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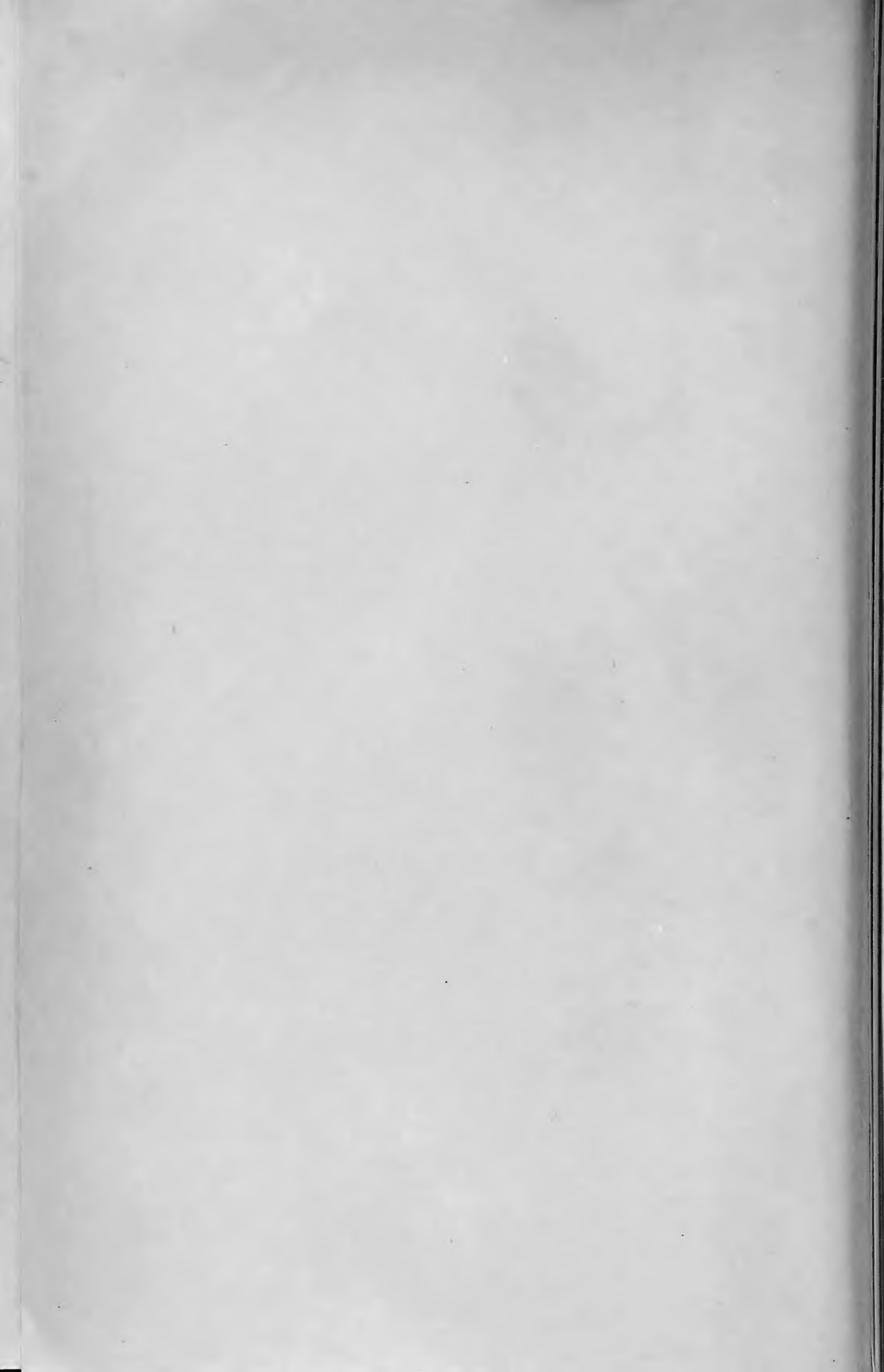


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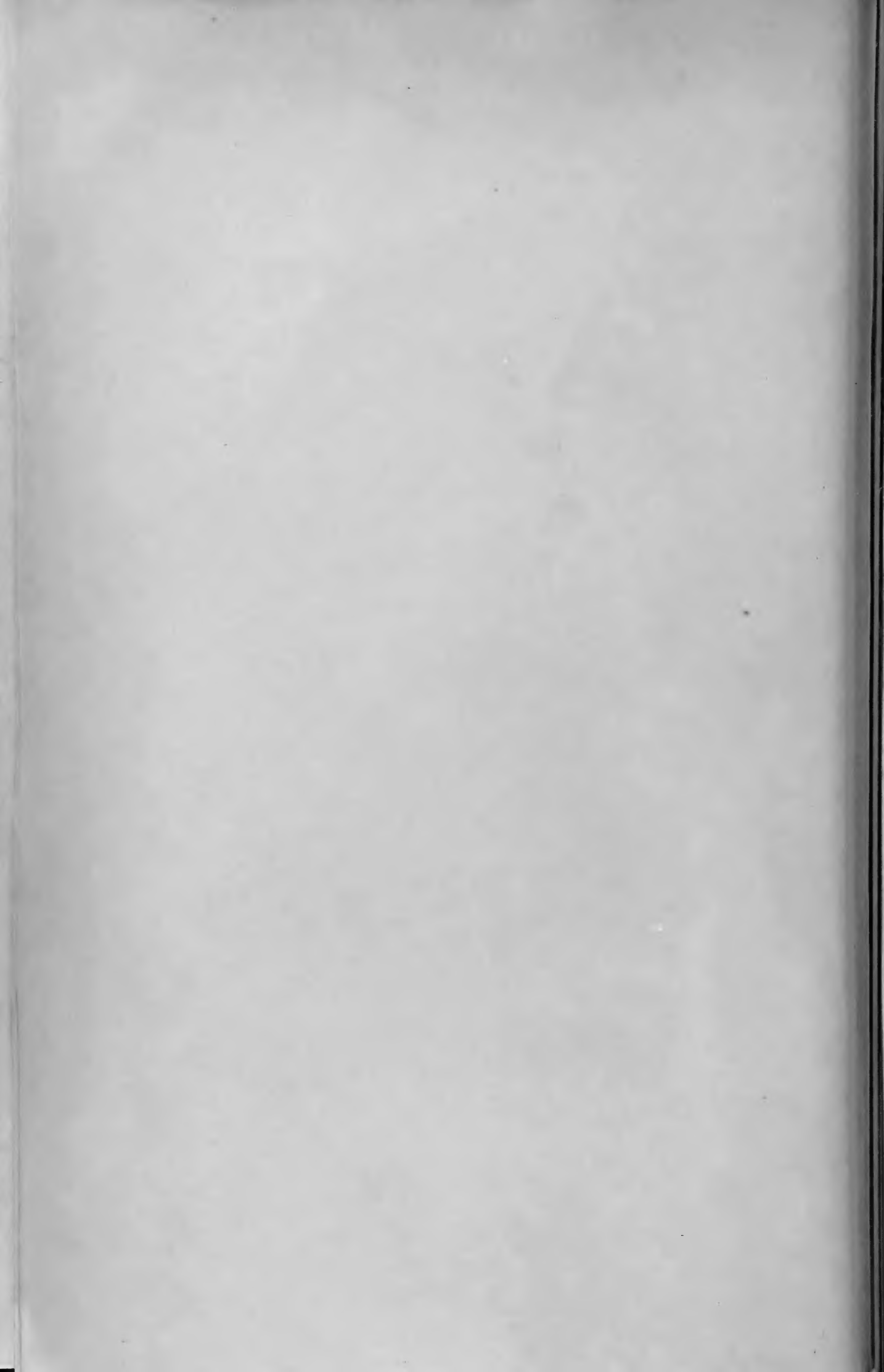
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# BRITISH BIRDS

WITH WHICH WAS INCORPORATED IN JANUARY, 1917, "THE ZOOLOGIST."

AN ILLUSTRATED MAGAZINE DEVOTED  
CHIEFLY TO THE BIRDS ON THE BRITISH LIST

EDITED BY

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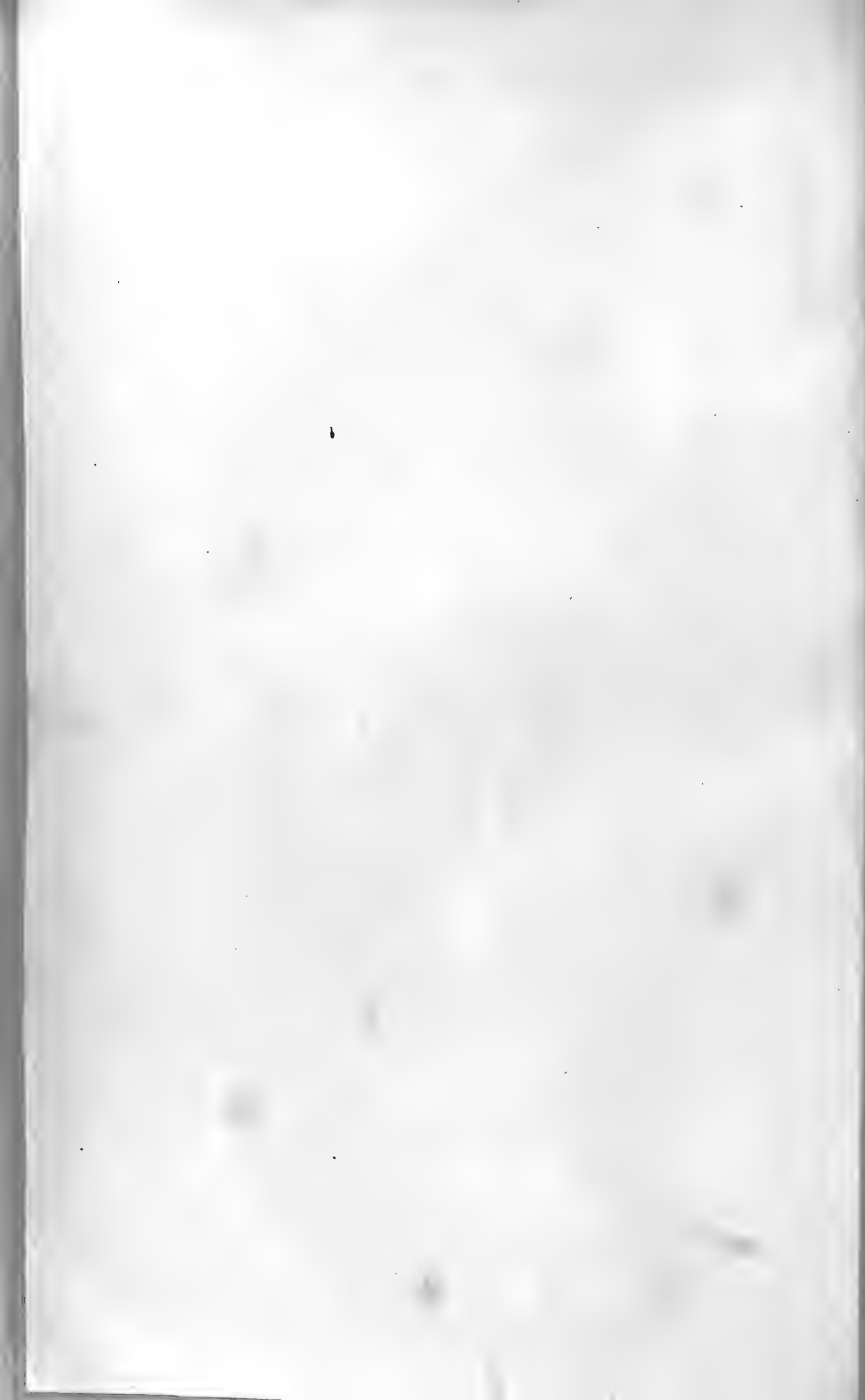
NORMAN F. TICEHURST O.B.E. M.A. F.R.C.S. M.B.O.U.

Volume XXVII

JUNE 1933 — MAY 1934



H. F. & G. WITHERBY  
326 HIGH HOLBORN LONDON





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ERRATA.

Page 214, line 6—for Plate 7 read Plate 8.

Page 221, line 5—for Plate 7 read Plate 8.

# BRITISH BIRDS

AN ILLUSTRATED MAGAZINE  
DEVOTED CHIEFLY TO THE BIRDS  
ON THE BRITISH LIST

JUNE 1,  
1933.

Vol. XXVII.  
No. 1.



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326 HIGH HOLBORN LONDON.  
H. F. & G. WITHERBY.



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## ALTERATIONS TO THE BRITISH LIST.

BY

H. F. WITHERBY.

IN June, 1932 (Vol. XXVI., p. 16), we gave a complete list of the additions and alterations to the British List since the publication of the *Practical Handbook*. Since then the alterations given below have been agreed upon by the British Ornithologists' Union List Committee and have been published in the *Ibis*, 1933, pp. 343-351. The numbers and former names quoted below refer to the systematic list given in the last part of the *Practical Handbook* and reprinted in the *Check-List*.

## SPECIES TO BECOME SUBSPECIES.

54. *Emberiza schœniclus compiler* Math. & Ired.  
THE WESTERN LARGE-BILLED REED-BUNTING.

55. *Emberiza schœniclus tschusii* Reis & Alm.  
THE EASTERN LARGE-BILLED REED-BUNTING.

instead of *Emberiza tschusii compiler* and *Emberiza tschusii tschusii*.

It was agreed that the views of Portenko and Steinbacher that *schœniclus* and *tschusii* were really one species should be accepted and the following explanatory statement was given by the Rev. F. C. R. Jourdain.

"L. Portenko (Ann. Mus. Zool. Acad. Sci. U.R.S.S. 1929, pp. 37-81), after the examination of about 1,500 skins, chiefly from Asia, found every stage of intermediate form between thick- and thin-billed birds, and came to the conclusion that they were all forms of one species. F. Steinbacher (Journ. für Ornith. 1930, pp. 471-487), after reviewing Portenko's work, and finding that he had little material for comparison from Western and Southern Europe, collected a large series of European skins, from the Stockholm, Berlin, Tring, München, and other museums and from private collections, and came to a similar conclusion. It was formerly supposed that the two forms were to be found breeding side by side, but later and more exact study has given no support to this idea, and it is now evident that all forms must be regarded as geographical races of one species—*Emberiza schœniclus* L."

## CHANGES OF NAME.

58. *Melanocorypha leucoptera* (Pall.).

## THE WHITE-WINGED LARK.

ALAUDA LEUCOPTERA Pallas, Zoog. Rosso-Asiat. I., p. 518 (1827—"in desertis Barabensibus." Based on *Alauda calandra*? Pallas, Reise, Vol. II., p. 708. Type locality: Metnichnoi, West of Omsk. See text, p. 447, Vol. II., taken May 16th, 1771).

instead of *Melanocorypha sibirica*.

The name *sibirica* Gmelin, 1789, is preoccupied by *Tanagra sibirica* Sparrman, 1786, the type of which Count Gyldenstolpe states (*Types of Birds in the Royal N.H. Mus., Stockholm*, p. 22) is a Black Lark, *M. yeltoniensis* Forster, 1768. The next available name for the White-winged Lark is *M. leucoptera* (see C. B. Ticehurst, *Ibis*, 1931, p. 782).

131. *Phylloscopus inornatus inornatus* (Blyth).

THE YELLOW-BROWED WARBLER.

REGULUS INORNATUS Blyth, Journ. As. Soc. Bengal, XI., p. 191 (1842—locality unknown but probably neighbourhood of Darjeeling).

instead of *Phylloscopus humei præmium* Math. & Ired.

The name *inornatus* has been much debated by the Committee, who hitherto have been unable to agree on its acceptance, but Dr. C. B. Ticehurst, who has an intimate knowledge of Indian *Phylloscopi*, has shown by the process of exclusion that Blyth's description of his *inornatus* could apply to no other bird than the Yellow-browed Warbler. The reasons are given fully in the *Ibis*, 1933, pp. 347-9.

As *inornatus* antedates *humei* it now, according to the Rules, takes precedence as the name of the species, and the allied forms (not on the British List) will be known as *Phylloscopus inornatus humei* and *Phylloscopus inornatus mandellii*.

395. *Calidris melanotos* (Vieill.).

THE AMERICAN PECTORAL SANDPIPER.

TRINGA MELANOTOS Vieillot, Nouv. Dict. d'Hist. Nat., nouv. ed., XXXIV., p. 462 (1819—Paraguay).

instead of *Calidris maculata* (Vieill.)

That this bird was described under the name *melanotos* by Vieillot three pages before the description of the same species under the name *maculata* has been agreed by the A.O.U. Committee, and the name *melanotos* has consequently been adopted in their recently published *Check-List*.

## A SURVEY OF THE ROOKS IN THE MIDLANDS.

BY

A. ROEBUCK.

## INTRODUCTION.

THE Rook (*Corvus f. frugilegus*) is an essential part of the English country-side. Its large size, its characteristic cawings and its habit of appearing in flocks all the year round compel attention. Although an arboreal species, so far as nesting is concerned, it is essentially a bird of agricultural land. When feeding, it almost invariably frequents farm lands at all times of the year, and, as its diet is mixed, its economic position has been much disputed from time immemorial. Ultimately the food question will determine its economic position, but until something exact is known of its distribution and numbers no correct interpretation of its feeding-habits can be made. It is not only necessary to know the kind of food eaten but also the total quantity. There are the further problems of the extent of its feeding area, the possible influence of migration, and the question of its adaptability to other foods, should its numbers unduly increase, or if other species consume its normal food.

It will be seen that underlying all these problems is the question of numbers. For this reason a survey was made. A repetition of the census is being made with a view to finding what alterations, if any, have taken place.

Nottinghamshire, Leicestershire and Rutland were surveyed in 1928, Derbyshire and Lindsey in 1929, and Kesteven and Holland in 1930. A repetition of the census was commenced in 1932 with the first three counties.

## THE SURVEY AREA.

The area surveyed, 5,305 square miles, would appear to be sufficiently large to eliminate local inaccuracies. Any peculiarities in their distribution, or any special features which influenced them in their choice of sites for nesting, would be more likely to be found over such a large area. The survey includes the whole of five geographical or seven administrative counties, namely, Nottinghamshire, Leicestershire, Rutland, Derbyshire and Lincolnshire (three divisions). As a unit, in their topographical features they are representative of a considerable portion of the country. There is a seaboard on the east of about 100 miles; there are the marshes and fens,



the chalk wolds, extensive tracts of woodlands and heathlands ; rivers, such as the Trent, Welland and Witham, with innumerable tributaries, and on the north-west there are the mountains of Derbyshire rising to over 2,000 feet and consisting of wild moorland and crags.

The geological formations run approximately north to south, so that by travelling from Derbyshire on the west to the Lincolnshire coast on the east, one passes from the carboniferous mountain limestone to the chalk. The chalk is bordered by alluvial deposits. Charnwood Forest in Leicestershire is one of the most ancient mountain groups in England, with peaks of slaty rock, hornstone and granite rising to over 900 feet. The annual rainfall varies from under 25 inches for most of Lincolnshire to over 50 inches over a large part of Derbyshire.

#### SUMMER AND WINTER FLOCKS.

In the nesting season Rooks collect in groups and build their nests, rarely in large woods, more or less close together, forming the familiar rookeries. These flocks remain together until the young are fledged and until they can feed themselves. By the autumn the rookeries are deserted and any particular flock may join with a number of other flocks in the district, and adjourn to some large wood for roosting at night. There are many exceptions. In some rookeries the birds will roost in trees alongside their nests all through the winter. The large roosts to which united flocks go during the winter are termed Rook roosts, major rookeries or winter rookeries.

From August to December, with an optimum in October, their aerial manœuvres are at their best and most charming to watch. During August the young become independent of their parents and all appear to start a period of physical training in preparation for the nesting season to come. Small groups of birds will indulge during the early afternoon in furious races or in wonderful wheeling and diving "stunts". A single bird will fly to a great height and descend looping the loop like a tumbler pigeon, only to be followed by another bird doing the same thing. Others will fly to great heights, apparently trying to outdo all rivals.

A colony from one rookery will fly to meet a colony from a neighbouring rookery and with much cawing they will circle round and round. Then one colony still circling will rise to a great height, only to descend again and after further circling the two will separate and fly away. The old name

for such a gathering was a "wedding of crows" and it is possible that a certain interchange of birds, especially young ones, does take place at these gatherings.

