlings one of those touches of tragedy without which few of her operations would seem complete. In this case it comes in the shape of a hawk, usually a sparrow-hawk, eager for his supper, and overjoyed to find so vast a banquet spread within such easy reach. Towards one of the bands he speeds, almost vanishes through its crowded ranks, and strikes at his chosen prey in a very whirlwind of chattering fear-tossed birds, from whose centre comes, heard above the din, the scream of the stricken starling, which either falls still screaming to earth, or is borne away in the grasp of the hawk to some conspicuous perch, where it is torn and devoured at leisure, in full view of the assembled hosts.

When once the birds are in the roost, there rises from it their evensong, remarkable enough if heard from one throat, almost

¹ H. A. Macpherson: *Fauna of Lakeland* (roost at Murrel Hill, near Carlisle). In the Sedbury Park roost (Glos.) they have been seen to cover a seven-acre field.

² *Annals of Scottish Natural History*, 1902, p. 2 (Ch. Campbell).

³ E. Selous, *Bird Life Glimpses*, p. 146.

indescribable if uttered by a hundred thousand—a marvellous harmony of chucklings and gurglings, of pipings, whistles and wheezes, of clicks and coughs and kisses, and behind it all, accompanying it like the pizzicato of violins, is the rustling and fluttering of the moving myriads seeking a place for the night. If in a reed-bed, every reed bends and sways beneath the weight of its living burden; if in a wood, each bough, one above the other, shows its row of little close-pressed figures. Gradually the evensong dies down, the rustling and fluttering ceases, or nearly so, small heads and beaks, whole rows of them, thousands of them, are tucked beneath the warm covering feathers, and there is silence—the broken silence that alone is possible in such a dormitory, where boughs may jar and whimper with each gust that blows, disturbing into sudden startled flight perhaps the sleeping lines of birds upon them, where leaves rustle and whisper, and where all the queer mysterious little noises that haunt a wood at night come and go, to be silenced suddenly by the hoot of a passing owl, or the scream of a creature in pain, and then again to recommence.

But there is another description of a starling roost, more striking perhaps, but less attractive. It has been left us by the late Mr. Cordeaux, who one night entered a large roost of spruce and larch in order, not to kill, but to scare the birds away on account of the damage being done by them to the trees. The upper branches were occupied by rooks and daws, the lower by crowded bands of starlings, nearly all asleep, packed so close that some of them on the extreme ends of the more slender boughs seemed hardly to have hold for their feet. A bird here and there, alarmed by the sound of human feet, stretched out its neck and peered downwards into the darkness, but seeing nothing, it settled itself on its perch, and soon, maybe, its “little wits were wandering in bird dreamland.” A hushed pause, and then the report of the gun split the silence. The effects of the discharge were perfectly astounding. “I can only compare the noise,” writes Mr. Cordeaux, “to the bursting of some large

reservoir; it was the roar and rush of a mighty torrent. The dust and smell were overpowering, as the birds in their flight dislodged the dried whitewash with which every branch and twig was coated. This floated downward in a dense cloud of white pungent powder, mixed with feathers, till I was nearly suffocated by the mingled heat and stench. The plantation became very much what I should imagine the hold of a guano ship to be in a gale of wind." It required a second discharge to drive away the rooks and daws to a neighbouring plantation, but repeated discharges failed to dislodge the starlings.¹ In fact, however interesting a starling roost may be to the naturalist, the pleasure it gives to its owner is limited by the offensive smell that pervades its vicinity and by the damage done to the trees.² One successful method of driving the birds away has been noted by Mr. T. A. Coward; it is to fly above the roost a paper kite shaped like a hawk.³ Another is to smoke them out by lighting green fires to windward,⁴ and a third the discharge of blank cartridges. The latter appears the least effective, though it has proved successful in one case, that of a roost at Burley-in-Wharfedale.⁵

At break of day the roost awakes, and once more is filled with music, and with movement, each bird singing as it preens itself. Soon begins a stir among the branches, band after band quitting their perches and pressing forward and upward, eager to be away, excited, noisy, it may be startled by the very commotion caused by their own multitude. Finally, with rush upon rush, they burst from the tree-tops. Towards every quarter the flocks depart, not always without sudden returns to the roost, as if recollecting something left behind, possibly some of their number. As they pass away over the country, detachments may be seen to quit the main flocks,

¹ *Zoologist*, 1870, p. 2288 (J. Cordeaux).

² Apart from breakage of twigs, the buds, if not the wood, appear to be injured by the thick deposit of excreta.

³ *In litt.* See also *Fauna of Cheshire*, i. p. 228, by the same.

⁴ H. E. Forrest (*in litt.*).

⁵ Mrs. H. Chorley (*in litt.*).

and fly down to their chosen feeding ground. The regularity with which the detachments will, day after day, descend to the same spot is well illustrated by the behaviour of a small band of a dozen birds which were seen to alight on the same tree every morning after separating from their fellows.¹

Starlings do not confine themselves to roosting in trees, bushes, and reeds. The roof of St. Patrick's Cathedral, in the heart of Dublin, has provided a nightly sanctuary for hundreds.² Many have been seen resorting to the barrel-shaped beacons on the Clyde. The tap of an oar on the side of one of these would cause it to be filled with a sudden uproar, which ceased only when its startled occupants had made their exit through the bung-hole, which they did with small loss of time.³ Starlings have also been known to roost on the ground in a ploughed field,⁴ in long stubble,⁵ in the caves and crevices of maritime cliffs,⁶ and in their nest-holes, of which more presently.

With the nature of the roost is intimately connected those movements from one roost to another which occur at certain periods of the autumn and winter, and are not yet fully understood. The usual date at which, towards the close of the breeding season, a winter roost begins to be frequented, chiefly by the young of the year, is the middle of June. The number of its nightly guests will, as a rule, go on increasing till about October; but whether it will after that cease gradually to be visited, or only so by reduced numbers, or whether these numbers will, on the contrary, largely be augmented, appears to depend partly upon the nature of the roost itself, and partly upon the general migratory movements which are performed by starlings at this time of the year. The evidence available is as yet scanty, but such as it is, it points to the likelihood of the following conclusions being correct. Reed-beds, unless

¹ *Annals of Scottish Natural History*, 1902, p. 2 (Ch. Campbell).

² Ussher and Warren, *Birds of Ireland*, p. 79.

³ Gray, *Birds of the West of Scotland*.

⁴ *Zoologist*, 1900, p. 141.

⁵ Saxby, *Birds of Shetland*, p. 116.

⁶ Macgillivray, *History of Birds*, vol. i.

very extensive like those of the Norfolk Broads, in which starlings roost more or less all the year through, are deserted about the beginning of October, or earlier, when the reeds get broken and cease to supply enough perches. Deciduous trees are abandoned when the leaves have fallen off, because they become too exposed to wind and weather and offer no concealment from nocturnal birds of prey. A case is cited by Mr. H. E. Forrest, who has made a special study of the roosts in Shropshire, in which a reed-bed was deserted for osiers growing on the banks of the same pool, and these again, when leafless or "flattened down," for a roost further off at Moreton Corbet, where the birds slept in the thick underwood, chiefly of hazel, beneath tall trees.¹ In another case reeds were deserted for conifers, and, in the same county, Cheshire, deciduous trees for reeds.² In the last resort the birds appear to take to thick deciduous bushes such as hawthorns, and to evergreens. The latter have been known to be occupied from December to March.³ Dr. Saxby, writing in 1874 of the starlings in Shetland, noted that in early autumn they roosted in shrubs, and when these were leafless, in stubble, which in Shetland was "always long, except in those parts where an improved style of farming prevails."⁴ The movements that are not due to the nature of the roost may be partly explained by the southward migration of a large proportion of our summer birds, many of which quit the country altogether. This accounts, no doubt, for the striking reduction during October and November of the numbers resorting to some of our large permanent roosts, only those birds being left that remain with us throughout the winter. A spell of severe weather would tend, of course, at any time during the winter to deplete the more exposed roosts and increase those in the south and west. Against the emigration above mentioned must be set the great autumn

¹ *Zoologist*, 1900, p. 131. When the underwood at Moreton Corbet was cut down nearly all the birds deserted.

² T. A. Coward (*in litt.*).

³ *Zoologist*, 1900, p. 479, and H. E. Forrest (*in litt.*).

⁴ *Birds of Shetland*, p. 117.

immigration from Northern and Central Europe described above,¹ which must add considerably to the number of roosting birds.

There is evidence to show that some of our stationary starlings, those that remain with us throughout the year, take no part in any of these complicated movements. The semi-domestic starlings of our house-tops have been observed to return every night to sleep in their nest-holes, either till September,² or right through the winter.³ This, however, I am certain, is by no means always the case. Again, according to the observation of Macgillivray already alluded to,⁴ the "starlings of the Outer Hebrides and the north-eastern isles, equally treeless, remain all the year round, retiring nightly to rest in the places where they have bred, namely the caves and crevices of the maritime cliffs."

The period of years during which a roost may be occupied appears to vary considerably, for reasons that are not ascertained. H. A. Macpherson, in his *Fauna of Lakeland*, published in 1892, speaks of the Murrel Hill roost, near Carlisle, as having been occupied since 1881, making therefore, up to the date of publication of his book, eleven years. Others are known to be occupied year after year. The Cramond Island roost in the Firth of Forth was completely deserted, though the birds were not disturbed, between July and September 1901, after five years' occupation.⁵ A similar sudden desertion of a roost, without known cause, occurred at Petton Park in Shropshire. This consists of evergreens, and was resorted to by vast numbers of starlings each year from November to March. "A few years ago, on a certain moonlight night, the starlings suddenly rose into the air with great clamour and flew right away to a roost at Hawkstone. They stayed away the following winter, but afterwards returned as usual, and they are roosting there nightly in increasing numbers at the present time (1910)."⁶

¹ See also the "Classified Notes" under Migration.

² *Naturalist*, 1889, p. 369 (R. A. Summerfield).

³ *Ibid.*, 1890, 167 (R. Fortune).

⁴ Page 120, note 6.

⁵ *Annals of Scottish Natural History*, 1902, p. 2 (Ch. Campbell).

⁶ H. E. Forrest in the *Shrewsbury Chronicle*, Dec. 9, 1910.

An additional fact worth noting about starling roosts is that some of them may continue to be occupied by small parties of adult birds during the breeding season. These are, no doubt, non-breeding birds, occasional flocks of which may be seen in April and May feeding in the fields. I saw one of thirty on May 13th. The existence of these flocks explains the readiness with which, when one of a breeding pair loses its life, the survivor will find a new mate. Darwin cites a case in which no less than thirty-five were shot one after another at the same nest, both males and females, the last pair bringing off the brood. Why these adult birds should not breed is a question that has already been discussed in connection with the magpie and jay (vol. i. p. 56).

Owing to the fact that starlings usually build their nests in ready-made holes in trees, rocks and houses, their gregariousness in the breeding season is limited by the position of their nesting sites. As these are scattered over a wide area, there is a corresponding dispersal of the birds. But there is good reason to think that, but for the difficulty of obtaining sites near together, the starlings would be, or would rapidly become, gregarious breeding birds. They do sometimes form colonies in sand-pits, together with sand-martins, in this case apparently making their own holes, which, in instances noted by Mr. E. Selous, were short and roomy caverns rather than tunnels, and unlikely, therefore, to be enlarged disused nests of sand-martins. In these colonies the starlings were observed, moreover, to display a quality which is a marked characteristic of species—*e.g.* rooks, jackdaws, gannets—that breed together, and that is, an habitual weakness for plundering each other's nesting material. This they did with open and shameless indifference. "A bird issuing from a cave that is not his own is flown after and pecked by another, just as he plunges into one that is. The thief soon reappears at the door of his premises, and sings, or talks a song, and the robbed bird is, by this time, sing-talking too. Both are happy—all is enjoyment. A bird returning with plunder finds the absent proprietor in his

own home. Each scolds; but neither blushes; neither is one bit ashamed. . . .”¹

Breeding colonies are likewise formed in districts, such as the Orkneys, where, other sites being unavailable, the birds have taken to making their nests in heaps of stones on the beach. The mound of stones shown in the photograph on Plate XXIII. was “about three feet high, at the bottom of a low cliff, and only distant a couple of yards from high-water mark. It was tenanted by a numerous colony of starlings, whose nests were easily found by turning back the stones, and it was curious to see and hear the young birds scrambling away through the crannies, like so many rats, as one walked over the mound.”² This breeding colony reminds one of the vast colonies of the rosy-starlings which are found among the boulders on mountain-sides, and of which details will be given in the next chapter. It may further be noted that, even when starlings are compelled by the scattered position of their nesting sites to breed apart, the various pairs may frequently be seen feeding in close proximity so as to have almost the appearance of a small flock.