It is during this non-nesting period that Rooks may range far for food. The usual custom is that each rookery returns to the area surrounding its nesting-site for its food. They sometimes remain on those sites until it is quite dark. Very bad weather, especially fog, may temporarily prevent this, causing a certain congestion near the Rook roost.

In some cases the birds of a rookery fail to appear on their territory for about a month to six weeks in August and September.

It is during these autumn months also, that the birds may often be seen perched in dense numbers on single trees, sometimes resting after their exertions in flight, and sometimes towards late afternoon, preparatory to their departure for the winter roost.

#### NESTING-HABITS.

The Rook is single-brooded and nests in March and April, the young being fledged in May and early June. In the following spring these young birds, about 10 months old, do not breed but congregate with the parent birds in the rookery. The following season they mature and breed.

It is difficult to state exactly when nest-building really commences. Often in the early morning during the months of November and December the birds visit their nests and are seen pulling sticks out. Possibly they are tidying up, or possibly they are loosening them so that the winds may destroy them altogether, or possibly it is just a slight return of the nesting stimulus and, like young birds, their methods are only crude and their intentions neither serious nor sustained.

More serious are their efforts in February and in some cases, although rarely, nests are completed in this month and eggs laid. By the middle of March nest-building is in full swing and late nests are built during April. Often late nests are built through disturbance from an earlier one. In one case noted a group of apparently disappointed birds from a large rookery formed a new colony half a mile away, commencing operations on May 7th.

Non-breeding immature birds are a bit of a nuisance at times to their elders. They appear to receive a partial nesting stimulus or they are influenced by the nest-building

of the others to emulate their example. The nests they attempt may be awkwardly placed and badly constructed, so that they may fall on top of an occupied nest. These young birds also are apt to consider that sticks can be used from other nearby nests.

The number of these non-breeding birds varies in different rookeries. A well-shot rookery has few. The proportion appears to be highest in the small experimental rookeries which have only existed a year or so, or which move their sites a short distance annually.

#### CENSUS OF ADULT NESTING BIRDS.

For the purpose of this census the rookeries were located and the nests counted. By doubling the number of nests the number of mature nesting birds is obtained.

Various factors tend to complicate the counts. Odd nests may have survived the winter and not be occupied. Nests may be built from January to May. Odd pairs may build two nests, probably always due to some accident causing desertion of the one first built. Young birds may build experimental nests.

Sometimes there are compound nests, the whole mass being about 6 feet across and over 3 feet deep. One such at Saunby had eight pairs nesting in the mass, but there may be only a single pair.

On the whole, April is the best month for counting the nests. The dates of building vary from year to year. In two old-established rookeries building began on January 25th in 1930, on February 16th in 1931, and on February 6th in 1933. One new rookery began building on May 7th in 1928. Late counts are apt to be inaccurate through the partial nests built by younger birds.

#### THE ROOKERIES.

Although everyone has a rough idea what is meant by a rookery, it is impossible to define it accurately. There may be a solitary nest; there may be a few nests here and there in trees with gaps between and straggling along for a mile; there may be several compact groups in a village; or there may be the well-recognized clump of trees, almost all of which have some nests in them.

A suitable nesting-site is essential for all birds. In the case of the Rook there must be sufficient sites for the colony.

In this survey all the nests are in trees and none are less than 10 feet from the ground. In many cases one tree is sufficient. Generally a clump of trees or a small plantation is preferred. Sometimes the rookery may be on the edge of a large wood, but in no case has one been found in the middle of such a wood. Any kind of tree is suitable, deciduous or evergreen. Once they are established on a site they may cling to it, no matter whether branches die or the whole trees die. Although elm, ash, oak, beech and horse-chestnut are most frequently used, it is only because they are the dominant trees in the neighbourhood. Scots pine is the principal evergreen, but nests are found in holly and holme oak. Larch is frequently used. One small rookery existed in a high hawthorn hedge in Nottinghamshire, but it is now extinct. No rookery is found in fruit trees in these counties, but one was recorded in the first issue of *The Countryside* (1905) on Thorney Fen in a fruit orchard. This still exists.

The relative exposure of the site appears to be quite immaterial. Often the rookery is on a bleak hill-top, where the swaying of the trees would appear to break the eggs or throw them all out. On the other hand some rookeries are in most sheltered dells. Altitude in itself is not a limiting factor in choosing a site for a rookery. There is an altitudinal limit for tree growth, and on the highest peaks of Derbyshire there are no trees, but it is highly probable they would nest in the heather if there was suitable food to be had. Actually there is only suitable food on these moors about June, when there is an abundance of caterpillars of the antler moth (*Charæas graminis*) on the rough herbage. Almost all the rookeries between Hartington and Chapel-en-le-Frith on the carboniferous limestone plateau are between 1,000 feet and 1,200 feet above sea-level, the highest at nearly 1,400 feet. Their foraging range is as little as possible, especially during the critical months, March to August. At this time the parent birds are far too busy making endless journeys to the nest with food to travel any but the shortest possible distances.

Generally speaking, the feeding range of one rookery extends to meet those of the neighbouring rookeries, with considerable overlapping at such vague boundaries.

This does not obtain when the rookeries are several miles distant, as in parts of Derbyshire, nor do the Rooks of Nottinghamshire range over the centre of the county, where there are no rookeries.

## NOTTINGHAMSHIRE (1928).

Area : 843 square miles, or 536,678 acres.  
 Area under crops and grass : 418,663 acres.  
 Ratio, arable to grass = 1 : 1.  
 Number of rookeries : 182.  
 Number of nests : 6,501.  
 Average size of rookery : 35.7 nests.  
 Number of nesting birds : 13,002.  
 One rookery to 4.6 square miles.  
 One bird to 32.2 acres of agricultural land.

The county is largely lowland in character, only a little land in the west rises to over 600 feet above sea-level, and nearly half of it is below 100 feet. About 5 per cent. consists of woodlands. Oaks, silver birches and pines predominate in the centre of the county, but these are replaced by elm and ash along the Trent valley and in the south.

The distribution of Rooks in this county is remarkable. The whole of the centre, roughly 200 square miles, has no rookeries. Jackdaws are the prevalent birds of the Crow family in this area. This is largely on the Bunter Sandstone formation, but extends partly over the Keuper Marl. It is a dry, streamless area, with light sandy soils. There is a great concentration of Rooks along the Soar valley from Loughborough to Long Eaton, and then along the Trent valley through Nottingham and Newark to Dunham Bridge. Along these stretches there is a good proportion of rich grassland. From Dunham Bridge northwards the rookeries are on the Lincolnshire side of the Trent. Rookeries are also found along the valleys of the Rivers Poulter, Ryton and Idle in the north, the Erewash and Leen valleys in the west, and in the Vale of Belvoir (Rivers Devon and Smite) on the south-eastern boundary.

There are rookeries in the vicinity of the more populous centres, Nottingham, Newark, Gainsborough, Retford, Worksop and Mansfield.

There are very few rookeries at an altitude of over 200 feet above sea-level.

## THE ROOKERIES CLASSIFIED ACCORDING TO SIZE.

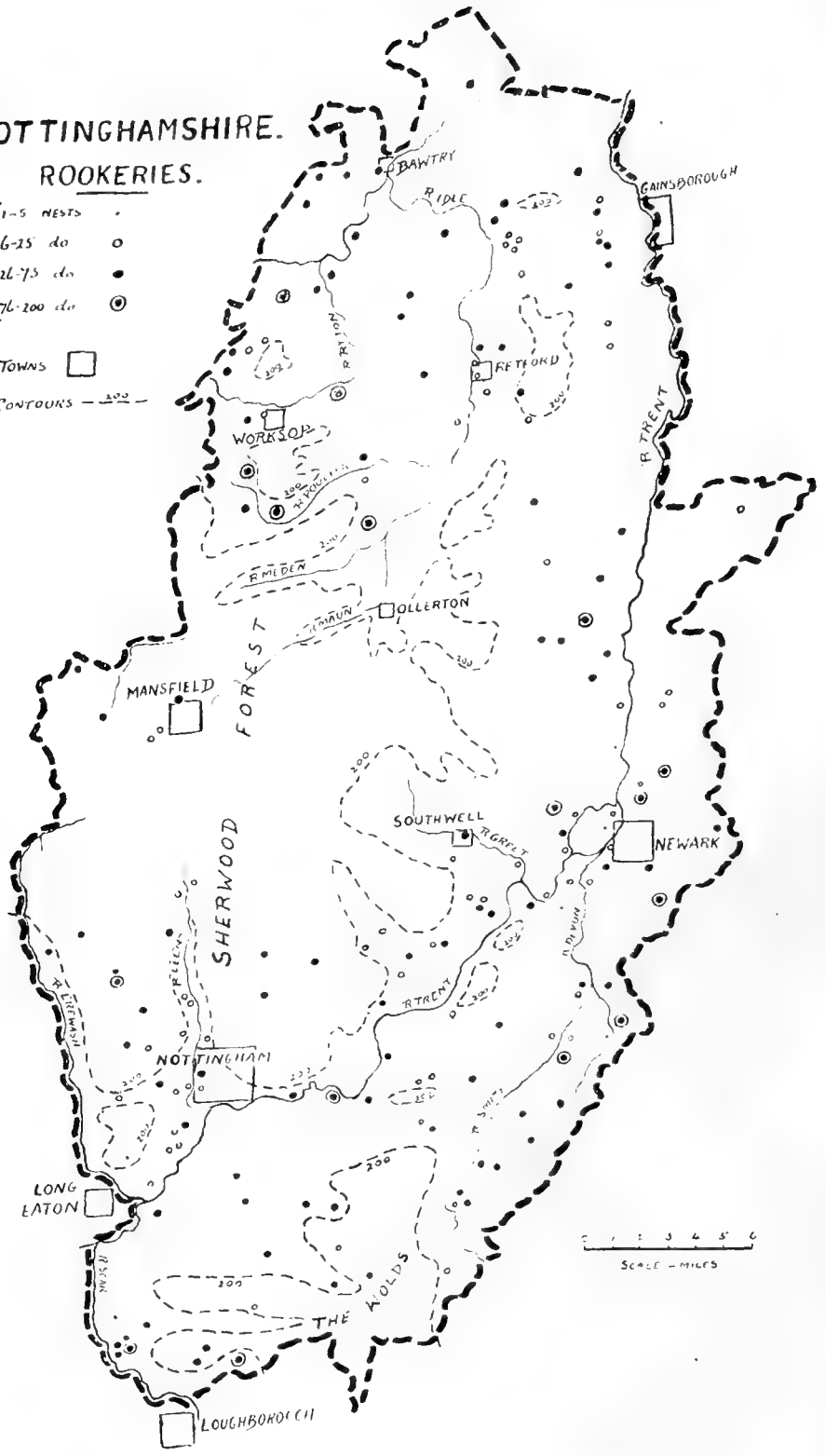
<i>Number of Nests.</i>	<i>Number of Rookeries.</i>
1-5	12
6-25	68
26-75	88
76-200	14

The largest rookeries are at Sutton Bonington on the River Soar in the south, and at Averham about three miles N.W. of Newark.

# NOTTINGHAMSHIRE.

## ROOKERIES.

- 1-5 NESTS .
  - 6-25 do ○
  - 26-75 do ●
  - 76-200 do ⊙
- TOWNS □
- CONTOURS - - - 100



0 1 2 3 4 5 6  
SCALE - MILES

## LEICESTERSHIRE (1928).

Area : 800 square miles or 530,642 acres.

Area under crops and grass : 453,758 acres.

Ratio, arable to grass = 1 : 5.

Number of rookeries : 230.

Number of nests : 9,381.

Average size of a rookery : 40.8 nests.

Number of nesting birds : 18,762.

One rookery to 3.5 square miles.

One bird to 24.1 acres of agricultural land.

The eastern half of the county is quite different from the western half. The eastern half is almost entirely the Lias geological formation covered with boulder clay. The latter forms the soil and thus determines the agricultural practice. It is wholly agricultural land and is especially devoted to grazing. There are no waste lands such as heaths, bogs or moors.

The western half contains more mixed farms and contains stone quarries and coal mines, and a remarkable area of about 50 square miles known as Charnwood Forest, with rocky peaks rising to 900 feet, containing an admixture of woods, heaths, steep bracken-covered slopes and extensive reservoirs, the whole interspersed with cultivated fields. On this half of the county there is no drift and the soils are derived from the underlying rocks, such as Keuper Marl and the coal measures.

There are no very large woods in the county but a great number of small plantations and coverts. The dominant trees are ash and elm.

The river valleys all have their rookeries, the Soar runs south to north through the centre of the county, the Wreak runs E.N.E. from Syston near Leicester, the Avon and Welland from the southern boundary, and the Sence is in the west. Again, there are rookeries around the populous centres—Leicester, Loughborough, Hinckley and Melton Mowbray. At Ashby-de-la-Zouch the Rooks apparently want to settle, but for some reason they do not succeed. They build nests and then desert the rookeries.

Charnwood Forest has few Rooks.

Rookeries are more frequent on the eastern half where grassland is abundant, especially in the area between Melton Mowbray, Leicester and Market Harborough.

## THE ROOKERIES CLASSIFIED ACCORDING TO SIZE.

<i>Number of Nests.</i>	<i>Number of Rookeries.</i>
1-5	11
6-25	84
26-75	106
76-200	27
over 200	2

The rookeries, consisting of over 200 nests, were at Husbands Bosworth, since considerably diminished, and at Croxton Abbey. There are several large groups around Stapleford.

#### RUTLAND (1928).

Area : 152 square miles or 97,087 acres.  
 Area under crops and grass : 88,189 acres.  
 Ratio, arable to grass = 1 : 2.  
 Number of rookeries : 49.  
 Number of nests : 2,340.  
 Average size of a rookery : 47.7 nests.  
 Number of nesting birds : 4,680.  
 One rookery to 3.1 square miles.  
 One bird to 18.8 acres of agricultural land.

This small county is almost wholly in the basin of the River Welland. The surface is undulating. Low hills run in ridges east and west separated by narrow valleys.

It is well wooded and the soils are generally rich and well cultivated. Oak, beech, ash and horse-chestnut are the dominant trees.

It is rich in Rooks and the rookeries are fairly evenly distributed. There is plenty of good grassland. It is remarkable how the rookeries are found on the "red lands" (Northampton sands) of the county. These are under arable crops. The same soils in the south of Leicestershire, as at Nevill Holt, also are rich in Rooks.

#### THE ROOKERIES CLASSIFIED ACCORDING TO SIZE.

<i>Number of Nests.</i>	<i>Number of Rookeries.</i>
1-5	9
6-25	9
26-75	24
76-200	7

The largest rookeries are at Wardley Wood to the west of Uppingham, and near Stocken Hall on the north-eastern border of the county.

#### DERBYSHIRE (1929).

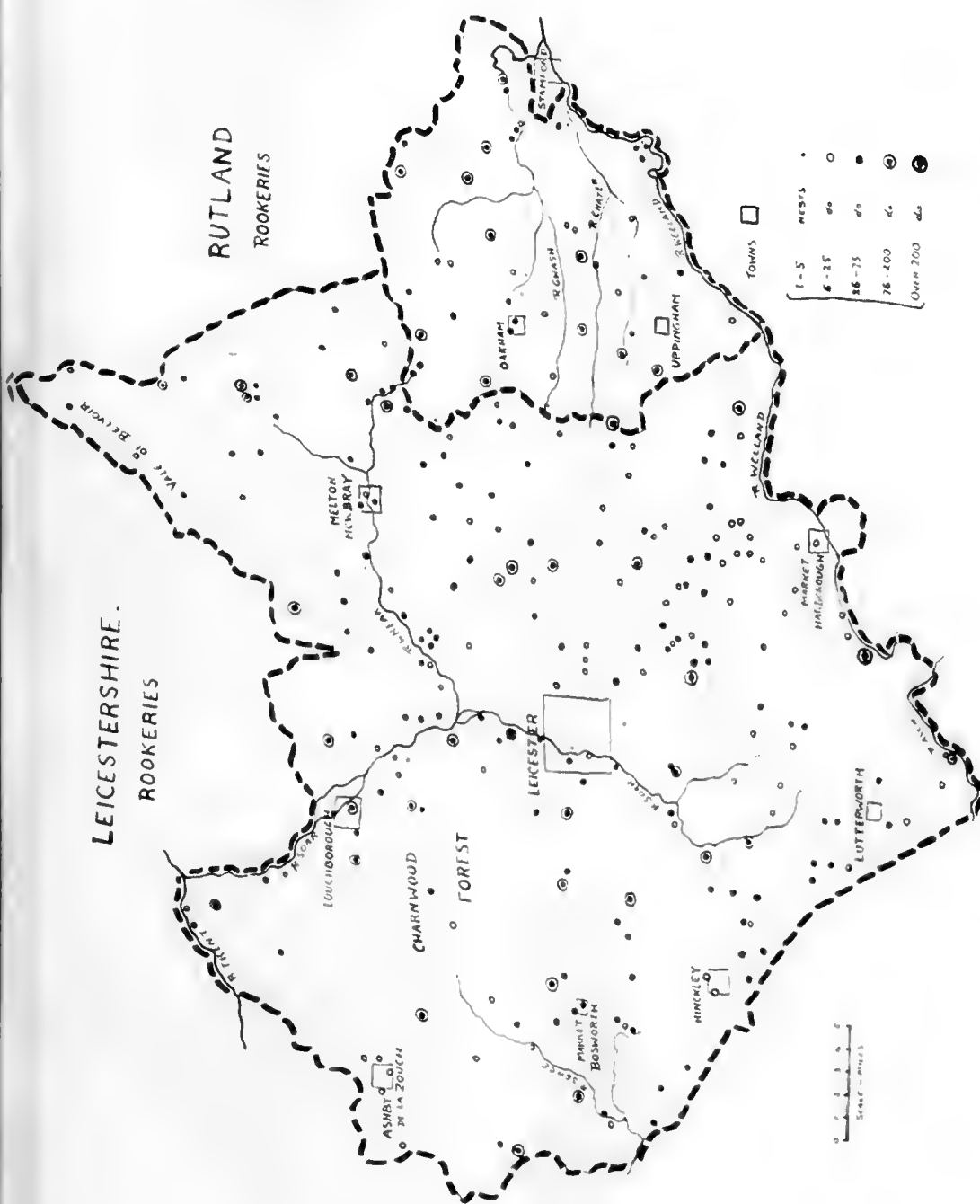
Area : 1,009 square miles or 643,333 acres.  
 Area under crops and grass : 450,733 acres.  
 Ratio, arable to grass = 1 : 6.  
 Number of rookeries : 240.  
 Number of nests, 10,620.  
 Average size of a rookery : 44.2 nests.  
 Number of nesting birds : 21,240.  
 One rookery to 4.2 square miles.  
 One bird to 21.2 acres of agricultural land



LEICESTERSHIRE.

ROOKERIES

RUTLAND  
ROOKERIES



TOWNS

NESTS	Symbol
1-5	Small circle
6-25	Medium circle
26-75	Large circle
76-100	Circle with dot
Over 200	Circle with cross

0 1 2 3 4 5  
MILES

The uplands occupy the north and west half of the county. Most of this area is over 1,000 feet above sea-level and rises to over 2,000 feet. It consists of mountain limestone and millstone grit formations. The rainfall is from 40 to 60 inches annually. The mountain limestone, which forms the greater part of the area, consists of smoothly rounded hills with deep narrow gorges. The hill pastures, with scanty herbage, extend to the summits. Fields are divided by stone walls and trees are few and dwarfed. The millstone grit area presents a marked contrast with its wild moorlands and sharp escarpments. Beech, sycamore, elm and horse-chestnut are the principal trees.

The eastern portion, approximately one-quarter of the total area, consists of low hills on the coal measures between 300 feet and 600 feet high, devoted to mixed farming on somewhat indifferent soils.

The southern portion, approximately another quarter of the area, is chiefly on the Keuper Marl formation. This is the arable district and the soils are very productive. The meadows on the banks of the Dove and Trent and the lower reaches of the Derwent provide rich pasturage. Woods in this county are not extensive. The whole county is predominantly grassland, although much of this is hill pasture.

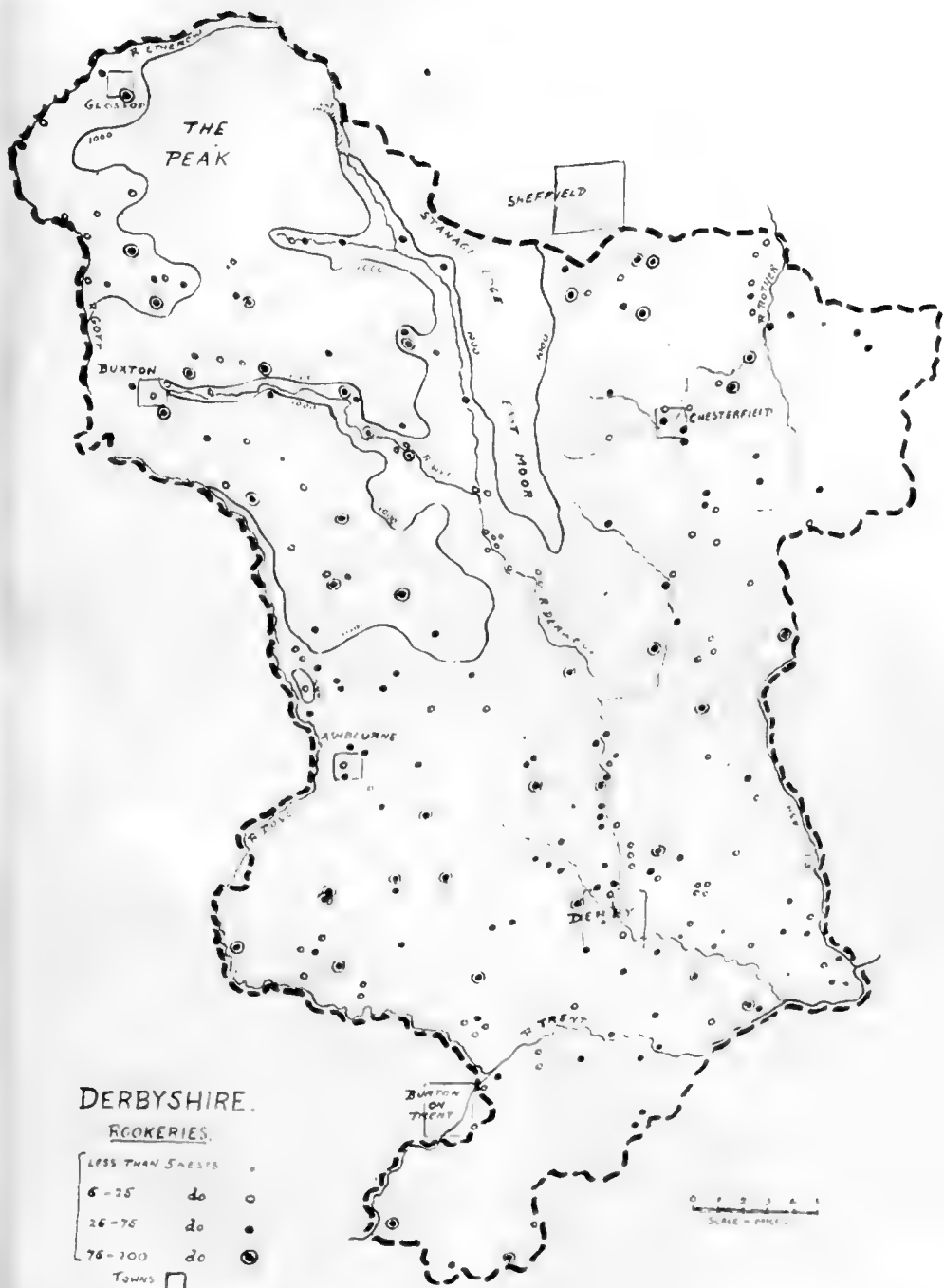
There are rookeries along the chief river valleys: the Trent from Burton-on-Trent to Long Eaton; the Derwent from Sawley to Derby and north-west, with its tributaries, Wye and Hope; the Dove on the western border and the Drone and Rother to the north-east. There are plenty of rookeries on the Derbyshire coalfield from Derby, through Chesterfield to Sheffield. Over the carboniferous limestone plateau north and west of Derby, Rooks are fairly evenly scattered, but nowhere numerous. This area is largely hill pasture.

There are two large areas on which Rooks are absent. Both of these are mountainous and are almost treeless expanses of grouse moors.

One is approximately 100 square miles in extent around the Peak in the north. The other is east of a line from Matlock to Hathersage and northwards to the Yorkshire boundary. The area is about 50 square miles.

Generally the dry dales, those without a stream, have Jackdaws, whereas those dales with good streams have Rooks.

As this county includes the highest land surveyed, it is interesting to summarize the data for the portion over 1,000 feet above sea-level.



DERBYSHIRE.

ROOKERIES.

LESS THAN 50 FEET	.	
50-75	do	○
75-100	do	●
TOWNS		□
CONTOUR		~

0 1 2 3 4 5  
SCALE - MILES.

Area above 1,000 feet : 260 square miles.  
 Number of rookeries : 30.  
 Number of nests : 1,662.  
 Average size of a rookery : 55.5 nests.  
 Number of nesting birds : 3,324.  
 One rookery to 8.7 square miles.  
 One bird to 50 acres.

As about 150 square miles of this is treeless grouse moors, the concentration of Rooks on the remainder is exactly equal to the average for the whole county.

THE ROOKERIES CLASSIFIED ACCORDING TO SIZE.

<i>Number of Nests.</i>	<i>Number of Rookeries.</i>
1-5	9
6-25	94
26-75	96
76-200	41

The largest rookeries are at Catton Hall in the extreme south-west ; High Needham about 7 miles S.E. of Buxton, at an altitude of about 1,100 feet ; Brookhill Hall on the eastern border ; Milford about 7 miles north of Derby. These have between 175 and 195 nests each.

#### LINCOLNSHIRE.

The county is bounded on the east by the sea from the Humber to the Wash, a distance of about 100 miles. The coastline consists of either low sand dunes or artificial banks. Most of the county is below 100 feet above sea-level. There are two long lines of hills. The Cliff or Heath, of Lincolnshire (lower oolitic) limestone, passes almost due north and south throughout the whole length of the county from Winteringham through Lincoln and Grantham. The height varies from 200 to 400 feet, with a very abrupt slope on the western side.

The second range of hills, the Wolds, extends from Barton-on-Humber for about 50 miles in a south-westerly direction to Spilsby, with an average width of about eight miles. They consist of rolling downs with bleak tops, which are intersected by deep valleys, often very pretty and well wooded.

Fen covers most of the area south and east of Lincoln. The Isle of Axholme in the north-west and the Carr lands along the River Ancholme in the north are somewhat similar.

The Marsh is a tract of land between the Wolds and sea. It contains some rich grazing land.

Woodlands are locally large, e.g., around Brocklesby and Grimsthorpe. Oak, beech, birch, pines and ash are the dominant trees.

#### LINCOLNSHIRE (PARTS OF LINDSEY) (1929).

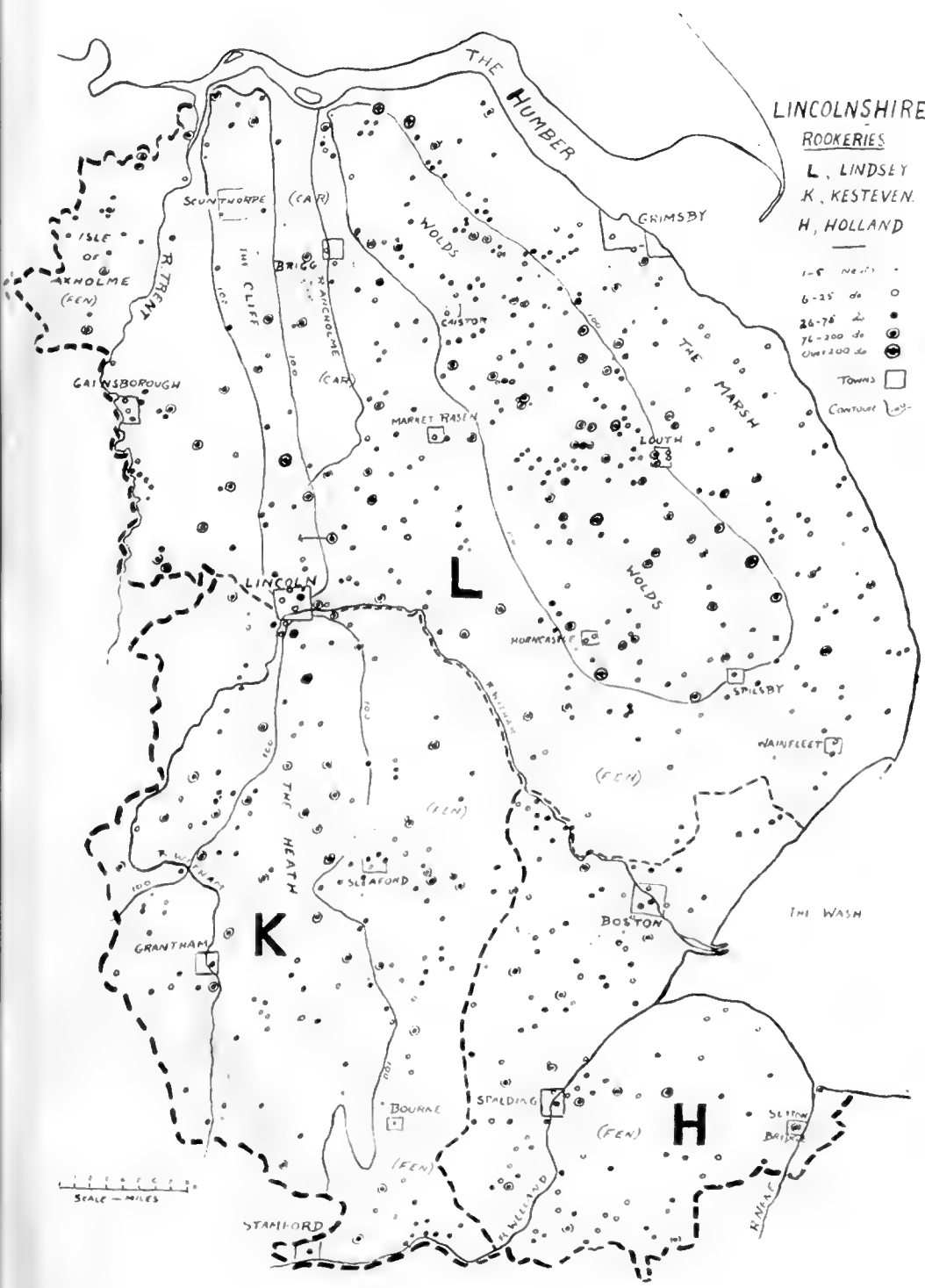
Area : 1,357 square miles or 968,374 acres.  
 Area under crops and grass : 845,137 acres.

# LINCOLNSHIRE

## ROOKERIES

L, LINDSEY  
 K, KESTIVEN.  
 H, HOLLAND

1-5 No. 1 -  
 6-25 do 0  
 26-75 do ●  
 76-200 do ⊙  
 Over 200 do ⊕  
 Towns □  
 Contour 



SCALE - MILES

Ratio, arable to grass = 3 : 2.

Number of rookeries : 442.

Number of nests : 22,447.

Average size of a rookery : 50.8 nests.

Number of nesting birds : 44,894.

One rookery to 3.0 square miles.

One bird to 18.8 acres of agricultural land.

There are three main rivers, the Trent, Witham and Ancholme. There are many rookeries along the Trent from Dunham Bridge to the Humber, except on a stretch of low-lying arable land from Stockwith to Keadby Bridge. On this area the Rooks move to the higher ground on a ridge from Haxey to Crowle, where the chief villages are. Rookeries are not found to any extent near the Rivers Witham and Ancholme, where grass is scarce. The rich grassland area known as the Marsh, along the coast, has a large number of rookeries. The outstanding feature of this county is the extraordinary number on the chalk Wolds. This is without streams of any size and is almost entirely arable land. Rookeries are abundant on the middle oolite formation, extending almost due north from Bardney to Brigg. A row of rookeries is found along the crest of the cliff running north from Lincoln to Winteringham. The sandy heathlands from Scotton to Scunthorpe have few Rooks.

THE ROOKERIES CLASSIFIED ACCORDING TO SIZE.

<i>Number of Nests.</i>	<i>Number of Rookeries.</i>
1-5	20
6-25	120
26-75	216
76-200	79
over 200	7

The largest rookeries are at Barton-on-Humber and Barrow-on-Humber in the north ; South Thoresby, seven miles north of Spilsby ; Boothby Hall, five miles E.N.E. of Spilsby ; Scrivelsby Hall, near Horncastle ; Fillingham Castle, eight miles N. of Lincoln ; and Stenigot, six miles S.W. of Louth. There are many large colonies around Brocklesby Park.

LINCOLNSHIRE (PARTS OF KESTEVEN) (1930).

Area : 726 square miles or 464,669 acres.

Area under crops and grass : 408,627 acres.

Ratio, arable to grass = 3 : 2.

Number of rookeries : 160.

Number of nests : 8,432.

Average size of a rookery : 52.7 nests.

Number of nesting birds : 16,864.

One rookery to 4.5 square miles.

One bird to 24.2 acres of agricultural land.

The Rooks do not cling to the river bank of the Witham in the north, although there are many along the Welland valley

along the extreme southern boundary. There are large numbers of Rooks on the ridge of hills, here known as the Heath, running south from Lincoln to Grantham. There are large numbers on the middle oolite formation. This passes north and south from Washingborough, through Sleaford, to near Market Deeping. There is a strip of fenland about three miles wide flanking this formation on the east and forming the county boundary. On this there are practically no rookeries.

THE ROOKERIES CLASSIFIED ACCORDING TO SIZE.

<i>Number of Nests.</i>	<i>Number of Rookeries.</i>
1-5	10
6-25	42
26-75	75
76-200	31
over 200	2

The largest rookeries are at Beaufee Manor, six miles S. of Lincoln; South Rauceby Hall to the west of Sleaford; Lord Bristol's plantation near Cranwell, about six miles N.W. of Sleaford; and Willoughby Hall, about six miles N.E. of Grantham.

LINCOLNSHIRE (PARTS OF HOLLAND) (1930).

Area : 418 square miles or 267,801 acres.

Area under crops and grass : 238,389 acres.

Ratio, arable to grass = 4 : 1.

Number of rookeries : 118.

Number of nests : 4,412.

Average size of a rookery : 37.4 nests.

Number of nesting birds : 8,824.

One rookery to 3.5 square miles.

One bird to 27 acres of agricultural land.

The county is entirely fenland, intersected by dykes of different sizes. The rookeries on the whole are small but widely scattered. Arable land, intensively cultivated, predominates. Grass paddocks and clumps of trees are chiefly found in the villages and homesteads on the main roads. It is along these main highways that most of the rookeries are found, e.g., the road from Wainfleet, through Boston and Spalding to Market Deeping; the road from Bourne through Spalding and Holbeach to King's Lynn; the road from Sleaford to Boston; the road from Grantham to Spalding and the road from Spalding to Crowland. On the distant fields along the dykes trees and grass are scarce and Rooks do not build. The wide salt marshes of the Wash would seem, at first sight, to be good feeding grounds for the birds. This is true for the non-nesting months, but the fluctuations of the tides make them far too uncertain during the nesting season when the young birds have to be fed all day long.

The land reaches at its highest point a height of 20 feet above sea-level.

THE ROOKERIES CLASSIFIED ACCORDING TO SIZE.

<i>Number of Nests.</i>	<i>Number of Rookeries.</i>
1-5	4
6-25	47
26-75	54
76-200	13

The largest rookeries are at Moulton, four miles E. of Spalding; Donington, ten miles S.W. of Boston; Quadring Eau, seven miles N. of Spalding; on Great Postland Fen (in two lots), eight miles S. of Spalding; and Holbeach (in three lots), about eight miles E. of Spalding. At Frampton, near Boston, there is a large scattered rookery.

#### SUMMARY OF THE SURVEY DATA.

Total area : 5,305 square miles or 3,511,119 acres.  
 Area under arable crops and grass : 2,959,538 acres.  
 Number of rookeries : 1,421.  
 Number of nests : 64,133.  
 Average size of a rookery : 45 nests.  
 Number of nesting birds : 128,266.  
 One rookery to every 3.7 square miles.  
 One bird to every 23 acres of arable land.

#### THE ESTABLISHMENT OF A ROOKERY.

A rookery may be considered to be established on a certain area of land or territory which extends around the nesting site. This area is claimed for the colony as a feeding ground from all other Rooks. No rigid boundaries exist. There is much poaching from surrounding rookeries where they are not far apart. Rooks do not necessarily forage evenly over the area, very often they are attracted by certain fields and prefer them to all others.

In choosing these areas it must be remembered that they are selected in mid-winter, but the factor which determines the success or otherwise of the venture is the supply of insect and other animal food from the end of March to early August. The young are fed all this time. If this animal food fails no farm crops can take its place, and the rookery is a failure and no young are reared.

#### PERMANENT AND TEMPORARY ROOKERIES.

Once a rookery has been formed it often remains for a very long period. The largest rookeries are mostly of this type, but very often small, even tiny rookeries, are equally long-established ones. In *Scribner's Magazine* of 1893 is an engraving by Alfred Parsons, showing Ashbourne Church with the small rookery close by it. The picture gives an equally true view of it at the present time. It is well known that many rookeries have been in existence for a long time. The birds often cling tenaciously to an old-established site, even



when through food shortage their numbers are reduced. They will also cling to the old trees even when branches and, later, whole trees die. This is seen at Fillingham Castle (Lindsey), Loddington (Leicestershire), etc. Complete felling of the trees necessitates their removal, as at Melton Mowbray. Human interference in various ways can disperse them. It is far more difficult to persuade them to occupy sites on which we should like them. Colonies sometimes desert the rookery during the nesting-season, after eggs are laid, for no apparent reason, as at Lambley (Nottinghamshire) and at Ashby-de-la-Zouch (Leicestershire). There is always the possibility that these may be due to human, unauthorized disturbance.

From established rookeries single pairs or small parties of Rooks appear to have the pioneering spirit, and, whether from choice or necessity, they break away from the colony and take up another site. Sometimes the experiment is a failure and they return the following year. Sometimes the site is ill-chosen, and while maintaining their entity, they move to still another site, and so on from year to year until satisfaction is obtained. One such attempt may be cited. In 1928 a pair of birds came from the large Sutton Bonington rookery and built a nest near Kegworth station. Four young birds came with them, possibly their own offspring. After watching the adults for a few days, two of the young birds began to build another nest. About a week later the remaining two started. While the old birds were brooding the second nest was completed, except for a lining, but the third was barely half made. The young birds soon tired of nest-building when the old ones had finished theirs. In 1929 three nests were completed and two experimental nests were half finished by four young birds, which had probably been reared the year before. In 1930 seven nests were nearly finished when the colony deserted and were not seen again. They did not return in 1931, but a new colony of the same size started at Normanton-on-Soar on the other side of Sutton Bonington. It is probable that these are the same birds. In 1932 there were thirteen completed nests and seven non-breeding birds.

In the spring of 1932 it was found that of the 182 rookeries of Nottinghamshire in 1928, 29 had disappeared and 27 new sites had been occupied. In Leicestershire, of the 230 rookeries in 1928, 31 had been lost and 36 gained. In Rutland during the same interval 8 had been lost and 5 gained. Of the whole 461 rookeries in the three counties, 68 had been lost and 68 gained. This represents a change of 15 per cent. in sites. This figure does not represent the whole change in

four years, but is probably more nearly an annual change. Very many rookeries in these counties were noted in the intervening years which only existed a year and therefore do not appear in either survey.

#### FORAGING RANGE OF ROOKS.

The area around a rookery may be said to be the feeding-ground of those Rooks for the whole year with the possible exception of about a month around August, when sometimes they are uncertain in their movements. This is the period of uncertainty between the nesting-season and the winter flock-mixing season—a kind of summer holiday. Any consideration of harm or good done therefore may be assigned to the local Rooks and to those alone, with the possible exceptions of farms along the sea-coast in the line of migration and areas near winter Rook roosts during inclement weather. During the autumn months, the period of extravagant flights, small parties of Rooks may stray far from their normal feeding grounds, but their effects would not seem to be very great.

#### POSSIBLE COMPETITION WITH OTHER BIRDS.

Except for the general fact that every living creature competes with every other living creature, it is difficult to find direct evidence of the competition of the Rook with other species.

The grouse moors of Derbyshire could not support a colony of Rooks. They only attempt to go on these moors when the young can fly and they can therefore extend the feeding range in their search for grubs.