Whether starlings pair for life or not is uncertain, but in either case they, like birds of other species, express each returning spring the revival of their love, both by song and display. The song, which may be heard almost at any time of the year, must of course, outside the breeding season, express feelings other than of love—probably a general sense of well-being and comfortable repletion. Its combination of clear piping notes, with running clicks, “*twips*,” “*quks*,” or “*tunks*,” “*quer-tsees*,” and a medley of other queer little noises, makes it unlike that of any other British species. Once heard it is not forgotten. It is often uttered from the top of some tall chimney-pot, to which the little songster adds just that touch of life and harmony which makes even a chimney-pot appear a thing of joy and beauty, the more so if seen in a clear strong light glowing red

¹ E. Selous, *Bird Life Glimpses*, pp. 133-138.

² *British Birds*, iii. p. 120 (N. F. Ticehurst).

against the blue of a summer sky. There the bird stands, engrossed in its performance, the feathers of its throat puffed out, its wings hanging somewhat limply, and at intervals waving somewhat ineptly, as if they felt they had a part to play, but were uncertain what. Thus he sings, and, though no doubt proud of his own peculiar notes, is not above borrowing those of his neighbours, even those of the house-sparrow. His imitations are often exact enough to deceive a practised ear. They are not by any means confined to the notes of birds. Mr. A. H. Macpherson relates that in 1887, at Trinity College, Oxford, he heard a starling on the roof at the opposite side of the quadrangle attempting to imitate the chapel bell, which was then ringing. To his surprise he noticed that, in addition to imitating the sound, the bird was swaying its whole body from side to side in imitation of the movement of the bell. Another bird reproduced so exactly the mewling of a cat that the person hearing it went several times to open his door to let in his cat, only to find no cat there.¹

But the song of the starling just described, even when uttered on some radiant chimney-pot, is a poor thing compared to the rapturous music that he makes when the impulses of spring are stirring in his veins. Then he becomes heroic, a giant, twice his ordinary size, all his feathers ruffled out, while his whole body throbs with the strength of his love. At one moment he will stand moving his head from side to side, pouring his ecstatic notes to right and then to left. At another he will pour them upwards, his quivering wings raised in sympathy above his back, his tail bent in contrast stiffly downward. Then lastly he will pour them straight in front or down, both tail and wing bent down, the latter so stretched that the tip reaches below the feet, and hides them and the legs from view like a screen. These curious acts of his love-play he will perform again and again, though not, of course, necessarily in the same order, or exactly the

¹ Both these examples are quoted by C. A. Witchell in his *Evolution of Bird Song*, p. 212.

same way. His stage is a stump, or a branch, a spout, or a chimney-pot. His reward a visit from his mate.¹

Starlings, no doubt, prefer to occupy a ready-made nesting-hole to enlarging or making one for themselves. As, however, the number of the former are limited and their would-be tenants very numerous, many starlings try to find accommodation at the expense of other species, notably the sparrow, swift and woodpecker. The ejection of a sparrow presents no great difficulties. It is seized, sometimes by the tail, and just thrown out. Occasionally the tail comes out first, and the sparrow afterwards, a detail of very small consequence to the starling, beyond the slight extra labour involved in making two ejections, and of not much greater consequence to the sparrow, who, judging from the number of individuals of his kind that may at times be seen flying about without tails, suffers little from the loss of this appendage. In the case of the swift the difficulties are increased by the fact that the species has very powerful claws and does not scruple to use them. The smaller woodpeckers, the lesser-spotted and greater-spotted, are more easily driven from the holes they have been at such pains to make.² The larger species, the green-woodpecker, offers a much stronger resistance, and, being a third again as large, is more than a match for a starling in bodily encounter. But the latter makes up for his inferiority in strength by his greater cunning and persistence. An amusing account of an attempt by a pair of starlings to dispossess woodpeckers from their nesting-hole is given by Miss E. L. Turner.³ The dispute lasted a week (May 8-14). Each time the woodpeckers left their hole, the starlings would carry into it every available bit of twig and rubbish they could seize, both working with feverish energy. "By and by, however, a woodpecker would return, then one starling carried on the fight while the other, when possible, continued the nest-building with more or less success; sometimes holding the entrance of the citadel while its rightful owner

¹ The above description of the starlings' love-display may be said to be photographically accurate, as it is based mainly upon photographs supplied to me by Mr. Riley Fortune. It may not be complete.

² *Zoologist*, 1902, p. 313.

³ *British Birds*, ii. p. 141.

clung to the outside, looking in and out and all around, but not always daring to take possession. For although undoubtedly the stronger, and able to hold her own when once inside the tree, the woodpecker seemed unable to cope with her smaller and more active opponents at close quarters. If she ventured inside when either or both starlings were in possession, a desperate scuffle could be heard, which *generally* ended in the defeat and ejection of the woodpecker, but not always. On one occasion I saw the woodpecker seize a starling by the beak and drag it forth; then, slipping inside, she soon ejected the other. But this was when her mate was near. The male woodpecker did not take his fair share of the fight while I was watching, and often the hen bird would lean half out of the nest and call to him in soft, complaining tones, but his answering cry generally came from a long distance off, and she was left for hours to continue the combat alone.

“The starlings, on the contrary, worked well together, and sometimes a third came to their assistance. However, when once the woodpecker gained possession of her home, the starlings, literally, had not a ‘look in,’ but sat disconsolately on a branch near at hand and watched, by no means without protest, while the woodpecker slowly and daintily threw out each twig until the ground beneath the tree was strewn with débris. I wish it had been possible to obtain photographs of this part of the proceedings, because the obvious enjoyment of the woodpecker as she did this was worth recording. After watching every bit of rubbish till it reached the ground, she looked up at the discomfited pair of starlings between each act, and chuckled softly with her head on one side, while the lookers-on gave vent to sundry long-drawn-out screeches of disapproval. There was a particularly large and dry laurel leaf which one starling had wrestled with and carried into the hole after great struggles, because its stiffness and length impeded the bird’s flight. When this treasure was thrown out and fell to the ground with a dry rattle, both starlings whistled so plaintively that I laughed aloud and frightened the woodpecker so

that she fled.”¹ The starlings did not flee, but promptly got to work again in the nest. And so the fight went on until, at the end of the week, Miss Turner, fearing the woodpeckers might finally give up their hole, tried the device of nailing a nesting-box to the trunk. This was at once occupied by the starlings, and so the incident was closed. It is interesting to note that the starlings improved their leisure moments during the combat by learning to imitate the laugh or “yaffle” of their opponent, and they uttered it with accuracy enough to deceive the hen woodpecker and lure her from her hole, till she learnt to realise the fraud.

The persistence of starlings is well illustrated by the following account of an attempt to prevent them from building in the bowl-shaped receiver at the top end of a rain-water pipe. On the first occasion the owner simply removed the nest. The birds at once started to build again. He then fixed wire over the top of the receiver. The birds raised it and began once more. He refixed the wire securely. Some days afterwards he found a nest again in the receiver, with eggs in it. As the wire had not been unfastened, he was much puzzled to know how the birds had made their entry. They soon solved the mystery for him. Above the receiver, and leading down to it from the gutter at the eaves of the roof, was a round, almost perpendicular pipe, about eighteen inches long and four inches in diameter. It was by this pipe that the birds entered their nest. The descent was comparatively easy, but the return journey was quite another matter. The birds doubtless performed it by pressing the back and feet against opposite ends of the pipe, and so scrambled up. That they found this method of progression exceedingly irksome was to be inferred from the stifled screeches which possessed the inside of the pipe during each ascent, and by the very dejected and disreputable appearance of the starlings when they emerged from its upper end, where they had to pause awhile to cool themselves and to readjust their feathers. The difficulties were finally solved

¹ *British Birds*, ii. p. 142.

to the satisfaction of all parties, by the transference of the nest to a flower-pot.

Starlings are able to make holes for themselves when occasion demands. One has been seen to bring, "through an extremely rough and irregular aperture, in a quite decayed tree, one little beakful of chips after another. . . . The chips thus brought were dropped on the ground, and had all the appearance of having been picked and pulled out of the mass of the tree. Possibly, therefore, the aperture had been made in the same way."¹ Another pair, seen excavating a hole in a decayed tree, were thus occupied several days. In this case each particle of wood was carried to a distance, a feat which, taken in conjunction with the exactly contrary behaviour of the bird just noticed, adds but one more illustration to the many already given in this book of the danger of assuming uniformity of habit on the strength of one or two particular instances. On the fourth day of their labours, the present pair showed in a striking fashion their ability to profit by circumstances. A strong wind was blowing, with the result that, as soon as the birds appeared at the mouth of their hole, a violent puff would send the chip flying from their beaks to a distance. Thereupon they started shuffling pith out of the hole, presumably with their wings. Numberless "small pieces of decayed wood" issued from the hole "like smoke from a chimney." Let us add that the pair returned to this hole each year till it was flooded by a heavy rainfall. They then took possession of a hole in a neighbouring tree, but evil still pursued them, for a swarm of bees entered the nest and stung their offspring to death. After a few days' lamenting, they left the place, not to return.²

The habit of carrying material from the nesting-hole to a distance is exemplified in the case of a starling which removed a number of flints from the barrier of a safety rifle-range. These were deposited on a ledge several yards away. The instance seems to indicate that the removal of material is rather the habit than the exception. This

¹ E. Selous, *Bird Life Glimpses*, p. 133.

² Gray, *Birds of the West of Scotland*.

is what one would expect, for an accumulation of fresh dry wood or dislodged stones at the foot of the nesting-place might very well attract the attention of the spoiler.¹

A curious fact, noted several times in the case of starlings, is that they will pluck flowers and carry them to the nest—violets, primroses, hyacinths, crocuses and others, also buds, if not leaves. Whether this occurs before the eggs are laid or young hatched is not made clear by the evidence; it certainly occurs afterwards. The young have been found lying on a bed of flowers, and the male has been seen to carry his bouquets to the sitting hen.² The information supplied is not yet sufficiently detailed to enable one to explain satisfactorily this singularity, which is, let us add, not confined to starlings. Goldfinches, for example, have also been seen to adorn their nests with forget-me-not.³ One writer suggests that the object of the flowers is to keep the nest cool, but it has yet to be shown that they are plucked only in hot weather, or carried only to nests, such as those in nesting-boxes, which become no doubt stifling when built of thin wood and placed in a sunny position. It may be that the birds are simply attracted by the bright colours, and that they collect the flowers for the same reason that ravens, magpies and their kin will hoard any bright bits of china or metal that strike their fancy. What lends some weight to this view is that the objects brought to the nest are not limited to flowers. A moorhen that built a nest in the pond at Battersea Park wove four peacock's feathers into its fabric, "so arranged that the four broad tips stood free above the nest, shading the cavity and sitting bird, like four great gorgeously covered leaves."⁴ Here it might be argued that the feathers were used to shade the nest and so again keep the bird cool, but this would not apply to other instances that might be given, such as the paper-streamer bedecked nest of the mistle-thrush shown on Pl. XIII, or again the "garden" of the bower-bird. A third view is that the flowers are taken to the nest as food.

¹ *British Birds*, iii. p. 83 (F. W. Headley).

² *Zoologisches Garten*, 1879, pp. 233-7; 1891, p. 152. Naumann, *Vögel Mitteleuropas*, iv. p. 12.

³ See vol. i. p. 109.

⁴ W. H. Hudson, *Birds of London*, p. 96.

There can be no doubt that starlings do swallow vegetable matter. In the stomachs of five adult specimens examined by Mr. Newstead blades of grass, in one case a quantity, were found, and a "large quantity of fragments of plant remains" were identified by him in the faeces of nestlings.¹

The building of the nest is the work of both sexes, at least as a general rule. The cock has been observed both to help in incubation and to bring food to the hen when she is sitting. He also helps to feed the young, though, according to one observer, this is not always the case.²

Something of the extent and nature of the diet enjoyed by young starlings may be gathered from the following account by Mr. Newstead. "During a total period of seventeen hours, representing approximately the hours of one day during which food was collected for the young, (at least) 169 journeys were made to the nest." The food brought consisted of 275 insects, of which 269 were injurious to man, 30 earth-worms, 14 slugs and snails, 1 centipede, 1 woodlouse, 9 harvest spiders 23 lots of bread, 19 lots of what appeared to be garbage from a kitchen midden, and 10 lots of unidentified insects. This leaves little doubt as to the value of the starling during the breeding season.³

The young starlings that received this liberal diet were, Mr. Newstead observed, fed, at least on four occasions, by three adults (two males and one female), all three arriving at the nest almost simultaneously. What was the actual extent of the help given by the third bird was not ascertained.⁴ In a similar case noted, the third bird proved unwelcome, and was again and again chased away, only to return with food for the young.⁵ On other occasions three birds have been seen to share in the building of the nest. On one, the

¹ *Food of Some British Birds*. Board of Agriculture, pp. 57, 58, 60.

² R. Kearton, *Wild Life at Home*, p. 76.

³ *Food of Some British Birds*. Board of Agriculture, p. 61.

⁴ Newstead, *op. cit.*, p. 61.

⁵ *Zoologist*, 1896, p. 388.

third bird was observed to disappear when the nest was completed. The sex of the third was not ascertained except in one case, when it was stated to be female.¹ Similar facts are reported of rooks, martins, and other species. It may be that the third bird is one of the young of the previous year, for it is difficult to suppose that the presence of a stranger would be tolerated. The young very probably return each spring to the nest in which they were born. If they return paired and show a disposition to lay claim to the site, no doubt they are opposed by their parents. But a single unpaired young bird might very well be allowed to remain.

On leaving the nest the young are led afield. They may at first be fed on the ground, a lawn, or field, close to the tree in which is the nest, and to the tree they return during the heat of the day and at night. This was the case with a family born in a tree at the end of my garden. Another family born in a hole of the thatch of my roof left it for good. As soon as the young were fledged I saw no more of them. This may have been due to the fact that I had kept them under observation, that the parents had been aware of the same, and had seized the earliest opportunity of removing their offspring out of my reach. It has been stated by a German writer that starlings only stay for one or one and a half days in their breeding-place after the young are fledged, and that they then go miles away, and do not return. From this it is argued that damage done by the species in orchards is not to be charged to the home-bred birds, but to autumn visitors. To fix the period at which the former remain at the nesting-place to one or one and a half days is, I think, to be over-precise. Good evidence, however, is given that, in some places at least, mischief in orchards is not done by the home birds. A thousand breed annually in nesting-boxes in a wood of Baron von Berlepsch in Thuringia, yet the immediately adjoining large cherry orchards have not suffered. The birds leave before the cherries are ripe. In another district where the starlings do not appear to breed, the

¹ *Zoologist*, 1895, p. 307 (Oxley Grabham); *Field*, 1888, vol. lxxi. pp. 547, 590.

orchards are besieged. But it remains to be ascertained how far the statement is true in all places and under all conditions.¹

Gradually the various families in a given area tend to meet and unite to form flocks, which may be seen flying about as early as the middle of May, the young being easily recognisable by their uniform greyish-brown plumage. The proportion of young and old in these early flocks—in any case the young preponderate—depends no doubt on the number of parents that go to rear a second brood.² Sooner or later the flocks retire each night to the common roosts already described.

A word in conclusion on the notes of the starling. The usual alarm- or warning-note is the harsh “*kerrrr!*” which may be heard when the bird is disturbed. I have heard this followed by a sound like “*whit! whit! whit!*” when a cat happened to be prowling near the nesting site. The note of fear is a loud metallic note, difficult to syllable. I have heard it at close quarters uttered by a wounded bird. It is probably this note it utters when struck by a hawk. What other notes the species has, besides the familiar petulant squabbling note, I do not know, and have not been able to find any information on the subject—except that according to Naumann the bird may utter a note, which he figures as a clear and sharp “*spelt,*” when it alights, and often just before it sings.³

¹ Martin Hieseman, *How to Attract and Protect Wild Birds*, p. 43.

² There is good evidence that starlings occasionally rear a second brood. A marked pair have been observed to do so. See the *Zoologist*, 1876, p. 5165, and the “Classified Notes” above.

³ Naumann, *Vögel Mitteleuropas*, iv. p. 10.

THE ROSE-COLOURED STARLING

[F. B. KIRKMAN]

This beautiful species, easily recognised by its hues of rose and iridescent black, and the erectile crest, has several times been seen (and killed) in Great Britain, where it comes as a stray visitor from the South. Its home may be said to lie in the near East—including in this term the Balkan peninsula and Asia Minor, but it recognises no fixed boundaries. There and thereabouts it breeds, and thence it wanders on migration in almost every direction. Eastward its flocks pass into India. West and north it spreads into Europe, even straggling as far as the Færoes. On the south occasional individuals reach the northern coasts of Africa. Its somewhat erratic movements have yet to be closely studied; they seem to be largely determined, at least at certain seasons, by the flights of its principal prey—the locusts, whose millions it follows in thousands, hunting the pest down without mercy, to the great satisfaction of the populations afflicted. To the Eastern peasant, indeed, the “locust bird,” as it is called, seems to be “possessed by some divine fury,” to be almost an avenging angel, as with quick beats of its black glancing wings, and with harsh cries, it darts in among the thick insect myriads, striking with such force that the victims fall with heads almost severed from their bodies. Its reputation as an avenger is further strengthened by the fact that it is not content to kill for food, it kills to kill, leaving the slain untouched.¹

The young wingless locusts, that swarm about the ground, are what appear to appeal most to the appetite of the rosy-starlings. Canon Tristram, when wandering through Syria, came one day upon a patch of some acres almost covered with young locusts. They rose about the feet of the horses like sand-lice on the seashore. After passing through this patch, the Canon looked back, and saw

¹ *Ibis*, 1883, p. 575 (C. W. Wilson).

in the air a mass shaped like a globe. It suddenly expanded over the infested patch, and "like a vast fan descended to the ground," which next moment was overspread with a moving chattering black mass, dappled with pink. It was a flock of rosy starlings. When approached, the birds flew off, but they had done their work. Not a young locust was to be seen.¹

In addition to locusts, grasshoppers and their kin, the rosy-starling feeds on other insects, spiders, small snails and worms.² It may often be seen, like the starling, hunting in the meadows, and, again like the starling, delights to be in the company of cattle and sheep; so much so, that it has gained the name of rosy-pastor. But, whereas one herdsman can watch a flock of cattle, a flock of these feathered pastors will watch one cow. As the placid quadruped moves slowly forward grazing, its muzzle and its hoofs are each surrounded by excited birds, eagerly attentive upon its every movement, and alert to spring upon any insect disturbed by its progress through the grass. Let the cow cease to move, and it is at once deserted—still cows disturb no insects—and its attendant birds rush off with lightning speed to the nearest quadruped in motion, their advent being doubtless greeted with anything but favour by those in possession. When the birds have had enough, and wish for repose, they may be seen lying on the ground, either flat upon their rosy breasts or else upon their sides, but still within sight of the herd. When the latter goes to the drinking-place, they rise and follow. While their four-footed friends drink and wade, they drink and bathe—living roses splashing in the blue of the water. Or they perch upon the neighbouring trees, which they set aglow with flame-hued blossoms and fill with strange music, not unlike the choring of starlings, but far less harmonious. There they wait till the herd returns to pasture and to the performance of that insect-moving function for which, according to rosy-pastors, it was by Providence ordained.³

¹ *Ibis*, 1882, p. 411.

² See the "Classified Notes."

³ For the facts in this paragraph I am indebted to the *Ornithologische Fragmente* of Petényi, who studied the species in Hungary.

Seen feeding on the ground, the rosy-starling is not unlike the common starling. It runs, with occasional hops if in haste.¹ When the birds are moving in a pack, the hindermost are fond of flying forward to the front rank, to find themselves, in due course, once more in the rear, a mode of progression which must, on the whole, give to all an equal chance of being first served.² Saxby, who saw a young male feeding among starlings, and had, therefore, a good opportunity of comparing the two species, observed that it carried the body more horizontally, was lighter and more vivacious in its movements, and that it did not bore in the ground with its bill.³

Again, like starlings, flocks of rosy-pastors may, according to Brehm, be seen hawking for flies high in the air. Locusts they will, as already related, strike at in the air, but they eat them only on the ground. Their method is to seize the locust in the beak, rub off its legs and wings, then, with vivacious gusto, swallow it whole or in parts.⁴

In their roosting habits also they resemble starlings. Towards evening, scattered flocks will collect at a common roost, and, before they enter it, go through varied evolutions, which must be even more striking than those described in the previous section, owing to the more brilliant coloration of the birds. An immense flock of them would, one imagines, present at a distance, in certain lights, almost the appearance of a cloud strewn with roses drifting here and there about the sky, and finally falling in a shower to the roost. Once there, the great hosts pour forth their evensong. At dawn, again, they sing before they burst from the trees, band upon band. As is the case with the starling, this exit is not performed without some confusion. Individual birds depart with the wrong flock, discover their mistake, and turn, sometimes dragging back the flock with them to the trees, where their own flock is still perched, calling them with loud unceasing outcry. But matters are in due course righted, or nearly so, and the flocks

¹ Von Nordmann, quoted by Naumann, *Vögel Mitteleuropas*, iv. p. 22.

² O. Reiser, *Ornis balcanica*, II. *Bulgarien*, p. 82.

³ *Birds of Shetland*, p. 119.

⁴ Naumann, *Vögel Mitteleuropas*, iv. p. 24.

disperse over the countryside, in their daily search for food.¹ When in pursuit of wandering swarms of locusts, this habit of daily dispersal would of necessity be abandoned, the birds roosting, presumably, in any convenient cover.

Unlike the starling, the rosy-pastor is habitually gregarious throughout the year. There is evidence, indeed, to show that even in the breeding season, the gregarious instinct makes itself so strongly felt that the cocks will leave the hens to sit on the nest at night and themselves go to a common roost. This was the case in a large colony which, in the year 1875, took up its summer abode at Villafranca, in Italy. Nearly all the males left their nests in the evening to pass the night in high trees at a distance of some miles from the town, a fact of which the Italian birdcatchers promptly took advantage, and to such an extent that the unfortunate male pastors were reduced to a mere remnant, an act of brutality which left the widowed hens burdened with the heavy task of bringing up their young unaided.²

The sudden and unexpected arrival of some thousands of rosy-pastors at Villafranca provides a good instance of the erratic nature of the movements of this species, which appears to be in the habit of frequently shifting its breeding-place in order to prey upon wandering swarms of locusts. Previous to 1875, the occurrences of rosy-pastor during the breeding season in Italy were exceptional and unimportant; and, indeed, at any season irregular and infrequent. But in June of that year these birds appeared one day in many thousands in the province of Verona, the vast majority invading Villafranca, where they alighted in chattering multitudes upon the walls of the old castle, to the intense astonishment of the citizens, who were greatly disappointed when, towards dusk, these beautiful and unknown, if noisy, visitors departed to disperse over the country. Next day, however, some twelve to fourteen thousand were again seen upon the castle, where, after a fierce contest with its usual feathered

¹ Petényi, *Ornithologische Fragmente*; Naumann, *Vögel Mitteleuropas*, iv. p. 22.

² *Zoologist*, 1878, p. 20 (E. de Betta).

occupants—presently to be described—they remained to breed. Their appearance coincided with the presence in the district of a vast horde of locusts, and this, no doubt, determined their stay, if it did not wholly account for their arrival.¹ A similar immigration was reported in June 1889 from Bulgaria, in which country the birds had not been observed for thirteen years. Here again their appearance coincided with that of a swarm of locusts, and they stopped to breed.² That, however, their movements, which do not appear to be confined to any particular season of the year, are not always determined by those of wandering locusts is shown by the immigration in March 1875 of some thirty to forty thousand into Slavonia (Hungary) at a time when no locusts had appeared.³

The sudden incursion at a comparatively late date of several thousands of rosy-pastors into a new breeding-place must sometimes of necessity bring them into conflict with a section of the resident bird population, unless a sufficient number of suitable unoccupied nesting sites is available. The birds which, as above related, descended upon the Castle of Villafranca in June 1875 found every hole and cranny in it already in possession of starlings, sparrows, swallows and pigeons. These they at once proceeded to expel. The pigeons were the first to retreat, and it may easily be imagined that the swallows and sparrows offered but a poor resistance. It was when starling met starling, the familiar spotted birds against the rose and black with its tossing black crest, that the hard fighting took place—Homeric both in its noise and its fury. The final defeat of the spotted was followed by equally vociferous and furious battles among the victors, for their numbers were far in excess of the available holes. Then the unsuccessful pairs sought nesting-places in the surrounding houses. Hence another war with tumult and ejections. Once in possession of the holes, the rosy-pastors

¹ *Zoologist*, 1878, pp. 16-18.