The occupation of the dry dales in Derbyshire by Jackdaws appears to be complementary rather than competitive. They do not seem to be suitable for Rooks. On the poorer lands of the Leicester wolds, Magpies and Carrion-Crows displace Rooks, but the land does not seem to be good enough for the Rooks. The Black-headed Gull nests extensively in Lincolnshire, forming a very extensive colony at Scawby and smaller ones at Scotton and Laughton.

If there were no Gulls it is very unlikely that more Rooks would nest in these areas, certainly they would not in the immediate vicinity of the gulleries. The replacement of Rooks by Jackdaws in central Nottinghamshire is peculiar, but not too extraordinary. The land is poor and the soil too dry to produce good grassland. Sites have been occupied by Rooks in this area which are not now occupied. During recent years collieries have been opened and new towns are appearing, otherwise it was sparsely peopled by human beings.

It is probable that when these develop Rooks may establish themselves in the area.

#### NUMBERS THROUGHOUT THE YEAR.

The census refers to the nesting birds. To this must be added the non-nesting immature birds. The total applies to January, February and March.

From March to the middle of May the total population may be trebled owing to the hatching and rearing of the young. On an average four young are reared from each nest, or for each pair. Then a wholesale slaughter begins in some rookeries and in a short time the numbers are reduced to the January totals. This is not, however, true for all. There is nevertheless a gradual fall in numbers, until by the end of August we have only the same number of birds as in January, and this continues until the end of the year.

#### FACTORS WHICH INFLUENCE THEIR DISTRIBUTION.

The Rook is a bird of the farm. Good land has plenty of Rooks and poor land has few Rooks, but the number of Rooks is no measure of the fertility of the soil. Heathlands, woodlands, moors and marshes are avoided by Rooks. Well-watered valleys are more frequented by them than are drier uplands and plains.

The proximity of rookeries to the rivers and large streams appears to be due to the greater abundance of good land, especially good grassland in these localities. Rivers, as such, do not appeal to Rooks, but they may influence local husbandry and thus indirectly render suitable what would otherwise be an unfavourable locality. In Nottinghamshire and Rutland 60 per cent. of the Rook population is far removed from rivers. Over large areas of Leicestershire and Lindsey Rooks are far removed from streams of any size.

Grassland appears to be essential for their welfare in most localities. They seem to like a grass paddock alongside their rookery.

Their fondness for nesting around human dwellings is probably due to this appeal for good grass, as well as the necessary clump of trees.

A grass field, especially well-tended good grass, can apparently be relied upon for a supply of insect food, during the critical nesting-period far more than an arable field. It is animal food more than anything else that they must have if they are to continue to exist.

Once a rookery has become well established in a site the birds seem loath to leave it although changes may have taken place around them rendering it an unsuitable site, and making life burdensome to them.

# NOTES

## TWITE IN PEMBROKESHIRE.

ON April 8th, 1933, the Blackbird which sings from the apex of our cottage on Skokholm Island, Pembrokeshire, was displaced by a small finch whose song I have never heard before. It was linnet-like, but much fainter, and I put down the notes "tu-tee, twee-ee-ee", rapidly repeated. As it flew away I had a glimpse of a lemon-yellow bill. During the next three days it fed in the garden, a few feet from the windows, on the seeds of wartcress, groundsel and various grasses. It was a male Twite (*Carduelis f. flavirostris*).

As far as I have been able to ascertain this is the first record of this species in Pembrokeshire. Messrs. Ingram and Salmon inform me that accounts of the Twite in South Wales have been vague and unsatisfactory and that there are few, if any, reliable records for the present century. R. M. LOCKLEY.

## EARLY TREE-PIPITS IN MIDLOTHIAN.

ON March 24th, 1933, I saw a pair of Tree Pipits (*Anthus t. trivialis*) on a birch tree beside Thriepmuir Reservoir in Midlothian.

I heard their clear notes first and as I was watching them with my field-glasses, the cock sprang into the air in full song.

In view of the note in the May number of *British Birds*, (Vol. XXVI., p. 364) to the effect that arrivals of Tree-Pipits before April 1st appear to be very unusual, I thought it might be of interest to record this early arrival in Scotland.

ALLISON H. GREENLEES.

## VARIATION IN PLUMAGE OF MARSH-TITS.

DURING the last three winters I have got from a locality of high elevation (between 800 and 1,000 feet) on the borders of Berkshire and Hampshire a series of Marsh-Tits (*Parus p. dresseri*) whose plumage differs consistently from that of the normal British bird in that its back is of a greyish rather than a rusty colour. Out of the large series in the British Museum I only found two of this greyish colour; in Mr. Witherby's collection there is only one, and that from Cumberland; and in Dr. C. B. Ticehurst's collection only one, and that from "the highest village in England".

It would therefore appear possible that a high elevation may favour this abnormal tone of plumage. So, if anyone could get a few skins from other localities of high elevation in other parts of England, and report their observations in

this respect, it might help to determine the question as to how far elevation is responsible for change of plumage. W. A. PAYN.

#### SONG-THRUSH'S NEST WITHOUT MUD LINING.

I FOUND in April, 1933, at Styal, Cheshire, the nest of a Song-Thrush (*Turdus ph. clarkei*), first with eggs and then with young, that lacked the inner lining of rotten wood or dung; in fact it looked just like a Blackbird's. I find no mention of this aberration either in *The Practical Handbook, Birds of the British Isles* (Coward), or any other book that I have. I am told that it occurs occasionally in dry weather, but in this case the River Dean flows a few yards below the nest so that lack of moisture hardly comes into question. EDWIN COHEN.

[Such nests, though uncommon, have been found on a good many occasions, and in some cases are undoubtedly due to the bird being obliged to run up a new nest hastily to replace one destroyed before or just after laying had commenced. Among recorded instances may be mentioned two nests in Notts. (Whitaker, *Notes on Birds of Notts*, p. 9), one in Berks. (Noble, *Vict. Hist. of Berks.*, I., p. 141), one in Yorks. (*Zool.*, 1875, p. 4,456), three on downs near Itchen Abbas, Hants. (Witherby, *Zool.*, 1893, p. 225), etc.—F. C. R. JOURDAIN.]

#### SONG-THRUSH ADAPTING A BLACKBIRD'S NEST.

IN March, 1933, a Blackbird (*Turdus m. merula*) built a nest on the horizontal beam, supporting the roof, above the open front of a cart-lodge in south-west Kent. Four eggs had been laid by the 29th. These were taken by a gardener some time before April 10th. On the 20th the nest was still empty, but on the morning of the 21st it contained an egg of a Song-Thrush (*T. ph. clarkei*). By 2.30 p.m. on the 22nd a second Song-Thrush's egg had been laid and a new lining of wet mud added to the nest. The Song-Thrush afterwards laid three more eggs, but they all met the same fate as those of the Blackbird. Three more or less similar instances appear to have been recorded: in one reported by Mr. D. F. Jopson (Vol. XXIII., p. 61) the Blackbird deserted before laying; in the one reported by Mr. Meiklejohn the Blackbird's nest was an old one of a previous year (XXI., p. 44), while in the case reported by Mr. Guthrie Hall (XVI., p. 253) the Blackbird deserted after laying two eggs, to which the Song-Thrush added three. In none of these, however, did the Song-Thrush re-line the nest. The converse of a Blackbird utilising a Song-Thrush's nest seems to be much more common and in most cases the Blackbird appears to have added a new lining.

N. F. TICEHURST.

## COMMON BUZZARD IN SURREY.

ABOUT the middle of August, 1932, a keeper in the Farleigh district of north-east Surrey, whom I know well, informed me that he had noticed a large hawk about the neighbourhood, chiefly at dusk, but did not know what it was. Although I paid repeated visits to the district I failed to see any signs of the bird, but on December 3rd, 1932, at about 3 p.m., I watched a solitary Common Buzzard (*Buteo b. buteo*) in a certain wood I am accustomed to visit in the locality. I again saw the bird in the same place on December 17th.

On both (and subsequent) occasions I had it under observation through glasses, and, on the latter date, watched it soaring above a hillside in bright sunshine and also obtained a very close view, just before sundown, as it left an oak near the centre of the wood within fifty yards.

The bird also came under my notice on December 31st, 1932, January 7th, 15th and 21st, February 11th, the last time being March 4th, 1933.

It was very elusive, spending most of the daytime in the woods, and venturing forth after sundown when late flocks of homeward-bound Rooks (*Corvus f. frugilegus*) would deliberately wheel from their course to mob it. It was often harassed by Carrion-Crows (*Corvus c. corone*), and on one occasion I saw it promptly driven out of an oak by an irate hen Sparrow-Hawk (*Accipiter n. nisus*).

From the keeper's description of the hawk he saw during the latter part of the summer (1932) there is no doubt that it was a Common Buzzard, and I am inclined to the view it was the same bird, for on the first occasion that I noticed it I considered it had a thorough knowledge of the woods.

The only other record I have of seeing the Common Buzzard in the district in question was on June 6th, 1925, at 4.20 p.m., when a solitary bird passed over in an easterly direction.

HUBERT E. POUNDS.

## MARSH-HARRIER IN SURREY.

ON May 3rd, 1933, there was a Marsh-Harrier (*Circus æruginosus*) on the marsh in the centre of Godalming. I saw it being mobbed by the Rooks and watched it with field-glasses for one and a half hours; they gave it no peace and it eventually mounted to a good height with three Rooks still in pursuit. It had settled on the ground more than a dozen times so I had plenty of opportunity to note its rich russet-brown colouring and very conspicuous cream-coloured crown continuing down the nape.

LILIAN E. TAYLOR.

UNUSUAL BIRDS AT FRENESHAM PONDS, SURREY.  
WINTER, 1932-33.

THE ponds were visited regularly between mid-September and March 31st. Of the commoner duck the most interesting feature was the marked increase of Goldeneye and decrease of Tufted Duck. Wigeon were not so numerous as usual, but the Pochard, Wild Duck, etc., were about normal. Below is a list of the more unusual visitors to these ponds.

COMMON BUZZARD (*Buteo b. buteo*).—One observed on February 8th, March 5th, 11th, 12th and April 7th, flying above the Little Pond marsh-belt. On several of the intervening dates I heard of a "large hawk" having been seen in the vicinity of Frensham Ponds. It was mobbed a great deal by Carrion-Crows but not by the Magpies.

SHOVELER (*Spatula clypeata*).—A female on January 28th—Great Pond. There is a small passage migration in spring and autumn, but winter occurrences are rare.

PINTAIL (*Anas a. acuta*).—Two immature birds on November 1st—Little Pond. Stayed one day only. They were much wilder than the other duck on the pond and when frightened by a horseman riding along the bank flew round for ten minutes before alighting again well out in the middle.

SCAUP-DUCK (*Nyroca m. marila*).—One female on December 23rd, swimming just off the south reed beds of Great Pond. There were several visits in the previous winter but that was unusual. Those birds, too, used to choose that particular stretch of water.

GOOSANDER (*Mergus m. merganser*).—One on December 9th for a few hours in the afternoon—Great Pond. Mr. Hugh Thompson, who observed the bird, says that it was very wild and restless.

SMEW (*Mergus albellus*).—An immature male on February 14th and 15th—Great Pond. Swimming and diving with Tufted Duck.

CORMORANT (*Phalacrocorax c. carbo*).—One from October 31st to November 7th inclusive—Great Pond. I never saw it feeding but it appeared to be in perfect health though shy. When fishing-boats came out it would fly to the large reed-beds on the south shore and hide there. It was probably shot, but I got no definite proof of this.

STORM-PETREL (*Hydrobates pelagicus*).—One on October 5th—Great Pond. Stayed one day only. It was not at all a "storm-battered" bird; indeed there had been no recent gale, but was swimming about and occasionally going for short flights low over the water. It easily avoided the few attacks by Coots. I did not see it feed.



BLACK-NECKED GREBE (*Podiceps n. nigricollis*).—One on Little Pond, July 21st and 30th. I was not visiting the ponds regularly then, so cannot say whether it was there on the intervening days too.

RED-THROATED DIVER (*Colymbus stellatus*).—One on February 3rd and one, possibly the same bird, from February 6th to 12th inclusive—Great Pond. Not particularly shy, sometimes swimming and diving close to the shore.

LITTLE TERN (*Sterna a. albifrons*).—One on October 24th and one, possibly the same bird, on October 26th. The usual passage migration of Common Terns was passing through then.

L. S. V. VENABLES.

### BIRDS IN THE BLACKWATER ESTUARY, ESSEX.

(1932-33).

THE following notes are from observations made during the past winter on the south side of the Blackwater Estuary between Maldon and Lawling Creek. This area comprises some ten square miles of tidal mudflat and salting, and is situated about eight miles from the open sea. The records may be of interest and may serve to supplement those already given in Mr. W. E. Glegg's *History of the Birds of Essex*.

TWITE (*Carduelis f. flavirostris*).—Several with a large flock of Linnets on Northey saltings, January 28th, and one on February 12th.

SNOW BUNTING (*Plectrophenax n. nivalis*).—It may be worth noting that throughout the whole winter I observed only one bird of this species, a female, February 10th.

PEREGRINE FALCON (*Falco p. peregrinus*).—One male February 12th and 20th—apparently the same bird.

MERLIN (*F. c. aesalon*).—A male on November 13th, a female on February 10th and another on the 20th. All these were seen on the saltings.

HEN HARRIER (*Circus c. cyaneus*).—On December 11th I watched a female being mobbed by gulls on the south side of Northey Island. A blue adult male near New Hall on March 13th.

BRENT-GOOSE (*Branta bernicla*).—Numerous in flocks as far inland as Northey Island from January 20th to February 15th.

SHELDRAKE (*Tadorna tadorna*).—Winter population between 90 and 100 birds. Usually keep in one flock, but the frost of January-February resulted in a temporary disintegration.

TUFTED DUCK (*Nyroca fuligula*).—A small flock on Southey Creek on January 29th during hard weather.

SCAUP (*N. m. marila*).—A drake at Maldon on November 13th; a duck on Southey Creek on January 29th, two on December 11th, and one on February 10th.

GOLDENEYE (*Bucephala c. clangula*).—None until February 12th, when party of fourteen arrived and stayed. Regularly seen afterwards till the second week in April.

COMMON SCOTER (*Oidemia n. nigra*).—A drake on November 27th; a duck on February 12th and a drake on March 12th.

VELVET SCOTER (*O. f. fusca*).—Three off Southey Creek on November 13th.



GOOSANDER (*Mergus m. merganser*).—Five near Northey Island, November 13th. A party of drakes off Goldhanger on January 28th. One drake by Northey Island on January 29th. I saw what I took to be this same bird several times afterwards.

On February 12th I saw an adult drake Goosander beside Osea Island and witnessed a strange incident in which it seemed to drive off a drake Red-breasted Merganser and attempt to display before three female Mergansers.

Apparently not infrequent on salt water here.

RED-BREASTED MERGANSER (*M. serrator*).—Regular in small numbers from November to the first week in April. On March 25th and 26th I observed what was apparently a migratory movement of these birds. On the 25th most were males, on the 26th mostly females. Many, however, are paired by this time.

SMEW (*M. albellus*).—One (? female) on January 29th.

GREAT CRESTED GREBE (*Podiceps c. cristatus*).—This bird is not seen on the estuary in winter, according to my observations. I saw one on November 13th and three on the 20th, then not one till April 2nd, when I saw three single birds in breeding plumage coming in with the rising tide. The estuary is apparently used on passage movements only.

BLACK-THROATED DIVER (*Colymbus a. arcticus*).—One off Lawling Creek on March 25th.

RED-THROATED DIVER (*C. stellatus*).—After reading Mr. Glegg's account of the occurrences of divers in the Essex estuaries, I was surprised to find that from February 10th, when I saw three birds on the west side of Northey Island, this species was a comparatively regular visitor to the estuary.

W. K. RICHMOND.

#### AN ADDITION TO THE ESSEX HERONRIES.

AT the time of publication of the *British Birds Census of Heronries*, 1928 (*B.B.*, Vol. XXII., p. 282 and Vol. XXIII, p. 326), it was shown that Essex possessed seven heronries. These were situated at St. Osyth Park (75 nests), Wanstead Park (60 nests), Mundon (35 nests), Boreham House (22 nests), Birch (19 nests), Lea Valley Reservoirs (5 nests) and Skipper's Island (7-8 nests).

To this list must be added an eighth colony which is situated on Bolt Hall Farm, which lies a little to the west and north of Canewdon. The Herons have chosen a row of high hedge-row elms in which to build their nests. On the occasion of my visit on April 29th, 1933, thirty-two nests were counted in eleven elms. The line of elms runs roughly from north to south and is situated on rising ground, about three-quarters of a mile south of the Crouch, with an uninterrupted view to this estuary. Mr. D. Lazell, foreman to Mrs. F. N. Marriage, who owns the ground, informs me that the heronry has been in existence for about ten or twelve years. It was small when started but has grown steadily each year. It is impossible to say if all the nests seen were occupied but it is probable that most of them were in use. Egg-shells were found on the ground and young could be heard in the nests.

Eleven Herons were seen in the air at one time over the heronry. I am informed that the Herons receive a measure of protection. From the actions of the birds during our presence this would seem to be so as they were not disturbed by our presence.

The credit for bringing to notice this heronry belongs to Mr. Bob Jenkinson of Wickford, whom I must thank for conducting me to it. On a previous visit Mr. Jenkinson climbed to two nests, which, although empty, had apparently been used this year. There is a considerable rookery in the rows of elms immediately adjacent, but there were no Rooks' nests in the line of trees occupied by the Herons. WILLIAM E. GLEGG.

#### EARLY NESTING OF OYSTER-CATCHER IN LANCASHIRE.

ON April 16th, 1933, in a north Lancashire bird sanctuary, there was a very early nest of the Oyster-catcher (*Hæmatopus o. occidentalis*) containing, which is also here unusual, a clutch of four eggs. I have seen large numbers of nests of these birds but only twice clutches of four. The weather was very cold and snow fell on the 19th.

On the same date Ringed Plovers had eggs and numbers of Black-headed Gulls' nests contained one egg, and in two cases two eggs. Lesser Black-backed and Herring-Gulls had completed their nests but not commenced to lay. Sandwich Terns arrived as usual in March, but the other three species nesting there had not arrived. H. W. ROBINSON.

#### FLOCK OF BLACK-TAILED GODWITS AND A DUSKY REDSHANK IN DEVONSHIRE.

ON March 11th, 1933, on the St. German's estuary, about three miles from Plymouth, I observed a flock of twenty-six Black-tailed Godwits (*Limosa l. limosa*). Some of them were showing much of the redness of summer plumage. In flight they bunched close together, twisting and turning and showing the white wing bar. I visited the same place on March 19th, but did not see them again. There is just a possibility that this flock might have been the same as the flock of about thirty reported in Caermarthenshire up to January 16th, 1933, by Mr. J. F. Thomas (see *B.B.*, Vol. XXVI., p. 312). However, the only justification I have for making this suggestion is that it is, as Mr. Thomas points out, so exceptional to see a flock on the dates of the observations in question.

On March 18th and 25th, at Pomphlett, Plymouth, I clearly identified a Dusky Redshank (*T. erythropus*). H. G. HURRELL.

EARLY RED-BACKED SHRIKE IN DEVONSHIRE.—Mr. W. Walmesley White informs us that he saw a male *Lanius*

*collurio* on April 23rd near Budleigh Salterton and remarks that he had never before seen one in April. The records sent in to the Migration Committee of the B.O.C. clearly indicate that the usual arrival date of this species in any numbers is about May 4th, but that early single birds straggle over with other species during the last ten days of April in every year. Dates earlier than April 20th are distinctly rare, only four (between the 13th and 19th) being recorded in nine years.

### REVIEW.

*Northward Ho!—for Birds.* By Ralph Chislett. Illustrated. (Country Life, Ltd.) 15s. net.

MR. CHISLETT'S photographs, of which he has given us a very fine and generous selection in this beautiful quarto volume, seem to us perfect. There are altogether eighty-seven photographs of fifty-one species worthily reproduced in photogravure.