² Naumann, *Vögel Mitteleuropas*, iv. See also an article in the *Ibis*, 1883, p. 575, by C. W. Wilson, who states that a breeding-place he saw in Asia Minor had been taken possession of in the same sudden manner two years previous to his visit.

³ Von Tschusi, quoted in Naumann, *Vögel Mitteleuropas*, iv. p. 24.

set strenuously about the task of clearing or enlarging them. All the furniture and refuse of the former owners was sent flying down to the foot of the walls. Out came stones, bits of rock or brick, sticks and straws, even the skulls and bones of animals that had found a tomb in some crevice or had been taken there to feed the young of owls. The conquest and cleansing of the holes was the work of one day (June 4th). Next day at dawn began the nest-building. About June 17th there were eggs in the nest, and on the 14th July young and old—those that escaped the clutches of the birdcatchers—were on their way south to other lands. The visit had not lasted six weeks.¹

The rosy-pastor builds its nest not only in holes in buildings, walls, quarries and the like, but also under or among masses of loose stones.² The best account of a breeding-place of the latter type will be found in the *Zoologist* of 1857.³ On the slope of one of the rugged hills on the west of Asia Minor, overlooking the Gulf of Smyrna, in an area of about 200 square yards, covered with rocks all white with excreta, the writer found thousands of nests, some in the open, quite uncovered, others concealed among the boulders, and others again in holes, sometimes more than a foot deep. Many were built so close as to touch one another. Some were lined, more or less carefully, rather less than more, some were mere depressions in the ground. Here in this great nursery on the sunny hill-slope the happy noisy crowded rosy birds came and went the livelong day bringing food for the young, pausing to rest or sing upon the stones, or to squabble with a neighbour, or to brood upon the nest: and here again, behind the beauty and brightness, the joy and devotion, there lurked the eternal tragedy. Just as the birds themselves carried death to their insect victims, so they in turn were the victims of jackals, martens,

¹ *Zoologist*, 1878, pp. 18-19.

² First-hand evidence as to the nesting sites of *Pastor roseus* will be found in Petényi, *Ornithologische Fragmente*; Dresser, *Birds of Europe*, iv. ; Seebohm, ii. p. 22; *Ibis*, 1883, p. 575; O. Reiser, *Ornis balcanica*, II. *Bulgarien*; *Zoologist*, 1878, p. 18 (E. de Betta); *ibid.* 1857, p. 5608 (Antinori).

³ Translation of an account by the Marquis G. Antinori, p. 5608. The same may be found in Dresser's *Birds of Europe*, iv.

wild-cats and other beasts and birds of prey. Speaking relics of their fate lay strewn about the ground. In a space of only five yards square fourteen pairs of wings were picked up. The hill-slope, in fact, was both a nursery and a slaughter-house.

Naumann states further that the rosy-starling nests in holes in trees. If this is so, it would be interesting to know to what extent the bird then remains gregarious, for it would be scarcely possible for them to find a number of suitable sites close together.¹

The nest is made of much the same material as that of the common starling, with the addition, occasionally at least, of sticks and twigs. Those built in the holes of the Castle of Villafranca were large shapeless structures, occupying both the length and breadth of the whole available site. They were composed of twigs, sticks, straws, dry grasses, and the like, and each had a small hollow for the eggs lined with fibres, leaves, mosses and feathers. The nests on the hillside by the Gulf of Smyrna were very different,—a few dead stalks, or in some cases a lining of grass, in others a bare depression in the ground. The nests of the rosy-pastor probably vary more than those of most species owing to its habit of changing its breeding-place, which may actually be in different countries in two succeeding years. The occurrence of unlined or thinly lined nests on the open ground is possibly due to overcrowding, the less fortunate pairs, after wasting time in fruitless strife, finding themselves without time to prepare a proper bed for their eggs.

The eggs, 4 to 6 in number, sometimes as many as 8, and even 9, differ from those of the starling in being decidedly paler in colour and possessing more gloss. They vary from very pale blue or bluish grey to practically white. Traces of rusty brown spots have been known to occur. In size the eggs do not differ appreciably from those of the starling.²

According to all accounts, the eggs are laid either in May or June, rarely earlier. They are incubated by the hen only,

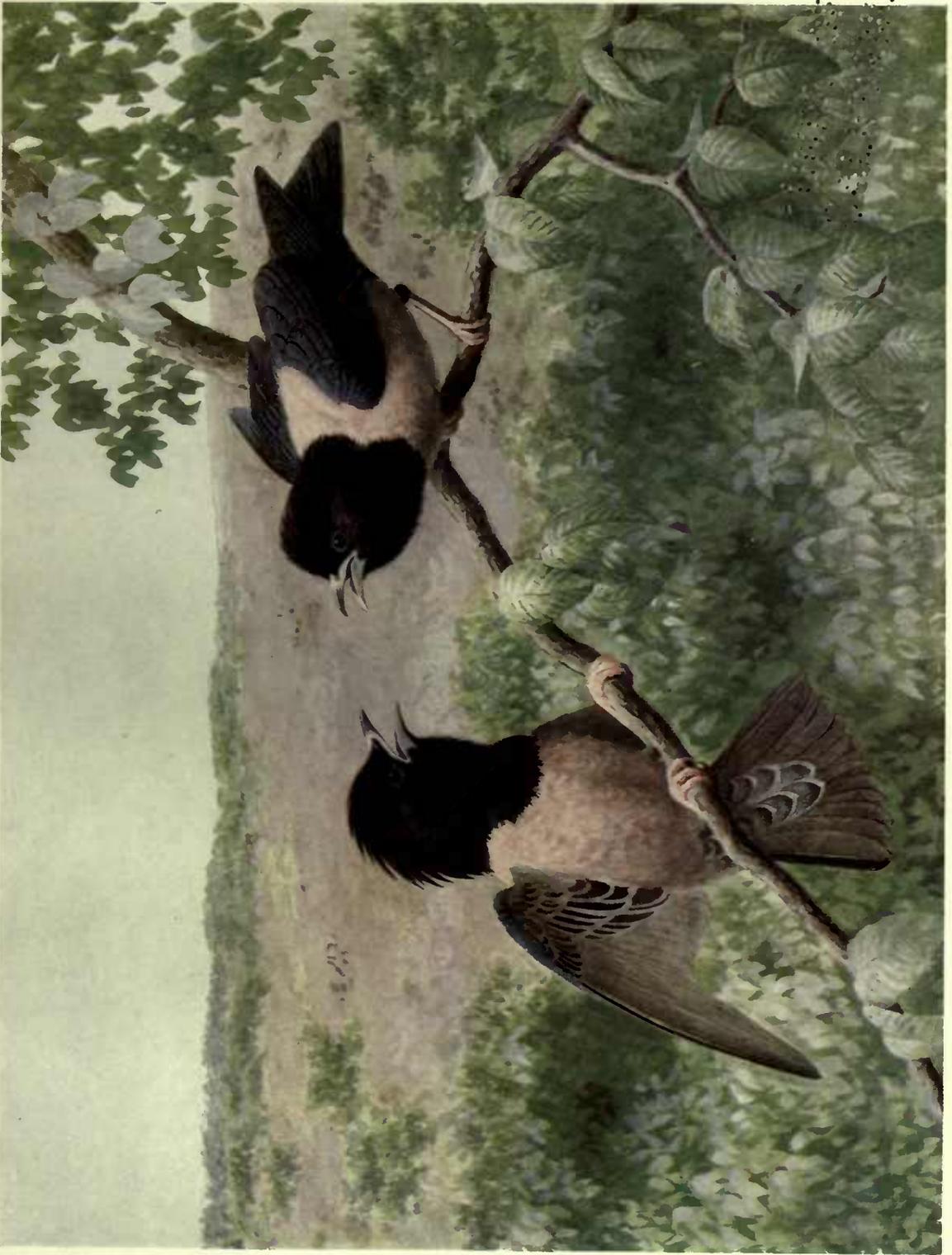
¹ *Vögel Mitteleuropas*, iv. p. 26.

² F. C. R. Jourdain (*in litt.*).

Plate 59

Rosecoloured-starlings fighting

By H. Goodchild



who while on the nest is assiduously fed by the cock.¹ One brood appears to be the rule. It is not recorded whether both sexes construct the nest, but both feed the young, and it is interesting to note, as an example of the strong gregarious disposition of these birds, that, when searching for the food of their young, they scour the country in flocks of ten, twenty, forty, or even more, and return in flocks to their nests.² As is the case with the common starling, flocks of non-breeding birds may be seen in summer.³

Of the sex displays of the species there is no record. There is, of course, the usual quarrelling among the males, who "may be seen pursuing one another and exchanging blows with their bills while in the most curious attitudes, and with their long black crests elevated and expanded."⁴ This crest, which is longer in the male than the female, is, when not erected, carried lying flat, so as to be scarcely remarked.

The young grow quickly, leaving the nest, according to one observer, in from ten to twelve days. They depart with their parents in flocks in July, but in August are said to form separate flocks.⁵ Their movements have yet to be more fully studied.

The song of the rosy-pastor has been described as "a continual chatter mixed with harsh and disagreeable sounds,"⁶ as "insignificant, not loud, and composed of sibilant, harsh, and for the most part ill-modulated, monotonous notes," not unlike the starling's, but yet clearly to be distinguished from it, and with a resemblance to the song of the corn-bunting or of a flight of sand-martins.⁷ If, according to Naumann, all the pleasing, piping, harping, flute-like notes are taken from the song of the common starling, what is left resembles the song of the rosy-pastor. He then syllables its various

¹ Naumann, *Vögel Mitteleuropas*, iv. p. 21.

² *Zoologist*, 1878, p. 20; O. Reiser, *Ornis balcanica*, II. *Bulgarien*, p. 82.

³ Naumann, *op. cit.*, p. 24.

⁴ *Zoologist*, 1878, p. 20. See also Mr. Goodchild's drawing, Plate 59.

⁵ Naumann, *op. cit.*, p. 25.

⁶ *Zoologist*, 1878, p. 20.

⁷ Petényi, *Ornithologische Fragmente*.

notes, the most oft-repeated being given as "*kritsch*" and "*tschirr*." Certainly neither of these have a musical sound, and as the remaining notes "*etsch*, *ritzs*, *swirr*" and "*tzwi*" have every appearance of being equally unharmonious, more need hardly have been said. But in order to remove any lingering respect the reader might still entertain for the vocal efforts of the rosy-pastor, he ends by comparing them to the squeaking of a pack of rats, squabbling and fighting in a corner.¹ The pastor himself, however, is not troubled by any doubts as to the merits of his song. Nor—which is more important—is his mate. Indeed she will occasionally join her notes to his.

The call- and other notes of the species have been described in some detail by Petényi.² The call-note in flight is a harsh "*schrrr-tschorr-tschorr-scherr!*" A different note is ascribed to the birds left behind, themselves not ready or inclined to fly: "*tschrr intsch-schör-intsch!*" On perching, a rapid "*schrrr-tschrrr-detschoor-tschrrr-dtzrrr,*" or often a still more energetic "*schweurenty-scheurenty!*" The fear-note is, according to Naumann, "*tzschwirr!*" probably the above "*tschirr*." The young are credited with the noises "*squer*" and "*kweek*." It will be seen that nearly all these notes enter into the song. Further study may reduce them to fewer elements, for some of the syllabled variations are so slight that they possibly represent differences in force or pitch. But these are difficulties that must wait till the science of phonetics has come to include within its sphere the speech of birds.

¹ *Op. cit.*, iv. p. 23.

² *Ornithologische Fragmente.*

THE GOLDEN-ORIOLE

[ORDER : *Páasseriformes*. FAMILY : *Oriolidæ*]

PRELIMINARY CLASSIFIED NOTES

[F. C. R. JOURDAIN. W. P. PYCRAFT]

GOLDEN-ORIOLE [*Oriolus oriolus* (Linnæus). *Oriolus galbula* L.
French, *loriot* ; German, *Pirol*, *Goldamsel* ; Italian, *rigogolo*.]

1. Description.—The black wings and tail, contrasted with the rich gamboge yellow of the rest of the plumage, distinguishes the male from all other British birds. There is no seasonal change of plumage. Length $9\frac{1}{2}$ ins. [241 mm.]. The male has the wings and tail and lores black. The outermost scapulars are black along the free edge of the inner webs, the secondaries have pale yellow tips, the primaries a narrow line of white along the free edge giving place to yellow at the tip. The primaries of the major coverts have broad yellow tips. The two middle tail feathers are black, the rest have yellow tips, the yellow gradually increasing up the feather to the outermost, but the amount of yellow varies. The beak is of an orange-brown colour, and the iris is lake red, while the legs and toes are lead colour. In the female the upper parts are of a bright oil-green, brightest in the rump. The throat and fore-breast are almost lavender-grey, faintly striated with darker grey, while the breast and abdomen are white, the former with ash-coloured striations. Flanks yellow with a tinge of green, under tail-coverts bright lemon-yellow. The lesser wing-coverts are black with broad green fringes, the greater coverts greyish black, the outer webs washed oil green ; the major coverts of the primaries have broad white tips. The two middle tail feathers are black with a strong metallic green sheen, the rest with basal half black washed with green, with a large oval yellow spot on the tip of the inner web. The juvenile dress differs conspicuously from that of the adult, the upper parts being of a pale yellowish green, the under parts white, streaked with ash colour. The chin white, wing-coverts oil-green with paler tips ; the primaries are dull black, the secondaries have

the outer webs oil-green, inner dull black. The tail is oil-green, tipped with yellow. The iris is brown. Between this and the adult male plumage are many gradations, the full dress not being assumed till the third year. The juvenile plumage is succeeded, in the males, by a livery resembling that of the female, differing, however, in having the upper parts greener. Throat uniform grey, and the striations on the breast rather heavier. The flanks are as in the female. There is less yellow at the tip of the tail. [w. p. p.]

2-3. Distribution and Migration.—During the breeding season it is found throughout the greater part of the European continent, with the exception of Scandinavia, Northern and Western Finland and Russia north of lat. 60°, but is an occasional visitor to S. Sweden. In Asia its range extends to Persia, Turkestan, and Southern Siberia, eastward to the Altai mountains, while in Africa a few pairs nest in the mountains of the North-western States, and an allied race, *Oriolus oriolus kundoo* Sykes, inhabits India to Afghanistan and Turkestan. To the British Isles it is a fairly regular summer migrant. Beginning on the western side, we find that it has occurred nearly fifty times in Ireland, sometimes in small flocks and at other times in pairs, and almost always in the maritime counties, especially along the southern coast from Co. Kerry to Co. Wexford. As most of these occurrences took place in May, and there is only one record of its appearance in June, there is no reason to suppose that it has ever bred in Ireland. But when we come to the Scillies and Cornwall the records become much more numerous. At Trevethoe, near Penzance, it is estimated that forty were seen in April 1870, and it may be described as an annual visitor to Tresco in the Scillies, where a pair were noted as late as the second week in June 1867. In most of our southern and midland counties there are numerous records of its appearance, while it is a regular migrant in small numbers to some districts of south Kent. Here there is little doubt that it breeds far more commonly than is generally believed. Dr. N. F. Ticehurst¹ says that he has notes of no fewer than sixty-five occurrences since 1834, apart from the actual nesting records, of which there are several. The earliest of these dates back to 1836, at Word, near Sandwich, while others are mentioned in 1840 and 1849 in the same district, and in 1851 a nest and eggs were taken at Wingham. Mr. J. E. Harting² gives an interesting account of a nest with newly-hatched young which he visited in Thanet in 1874, and it is pleasant to be able to state that both in this and the following year the young were hatched

¹ N. F. Ticehurst, *A History of the Birds of Kent*, p. 110.

² J. E. Harting, *Our Summer Migrants*, p. 268.

off successfully. They apparently continued to breed here regularly under protection till 1882, and probably again in 1885 and 1889, but not since. There is also evidence that it has bred once in North Devon, as well as in Hertfordshire, Northamptonshire (where young were reared near Peterborough in 1904), probably in Surrey in 1871 and 1890, and Essex, as well as in Suffolk and also in Norfolk in 1852. Except in the extreme north, records are tolerably numerous from most of the English counties, though the oriole is only a rare straggler to Wales; and individuals have been shot or picked up dead from the Isle of Man to the Orkneys and Shetlands, and occasionally on the mainland of Scotland. For the distribution outside the breeding area see pp. 78, 79. [F. C. R. J.]

4. **Nest and Eggs.**—Nesting-place: in Germany by preference in oaks and planes, less often in apple or pear trees of a good size, and rarely in firs. In the south of France the ash appears to be the favoured tree, about 60 per cent. of the nests being found in it, but oaks and beeches are also often used, while in the great Hungarian plain the acacias by the roadsides provide likely sites, and in Spain most nests are built in Spanish oaks by the river banks. The height from the ground is variable, ranging from about 6 to 60 ft., and the nest is generally built in the fork of a horizontal branch at a considerable distance from the trunk. It is not built on to the fork, but slung from it, close to the angle, and woven to the branch most artistically. Though light and flimsy-looking it is strong, and is constructed of grasses, sedges, roots, strips of bark and wool, lined smoothly with flowering heads of grasses and occasionally a feather or two. Few nests are without a bit of paper, while Baldamus relates how a thousand franc note was once found in a nest in France. (Pl. 60.) Opinions differ as to whether both sexes share in the construction or not. The eggs are usually 4 or 5 in number, sparingly marked with spots of very dark purplish brown, which show a slight penumbra, on a white or creamy ground. (Pl. D.) Average size of 100 eggs, $1.21 \times .84$ in. [30.7×21.3 mm.]. Most eggs are laid early in June, sometimes by the last days of May. Incubation is performed chiefly by the hen, and lasts 14-15 days, and only one brood is reared. [F. C. R. J.]

5. **Food.**—Until mid-June the food of this species consists almost entirely of insects, for the most part those which are found on trees. Many of these are devoured in their larval stage, but remains of the imagines of various species of Coleoptera, especially the cockchafers (*Melolontha*), are very frequently found in the stomachs of birds examined. Larvæ and pupæ of many species of Lepidoptera are also eaten in large numbers, among which at least the species of hawk moth have been recognised (*Sphinx convolvuli* and *Smerinthus populi*), and in addition

ants, flies (*Tabanus*), grasshoppers, and several species of Hemiptera or bugs, especially *Palomena prasina*. Remains of spiders and small molluscs have also been detected. After mid-June various kinds of fruit are added to the dietary, principally cherries and both white and black mulberries as well as currants. Gromier says that in the South grapes and figs are also eaten. [F. C. R. J.]

6. Song Period.—From the time of its arrival in Europe until the young are hatched, or roughly from mid-April to mid-June and occasionally later. [F. C. R. J.]

THE GOLDEN ORIOLE

[F. C. R. JOURDAIN]

Few ornithologists have had the opportunity of making any extended study of the habits of this shy and brilliantly plumaged bird within the limits of our own country. Yet it is true that every year a good many individuals appear in spring along our southern coasts and work their way inland, judging from the records of slaughter which appear annually. It is indeed tolerably clear that nothing but the senseless butchery of breeding pairs on their first arrival prevents the species from breeding regularly with us, in one or two favoured districts at all events. As a rule it appears in pairs, or the more conspicuous male is alone noted, but sometimes it arrives in considerable numbers at a time. As already stated, about forty were seen near Penzance in 1870 and Borrer (*Birds of Sussex*, p. 43) mentions having seen fourteen sunning themselves on an old thorn bush on Henfield Common. But as a rule the articles on this species in our county Faunas are not exhilarating reading, and consist for the most part of mere catalogues of birds shot or seen and unsuccessfully pursued, and it is with relief that we turn to the other side of the Channel to learn something of its life-history and habits.

The golden oriole is a regular migrant, only visiting Europe during the summer months and wintering in Africa.¹ There is work for many generations of naturalists in tracing out the movements of our summer migrants in this vast and little-known continent. Few birds are, however, more easily recognised when seen than the adult male, even by those who are not ornithologists, and under certain conditions he is a conspicuous, though always a shy and wary bird, so that we know that his winter

¹ A few appear to migrate in a south-easterly direction, and apparently winter in Sind. See Hume, *Stray Feathers*, i. pp. 91, 182.

wanderings take him as far as Damaraland, the Knysna forest in Cape Colony, Natal, the Transvaal, German East Africa, and Madagascar. Generally the recorder notes the species as not common, while Andersson remarks on the preponderance of immature birds, and says that they arrive in Damaraland at the beginning of the rainy season. A partial moult, in which the small feathers are renewed but the primaries and tail-feathers are not shed, takes place about February, and gradually the great oriole army, in brilliant plumage, begins its long journey towards its northern home. It is evident that there is no common route, but that some gradually work up along the west coast towards Marocco, making for the Straits of Gibraltar; others as certainly travel down the Nile valley through Nubia and Egypt; and as they become plentiful in Algeria and Tunisia about the same time, it is evident that other detachments cross the Sahara; while on the eastern side some cross the Red Sea and pass through Arabia on their way to their breeding grounds in the Persian Highlands and the Altai range in Eastern Turkestan. A good many birds stop to breed in the valleys of the Atlas range in Marocco and Algeria, and Whitaker also describes them as nesting in cool wooded spots in the mountain forests of Northern Tunisia. But the main body pushes on across the Mediterranean, and apparently none stay to nest in the plains of Lower Egypt. Our information is now rather more definite, and it is clear that certain recognised routes are adopted in order to cross the Mediterranean. The most westerly of these is by the Straits of Gibraltar, and probably most of the birds which visit us arrive by this line, although it is possible that our Kentish immigrants may have travelled through Sardinia and Corsica. On the Spanish side of the Straits, Irby notes that the passage begins on the 11th, 18th, or even 21st of April, and lasts till about May 14th or 15th. Much smaller numbers face the passage to Sardinia, reaching the east coast of Corsica about April 24th to 29th, and passing on rapidly to South-east France and North-west Italy, where they are noted

as arriving from April 25th to May 10th. A third and more important route is through Sicily and along the Italian peninsula; while still further to the east large numbers cross to Greece from the opposite coasts of Africa, arriving from the 18th to the 26th of April onward, and many escape the sea passage altogether by migrating through Palestine, where Tristram met with large numbers for a fortnight in mid-May.¹

Wandering among the groves of cork oak, ilex, or pine, with their scented undergrowth of cistus and broom in Southern Andalucia towards the end of April, a momentary glimpse is caught of a brilliant black and golden bird, with strong and undulating flight somewhat recalling that of the green woodpecker. He only shows himself for a second or two between the trees before he is swallowed up by the thick foliage of a Spanish oak. This is an old male golden oriole, one of the skirmishers of the invading army; a wary one too, and quite alive to the value of effective cover, for experience teaches us that he persistently avoids the shelter of the olive, with its thin, pointed, glaucous leaves, or the scanty foliage of the cork oak, in which he might be detected without much difficulty, and prefers to resort to those trees only which provide the concealment which he seeks. Here the males always precede the females by several days, and as a rule pass on quickly, but even in Andalucia a few settle down to breed. Meantime a process of dispersion goes on gradually over Spain and Portugal, some still journeying northward towards the Pyrenean passes, while others colonise certain favoured spots, such as the valley of the Lower Guadiana and the elm groves of Aranjuez. Near the head of the pass of Roncesvaux, H. A. Macpherson² met with several brilliantly plumaged males resting on passage, but noticed one cock and hen in company which had probably already paired. When the Pyrenees are passed the process of dispersal goes on through the plains of France, until the advance guard of the Spanish army meets with the outlying scouts

¹ *Ibis*, 1867, p. 366.

² *Zoologist*, 1891, p. 467.

of the Corsican and Sardinian force. In this way the whole of Middle Europe, the country south of the North and Baltic Seas, is gradually colonised by converging waves of immigrants by one or other of these routes. In the east of Europe the northern limit of the species extends to somewhat higher latitudes than in the west, and it is not uncommon in some parts of Finland.