The book starts with Derbyshire and the birds of the woods, streams and moors. Here we have a delightful portrait of a Tawny Owl on its nest in an unusual site at the base of a tree, nice photographs of Dippers by a stream, Ring-Ouzels, a Land-Rail on its nest and a striking one of a Golden Plover on the moor. We are next taken to Galloway with some interesting photographs of Cormorants in attitudes of display, and on through the Highlands, where we have a characteristic view of a Crested Tit and a very useful series of Greenshank, and among others some good photographs of Divers, especially those of the Black-throated swimming. Proceeding to Shetland, Mr. Chislett has given some fine studies of the Hooded Crow and the Arctic and Great Skuas, one of the latter feeding a chick being especially good. But of this series by far the most attractive is the Whimbrel and its downy young.

Many of these birds have been much photographed and it was wise of Mr. Chislett to go further afield, and the last part of his book dealing with Öland in the Baltic, and Lapland, is in many ways the most interesting. Here we have beautiful photographs of Black-tailed Godwit, Reeve and Black Tern, and a wonderful series of Turnstone taken on Öland. In the chapter on Lapland we find pictures of Fieldfare and Redwing, Bluethroat, Jack Snipe, Broad-billed Sandpipers, Long-tailed Skua and other interesting birds in their northern breeding haunts.

It will be seen by what has been said above that Mr. Chislett has given us a very fine photographic record, and not only that, but he has also made many good observations, which is difficult when photography is the main object, and he has a descriptive pen.

We can only be grateful to the author for having given us such a beautiful and interesting book, the result, as he says, of twenty-five years of unsociability during "leisure" hours and holidays—well spent.

### LETTERS.

#### THE INSECT FAUNA OF BIRDS' NESTS.

*To the Editors of BRITISH BIRDS.*

SIRS,—We would be much obliged if you could give us space in your magazine to ask any of your readers to send us nests of British birds which they may have the chance of obtaining. We are working on the insect fauna of nests and records are required from all parts of the British Isles.

It will be understood that it is against our wish that the nests should be interfered with before the young have left.

The nests we particularly require are those of all birds of prey and the rarer British nesting species.

When nests are taken we should greatly desire to have a note on their surroundings, height above or depth below ground, whether in light, open, dark or sheltered situation and, most particularly, the number of young and when they left the nest, if known. If the nest has been used successively for two or more years, or if the original nest has been taken over by another species, this should be stated.

Nests, which may be sent to the address below, must be kept separate; the smaller ones could be sent in strong brown paper bags, while the larger and heavier nests would have to be sent in insect-proof sacks, which can be obtained from us on application. All postage will be refunded if required.

We invite correspondence on the above subject.

“ALASKA,” FARNHAM ROAD,  
SLOUGH, BUCKS.

R. J. SPITTLE.  
E. B. BASDEN.

#### GREATER SPOTTED WOODPECKERS SUCKING EGGS.

*To the Editors of BRITISH BIRDS.*

SIRS,—With reference to Dr. B. B. Rivière's observation in the April issue (Vol. XXVI., p. 324), it may be of interest to state that in 1910 one of the gamekeepers at Castle Rising asked me if the Greater Spotted Woodpecker ever sucked eggs. He said that he had often seen them on his Jay traps and thought that they were after the eggs. I remember saying at the time that I thought they were after the flies that were attracted by the eggs, which were perhaps not over fresh. I do not think that they would attack Pheasants' eggs as they could always find so many eggs in the trees and bushes without troubling to come down to the ground for them.

N. TRACY.

#### REDSHANK EATING FISH.

*To the Editors of BRITISH BIRDS.*

SIRS,—With regard to Mr. R. H. Brown's note *re* above in the May issue of *British Birds* (Vol. XXVI., p. 368), Redshanks are very fond of small fish in captivity, whatever they may be in a wild state. I have at times kept several in a large aviary and they were constantly given minnows and small roach, which they ate eagerly. They would also eat pieces of chopped-up fish of a larger nature, which were for Ibises and Egrets in the same aviary. On the other hand Godwits, and Ruffs will never touch fish, unless it may be occasionally to “toy” with a piece. Oyster-catchers will eat small fishes if very hungry.

G. H. GURNEY.

#### PROPOSED MEMORIAL TO T. A. COWARD.

*To the Editors of BRITISH BIRDS.*

SIRS,—A committee, the chairman of which is the Earl of Stamford, has been formed to make an appeal for funds with which to purchase and endow a suitable bird and nature sanctuary in Cheshire in memory of the late T. A. Coward.

Probably many admirers of his books, who are also readers of *British Birds*, and whom an appeal may not otherwise reach, will wish to send a subscription to this memorial.

I shall be very glad to receive subscriptions, or they may be paid direct to the T. A. Coward Memorial Fund, Lloyds Bank Ltd., Victoria Station Branch, Manchester.

A. W. BOYD.

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## NOTES ON THE LITTLE GREBE.

BY

GEORGE BIRD.

(Plates 1 and 2)

THE following notes are based on observations made on a pair of Little Grebes (*Podiceps r. ruficollis*) which had established themselves on the Monk's Fish Pond of a once celebrated Abbey in south-east Suffolk, where the birds have bred for three seasons past, unknown to anyone except the keeper and myself.

On April 2nd I had an opportunity of seeing the display of the male. His head was held well back with the neck curved, and wings and feathers fluffed out, so that he presented the appearance of a floating feathery ball. As he approached the hen he seemed to be excited and uttered a faint note, only audible at close quarters, pecking from time to time at the water. Then riding off some distance he made the well-known trilling call and (apparently by means of his feet) splashed water up over his back to a remarkable height for so small a bird. The hen remained quiet and showed no excitement.

On April 9th I noted *both* birds building their nest on a rather dangerous portion of the water, and was not surprised to hear from the keeper a few days later that the nest had been swamped during heavy rain. I saw no more of the birds until April 30th, when I found another nest built partly under the semi-floating branches of a sycamore tree.

The nest consisted of floating semi-decayed material brought up from the bottom of the lake by both birds. On lifting the dome top five creamy-white eggs were seen in the slightly saucer-shaped nest scarcely above the water level.

My view-point enabled me to observe the birds at a distance of about six feet. Both took part in incubating and were always extremely alert. The sitting bird would leave the nest at the first sign of danger, quickly covering the eggs, however, before doing so. There seemed to be periods for each bird to sit, as I observed that after the bird had left the nest hurriedly, the same one would return, soon perhaps to be replaced by its mate. The "change over" was accompanied by an interesting ceremony, the approaching bird making a delicate and scarcely perceptible whistle, and bringing pieces of *green* vegetation to assist the further building up of the nest. This fresh green material it would seem is interspread



LITTLE GREBE: Incubating with its feathers fluffed out.  
(*Photographed by G. Bird.*)



with the more decayed portion and sets up fermentation, which possibly may assist incubation. Each bird regularly brought material before taking over its period of sitting.

As above stated, the nest on April 30th contained five eggs ; on May 12th these had not hatched. The next afternoon, however, four chicks were hatched, the last egg hatching out late on the 14th. From the appearance of the eggs when first seen on April 30th, I should say the clutch had been complete not more than two or three days. This, of course, does not



LITTLE GREBE : Male on nest, hen on water.  
(*Photographed by G. Bird.*)

furnish exact figures for the incubation-period. The eggs were observed to be incubated for 13-14 days and apparently for two or three days previously, which would give a period of about 16-17 days. This is, however, decidedly less than that given by other observers, and further observations on this point are desirable.

While the chicks were hatching on the 13th, when the keeper and I came along openly, the adult birds had left the nest without so much as a ripple of the water, the newly-hatched

chicks being left behind. The young have at first very little use in their legs and feet, and shuffle along with extended wing and body rather than by using their feet (see photograph). When they eventually left the nest, however, they dived into the water readily, coming up further away and shuffling on to a lily leaf, where later on they were retrieved by the parent bird, which came alongside, thus enabling the chicks to clamber on to its back. I have seen the adult birds dive with chicks under their wings and come up some distance away, coming back to the nest later in the same way.



LITTLE GREBE : brooding young, of which the foot of one can be seen protruding from under the parent.  
(*Photographed by G. Bird.*)

The young continued to use the nest for some time after they were hatched and they sometimes frequented it when almost fully fledged. When leaving the nest in the ordinary



LITTLE GREBE : Young shuffling along nest to be fed. The nestling in the centre with its foot thrust out sideways is in a very usual attitude at this stage.

*(Photographed by G. Bird.)*

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1900



way they may just glide off and swim away, or dive right away. Their manner was to raise themselves and plunge head foremost. Sometimes, however, they dived with scarcely a ripple of the water.



LITTLE GREBE : feeding young.  
(*Photographed by G. Bird.*)

If the old birds are alarmed and have a young brood they will dive, bringing just their heads out of the water in the manner of a periscope, without causing a ripple of the water.

As yet I have not seen a second brood, although there may be one, as I have seen the adults courting after chicks were fully fledged.

No more pleasing sight can be imagined than a happy family of Dabchicks gliding over the surface of the water with their plumage puffed out like balls of feathers, bobbing about amongst the water lilies.

## GREAT AND LESSER BLACK-BACKED GULLS IN NORTH WALES.

BY

CHAS. OLDHAM.

IN their lengthy and elaborate paper on numerical fluctuations of the Great Black-backed Gull, *Larus marinus* (*Proc. Zool. Soc.*, 1933, pp. 191-209), Messrs. T. H. Harrison and H. C. Hurrell suggest that Anglesey has been an important centre of dispersal and consequently an important factor in the remarkable increase in the numbers of this species during the last thirty years. They surmise—the known facts warrant nothing more—that the depleted population of the Pembrokeshire islands was reinforced by immigrants from Anglesey and Caernarvon; but assuming that any such reinforcement took place and that the undoubted increase is not due to regeneration of the local stock, there is at least one other probable source of immigration, the S.E. corner of Ireland, which the authors do not even canvass. The Saltee Islands in co. Wexford are much nearer to the Pembrokeshire breeding-places than either Anglesey or St. Tudwall's Islands, and they support a large population of Great Black-backs. I spent some days on the Great Saltee in June, 1930. Pairs were scattered about the cliffs, and among the bluebells and bracken on the highest part of the island was a colony of between fifty and sixty pairs, whilst on the shingle of the storm-beach four other pairs were nesting close to but separate from a colony of some thirty pairs of Herring-Gulls (*Larus argentatus*). In all there were between sixty and seventy pairs at least. The position in 1930 is no criterion of that in 1900, but it is interesting to recall that Ussher and Warren (*Birds of Ireland*, p. 340) writing in that year, when according to our authors, the fortunes of the Great Black-backed Gull in England and Wales were at the lowest ebb, and only some twenty pairs survived, said "On the South Saltee [Great Saltee] several pairs build, chiefly on the tops of the highest eminences, which rise to two hundred feet".

Emigration may or may not have taken place in North Wales, but the paragraph on page 195, which deals with the status of the bird in Anglesey and upon which wide generalizations are based, contains—apart from misspelt place-names—so many ambiguities and inaccuracies that some comment seems to be called for. To make matters clear it will be well to quote the paragraph in full:—

" The Anglesey data are rather complete and show a decrease about 1886-90, an absence of nesting records from 1890 to 1903, and then rapid colonization of a number of localities between 1903 and 1909, with a slow increase in some subsequent years. In Martin's *Week's Wanderings in Wales* (1864) this bird is referred to as quite common about Anglesey. It bred annually at Ynys y Meibon, near Llangwfa, up to 1891; a pair at Aberffraw in 1886-7, not definitely reported there again until 1904. It nested on Middle Mouse in 1905, and there were two pairs on the Skerries in 1911. In 1903 a pair occupied Penmon Point, and in the following year two pairs nested at Pen-y-Parc, near Bodorgan. At the latter locality at least four pairs were noted in 1915 (C.O.), six in 1926, and eleven by 1930, all the nests being close together (W.A.). Also in 1903 a pair on Dinas Fach, Bodorgan, and two Ynys Badric, a stack on the north coast (C.O.). Nine pairs were recorded on Puffin Island in 1909, 1910, and 1912 (*Zool.* 1902, p. 345), and again 1924, 1925, 1926 and 1928 (W.A. & T.H.H.). In 1928 and 1929 a pair probably bred on the South Stack at Holyhead (W.A. & T.H.H.); on this cliff Eyton reported a pair in 1835."

Ynys y Meibion is a stack, which may be reached dryshod at low water, about equidistant from Llangwyfan and Aberffraw. I saw eggs here in May, 1886, and downy chicks in June, 1891 (*cf.* Forrest, *Vert. Fauna of North Wales*, p. 389). The authors refer to the 1891 event and yet say that there is an absence of nesting records in Anglesey from 1890 to 1903! Their reference to a pair at Aberffraw in 1886-7 should properly be to Dinas Trefriw, a rocky ridge which, with its terminal stack, Dinas Fach, are situate about three miles S.E. of Ynys y Meibion, and may conveniently be associated with the nearby locus at Pen y Parc, the rugged westerly horn of Malldraeth Bay. Dr. N. F. Ticehurst tells me that a pair nested to his knowledge on Dinas Fach in 1898, 1899, 1901 and 1903. In 1904 a pair again nested on Dinas Fach and two pairs at Pen y Parc. There were at least four pairs at Pen y Parc in 1915 and the authors say, on the authority of W. Aspden, eleven in 1930, the last year with which their paper deals. I was at Pen y Parc on May 7th, 1932. A great change had taken place since my last visit, in 1915. Herring-Gulls were much more numerous. The cliff ledges were apparently insufficient for the population, and there were many nests, accessible without climbing, on the brows. In 1915 there were only a few Lesser Black-backed Gulls (*Larus f. graellsii*); I estimated the 1932 population at between twenty and twenty-five pairs. Fourteen birds were standing in a scattered group on a flat grassy area on the headland. Here was one nest with two, and four with only one egg, whilst others were still empty. I estimated the Great Black-back population at between forty and fifty pairs, a

number which suggests that there were really more than eleven pairs in 1930. The nests were all accessible without climbing, mostly on the cliff brows, scattered without apparent segregation among those of the Herring-Gulls. These figures controvert the authors' opinion that in 1930, with a population of about thirty pairs in the whole of Anglesey and Caernarvon, the "birds had long since reached an optimum density".

The authors state, on my authority, that two pairs nested on Ynys Badrig in 1903 and that the Middle Mouse was occupied in 1905. Anyone unacquainted with Anglesey would infer that Ynys Badrig and the Middle Mouse were distinct places, whereas they are one and the same, a rocky stack of the north coast, near Llanbadrig: It was on June 21st, 1905, that S. G. Cummings and I landed on the stack and found two pairs with well-grown downy chicks. There were also about a hundred pairs of Herring-Gulls and one pair of Lesser Black-backs.

There were no Great Black-backs on Puffin Island when I was there in June, 1902, but the authors say that there were nine pairs on the island in 1909, 1910, 1912, 1924, 1925, 1926 and 1928. This, having regard to the state of flux which obtained elsewhere, implies an amazing stability for twenty years. It means, too, that during the earlier years, 1909-1912, the colony was by far the largest in North Wales. W. Aspen and one of the authors vouch for nine pairs in 1924, 1925, 1926 and 1928. It is a pity, in view of the exceptional interest of this case, that more details are not given for the earlier years, particularly as Forrest says, on the authority of H. King (*Handbook to the Fauna of North Wales*, p. 72), that two pairs (not nine) nested in 1909 and 1910. It may be that the reference in the paper, "*Zool.*, 1902, p. 345", is intended to apply only to the year 1912, but in any case it cannot be correct, ante-dating the event as it does by ten years. It seems more likely that "1902" is a typographical error for "1912", for on page 345 of the *Zoologist* for 1912 T. Owen describes a visit he made at the end of May. He speaks, however, not of nine pairs but of a single bird and of his inability to find a nest. Mrs. T. A. Coward tells me that she was on the island with her husband on the 29th and 30th of that month and that his journal contains the specific entry "Saw no Great Black-backs". This, too, suggests that the statement that there were nine pairs in 1912 is based on some misapprehension.

Thirty years ago the Lesser Black-back was an uncommon bird in North Wales. Apart from a considerable colony at

one place on the cliffs of Puffin Island, there were only a few pairs on the Great and Little Ormes and here and there a pair on the north coast of Anglesey. The increase in the meantime has been as noticeable as that of the Great Black-back. By 1912 there was a considerable difference on Puffin Island (T. Owen, *Zoologist*, 1912, p. 345). In 1904 there were none at Pen y Parc ; in 1915 a few, and now, as already remarked, a flourishing colony. The increase on the Great Orme is still more striking. Many pairs now nest on the brows above the cliffs, which have also been invaded of late years by Herring-Gulls. In 1929 and again in 1932 I saw nests of both species on the grass slopes within twenty yards of the carriage road which encircles the headland.

**NOTES FROM THE ISLE OF MAN.  
1931 AND 1932.**

BY

P. G. RALFE.

REPORTS from the Point of Ayre and Chickens Rock Lights show that on March 19th-21st, 1931, considerable migration took place, and at night great numbers of Curlews were heard passing over Douglas and Castletown. From November 6th to 17th another movement took place, sixty-one birds being killed at the Point of Ayre during that period. The species represented were the usual ones.

In 1932 the spring migration centred on March 26th, when many birds, especially Starlings, were killed at both lights. At the same time Curlews and Starlings passed over Ramsey in large numbers, flying very low, and several striking the lamps on the quay. On October 21st various species of Thrush were numerous at the Chickens, but no birds appeared at the lantern of the Point of Ayre.

In 1931 the Wheatear was reported on March 21st and in 1932 on the 18th. Swallows appeared in the former year on March 15th, and in the latter none are recorded till April 11th, the Chiffchaff on March 20th and 23rd. A dead Corn-crake was found on April 11th, 1931; the earliest record in 1932 was on the 27th.

The latest Wheatear in the two years was seen on October 13th; Swallows lingered to November 11th in 1931, and (in some numbers) to November 15th in 1932. Two House-Martins were seen on November 4th, 1931.

The White Wagtail has again appeared in numbers, both in spring and autumn. The Whinchat and Yellow Wagtail are regularly reported on passage.

The Great Northern Diver is reported at Peel regularly through May until the 22nd by Mr. F. S. Graves and Mr. G. Clementson. Mr. Graves, in both 1931 and 1932, has seen specimens with a distinct tuft on the forehead. "I have noticed this development for some years at this season (May) but have not seen it referred to; the tuft does not seem to be erectile." It was also observed on winter specimens.

A new Wild Birds Protection Act, repealing that of 1887, was enacted in Tynwald, May 31st, 1932, and promulgated July 5th. It is of a far-reaching character. While the former Act had a long list of protected species, the present has a short list of non-protected (all Crows, except Chough

and Raven, Hawks, except Kestrel, Starling, Sparrow, Cormorant, Shag, Wood-Pigeon and Little Owl). All nests and eggs of protected species are protected also. Taxidermists must register all wild birds dealt with. Pole-traps must be inspected at least daily.

Exemption from penalties is provided for persons "protecting property, crops, game or fisheries from immediate danger", and the Governor may grant exemption for special purposes. He may also vary the list of non-protected species and constitute "Bird Sanctuaries". The holder of a game licence may shoot "shore-birds" between August 11th and March 1st. The Lapwing is removed from the definition of "game" in the Game Act, 1882.

RAVEN (*Corvus c. corax*).—Two instances of nesting in trees were recorded in 1932, one nest being in a heronry (see under Heron).

HOODED CROW (*Corvus c. cornix*) and CARRION-CROW (*C. c. corone*).—Observations of the Carrion-Crow, sometimes paired with the Hooded, and of hybrids, are frequent in both years. The nest of a pair, of which the male was a hybrid, the female a "Greyback", was found by Mr. F. S. Graves near Peel in 1932, but was later destroyed.

CHOUGH (*Pyrhocorax p. pyrrhocorax*).—Seems to hold its ground well; some observers even think it increases. Flocks of twenty often reported.

GOLDFINCH (*Carduelis c. britannica*).—Appears to increase; has nested in Ramsey Park and at Peel, and is now frequently seen.

CROSSBILL (*Loxia c. curvirostra*).—Some, among them red birds, observed for a time in the outskirts of Douglas in the autumn of 1931 (Attorney-General R. B. Moore).

YELLOW WAGTAIL (*Motacilla flava rayi*).—A number of reports of the species, but not as nesting.

GREAT GREY SHRIKE (*Lanius e. excubitor*).—Two seen at Glenchass, March 30th, 1931, by Mr. C. F. Butterworth; afterwards, one only. Thought to have been observed also in autumn.

WAXWING (*Bombycilla garrulus*).—Two at Kirk Michael, November 7th, 1932 (B.B., March, 1933).