Apparently, in many cases, the same individual birds return annually to their breeding haunts, and in about the same numbers. This is one of those statements which it is almost impossible to prove, but the weight of the evidence is so strong that there is no reasonable doubt. In the first place, there are several instances on record in which a brood has been successfully hatched off, and in the following year the birds have built their nests again in the identical fork of the bough which was occupied in the previous year. This has been known to occur for several years in succession when the birds have not been disturbed. Then again, there is a certain individuality about the whistle of each bird, and just as it is possible to recognise the song of a certain thrush by some peculiarity of intonation, so it sometimes happens that the note of some particular oriole may be recognised in the same district year after year. Another factor which enables the intrusion of a young cock into a district formerly occupied by an old male to be readily noted, is that the full plumage of black and gold is not acquired in the second year, but the young male breeds for the first time in a plumage which closely resembles that of the hen.

In spite of the fact that the males lead the way across the Mediterranean, it is most probable that the oriole is a life-paired bird, and that the cock is rejoined by his mate at the breeding-place, or, in some cases, even beforehand, for most of the birds which visit us appear to be already paired.

Each male has his own little district, and now the rich, fluty whistle resounds from the tree-tops in all directions. Where the bird is common, as, for example, in the tall oaks of the old country gardens of Dutch Brabant, or the oak woods surrounding the châteaux of

Central France, four or five birds may be heard uttering their melodious but all too short strophe at the same time. Bird notes are notoriously difficult to express in cold print, and the written words will convey little meaning to those who have never heard the bird, but to those who know it, they may recall pleasant hours spent in pursuit of a "wandering voice," perhaps to be rewarded at last by the sight of the shy bird, crouching close to the branch and partly hidden by the chrome-coloured foliage of the oaks, or a mere glimpse of yellow and gold as he wings his way to another tree from which presently his clear notes again resound.

Naumann notices the variation in the whistle of the same bird as repeated from time to time, and expresses it thus: "*gidleo,—gitatidlio,—gidilio,—giphiagiblio,—gidleah!*" Allowing for the German pronunciation of the letter *i* (which might be represented by *ee* in English), this gives a fair idea of the sound. Many of the local names of this bird, such as the Dutch "wielewaul," the German "wigenwagel" and "pirol," the French "loriot," and others, are obviously derived from these notes. According to Dresser, many of the German foresters can entice the oriole within range by imitating its notes, especially a soft "*hio*," used by both sexes during the breeding season, and on one occasion Carl Sachse managed to get three at the same time within range, while at other times he brought a bird to within a few yards of where he was lying concealed. But the slightest defect in imitating the call will put the bird on its guard, and it is then hopeless to try and approach it. It must not, however, be supposed that the whistling notes comprise the complete vocabulary of this species, for it has a whole series of harsh, cat-like, snarling and growling notes, which are not audible at any great distance, but are always to be heard when the nesting-place is approached. Naumann writes the alarm-note, uttered when disturbed, as "*giaek, jaek, jaek*," and a hoarse "*kraeek*" or "*schraeek*."¹

¹ There is also some evidence that the oriole possesses a low song, which has been compared to those of the reed- and sedge-warblers, and which is inaudible beyond thirty or forty yards. See *Naturgeschichte der Vögel Mitteleuropas*, iv. p. 32.

When the males arrive at their breeding-places they may be heard whistling from before dawn onward. At this period they are very quarrelsome, resenting any intrusion on each other's territory. Dr. Gromier says that on one occasion two fine males fell to the ground at his feet, locked together in deadly combat, and Carl Sachse, quoted by Dresser, says that he has seen four or five together fighting in the air. Of the courting actions of this species, owing to its shy and suspicious nature, nothing appears to be recorded. But in a week or two those birds which have not been rejoined by their mates have secured partners and settled down to family life. They show considerable courage in driving off birds of prey from the neighbourhood of the nest, and even the comparatively harmless kestrel is promptly attacked and driven off by both sexes if he incautiously approaches too near.

In the well-wooded districts where the oriole makes its home in Europe, both birds spend most of their time among the branches, where they find an ample supply of insect food during the early part of the summer, descending only rarely to the ground, and in a furtive and uneasy manner, in order to drink. Dr. Gromier, who has studied the bird closely in the south-east of France,¹ is of opinion that the work of nest-building is carried on entirely by the hen, who is, however, always accompanied by her mate. He states that in collecting material she prefers to perch on some low bough from which she collects the grasses and roots in her bill, without actually touching the ground. Naumann, on the other hand, distinctly asserts that both sexes share in nest-building, and describes how the male usually brings material in his bill, while the female assists him in fastening the long stalks and bits of fibre into their places! He adds that when the foundation of the nest has been built the hen sits in it in order to deepen and shape it. The nest, which has already been described, is quite characteristic, and unlike that of any other European bird, woven round the angle of some horizontal fork of a side branch and forming a secure cradle for the eggs. The

¹ *Revue Française d'Ornithologie*, 1909, p. 66.

Plate 60

Golden-oriole, the male being the upper bird

By Winifred Austen



wonderful way in which the nesting material is firmly and artistically fastened to the boughs must be seen to be appreciated. (See Pl. 60.)

The eggs are incubated for a period of fourteen or fifteen days by the hen, who is relieved for a time by the cock during the afternoon, while she goes off to feed, according to Naumann. When the young are hatched the male ceases to whistle, and both devote themselves to supplying food for their young brood.

Harting describes the young when about three days old as almost naked, the skin of an orange or yellowish flesh-colour, very sparsely flecked with yellow down. At this period they are fed by the old birds chiefly on caterpillars, at first at long intervals, but afterwards more frequently, and the hen broods over them not only during the night, but also during the cooler hours of the day. After seven or eight days the young begin to utter a weak note when fed, and show their satisfaction by fluttering their wings. When the hen arrives with a beakful of insects and the young are not hungry, she broods over them for a time, keeping the food in her bill until they show signs of hunger. As is the case with many birds, the evacuations of the young are at once swallowed by the parent. The young grow rapidly, but do not leave the nest till nearly fully fledged, and are soon able to feed themselves.

By the time the young are fledging the cherries have ripened, and form a considerable portion of their food. Dr. Gromier has found by analysis of the contents of the stomachs of the young that they are fed on cherries, insects, and small mollusca with the shells broken up small.

If the first clutch of eggs (which almost invariably consists of four or five eggs, and very rarely of six) is taken, a second is laid, but only one brood is reared in the year. The late H. L. Saxby, who was for some time resident in Belgium, and was a careful and accurate observer, made the surprising statement that he had seen unfledged young both in June and in August, and thought it probable that two

broods were sometimes reared in a year.¹ The only confirmation that I have ever heard of this was from Karl Mollen, the falconer of Valkenswaard, who told me some fifteen years ago that he believed that a second brood was sometimes reared in August.

In the last weeks of July the young orioles moult their smaller feathers, while the old birds undergo a complete moult, shedding the quills of both wings and tail. During the breeding season they are thin and in poor condition, but after the moult, in August, they develop an extraordinary appetite, devouring, besides insect food, mulberries, as well as grapes and figs in the south. On this diet they rapidly become very fat, which no doubt is of the greatest service to them on their long journey towards their winter quarters.

The question as to the utility or the reverse of the species to the agriculturist has been carefully investigated in Hungary by E. Csiki, under the auspices of the Ungarische Ornithologische Centrale (*Aquila*, 1904, p. 32). From this it appears that from the time of its arrival to mid-June its food consists exclusively of insects, especially cockchafers (*Melolontha vulgaris* and *hippocastani*), both of which are extremely destructive to vegetation. During the second half of June and in July and August, various kinds of fruit are also eaten, especially mulberries and cherries, but on the whole the good done during the earlier months far outweighs any damage which may be done later.

By the end of August the old birds have already begun their return journey, and are rarely to be seen in Southern France, but throughout September young birds may be met with from time to time. In Spain and Italy the return passage also takes place during August and September, but there is one curious fact in connection with it which has never been satisfactorily explained. One would naturally expect that after rearing families of four or five to each pair, the numbers on the return journey would be very largely augmented, but as a matter of fact far fewer are usually noticed than in spring,

¹ *Zoologist*, 1861, p. 7540.

and even these appear to be mostly immature birds.¹ It may be that the adult birds from the most southerly part of the breeding range are the first to leave, and that their places are then taken for a time by birds which have bred further north, so that no increase in numbers is apparent there. These old birds, being strong on the wing, are able to travel long distances without resting, and do not find it necessary to make a stop at islands like Sicily or Malta, which lie on their southward line of migration.

¹ Whitaker, *Birds of Tunisia*, i. p. 165.

THE WAXWING

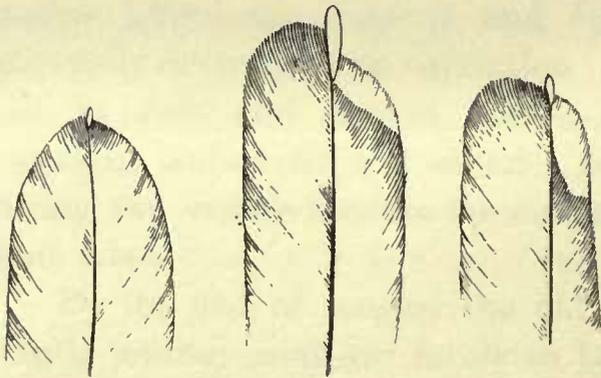
[ORDER: *Passeres*. FAMILY: *Ampelidæ*]

PRELIMINARY CLASSIFIED NOTES

[F. C. R. JOURDAIN. W. P. PYCRAFT. A. L. THOMSON]

WAXWING [*Bombycilla garrulus* (Linnæus). *Ampelis garrulus* L. French, *jaseur de Bohême*; German, *Seidenschwanz*; Italian, *becco frusone*.]

1. Description.—The Waxwing may be instantly recognised by the horny, sealing-wax red tips of the secondaries, and the chestnut under tail-coverts. The sexes are alike, and there is no seasonal change of plumage. (Pl. 61.) Length 7·25 in. [184 mm.]. The adult has the lores and a band at the base of the beak black,



and a large oval black spot behind the eye. The crown feathers, which are long and form an erectile crest, are drab-brown, and this hue is continued backwards, shading into greyish brown on the back and wings, and pure ash-grey on the rump and upper tail-coverts. The inner secondaries are greyer than the back, and have a white oval

spot at the tip of the outer web, which is abruptly shorter than the inner, forming a bar in the closed wing. From four to eight of these quills have a long, spoon-shaped appendage of a sealing-wax red, as shown in the above drawings, and along this for about half its length runs the longer inner web. The major-coverts of the primaries each have a large white spot at the tip. The primaries in fully adult birds have a terminal stripe of sulphur-yellow at the tip of the outer web, and this bar is continuous with a white bar along the inner web, running almost at right angles with the shaft, forming, in the closed wing, a long line of yellow, with

tooth-like projections of white. (For the intermediate stages in this development see p. 164.) The tail is dark grey shading into a penultimate bar of black, and terminating in a broad bar of light sulphur-yellow; incipient wax tips are sometimes present (see p. 164). The under tail-coverts are chestnut. The breast and flanks are lavender-grey, the throat black, relieved by a short malar stripe of white.

Immature birds are of a pale sepia, tinged grey above, the yellow markings on the wings much paler, and the white only partly developed (p. 164). There is a white superciliary stripe and a white patch behind the eye, but no white malar stripe; under parts pale sepia. The juvenile plumage is much duller than the adults; there is only a small black patch on the throat. The under parts are mottled and striped, and irides hazel, whereas in the adult they are red. Wax tips as in adult. [W. P. P.]

2. Distribution.—This species seems to vary considerably in numbers in any particular district from year to year, but is now known to breed with more or less regularity from the north of Scandinavia to about lat. 65° in Sweden, also in Russia, Lapland, in Finland south to the Kuopio district, and in the Olonetz and Archangel governments of Russia. It is resident in Siberia and Alaska, and has recently been met with breeding in the Rocky Mountains to about lat. 51° (Macoun, *Catalogue of Canadian Birds*, 2nd ed., p. 588). Outside its breeding area it is an erratic southern migrant during the winter months, sometimes in great numbers, and has occurred at irregular intervals in the greater part of Europe, south to the Mediterranean region, but has not been recorded from the Iberian peninsula or South Italy. Asiatic birds winter in Japan and North China, while North American birds have been recorded in winter from North California and occasionally from Arizona. [F. C. R. J.]