BARRED WARBLER (*Sylvia n. nisoria*).—Mr. W. Berry reports one seen near Ballamoar, Jurby, October 27th, 1931, "a very well-marked bird".

GARDEN-WARBLER (*Sylvia borin*).—Reported often in spring, heard singing, and believed to have nested.

BLACKCAP (*Sylvia a. atricapilla*).—A few records in May.

REDSTART (*Phœnicurus ph. phœnicurus*).—A few observed in April. One was caught at Maughold Head Light, ringed and released.

BLACK REDSTART (*Phœnicurus o. gibraltariensis*).—Mr. J. J. Gill saw one for about a fortnight, October-November, 1931, at Glenduff Quarry, Lezayre. Single birds seen also by Col. Madoc, November 18th and December 21st, 1931, October 1st, 1932. They are reported as very tame.

NIGHTJAR (*Caprimulgus e. europæus*).—Nested on Peel Hill (Mr. G. Clementson), in Lonan (Mr. G. W. Adams), and probably on the Ayres.

BARN-OWL (*Tyto a. alba*).—Various reports seem to show that this Owl is not so rare in Man as once supposed. One, said to have been drowned in a water-butt, was taken at Ballasalla, March 5th, 1931.

HEN-HARRIER (*Circus c. cyaneus*).—Several times seen—a female, Glen Helen, April 16th, 1931, by Col. Madoc; one in Glen Roy, January 23rd, 1932, by Mr. G. W. Adams; one for some days, Andreas, December, 1932 (Messrs. J. Bell and F. A. Craine).

HERON (*Ardea c. cinerea*).—In 1931 a small heronry was established in fir trees, in a locality which the proprietor does not wish disclosed, and was again occupied in 1932. In the former year there were three pairs, in the latter eight nests were built, but the eggs and young were harried by Ravens, which attempted to breed in the same wood. Second clutches however were laid, and the young hatched out safely.

A colony is said to have existed, perhaps twenty years ago, at Ballaskeig in Maughold, and to have been scared away by a fire in the wood occupied.

SWANS (*Cygnus* sp.).—Of not infrequent occurrence. Forty were seen from the Point of Ayre Light, February 19th, 1932, passing east. An adult Bewick's remained in Ramsey Harbour from about April 16th to May 7th, 1932, with Mute Swans; on April 20th, a Whooper, and four Bewick's lighted on the sea outside Ramsey (Messrs. Bell, Craine and Berry and Col. Madoc).

*Cygnus olor* has become abundant in Castletown Harbour and on the southern shores; nested on the open coast in various places.

From January 5th to March 5th, 1931, an immature Whooper remained on the Eary Dam, inland, where its gradual change of plumage was carefully watched by Col. Madoc.

GEESE (*Anser* sp.).—The Grey Lag, White-fronted and Pink-footed are again reported, especially the first named, of which Mr. F. S. Graves sent a specimen to the Manx Museum.

LONG-TAILED DUCK (*Clangula hyemalis*).—Mr. F. S. Graves saw an immature bird on October 30th-31st, 1931, in the West Bay, Peel. Col. Madoc reports young birds, November 11th to December 16th, 1931, at Ronaldsway, and again occurrences in January, February, November and December, 1932.

EIDER (*Somateria m. mollissima*).—January 22nd and February 2nd, 1932, a number, male and female seen on the sea near Port St. Mary by Mr. C. F. Butterworth. Reported same neighbourhood in the following December.

VELVET-SCOTER (*Oidemia f. fusca*).—See F. S. Graves, *antea*, Vol. XXVI., p. 336.

GOOSANDER (*Mergus m. merganser*).—A female was shot near the Silverburn, January 4th, 1932, and sent to the Museum. Others recorded by Col. Madoc and Mr. G. W. Adams.

SMEW (*Mergus albellus*).—Occurrences, Rue Pt., Peel, Derbyhaven and Perwick (Mr. Adams, Col. Madoc and Mr. Butterworth).

MANX SHEARWATER (*Puffinus p. puffinus*).—A specimen sent to the Manx Museum by Mr. F. S. Graves had been found drowned in the net of a fishing boat, about six miles from Bradda Head.

FULMAR (*Fulmarus g. glacialis*).—See F. S. Graves, *antea*, Vol. XXVI., p. 337.

Reported also from the Chickens Lighthouse, and all summer on the sea between Pt. St. Mary and the Calf.

BLACK-THROATED DIVER (*Colymbus a. arcticus*).—Mr. F. Graves saw one at Peel, February 2nd, 1932, identifying it by its size compared with a Herring-Gull. Apparently rare in Manx waters.



TURTLE-DOVE (*Streptopelia t. turtur*).—In 1931 and 1932 reported by a number of observers. Mr. C. F. Butterworth saw one and sometimes two through June, July and August, 1931, and at the end of August three together. There is, however, no suggestion of nesting.

LAPWING (*Vanellus vanellus*).—A large flock, about 200, was seen at the Point of Ayre Light, February 5th, 1932.

REDSHANK (*Tringa t. totanus*).—Mr. H. M. Rogers ascertained the nesting of the Redshank in 1931 and 1932 in a second locality about a mile from that mentioned in 1928 and 1929. In 1932 there were two nests there. Messrs. J. Bell and F. A. Craine saw lately-hatched young at a third site. This is an increasing species also all round our coast.

GREENSHANK (*Tringa nebularia*).—One observed on Fort Island, January 12th, 1933.

BLACK-TAILED GODWIT (*Limosa l. limosa*).—On November 18th, 1931, Col. Madoc saw one at Darlyhaven with a Curlew. From September 25th to October 13th, 1932, Mr. C. F. Butterworth carefully watched another which associated with Oyster-catchers and Redshanks, always in the same small area.

SANDWICH TERN (*Sterna s. sandvicensis*).—Birds were seen both in 1931 and 1932 and there is reason to believe that one pair at least nested.

ICELAND GULL (*Larus leucopterus*).—From October 5th, 1931, to March 15th, 1932, a "White Gull" frequented Ramsey, first the harbour, and later the South Promenade, and became a familiar object to many of the townsmen, who fed it with scraps from their houses. Mr. F. S. Graves describes the plumage as "dull white, the wings long and narrow, with white primaries; legs flesh-colour, eyes dark, bill dark, with dark spot at angle, and light horn at tip. The bird was shorter and more slender than the Herring-Gulls with which it associated, and the flight was buoyant. Mr. James Bell, who was the first to report it, told me that when he saw it first in the harbour the head and neck were faintly streaked, and the other Gulls made strange of it; later it was near them on the water, and feeding with them on scraps on the shore and promenade." It was certainly, as Mr. Graves says, the above-named species in a stage of immaturity (see also *N. W. Nat.*, December, 1932, p. 302).

GREAT SKUA (*Stercorarius s. skua*).—On March 29th, 1931, Mr. Butterworth saw one in the Port St. Mary neighbourhood, and Col. Madoc one on April 12th, 1931, off the Ayres. On October 8th, 1932, one also was seen from the Chickens Lighthouse, and Mr. Butterworth saw yet another twice on October 11th.

LITTLE AUK (*Alle a. alle*).—On January 21st, 1932, one was found at Creg-y-Creel, Port St. Mary, hurt or "oiled" (Butterworth). On December 18th, 1932, Col. Madoc saw one off Fort Id, after a fierce gale. Mr. Butterworth reports another occurrence at Port St. Mary in January, 1929.

Very little has been heard of "oiled" birds during the two years.



# NOTES



## ROOKS NESTING IN LOMBARDY POPLARS IN WORCESTERSHIRE.

WITH but the following exception I cannot personally call to mind the Rook (*Corvus f. frugilegus*) selecting this tree for nesting purposes. Last year several nests were built in a row of these spire-shaped trees at Chaddesley Corbett, Worcestershire, and this year the number of nests increased to twelve, three trees only being occupied, and one had eight of the nests therein. This rookery is a large one and there are a very considerable number of unoccupied trees that are more usually selected within the area of this colony. J. S. ELLIOTT.

## DESTRUCTION OF CHERRY CROPS BY CARRION-CROWS.

AMONGST the misdeeds of the Carrion-Crow (*Corvus c. corone*) I have never previously known them until a year ago to include the raiding of our local cherry orchards in this part of Salop and Worcestershire. Jackdaws of course are frequently very troublesome, but a family party of Crows with their young can leave considerable destruction in their wake and are naturally apt in avoiding the guns of the fruit watchers. J. S. ELLIOTT.

## NESTING MATERIALS USED BY JACKDAWS.

FOR the last five years I have kept careful note of the materials used by the Jackdaws (*Corvus m. spermologus*) which nest in the belfry of Hurstpierpoint Church, Sussex. The birds drop quite as much stuff as they use for their nests, and at the base of the tower I have found the following:—

Innumerable sticks, from two feet five inches to three feet two inches in length; sprigs of holly from an old wreath; twigs of lime with buds all breaking into leaf (late April, 1931); a strip of bark two feet long, newly torn from a branch; beech mast, a tuft of cocoanut fibre, soft white rotten wood and pine needles. Pieces of dirty white paper, bits of newspaper and cardboard, old chocolate papers, and a hymn list which I had given to the organist in the previous October. Dirty white rag, striped shirt material, black rag, pieces of canvas, bits of white cotton wool. A knot of rope, pieces of thin rope, a tangle of soft grass, dry cabbage leaves, ivy rootlets, bacon rind, bone and gristle, hair, pieces of bread crust, a piece of rubber. Sheep's wool was frequently used and was

often found tangled with bramble twigs. Dung, too, was found, usually toward the end of the building period; horse-dung seemed the favourite, though cow-dung and sheep-dung were also present. Among the more unusual items were two clothes pegs, three wooden garden labels with Gladiola, Beetroot, Onion written on them, and last, but not least, the metal neck of an old Thermos flask.

In addition to these, I have found in the nests themselves sacking, oak-apples, and a metal garden label marked "bronze".

HOWARD J. EMMET.

#### TREE-SPARROW BUILDING IN A BUSH.

ON June 14th, 1933, I watched a pair of Tree-Sparrows (*Passer m. montanus*) in Romney Marsh. They were feeding nearly full-fledged young that were still in the nest. This was not as is usual in a hole in a tree, but in a road-side hawthorn bush. It was a fairly neat ovoid structure about six inches high and four and a half inches wide, with a rather large entrance hole near the top. It was built of grass stems with a lining of chicken feathers, and was situated about four feet from the ground, supported by the main stem branches in the heart of the bush. Besides having good views of the parent birds through my glasses as they went to and fro to the nest, the young birds were sufficiently feathered to show their characteristic chestnut caps. In the particular part of the marsh referred to, Tree-Sparrows have considerably increased during the last three years; trees are not particularly numerous and buildings very few, so that perhaps the breeding population has locally outstripped the available nesting-sites, some of which are of course appropriated by House-Sparrows. Elsewhere in the marsh, where trees are more plentiful, I have found Tree-Sparrows nesting in the normal manner.

HUGH F. TICEHURST.

#### LITTLE BUNTING SEEN IN NORTHUMBERLAND.

ON the morning of September 22nd, 1932, when at Holy Island, I was out early with Miss Steinthal. We were returning by a lane, when I saw several Reed-Buntings (*Emberiza schæniclus*). I noticed one much smaller among them. It flew and perched on a wall within about five yards of us, then a male and female Reed-Bunting came and perched on the same wall near to it, so we were able to compare its size and colouring. It had very chestnut cheeks, without markings, a very marked buff eye-stripe, a dark line above, and crown, chestnut. It was smaller than the female Reed-

Bunting, and when flying its tail looked shorter and not so "floppy". These characteristics, which we were able to note at close range with Reed-Buntings side by side for comparison, seemed to us to identify the bird clearly as a Little Bunting (*Emberiza pusilla*).

M. BARCLAY.

**BOTH BIRDS OF PAIR OF PIED WAGTAILS BUILDING.**  
 IN Volume XXVI., pp. 162-3, you ask for further observations on the nest-building of the Pied Wagtail (*Motacilla a. yarrellii*). During 1933 a pair again nested in the vicinity of my house and came under the observation of Mr. Chas. Oldham and myself. This year the site selected was the one chosen by the male last year for its independent nesting. Both cock and hen birds were equally busy in the early stages in taking material and forming the nest, but the construction seemed protracted and little was done except in the earlier hours of the morning. When, however, the nest reached the lining stage, the help of the male appeared to cease altogether and neither did we notice that the cock bird even then visited the nest.

This raises the query as to whether the dual nesting in the earlier stages and the female completing, has not been overlooked in some other species to those already known to do so.

J. S. ELLIOTT.

#### LARGE BROOD OF GREAT TIT.

ON May 13th, 1933, I examined all the nesting boxes in my wood, near Kings Lynn, and in one of them I found the nest of a Great Tit (*Parus m. newtoni*) containing eighteen eggs. This is the most I have ever found. I once found a nest of a Blue Tit (*P. c. obscurus*), in one of my nesting boxes, which contained fifteen eggs, but I do not remember how many of them hatched. On June 5th I examined the Great Tit's nest again and found it full of young ones. It was so crowded that they were standing on each other's backs. They left the box on June 9th, and on the 11th I pulled the nest out and examined it. All the eggs appeared to have hatched but there was one young one, about three-parts grown, dead and crushed into the corner of the box. The inside measurement of the box is  $3\frac{3}{4}$  by  $4\frac{1}{2}$  by 10 inches. The eggs were arranged in circles round the floor of the nest with about half a dozen on the top of the others. They all appeared to be very similar and I could see no evidence for the presence of a second hen.

N. TRACY.

[I have one record each of clutches of 15, 17 and 18 of this species, though personally 14 is the highest number I have met with. In the case of the Blue Tit, sets of 15, 16 and

17 have been recorded, but a case of 24 eggs in one nest was obviously due to two females.—F.C.R.J.]

#### NOTES ON INCUBATION- AND FLEDGING- PERIODS OF CRESTED TIT.

THE following notes on the nest of a Crested Tit (*Parus c. scoticus*) taken this year (1933) in Inverness-shire may be of interest.

April 4th, nest about half made ; 7th, nest appeared to be finished ; 8th, bird on nest ; 9th, no eggs seen ; 11th, no eggs seen, but appearance of lining suggested eggs were covered ; 18th, one egg seen half covered, and both birds came to the nest and one entered with a feather and remained in nest ; 19th (at 11 a.m. and 5 p.m.), 20th and 21st, bird on nest and refused to move.

As incubation advanced the eggs were left more uncovered, and on the 26th I could see eight eggs, one of which was broken.

On April 30th (4 p.m.) I could see four young and two eggs, and on May 1st (10 a.m.) there were certainly six young and I think a seventh. On the 20th (7 p.m.) they were all in the nest but restless and "cheeping", while on the 21st (11 a.m.) they were all gone.

If, as I assume, incubation began on evening of 18th or early 19th, the period would be twelve days if the 19th and the 30th (4 p.m.), when some were hatched, are both counted.

The fledging-period was twenty-one to twenty-two days.

WINIFRED M. ROSS.

#### MOVEMENTS OF WOOD-WARBLER IN SEARCH OF MATE.

EARLY in the morning of May 5th, 1933, I heard a Wood-Warbler (*Phylloscopus sibilatrix*) singing in a wood about half a mile from my bungalow at South Wootton. It remained in the same place all that day, but the next morning it had moved about a hundred yards further into the wood. It remained in this spot until May 10th, upon which day I heard it singing in the wood just over my boundary. It remained here, singing all day, until May 21st, when it disappeared. About 6 a.m. on the 22nd I heard it singing on the outskirts of the wood in which I had first seen it. At 6.30 a.m. it had moved into the place where I first heard it singing, and at 7 a.m. I heard it in a belt of Scots pines half-way between this place and my wood. At 9 a.m. it was singing in the belt of firs about two hundred yards on the other

side of my wood. In the afternoon it returned to the place just over my boundary from which it had disappeared the previous day and remained here until the afternoon of June 4th, when it was again missing.

During this period I spent several hours looking for its nest, but without success, and, as I neither saw nor heard a female, I came to the conclusion that it was unmated. In the meantime I had heard a female Wood-Warbler calling in the wood where the male had first appeared. On the morning of June 5th I saw both birds together in this place, and during the afternoon I sat down and watched them for some time. After about half an hour the female flew down to the ground and broke off a piece of dead grass and carried it to a certain place. After it had been building for some time I went to see what progress it had made, but there was very little to see. While the building was going on the male left off singing, only once or twice uttering the "deur, deur" note. Several times it appeared about to sing, but after two or three notes it suddenly stopped. For the next day or two I did not hear it singing, but on June 10th it was in full song again, and upon going to the nest I found that it was finished and contained two eggs.

I have previously observed this wandering habit of the Wood-Warbler when searching for a mate, but, until this year, I had not paid much attention to it. N. TRACY.

#### BARRED WARBLER AT HOLY ISLAND, NORTHUMBERLAND.

ON the evening of September 14th, 1932, members of the Oxford Ornithological Society were netting the hedges on Holy Island in hopes of catching and ringing migrants, when a small bird flew out of the hedge by the Bungalow and dropped into the grass at our feet. It was speedily captured, placed in a cage and taken into the house, where in the light its identity as a Barred Warbler (*Sylvia nisoria*) was completely established from text-book descriptions. It was then ringed and put back into the hedge and was not seen subsequently. It was presumably a bird of the year as its flanks were buff with only faint dark bars. The iris was black with a narrow yellow ring round the outside, whereas according to the books it should have been yellow. When held in the hand the bird made a low croaking note.

The question of the colour of the iris interested me, especially as I was one of several observers who watched a bird of this species at Blakeney Point, Norfolk, on August 25th, 1931.

On that occasion we had excellent views and all agreed that the eye looked completely dark, so that we hesitated to record it as a Barred Warbler in view of the general agreement of the text-books that the iris of this species is yellow.

W. B. ALEXANDER.

#### SECOND NESTING OF THE REDWING IN SCOTLAND.

A PAIR of Redwings (*Turdus musicus*) nested again this year (1933) in the same locality as last year (*antea*, Vol. XXVI., p. 132). The male was first heard singing on April 4th and the female was first observed on April 6th.

The nest, which was built in the fork of a rhododendron bush at a height of about 4½ feet from the ground, was found on April 20th and contained one egg on the 21st. A second egg was laid on the 22nd. On the 23rd the hen was on the nest for a long time but laid no egg. On the 24th the cock remained in the vicinity of the nest the whole day, perpetually looking into it but there was no sign of the hen. On the 25th the cock also disappeared and neither bird was seen again.

From the appearance of the second egg it seems probable that the hen must have become eggbound or had met with an injury. The nest, attached to all its branches, and eggs have been presented to the British Museum and were exhibited by Dr. P. R. Lowe at the meeting of the British Ornithologists' Club held on May 10th, 1933 (*Bull. B.O.C.*, Vol. LIII., p. 208).

A. H. DAUKES.

#### BLACKBIRD'S NEST WITH MUD LINING.

WITH reference to the note on a Song-Thrush adapting a Blackbird's nest (*antea*, p. 25), in May, 1924, I found a mud-lined nest with five eggs of a Blackbird (*Turdus m. merula*). They were hatched off successfully.

The nest was in my garden in Norfolk and could not have been interfered with.

JUDITH M. FERRIER.

#### CUCKOO KILLING NESTLING MEADOW-PIPITS.

ON May 18th, 1933, I saw a Cuckoo (*Cuculus c. canorus*) fly away from a spot on Hickling Marsh where I knew of the nest of a Meadow-Pipit (*Anthus pratensis*) under some dead brambles. I therefore went at once to the nest and found all the young ones (four days old) lying dead but warm, six to nine inches outside the nest. Their heads had been nipped, as blood was oozing from their ears. Also the Cuckoo had left several of its feathers on the old brambles which covered the nest. These she would have had to go under to get at the nest.

J. VINCENT.

[Although the evidence for the most part is circumstantial, there can be no real doubt that the Cuckoo does kill young birds in nests from time to time. The following cases may be cited: Cuckoo apparently killing young Yellow Wagtails, J. H. Gurney, *Trans. Norf. & Norw. Nat. Soc.*, VI., pl. 4, pp. 374-5. Cuckoo killing young Meadow-Pipits, C. E. Milburn, *British Birds*, IX., p. 95. Cuckoo killing young Pied Wagtails, F. W. Headley, *t.c.*, XIII., p. 57, and on the same page I recorded a case of young Hedge-Sparrows thrown out of a nest, which I am confident was the work of a Cuckoo.—F.C.R.J.]