3. Migration.—An irregular visitor on migration from Northern Europe, occurring chiefly in the winter months, but sometimes as early as August and on the spring passage as late as May. The records of its occurrences are well distributed over the whole of the British Isles, but the majority are for the more northerly and easterly districts (cf. Saunders, *Man. Brit. B.*, 2nd ed., 1899, p. 155; Ussher and Warren, *B. of Ireland*, 1900, p. 45; Nelson, *B. of Yorks.*, 1907, p. 146; Forrest, *Fauna N. Wales*, 1907, p. 130; and Ticehurst, *B. of Kent*, 1909, p. 123). As a rule the waxwing is a rarity in the British Isles, but in some seasons very considerable immigrations have occurred. These 'visits depend on the severity of the weather on the Continent, but it does not follow that the same winter will be rigorous in

the British Isles' (Saunders, *loc. cit.*). Winters in which considerable immigrations have been noted are '1686, 1830-1, 1834-5, 1849-50, 1866-7, 1872-3, and 1892-3' (Saunders, *loc. cit.*), and 1903-4 (cf. J. G. Tuck, *Zoologist*, 1904, p. 115). With these may be compared the two special occasions mentioned for Heligoland—September 1847 and January 1850 (cf. Gätke, *Vogelwarte Helgoland*, Eng. trans., 1895, p. 226).

[A. L. T.]

4. **Nest and Eggs.**—Does not breed in the British Isles.

5. **Food.**—Insects, and during autumn and winter berries of all kinds.

[W. P. P.]

6. **Song Period.**—Does not sing in the British Isles. [W. P. P.]

THE WAXWING

[W. P. PYCRAFT]

The growing list of the birds of the British Islands is due to the closer scrutiny which is kept on our spring and autumn migrants by an ever-increasing body of skilled observers, whereby numbers of small, obscurely coloured, hitherto unsuspected birds, of skulking habits, are detected. But for such observers these would pass, as they doubtless have passed for generations, unnoticed, being lost amid the hosts of more familiar wanderers. But at irregular intervals immigrants reach our shores in hosts large enough to attract the attention even of the least observant among us, and one of the most conspicuous instances of this kind is afforded by the waxwing, whose visits, at times, take place in such numbers that they have been aptly termed "invasions." Doubtless these nomads, in varying numbers, have sought sanctuary with us for thousands of years past, but human records go no further back than the year 1681, when a number of these beautiful birds were shot at York during January of that year.¹ Since when, we know that, at intervals of a year or two, these visitations have continued to the present day, sometimes only a few belated

¹ Lister, *Phil. Trans.*, 1685, pp. 11, 61, fig. 9.

wanderers making their appearance, sometimes enormous flocks, which on arrival break up into smaller flocks of fifty or more, and disperse themselves over the country.

Even during what we may call "waxwing" years these birds are not seen in such vast flocks as occur on the Continent, though Johnson, a correspondent of Ray's, writing him from Brignall in Yorkshire, in May 1686 remarked, "They came near us in great flocks like field-fares." According to Gesner, in 1552 they were so numerous on the Rhine between Mainz and Bingen, that when flying "they cast a shade like that of nightfall." But even this pales into insignificance compared with the vast hordes of these birds which have been seen together in North America, which marks the limit of its range westward, since a naturalist named Drexler met with it on Powder River, Wyoming, in "millions . . . rivalling in extent those of the wild [passenger] pigeon," while at Hamilton, West Canada, it is a winter visitor "sometimes appearing in vast flocks, and not seen again for several years."¹

Whence then do these birds come? And what causes their erratic emigrations?

The answer to the first question long remained a mystery, since the breeding quarters of this bird—which of necessity must be regarded as the centre of dispersal of any species—for years seemed impossible of discovery, though sought for by ardent egg-collectors throughout the Northern Hemisphere. Their zeal, however, was at length rewarded, when John Wolley in 1856 was enabled to demonstrate beyond all fear of contradiction, that, in so far as the Palæarctic region is concerned, at any rate, this breeding territory lay in the wilds of Lapland. In the pursuit of Ornithology none have shown more zeal, or more indifference to hardship, than the egg-collector. But unhappily, with some, this enthusiasm has become an overmastering passion, a mere craze for amassing huge series, meaningless, senseless, so that to-day to speak of one as an "egg-collector" is to brand him with a term of

¹ Coues, *Birds of the North-West*. U. S. Geol. Survey, Washington, 1874, p. 92.

reproach, or even contempt. It must be realised, however, that there are egg-collectors and egg-collectors: and that egg-collecting is an essential part of the study of Ornithology, which must yield important facts when seriously approached. It is, then, to the dogged perseverance of John Wolley that we owe the discovery of the breeding-place of the waxwing in Europe. He spent five consecutive summers and two winters in Lapland in the endeavour to solve this riddle, confident of ultimate success, and undaunted by repeated failure.

Wolley, however, did not himself discover the nest and eggs of the waxwing. These prizes were obtained for him during the summer of 1856 through the agency of his faithful servant Ludwig Knobloek, at Sardio, on the Kittila River, in Russian Lapland, though Wolley himself was also feverishly hunting for the prize. The first nest was discovered on Saturday, June 7th, by Johan of Sardio, one of a band of seven lads employed by Ludwig, and though the land was still snow-covered, this nest contained two eggs. Altogether about six nests and twenty-nine eggs were taken during the summer, with several parent birds for the sake of identification, and a young bird scarcely able to fly. The next year this search was naturally renewed, but it proved to be a year of great scarcity, few birds being discovered. Wolley himself searched night and day, scarcely allowing himself time to sleep, yet he never set eyes on a living bird, though he took one deserted nest on June 16th; his collectors, however, obtained for him eight eggs. But with the summer of 1858 his luck changed. An enormous number of waxwings settled for breeding throughout the district which had been the scene of Wolley's researches, and his collectors obtained 150 nests, producing nearly 666 eggs, while about a score more were obtained by a Prussian dealer who happened to be in the country. Wolley, however, did not participate in this huge haul, he having gone to Iceland to search for the great auk. "This same summer," remarks Professor Newton,¹ "saw an Englishman accomplish what Wolley himself only partially succeeded

¹ Yarrell's *British Birds*, vol. i. p. 531.

in doing. Mr. Dresser found a small colony of waxwings in an island in the Baltic, near Uleåborg, which prior information would have led any one to suppose was beyond the breeding range of the species, and with his own hands took a nest, an egg, and two young birds."

In 1859 the waxwing again bred in the Muonioniska and Kittila districts, but not so numerously, and again in 1860. Indeed, it would appear that this area is the normal breeding-ground of the species, through in some years it is more abundant than others, for nests and eggs, since the memorable year 1860, have constantly been found here. The breeding area, however, is by no means confined to Lapland; for nests have been taken in Scandinavia, Finland, and elsewhere. It would seem indeed to breed more or less constantly in the pine regions of the Old and New Worlds. In Canada, even as far south as lat. 51°, at least occasionally.¹

This then is the zone which forms the nidus for the invading hosts of the "Bohemian" waxwing, as it has well been called. We are now to attempt to answer our second question—What causes the erratic migrations which from time to time attracts so much attention? In the first place it is necessary to remember that the waxwing is normally, and of necessity, a migrant, and even in the matter of its breeding station is perforce, inconstant. Feeding in part on insects—during the summer—but largely on berries, inclement seasons in an inclement zone not seldom make the breeding-place of one year impossible in another, and this much will already have been gleaned. But under more favourable circumstances wintering in the high north is impossible, and accordingly a general exodus southwards is an annual event. Bad summers in these southern areas—Central Asia, North China, Japan—and the consequent shortage of food in winter, drive these birds east and west, according to the breeding area, and at the same time yet further southwards. But bad summers may be only one of two causes for these unusual movements, and the second may be due to over-population, which might well make for

¹ See the "Classified Notes," under Distribution.

famine even in years of moderate plenty. Having few enemies, a series of unusually plenteous years might well raise the number of individuals till they exceeded the food-supply, for it has already been shown that both in Europe and in North America flocks of countless thousands have been met with.

Among the agents at work in reducing the numbers of wild animals, man, civilised and savage, may always be regarded as playing the most prominent part. In the autumn, after feeding a while on the bounteous harvest of berries, waxwings become very fat, and in Russia are esteemed table delicacies. Seebohm found numbers frozen, in the markets of St. Petersburg,¹ and selected some of the finest specimens for his collection. These are proved to be males, and from this fact, and observations of flocks of living birds which he saw, he concluded that the sexes separate during winter. They are to be seen, it is said, in thousands in some seasons, in Russian markets. In the market at Archangel² he found live birds offered for sale, and was told they were common in the neighbourhood till the end of November, when, as the weather increased in severity, they disappeared. In the game market of Christiania, according to Mr. St. Quintin, "cartloads" were exposed for sale in January 1872.³

There is a chaste beauty in the plumage of the waxwing, and this fact, combined with its sudden appearance in large numbers, at irregular intervals, attracts, as we have remarked, the attention of even the most unobservant. The more enlightened and kindly disposed have been content to admire the bird, but the superstitious and the seekers after trouble have come to regard these visitations as bad omens, coincidence feeding their diseased imagination, as when in 1571 they appeared in Italy about Modena and Placentia, avoiding Ferrara, where an earthquake and floods soon after appeared. The Eskimo name of the waxwing means "a killer of small birds," the curious wax-red appendages of the wings being regarded as the clotted blood of its

¹ Seebohm, *British Birds*, vol. ii. p. 3.
St. Quintin, *Avic. Mag.*, 1909, vol. vii. p. 118.

² Seebohm, *Birds of Siberia*, p. 336.

Plate 61

Waxwings

By Winifred Austen



no. viii
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victims! So ingrained is this stupid superstition as to the association of this harmless bird with war, famine, and pestilence, that in parts of Europe it has been branded with the infamous name of *Pestvogel*.

The details of this plumage we have already set forth in the "Classified Notes," but there remain a few points demanding further notice. The first of these concern the "wax" tips of the wings, which form so singular a feature of this bird's plumage. These are horny plates of about three-eighths of an inch long, and about one-eighth wide, those of the middle of the series being the largest, and in shape may be likened to long, narrow spoons; more accurately, perhaps, they may be likened to human finger-nails, long, narrow, and filbert-shaped, the outer surface being rounded and the under surface hollow; while in colour and texture they resemble red sealing-wax, having the same highly glazed surface, at least externally, the under surface being of a pale pinkish hue,¹ and slightly grooved.

They are formed by an extension of the uppermost layers of the shaft of the feather, and hence project beyond the web. Only the secondaries, and in rare instances the tail, have these curious ornaments. While in the outermost secondary the wax tip projects beyond both the outer and inner webs, it will be found that as the series is traced inwards, the web of the inner vane creeps up, as it were, along the free edge of wax tip, so that the inner web is markedly longer than the outer (Fig. p. 156). The innermost feather, however, bears but a small tip, and this, like that at the other extreme, stands clear of the web on both sides.

These curious appendages, it is to be noted, are developed even in the nestlings, and may be seen in the callow young, and the number borne on each wing seems to be determined rather by individual vigour than by age, while they tend to be more numerous in males than in females. Further, there may be an unequal number of tips on the two wings. The late Henry Stevenson made a careful analysis of the number and size of these tips, from material furnished by sixty-eight specimens

¹ Andersen, C. H., *Æfvers K. Vet-Ak Förhandl.*, 1859, pp. 219-231, pl. ii.

killed in Norfolk during the visitation of 1866-7. Of these forty-one were males and twenty-seven females. While the wings of males showed from four to nine tips, females ranged from two to eight. Only one bird, however, had eight, and only two had seven. The average number was from four to six. No males had fewer than four, only three had as many as eight. Of twenty-eight birds, fourteen had six and fourteen had seven. These tips were also larger in the males than in the females. He, like other ornithologists of his day, was inclined to believe that the number of these wax tips increased with age.¹ In specimens in which the plumage is much worn these appendages are lost completely.

It has been stated that similar appendages are borne on the tail feathers, but as a matter of fact instances of this are excessively rare, but there is frequently a tendency to produce such ornaments. Among the large series of skins in the British Museum there will be found a few, for example, wherein the terminal portion of the shaft embraced by the yellow tip of the feather is coloured red, and in one or two cases the shaft even projects slightly beyond the vane, and shows a tendency towards flattening. In such cases more or fewer of the barbs on either side of the shaft, and at the extreme tip of the feather, are likewise coloured red.

The markings on the primaries, to which reference has already been made, demand further notice, for on this subject much has been written.² In immature birds the outer web of the tip of each primary is marked by an oblong patch of white, decreasing in size towards the outermost feathers, as a rule, and especially in males this white is tinged with lemon-yellow. In the closed wing these oblong bars form a continuous stripe; with advancing age the yellow colour becomes more intense, while a white line begins to creep round the

¹ Stevenson, H., *On the Plumage of the Waxwing*. Trans. Norf. and Norw. Nat. Soc., vol. iii. pp. 326-344.