#### BROAD-BILLED SANDPIPER AND LITTLE STINTS IN NORFOLK IN JUNE.

A MIXED party of waders was watched feeding on Salthouse Marsh on June 6th by Mr. E. Cohen and myself. This party consisted of one Reeve, several Sanderlings and Curlew-Sandpipers (*Calidris testacea*) (with examples of each in breeding plumage), two Little Stints (*Calidris minuta*), both in breeding dress, a Turnstone and some Dunlins and Ringed Plovers.

They were still there next day, and with them was a Broad-billed Sandpiper (*Limicola falcinellus*). The longitudinal buff stripes on the head at once attracted our attention, and, as the bird was feeding between a Dunlin and a Little Stint, we were able to note that its size was intermediate between the two. Later, Miss M. Barclay joined us, and with Holman, the keeper on the marsh, we watched the bird for a considerable time at a distance of about 35 yards with field-glasses and telescopes.

R. M. GARNETT.

#### EARLY BREEDING OF GUILLEMOT, RAZORBILL, SHAG AND GREAT BLACK-BACKED GULL IN CORNWALL.

THE following records of early nesting for 1933 in Cornwall may be interesting:—

On April 24th, 1933, Lieut. J. E. S. Bush, R.N., took me to see both Guillemots (*Uria a. albionis*) and Razorbills (*Alca torda*) with eggs; several birds of both species probably had eggs from their attitude, but we definitely observed the egg in the case of one Guillemot and two Razorbills.

On April 27th he also showed me a Shag (*Phalacrocorax a. aristotelis*) with two young nearly as big as their mother, and the nest of a Great Black-backed Gull (*Larus marinus*) with two eggs.

W. R. TAYLOR.



[I have no notes of the eggs of Guillemots or Razorbills so early. Shags lay in March so this case is not so remarkable. The Great Black-backed Gull does not as a rule lay before May, but I have a note of a clutch of three on April 19th, 1871, in the Shetlands.—F.C.R.J.]

YOUNG CHAFFINCH ENTANGLED IN NEST-LINING.—Mr. R. J. Spittle sends us the tongue of a nestling Chaffinch (*Fringilla c. caelebs*), which has a piece of sheep's wool wound round it at the base behind the "spurs". Mr. Spittle informs us that he found the bird, which was fully feathered, hanging dead over the edge of a nest at Henley on May 28th, 1933, the wool attached to the tongue being part of the nest-lining and holding the bird firmly. Accidents are not infrequently caused by nest-material and it is as well to record the various ways in which these take place.

LITTLE BUNTINGS SEEN IN NORTH UIST.—Mr. P. J. C. McGregor records (*Scot. Nat.*, 1933, p. 25) that he saw three *Emberiza pusilla* at Vallay on October 9th, 1932, but, beyond stating that he afterwards was able to admire the excellence of the plate of this bird in Coward's book, he gives no confirmatory details of his identification.

ICTERINE WARBLER ON ISLE OF MAY.—Miss E. V. Baxter and Miss L. J. Rintoul record (*Scot. Nat.*, 1932, p. 172) a *Hippolais icterina* on September 9th, 1932, at the Isle of May, the first recorded occurrence of the bird in the Forth area.

LATE BLACK REDSTART IN SHROPSHIRE.—Mr. H. E. Forrest informs us that a *Phaniscurus o. gibraltariensis* was clearly identified by Mr. A. H. Hanbury Sparrow, who has had previous acquaintance with the bird, on May 25th, 1933, at Church Stretton. This is a late date, especially so far to the north-west, where the bird is very infrequent.

NIGHTINGALE IN NORTH-EAST YORKSHIRE.—Mr. H. E. Bentham writes that a *Luscinia megarhyncha* was in full song for a number of nights in the middle of May, 1933, near Scarborough. This is outside its regular range and its appearance in this district has not been authenticated for many years.

BIRDS IN OUTER HEBRIDES.—Miss L. J. Rintoul and Miss E. V. Baxter contribute notes of interest on certain birds seen in the Outer Hebrides during May and June, 1932 (*Scot. Nat.*, 1932, pp. 179-181). The planting and growth of woods at Stornoway Castle has had a marked effect on certain species previously scarce in these islands and such

birds as Goldcrests, Willow-Warblers, Robins and Wood-Pigeons breed there in good numbers, while the British Song-Thrush (*Turdus ph. clarkei*) is recorded as breeding plentifully.

The authors also record seeing the following, very rarely recorded from the Outer Hebrides: Spotted Flycatcher (*Muscicapa s. striata*) on June 1st in two places (a single bird and a pair); a pair of Grey Wagtails (*Motacilla c. cinerea*) at Stornoway on May 30th; Pied Wagtails (*M. a. yarrellii*) on Benbecula and feeding young at Stornoway; a White-throat (*Sylvia communis*) at Stornoway on May 31st. Herons (*Ardea cinerea*) bred in 1932 on Wiay, a small island off Benbecula, and first bred about seven years ago in S. Uist and now nest in two places.

HOOPOE IN ORKNEY.—Mr. J. G. Marwick reports (*Scot. Nat.*, 1932, p. 168) that a specimen of *Upupa epops* was caught by a cat in Birsay on September 23rd, 1932.

RUDDY SHELD-DUCK IN ORKNEY.—A specimen of *Casarca ferruginea* with a damaged wing-tip is recorded (*Scot. Nat.*, 1932, p. 136) by Mr. J. G. Marwick as having been caught on Sanday on April 30th, 1932.

UNUSUAL DUCKS IN NORTHAMPTONSHIRE.—Mr. R. M. Carey sends us the following records of ducks rather infrequently recorded in the midlands, which were identified at Stamford reservoirs, near Rugby.

SHELD-DUCK (*Tadorna tadorna*)—One on May 6th, 1933.

GARGANEY (*Anas querquedula*)—A pair on May 6th, 1933.

SMEW (*Mergus albellus*)—A male on December 20th, 1932.

BLACK-NECKED GREBE IN SCOTLAND.—Mr. W. Serle, Junr., states (*Scot. Nat.*, 1932, p. 168) that three pairs of *Podiceps nigricollis* were observed in June, 1931, on Loch Lochy, Inverness-shire, but that the same observer failed to see them there in 1932. Mr. Serle also states that the Black-necked Grebes discovered breeding in the Midlothians in 1928 (see *Brit. Birds*, Vol. XXIV., p. 174) rear comparatively few young and for this he blames a colony of Black-headed Gulls.

EARLY BLACK TERN IN WORCESTERSHIRE.—Mr. T. J. Beeston writes that he watched two *Chlidonias niger* at Broadwaters Pool, Kidderminster, for some time on April 4th, 1933. This is an early date and the birds appear to be infrequently observed in spring in Worcestershire.

ICELAND GULL IN SUMMER IN FIFESHIRE.—Miss E. V. Baxter records (*Scot. Nat.*, 1932, p. 167) an immature *Larus leucopterus* in Fifeshire on July 7th, 1932—an unusual date.



# LETTERS

## STARLINGS REMOVING THEIR EGGS FROM FLOODED NEST.

*To the Editors of BRITISH BIRDS.*

SIRS,—A pair of Starlings (*Sturnus v. vulgaris*) made their nest in the top of a gutter pipe about thirty feet from the ground. At this time it was fine weather. Five eggs were laid, and incubated for five days, during which time the Starling that was not sitting was most attentive in feeding the one on the nest.

On the sixth day, May 25th, also on the night of May 26th, it rained hard. On the morning of May 27th I found the five eggs had been deposited on the lawn some thirty yards from the nest.

All the eggs were without cracks and were in perfect condition. Two were placed near together on one side of the lawn, and three near together the other side of the lawn.

I have no doubt that these eggs were placed there by the two Starlings, as I at once looked at the nest and found it empty, and I can't think of any other way by which the eggs could have come on to the lawn without being broken. As the nest is over my bedroom window and requires a long ladder to reach, I am sure it was not a case of human interference.

I removed the eggs from the lawn, so I cannot say if the Starlings intended to take them to another nest.

The Starlings have reoccupied the nest and laid eggs in it again.

JUDITH M. FERRIER.

[It is a pity the eggs were removed from the lawn as had the Starlings been seen to take them it would have gone far to prove that they originally put them there, which can now be considered only as a matter of inference.—EDS.]

## NEST-BUILDING OF THE CORMORANT.

*To the Editors of BRITISH BIRDS.*

SIRS,—In *The British Bird Book* the Rev. F. C. R. Jourdain states of the Cormorant (*Phalacrocorax c. carbo*) that "Both sexes share in the nest construction according to Naumann". This may simply mean that, as in some other species, the male fetches material and passes it to the female, who then weaves it into the structure. I have not been able to find any other reference to this matter in any standard work.

This year (1933) I have had the good fortune to watch two pairs of Cormorants building their nests in St. James's Park, London. The old pinioned pair which nested there in 1931 and 1932 began building this spring on the 20th of March and they were brooding a week later. I had them under observation for considerable periods on two days and on each occasion the male was in charge of the nest and did the actual building while the hen only fetched the material. She picked up one stick at a time and swam with it to the rock, diving and swimming under water the greater part of the way. The bird I take to be the

male displays from December onwards, while the other pays no attention to this except at nesting time, when she also displays, but hers is a comparatively indifferent performance.

Meanwhile courtship was proceeding between the youngster hatched in September, 1931, and a stranger which has taken up its abode in the Park. The former, judging by its mating activities, I assume to be a cock, though among birds, notably the Moorhen, this is not always reliable evidence (he has not yet assumed full adult plumage). As I have already reported, this bird is full-winged and frequently perches on the tree tops. Unlike his parent, he was not content to pick up the sticks that were lying about abundantly on the banks of the lake; he preferred to wrench live twigs from bushes and trees. Sometimes he stood under a bush and, reaching up, broke off a twig, but more often he flew to the top of a tree, most frequently a willow, for his material. As most of these trees were burgeoning, the nest for a day or two was decorated with greenery.

This, a common practice among Rooks, is a departure from the normal method of the Cormorant, which builds as a rule with dead seaweed or other waste which it finds laying about on the shore. Is there any evidence to show that Cormorants which build on trees have the intelligence to use the twigs which are growing so abundantly around them instead of troubling to fetch dead sticks from the ground?

In this instance I have seen both birds building and both fetching. The rule seems to be that whichever happens to be in charge of the nest for the time being acts as builder and the other fetches. On one occasion the hen, after several trips, hopped on to the nest and carried out some slight alteration in the disposition of a stick, while her mate was occupied at the other side.

CHARLES S. BAYNE.

[Ussher and Warren (*Birds of Ireland*) state of cliff nests that they are "often garnished with wreaths of ivy having fresh green leaves" and of birds watched building in a colony on the Saltees that "one of the pair would arrive with materials while its mate remained on the nest". Dresser (*Birds of Europe*, Vol. VI.) says both birds take part in collecting nesting material. In crowded colonies it is no doubt necessary during building for one bird to stay at the nest to prevent it being stolen piece by piece by neighbours.—EDS.]



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EDITED BY

H. F. WITHERBY, M.B.E., F.Z.S., M.B.O.U., H.F.A.O.U.

ASSISTED BY

REV. F. C. R. JOURDAIN, M.A., M.B.O.U., H.F.A.O.U., F.Z.S., AND  
NORMAN F. TICEHURST, O.B.E., M.A., F.R.C.S., M.B.O.U.

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## THE MARSH-WARBLER AS A SUSSEX SPECIES.

BY

JOHN WALPOLE-BOND.

NOTWITHSTANDING arduous, unremitting and wide-spread field work, I did not discover the Marsh-Warbler (*Acrocephalus palustris*) nesting in Sussex until 1920. Since then I have known it to breed in the county every year, and I have now found a fair number of haunts, to which Dr. C. H. Bryant can add at least three and several other observers, notably Messrs. E. C. Arnold and D. W. Musselwhite, one apiece. But by no means every habitat is tenanted annually. On the contrary, some of the haunts have been minus Marsh-Warblers for several summers in succession. In fact, there is but one spot in which the bird can be welcomed regularly, and even here it failed to appear in 1931. Indeed, there is considerable fluctuation. Thus, in 1927, I could only place two pairs, though, on the other hand, in 1922 there were over twenty and in 1925 nineteen. The greatest number of pairs in any one haunt in one year has never yet exceeded five, whilst there are often solitary couples, though in such cases a second pair is often near by.

Whilst plantations, shaws and hedgerows quite devoid of osiers, and even cornfields, are not utterly neglected by this species for nesting purposes, by far its favourite nesting-sites in Sussex (as, I believe, everywhere) are withy-beds or at least spots with some pretensions to that title; and although weeds are not of vital import to the bird's welfare, there yet flourishes in nearly all its habitats a wild wealth of meadow-sweet, nettles, willow-herb, cow-parsnip and such like unmatted, tall-growing, upright vegetation. In certain haunts, indeed, the merest handful of trees or bushes is present. Some haunts, too, are most insignificant—just a few square yards of suitable terrain—but in such circumstances never more than one pair is in evidence; and nearly all are very close to water, though one stands high and dry a hundred yards up a steep down-slope and perhaps twice that distance from water of any description.

In forward seasons most Marsh-Warblers are with us between May 19th-26th. Exceptionally, an arrival is noticeable a day or two earlier, whilst in 1923 I met with a bird on May 8th, though this, of course, must be regarded as phenomenal. In backward seasons, however, hardly any birds can be expected before the very end of May or early in June. Sometimes, naturally, whatever the state of the elements, there is the late comer; in one case, indeed, a pair was not installed in nesting-quarters until June 15th. The males reach their homes to be a day or two before the females, and

now, where several individuals share the same area, their long-sustained, estatic outbursts of passionate and superlative song, each bird striving to outvie his fellows, must be heard to be properly appreciated.

Most summer migrants do not breed for about a month after making their haunts, but in the case of the Marsh-Warbler the nest is commenced very shortly after the female's arrival. Both sexes participate in its construction, which usually takes about a week, and laying begins on the day following completion. Consequently, in early years most Marsh-Warblers have fresh clutches between June 1st-9th (in 1925 one hen had "laid out" by May 31st), though in backward ones not until between June 10th-18th. Repeat-nests, when needed from misadventure—for only one brood is reared in a year—are often put together in four days and sometimes in three. Both sexes together seek a site, often spending some little time over several spots before coming to a decision, and building sometimes starts in the evening.

Of the 144 nests seen *in situ* up to and inclusive of 1932, fifty-one have been attached to meadow-sweet; twelve to stinging nettle; eight to *Salix triandra* (one tree was quite dead); six to elder; five to whitethorn; four each to guelder-rose, thin thistle, and bramble and stinging nettle; three each to greater willow-herb, wheat, sallow and meadow-sweet and dead reed; two each to lesser dock, ragged robin and meadow-sweet and live reed; and one apiece to *S. triandra*, cleavers, coarse dead grass and stinging nettle; *S. triandra*, coarse dead grass and greater willow-herb; dead and living reeds; elder and nettle; elder and cleavers; elder and bramble; bramble, guelder-rose and nettle; bramble and dead grass; bramble, nettle and ash; bramble, cleavers and *S. triandra*; *S. triandra* (dead) and nettle; blackthorn and nettle; bracken; bracken and nettle; meadow-sweet and ash; meadow-sweet and bramble; meadow-sweet and cow-parsnip; meadow-sweet and male equisetum; meadow-sweet and nettle; ash and nettle; wild cherry and cleavers; valerian and coarse dead grass; wood-betony; water-hemlock; cow-parsnip; a species of vetch; wild hop; convolvulus; hazel; figwort; lesser willow-herb and lesser sorrel.

The above list demonstrates that the Marsh-Warbler quite often builds in bushes and trees (generally saplings), a habit which, in England at any rate, is, I fancy, not widely recognized, save in the case of *Salix triandra*. Some such examples, as, for instance, those in guelder-rose and elder, are actually as much as between seven and eight feet from the ground! In weeds, of course (nettles and greater willow-herb excepted), an altitude of more than two feet six inches is rarely attainable,

and, in these, nests are normally found at a height of from one foot to two feet from the ground. A few specimens have been under a foot, as a start at all events, since naturally they rise with the growth of their anchorages.

The typical nest is slung hammock-wise between two or three and even four good, firm, perpendicular supports, to which it is tethered in such a fashion that the material entwining them is forced somewhat outwards, causing thereby slight bulges. These take to themselves at or near the rim of the edifice (though I have twice noticed the anomaly half-way down it) the appearance of loops, owing to the stuff there being more or less uptilted and so the more outstretched. These quasi-handles are as a rule quite pronounced, but nevertheless very seldom exceed half an inch in length or breadth, though in two cases they were actually over three inches in length! In some nests there also occur from one to four extraneous props, but these are almost invariably tenuous, not to say rickety. Ordinarily, they pass straight up through the walls of the structure, without, however, spoiling its contour; though just occasionally, and this may induce slight disfigurement, one or more, especially if of bramble, are caught into the fabric transversely. A very rare type of nest has but one good support and consequently but one handle; in one instance of this kind, so frail was the anchorage on the unhandled side, that the nest was slightly leaning. One example, whilst being moored to its stays (withy-feelers) in regulation style, was also suspended from long half-hoops of unmatted goose-grass with which the site was lavishly festooned. Normally, there is no support whatever to the nest below, but very exceptionally an example in a sapling lightly rests in the bottom of a cup-like crotch or just lies on a more or less horizontal branchlet, though, even so, mooring to adjacent uprights is never absent.

Nests are apt to vary in size for no particular reason. They are never above obvious water, though sometimes over slightly soggy soil. Their usual composition, handles and all, is of bents (stems nearly always, blades hardly ever), the finest being reserved for the lining. But a fair number show, in addition, a modicum of some dead, woolly-looking plant externally, whilst in the lining of some are found slender fibrous rootlets and strands of horsehair (either or both), though the latter substance is rarely used more than most stingily. Every now and then I have seen horsehair in the foundations and walls, as also wool (once, a handle was wooly), green grass, spiders' cocoons, willow-down, rag, paper, moss, curly lichen and small, withered leaves, but never in profusion, any of them, nor all in any one nest. It

is true, of course, that in one case dead convolvulus leaves were used liberally, but these were attached to their stalks with which the nest was largely wrapped.

In weeds the average nest is beautifully hidden until the growth enshrouding it is parted, but most sapling specimens are more or less unmasked. Sometimes two nests are within twenty yards of one another, and twice three were in a line of about fifty yards. Now and again, close to the nest, are found even three "beginnings", though such are very seldom more than one day's work and often only a few minutes'!

Glanced at negligently from above, the nest, putting aside the handles, is slightly reminiscent of the Garden-Warbler's or even the Whitethroat's. But the general appearance is that of the Reed-Warbler's, though this is seldom "looped" and more often than not lacks the substructure nearly always a feature of and generally substantial in the rarer species'. Additionally, the Reed-Warbler's nest is neater and more compact, appreciably smaller all in all (though generally rather deeper inside) and constructed of much finer and rather different materials. In short, I have twice only seen a Reed-Warbler's nest that could possibly have passed muster for a Marsh-Warbler's.

Some ornithologists have written as though six and even seven eggs are constantly found in the nest of the Marsh-Warbler. I do not know from what districts their statistics were derived, but in Sussex, at all events, five form the maximum, and this is the normal set, only a few birds producing four and fewer still (very few) three. I am referring to original layings, since in "repeats" four is of common occurrence, though three is most abnormal.

The ground-colour of the eggs is, variously, pure white (very scarce), soiled white, greyish-white, pale creamy-white (rare), pale bluish-grey (sometimes almost light lavender), pale greenish-blue; bluish-white (usually pale), and just occasionally pale greenish-white; and on all grounds occur (almost invariably broadcast) countless, dark, pin-point-like "spickles", which impart to some specimens, if glanced at hurriedly, a faint semi-hazy sort of appearance. But the real markings, which are brown of different shades (sometimes actually black, especially as to their centres), greyish-brown and olive and (once) chestnut, with underlying stains of grey, even to violet-grey—the markings of one clutch are inky-grey alone (on a pure white ground) and very few—are relatively scant, though nearly always very bold and clearly defined, if often blotchy and confluent, and generally most pronounced at the larger end of the shell. It should here be remarked that the chestnut and inky-grey marked types are

excessively rare; the former, indeed—which, incidentally, has a dirty white ground—is, I believe, without precedent. Not quite so scarce a type is smudged practically all over with muddy olive, and this is the only variety in which there is not plenty of ground visible and, broadly speaking, the only one that could possibly be taken for a similar type of Reed-Warbler's egg. In this connexion, however, it is advisable to remember that "Reed's" eggs (all types, of course) are almost always appreciably smaller and slimmer and, moreover, lack the curious, pin-point-like "spickles". Naturally, in the above, I refer to unidentified specimens.