² Harvie-Brown, *Travels of a Naturalist in N. Europe*, vol. i. p. 218; Baird, Brewer and Ridgway, *History of North American Birds*, vol. i. p. 397; Seeohm, H., in Dresser's *Birds of Europe*, vol. iii. p. 429; Stevenson, H., *On the Plumage of the Waxwing*, Trans. Norf. and Norw. Nat. Soc., vol. iii. p. 12.

tip of the feather to form what is known as the J-shaped mark in distinction from the earlier I-shaped pattern. Finally, by a further extension of the line along the inner web the J- becomes converted into the "V-shaped" pattern characteristic of the adult, both male and female. In the closed wing, in the fully adult bird, the primaries now come to be marked with a yellow stripe fringed, as it were, by a series of widely spaced oblique white lines, which have been described as forming a ladder-shaped pattern.

It is a very singular fact that, while the plumage as a whole undergoes a series of progressive changes from the immature to the adult bird, the wax-tips which seem to give the finishing touch to that plumage should be developed in the callow nestling.

In regard to the nestling, all that we know we owe to Mr. W. H. St. Quintin, from young hatched in his aviaries. Some time ago he kindly sent me two specimens, ten days old, for the British Museum, with the following notes on the coloration of the mouth. "There was," he writes, "a patch of violet-blue on each side of the lower mandible, and the same above, the remainder of the interior lining of the mouth was of a brilliant deep cherry-red, and the tongue was of a port-wine colour. The effect was startling when the young bird gaped."

We may assume that since the sexes are alike in the adults, and from the fact that the young have already assumed many of the adult characters, that the species is entering upon the final phase of its evolution when both adult and young wear the same resplendent livery. And in this connection we may compare our waxwing with its near allies, the cedar-bird, *Bombycilla cedrorum* of North and Central America, wintering in Cuba and Jamaica, and the Japanese waxwing, *B. Japonicus* of Eastern Siberia, wintering in Japan and Northern China.

Our waxwing, *B. garrulus*, is conspicuously the most beautiful of the three, for while all are of the same general ground-colour, the American cedar-bird lacks the yellow and white in the primaries, and the white in the primary coverts and secondaries, while the "wax"

tips to the wings are smaller, and throughout the series are placed at the extreme tip of the vane, that is to say, the inner vane of the middle members of the secondaries does not run along the appendages as in *B. garrulus*: further, it is a smaller bird and has white under tail-coverts. The Japanese species has no wax-like appendages, but a spot of dull rose colour on the outer web at the tip of each secondary, the major-coverts are marked with rose colour, and a bar of vivid rose, or crimson, across the tip of the tail replaces the lemon-yellow bar of *B. garrulus*. There are other points of difference, but these are not of sufficient importance to be enumerated here. The substitution of red for yellow is not surprising; indeed wherever yellow occurs in any species, we may always expect to find one or more nearly related forms showing red in place thereof.

The waxwings appear to form an isolated group of species whose nearest allies are yet to be found, for attempts which have been made to determine the systematic position of these birds have so far, it must be admitted, ended in failure. Further investigation will, we believe, show them to be distant relatives of the Flycatchers. And this is supported by the fact that they pursue and capture winged insects after the fashion of flycatchers.¹

The evidence, so far as it goes, seems to point to an American origin for this species, the small *Bombycilla cedrorum* representing the parent stock, while *Bombycilla garrulus* on the one hand, and the Japanese *B. Japonicus* on the other, represent what we may call mutations of this parent stock.

It has been suggested on more than one occasion that the waxwing, if afforded protection during these spasmodic visits to our Islands, might be induced to breed—and, it is to be inferred, thereby induced to remain with us. But the realisation of such hopes, even under the most vigorous protection, is highly improbable. Similar hopes, it may be remembered, were cherished in the case of Pallas's sand-grouse, and they came to nothing.

¹ Macoun, *Cat. Canadian Birds*, 1904, p. 557.

The waxwing, happily for itself, has contrived to find a congenial home remote from the beaten tracks of men, and thus it is that ornithologists are, for the most part, gladdened with the sight of its beauty only on those rare occasions when, apparently by untoward circumstances, it is driven forth, and southwards, from its native fastnesses in hordes, doomed, probably for the most part, to perish. And thus it is that we are indebted for the little we know of the habits of the waxwing to enthusiastic ornithologists who are willing to undergo no small discomfort in order to see it in its chosen retreats. To the late John Wolley, Mr. H. E. Dresser, Mr. J. A. Harvie-Brown, and Henry Seebohm we owe practically all that has come to light in regard to the habits of the species under what we may call normal conditions.

The mystery surrounding its breeding haunts was solved long since, as we have already shown, by John Wolley, but Mr. H. E. Dresser is the only ornithologist among our own countrymen who has had the good fortune to actually take the nest with young and a single addled egg (p. 160). He, however, apparently arrived after the period of courtship was long past, and hence we yet await an account of this phase of the bird's life-history. Nor do we know any more of the post-nuptial period, that is to say, of the labours of nest-building and incubation, or of the care of the callow young. For the moment we must assume that these duties are shared by both parents. The only information that has come to us on this subject concerns the food of the young, which are said to be fed at first upon insects, and later on berries, which appear to form the staple diet of the parents. While insects are to be had the parent birds also feed upon them, partly from choice perhaps, but partly also because at this time berries are scarce, being then in the making, and it is probably owing to bad crops during inclement seasons that we owe the occasional visits of these birds to our Islands; and here, while satisfying the pangs of hunger, these refugees are remorselessly shot down by irresponsible gunners.

Mr. Dresser, who found the waxwing in abundance during a winter in Southern Finland, tells us that it is confiding and tame, flocking in large numbers to the mountain-ash trees in search of the coral-red berries, often stealing into the very centre of the towns. So tame were they that when fired at, and one or two were killed, the rest would fly only to a short distance and return again.

During the winter months small flocks are not uncommon in the south of Sweden, where they have been observed, flying usually at a great height, not unlike starlings, a resemblance caused by the long wings and relatively short tail.

According to Naumann, Meves found waxwings in July, in marshy woods near Onega in Russia, accompanied by young, and feeding on the blue berries of *Larnicera sibirica*. From the fact that he shot an immature female accompanied by young birds, he concludes that this species becomes sexually mature before the adult plumage is attained, as in the case of the golden oriole, and many other species.

Mr. Dresser tells us that when the bird is alarmed, the ample crest, which forms not the least of its personal attractions, is raised and spread slightly outwards. Judging from the behaviour of other birds, however, alarm would be indicated by drawing the crest, and plumage generally, close down to the body, while when excited or angry the crest would be raised, and the body feathers puffed out.

On all hands the waxwing is described as a very silent bird, and hereby it is manifest that the name "chatterer," by which it has been called, is a gross libel. According to Dresser its only utterance is a plaintive whistle, shriller, and higher in pitch, on occasions of alarm. Harvie-Brown speaks of the "low cissèe" notes . . . at first taken for those of some tit. Seebohm remarks that the one note heard by him could only be described as a "'*cir-ir-ir-ir-re*," very similar to a well-known note of a blue tit.' Occasionally it is said this succession of notes was repeated so rapidly as to form a trill like the song of the redpoll.

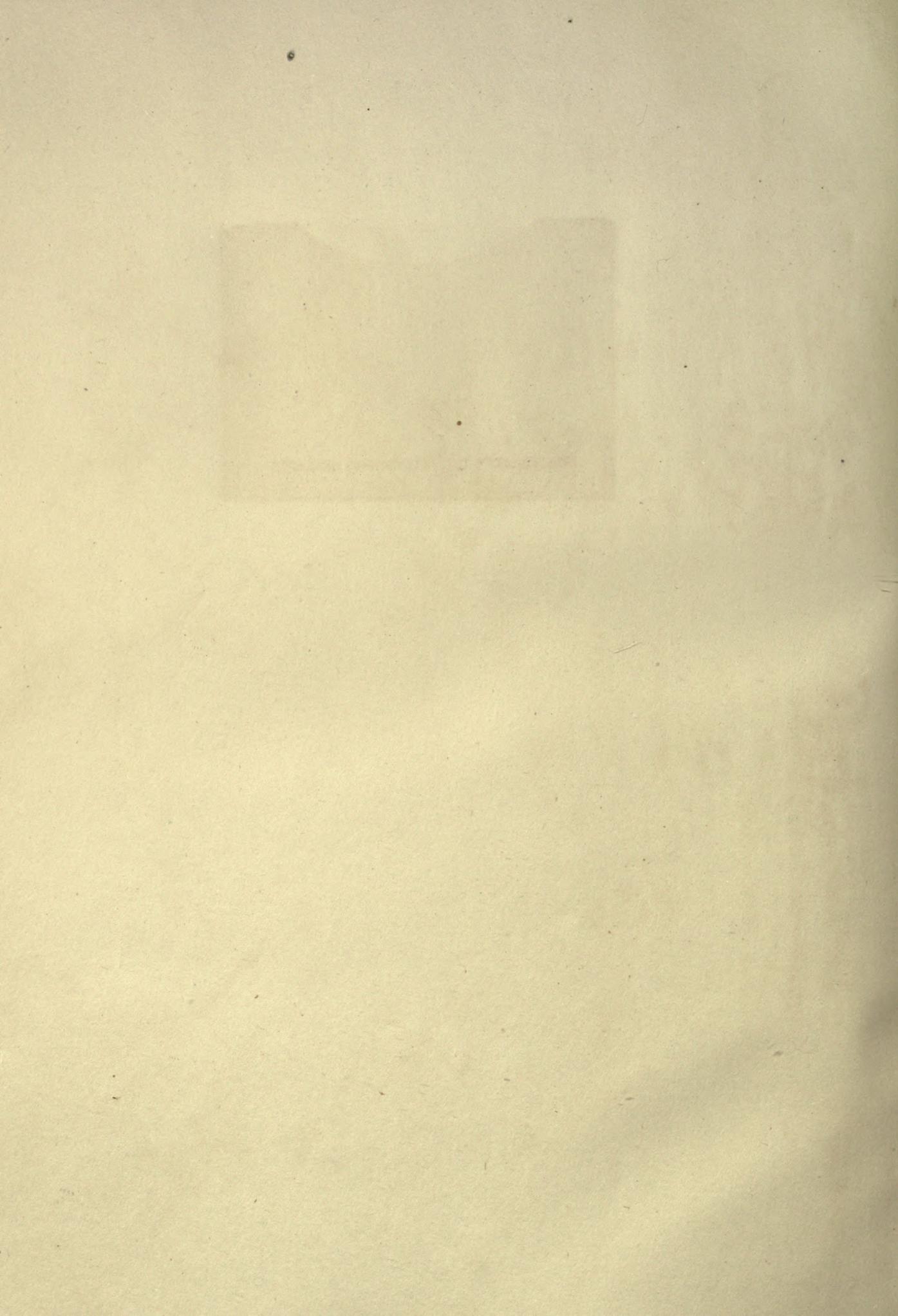
Strenuous efforts have been made to induce them to breed in

confinement. The earlier attempts in this direction were essayed for the sake of obtaining the eggs there, one of the most coveted prizes of the oologists. The Baron König-Warthausen even went to the trouble of caging a whole flock, but to no purpose. Later attempts, made by aviculturists have been more successful. This is particularly true in the case of Mr. W. H. St. Quintin, in whose fine aviaries waxwings have twice bred. He had the good fortune indeed to figure and describe the first egg ever laid by a waxwing in confinement.¹ His notes on the coloration of the mouth parts of the nestling are given elsewhere in this chapter (p. 165). As cage-birds they are disappointing. The late Henry Seebohm described a pair which he kept as most voracious eaters, and their cage required cleaning out several times a day. They were very active and restless, and even when perched at rest seemed to be continually moving their heads. If alarmed, they would stretch out their necks to almost double the usual length, but they were remarkably silent birds. Mr. St. Quintin, commenting on these statements, remarks that birds kept, as in his case, in large open-air aviaries, with plenty of room for flight, behave quite differently. "I think," he remarks, "there can be no more charming occupants of a garden aviary than a pair or two of waxwings."²

¹ *Avic. Mag.*, 1909, vol. vii. p. 115.

² *Tom. cit.*





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