The male Marsh-Warbler, sometimes at any rate, assists in incubation, which now and then starts before the clutch is complete, though never until the second egg has been deposited. Incubation, therefore, in cases where five eggs are laid, may last fifteen days. Each egg, however, hatches in twelve.

In the case of an unknown nest, no matter what the weather, it is a rare event, except at dusk, to get to grips with an incubating Marsh-Warbler, though I have often suspected that this light-sitting propensity is actuated more by the swish set up from the forcing of the intruder through the surrounding vegetation than from any inherent tendency. This theory is the more tenable when one remembers that, in the case of a known nest which can be approached gingerly, the bird will often allow you to watch it brooding at very short range for even an appreciable period. On leaving, it generally flits or glides gracefully through the encircling growth (incidentally, fairly often without a rustle); only very occasionally (though never, should the nest be at a respectable altitude in a sapling) does it rise out of and above it, and then usually but for the briefest interval. After this, as long as the observer remains on the scene, it skulks, at first not very near by, but soon at close quarters, though until these are reached very little can be seen of it and often nothing. Even at close quarters it seldom remains visible for any length of time. The non-sitting bird is almost always in attendance, likewise skulking, and the male, when near home, is apt to burst into angry snatches of song; whilst both sexes may utter one or more of the following cries (used on other occasions as well, and, contrary to the precepts of some, before laying commences), though chiefly with Nos. 1 and 2.

1. A loud, repeated (sometimes very fast as, for instance, on the appearance of a Sparrow-Hawk) "*tic*" or "*tchic*" (variously, "*chic*", "*chit*" or even "*chi*"), which—the "*tic*" at any rate—rather recalls, e.g., a like cry of the Whitethroat.

2. A somewhat rolling "*tchirrr*" or "*churrr*" given at intervals of a few seconds, which, though full and hard-sounding, is not so harsh as the "*kurrr*" of the Sedge-Warbler or a somewhat similar note used by the Reed-Warbler and Whitethroat. Sometimes this cry develops into a regular rattle, viz., "*tchir-r-r-r-r*", when it is apt to terminate with a higher-pitched "*er*", rapped out, it seems, with something of an effort. Sometimes, again, it is craking in effect.

NOTE.—Now and then "*tic*" and "*tirrrr*" are joined together, a combination which may conclude with a short note sounding like "*wit*".

3. A queer little subdued chatter of "*tic-tirric*" or "*tirric-tic*".

4. A very hushed "*tchuk*" or "*tuc*", perhaps a modification of No. 1.

5. A thrice-repeated "*weet*" (something like one of the Whitethroat's utterances), generally followed, and, if so, instantly, by three "*tics*".

6. An iterated "*tweek*", almost agonised in expression.

7. A chattering "*churuc*", sometimes oft-repeated. This note approximates to a Reed-Warbler utterance.

Juveniles use subdued editions of Nos. 1 and 2, as well as, in extreme fear, a high-toned squeal.

There are two phases of song. The one most usual by far, which in calm weather carries a long way, if not drowned by the songs of other species, mainly consists of a mass of mimicry rattled off, some of it, in tones low, rolling, blurred and gurgling; some of it, again, in a key high-pitched, liquid, trilling, and very clear; the rest, in pants, sighs, wheezes, and even nasal phonetics. Now it is petulant, now almost sad, yet now abandoned, effervescent and very gay. It is a song which at one time somewhat slow, subdued, laboured, and even snatchy, suddenly flashes into quick, smooth, sustained, effortless rhythm—a hurried flow of tune loudly effusive, brilliant and intensely passionate, even to the verge of delirium. The general effect is always most beautiful, though a certain grate in parts of the refrain—due in some cases, of course, to the notes of the species borrowed—spoils what would otherwise be perfect symphony. Yet I, at any rate, could never tire of listening to the "musical-switch" of the Marsh-Warbler. I have heard the following species imitated, all more or less exactly: Jackdaw ("*jac*" note), Magpie (chatter), Starling (song and certain other notes), Greenfinch (song, "*alarm*", "*peezh*" and hunger call of young), Goldfinch (song and calls), Linnet (several calls and portions of song), Chaffinch (song and several cries), House-Sparrow (various notes), Yellow Bunting (song, often shorn of the concluding "*eeese*"),



Reed-Bunting (song and call), Wood-Lark (fragments of song), Sky-Lark (parts of song), Tree-Pipit (song), Pied Wagtail (normal call), Nuthatch (sundry calls), Great, Blue, Marsh- and Willow-Tits (various calls), Red-backed Shrike (hawk-like cry), Willow-Warbler (song and usual call), Wood-Warbler (usual call), Whitethroat (song and calls), Garden-Warbler and Blackcap (songs), Song-Thrush (song and "alarm"), Blackbird (parts of song and certain cries, including hunger-plaint of juveniles), Whinchat and Redstart (normal calls), Nightingale ("alarms" and parts of song), Robin ("alarm"), Hedge-Sparrow (song), Wren (song and "rattle"), Swallow (song and call), Green Woodpecker (two cries), Wryneck (song), Common Redshank (call), Common Partridge (juggling) and Pheasant ("peep" of "cheepers").

To the above must be added some high, clear, liquid, canary-like shakes and trills; a crude gasp; a species of wrawl; a sighing "swee"; a sound like the lowing of kine heard from afar; a nasal, repeated "pee", and a very, nasal, iterated "za-wee". Of these, the first and last are, I think, the bird's very own property and they are never absent from the song if of any duration, consequently being highly characteristic. But, as to the rest—and this includes every sort of mimicry—no bird has been heard to give anything approaching all, and no bird necessarily indulges in the imitations it knows in the same order or all together in any one pæan.

The second phase of song merely resembles the ordinary babbling of Reed- and Sedge-Warbler, sometimes being more like one, sometimes more like the other; and, were this phase of common occurrence, the Marsh-, being not unlike the Reed-Warbler in general appearance, would be a difficult bird to locate, unless, of course, one was prepared to devote endless time and energy to the searching for nests in likely-looking haunts!

Melody continues from the bird's arrival until the young are hatched. Twice, and twice only, have I heard song after the young were hatched, and that was very brief and very bad. This means, of course, that, where individuals have been forced to "repeat" twice, singing is heard until far on into July, whilst unmated males—superfine vocalists these in every respect—are sometimes still serenading at the extreme end of this month.

The Marsh-Warbler is a spasmodic songster and independent of the weather. Thus, to take extremes, it sometimes performs almost without cessation for as much as three hours on end even on the unpleasantest of days, whilst, conversely, it may remain mute for an appreciably longer period in beautiful weather. Yet, even in its most taciturn moods, the presence



of a human being by the nest, be that barely commenced, nearly always induces furious diapasons, whilst, if the habitat adjoins a line, a passing train will oft-times set a silent Marsh-Warbler a-singing. In any case, however, it seldom sings in the evening, especially late evening, and by night, it seems, never.

Even when singing this species is apt to be restless, not only in that it often "creeps" and hops about when so engaged, but also inasmuch as it frequently changes stance. Stances are variously lent by weeds (generally their summits), bushes, hedgerows, and, perhaps particularly, trees, in the last-named of which song is often given at a height of from 15 feet to 25 feet from the ground. A singing-station is very seldom more than 30 yards from the nesting-site and generally much less; indeed every Marsh-Warbler has a favourite "platform" very close to the nest itself. On the rarest of occasions a snatch of song is uttered as the musician flies from one stance to another.

It may here be remarked—and I hold proof positive—that just every now and again female Marsh-Warblers sing, though seldom, if ever, after they have been over here more than about ten days. Their delivery, moreover, is always brief, feeble, faltering and whispered, their mimicry always indifferent when not actually faulty.

Practically speaking, there is in this country only one species that really approximates to the Marsh-Warbler in the colour of its plumage. That is the Reed-Warbler. But (I am speaking of adults) the "Marsh" is altogether "colder"-looking, being light earthy- or even olivaceous- rather than rusty-, brown above; below, appreciably whiter, i.e., almost silvery-white hardly sullied with buff; whilst its legs are pale pinkish-brown rather than plain, or even greyish, brown. The "Marsh", moreover, is of the two birds slightly bigger and of somewhat stouter build, though equally elegant all the same, whilst, when a good profile view of a flier is procured, it will be seen that *palustris* is considerably more bottle- or oval-bodied than its much commoner cousin. To the undoing, however, of the above distinctions, it must be remembered that owing to the nature of most of its haunts, which, by the way, are often shared by the two species, clear, long views on the whole are seldom obtainable, and, in actual fact, the Marsh-Warbler's characteristic song, or the finding of its nest, are the only really safe guides to its status in any locality.

The young are rather differently clad and still more like Reed-Warblers, but I have described them in these pages previously (*antea*, Vol. XVII., pp. 185-6).

I do not pretend to know when exactly the Marsh-Warbler leaves this country. Merely can I say that never yet have I been sure of a specimen after the early part of August.

## THE ROOK ROOSTS OF SOUTH NORTHUMBERLAND AND THE BOUNDARIES BETWEEN THEIR FEEDING TERRITORIES.

BY

W. RAYMOND PHILIPSON.

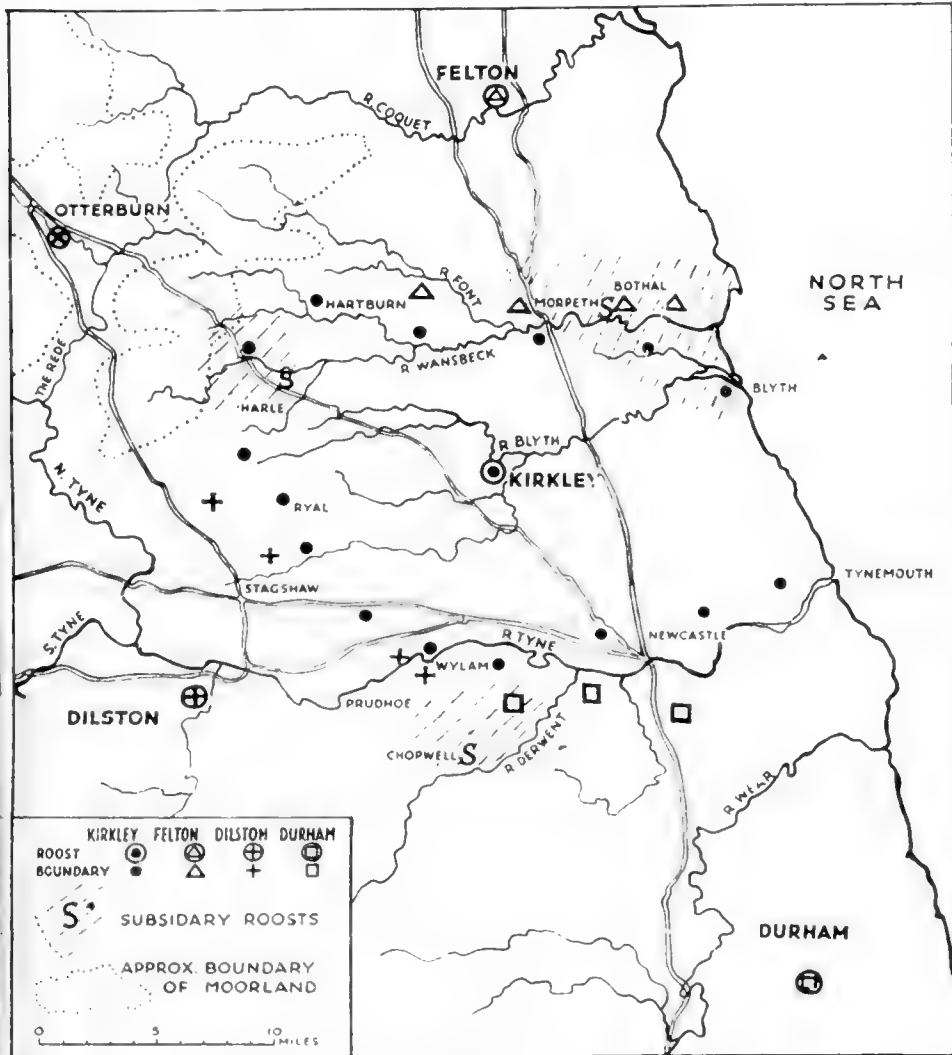
THE observations on which this account is based were begun in the Christmas vacation of the winter 1931-32, when one roost was located and a knowledge obtained of the extent of its feeding territory in certain directions. In the following year from mid-December to early January a more thorough attack was made on this problem, and, to make the work as complete as possible, search was made for surrounding roosts; it is hoped none with adjacent territories were overlooked. None of the observations obtained in the first winter were assumed to be valid for the second, so that all the data bearing on the extent of the feeding territory refer to one season. As a result of my first year's work I had decided the outward and homeward flights of Rooks (*Corvus f. frugilegus*) in winter differed so radically in nature, as is described below, that it would be a much slower task to locate the exact boundaries by watching the afternoon movements. I therefore at once adopted the only practicable method, watching for the arrival of Rooks in the morning, and noting from which direction they came. By watching at suitable places it was possible to determine where the direction of the supply of birds changed, and so define the boundaries with fair accuracy. The afternoons were usually spent in locating roosts.

### DESCRIPTION OF RESULTS.

*The Main Roosts.* The evidence obtained in this manner is shown in the accompanying sketch map. Five roosts are shown by circles, each enclosing a characteristic symbol. This symbol is placed on the map where Rooks have been seen to arrive from the direction of a given roost. Only those observations are plotted that are of value in determining the limits of the territories. It will be seen that the feeding territory of only one roost was determined, but all the adjacent roosts seem to have been found.

The Kirkley roost, midway between the valleys of the Tyne and Wansbeck, and in the centre of the coastal plain, holds a very large number of birds. Eastwards its territory reaches the sea, but to the north, south and south-west it abuts on other feeding areas. To the north the birds come from Felton, on the Coquet; to the south-west from near

Dilston, close to the junction of the North and South Tynes ; and to the south they come from a roost which, though not exactly located, was a few miles due east of Durham city, as homeward flights were traced as far as Sherburn village.



The Rook Roosts of South Northumberland.

To the north-west of Kirkley there is a roost at Otterburn, but wide stretches of moorland, which Rooks do not visit regularly, separate the two territories. The number of Rooks roosting at Otterburn is much smaller than at any of the other four roosts, but since suitable feeding grounds are limited, in these dales, to the narrow strips of pasture along the streams, the Rooks probably feed over quite a large area.

Topographical features appear to be of importance in deciding the actual boundaries. Thus the northern boundary begins, at the sea, as the river Wansbeck ; further west birds

cross the river, but stop at the ridge between the Hart Burn and the Font. To the north-west the boundary is formed by the heather moors, and is continued southwards past Bavington and Ryal to Whittingham, along a ridge of high land. The boundary then crosses the Tyne at Wylam, to follow the crest of the steep southern slope of the valley. As the river reaches more industrial areas it becomes itself the boundary. In their daily movements Rooks adhere constantly to these boundaries, cases of overlapping being rare and of slight extent.

*Subsidiary Roosts.* Three roosts, apart from the five already mentioned, are marked on the map by the letter S. Although considerable numbers of Rooks regularly spend the night at these roosts, they cannot be considered of the same order as those I call the main roosts, because they have no feeding territory that is strictly their own. In all such cases birds from one of the main roosts were seen to reach these subsidiary roosts during their morning exodus. The map shows that all such roosts are on the borders of the feeding area of a main roost.

The largest of them was found in Bothal Woods, on the Wansbeck, and the birds from it were traced chiefly to the colliery area along the coast, as far south as Blyth. I did not investigate their northward extension, but they did leave in this direction. To the south of Morpeth they do not reach the Great North Road, but go further inland north of the town. I was able to trace birds from Felton roost as far as the Wansbeck, at Bothal, and birds from Kirkley almost as far, showing the Bothal roost has no distinct feeding territory. There was another subsidiary roost within the north-west part of the Kirkley territory, considerable numbers of Rooks spending the night in the woods around Little Harle Tower. I was not able to study this roost carefully, but determined that the birds from Kirkley flew right up to, and passed beyond it; also that the birds from the Little Harle roost only left in directions taking them further from Kirkley. I feel certain there were no other roosts within the Kirkley territory, but I came across one in the north-western corner of the Durham territory. One morning early in January from 7.55 until 8.10, I saw bands of Rooks rising out of Chopwell Plantation, in the valley of the Derwent. All these birds set off in a north-westerly direction, that is, directly away from the main roost. At 8.20, as would be expected, a good number of Rooks arrived, high up, from the south-east, passed right over the plantation, to disappear in the wake of the Chopwell birds.

These extra or subsidiary roosts are all on the borders of the main territories, and those at Little Harle and Chopwell occupy areas most remote from a main roost. The presence of one at Bothal is best explained, I believe, by the dense population of Rooks and Jackdaws wherever agriculture and coal-mining are engaged in side by side.

#### THE DAILY MOVEMENTS OF ROOKS IN WINTER.

*The Morning Flight.* While describing the method of determining the extent of the feeding territory, I made allusion to the striking contrast between the flight outwards, in the morning, and the leisurely return in the afternoon. In mid-winter the birds begin to leave the roost by 7.45 and the vast majority are out of the trees by 8.15. The remotest parts of the territory are reached by 8.20, or very shortly after. The fields and trees within a few miles of the roost are quickly populated, but the birds making for remoter parts do not pause. From leaving the roost till finally settling to feed, it is unusual for Rooks to interrupt their flight. Flocks which have much further to go may, on occasion, settle before pushing on, but only rarely. A good example of such a halt is afforded by the birds going north from the Dilston roost, which have to cross a ridge 700 feet above the river. Near the crest of the ridge, at Stagshaw Bank, is a rookery and when I watched here the birds came slowly up the hill, went straight to the rookery and settled there. Upon the arrival of the last band, some five minutes after the first, those in the trees rose in a body and flew northwards again. Such halts are exceptional, though their appearance is often produced by birds coming from the direction of a group of trees that is already tenanted. Careful watching shows that the birds in the trees, or circling above them, do not rejoin the outward flight, but soon settle on the land to feed.

*The Afternoon Flight.*—Opposed to this rapid dispersal is the more generally known reunion into flocks in the early afternoon and the flight back to the roost, with its frequent halts. After 1 o'clock it is exceptional to find any Rooks on the peripheral regions of the territory, but flocks may be seen feeding nearer the roost. These are continually joined by small bands or single birds, until eventually all rise and set off towards the roost. In all probability they will not reach it at once, but join forces with some other flock, and feed, it may be, for another hour before setting out on the next stage of the homeward flight, which may, by no means, be the last. While feeding at these collecting places the

flocks move continually, from field to field, but never go far. On reaching the roost they feed in an even more restless way, until, between 4 and 4.30, they enter the trees.

It follows from this manner of progression, that if the halting and collecting places are constant, the same lines of flight will be used from day to day, and that these will not radiate straight from the roost but will be arranged like the branches of a tree. I have found that the collecting places for large flocks, close to the roost, are used regularly, so that the lines of flight in these regions become clearly defined. But earlier in the afternoon the movements of the flocks are more irregular, being influenced probably more by the presence of food than any other factor.

At first sight flight lines seem to be as well marked in the morning as in the afternoon, but considerable numbers of birds leave the roost in all directions. The appearance of flight lines is due to the birds leaving in particular directions at different times, and also to more birds leaving in certain directions than others.

#### THE IMPORTANCE OF THE ROOKERY.

The steady, purposeful, manner of the outward flight, and the unfailing daily supply to every part of the territory, suggested that the birds that feed over a given stretch of country during the winter are those that live there in the nesting season. It would probably be impossible to prove this hypothesis, especially with the complication of immigrant birds superimposed, but there are indications that this view may be correct. In the first place the rookery plays a larger part in the life of Rooks in mid-winter than is commonly supposed. If the birds of the morning flights are carefully watched, it is remarkable how often the birds settle in rookeries, and circle about them for half an hour or more, rather than go straight on to the land. They also make the rookery the centre of their foraging, returning to it several times in the course of the forenoon. Much stronger evidence is afforded by the nest-building which takes place sporadically from the beginning of January onwards. It does not seem unreasonable to suppose that the birds frequenting the rookery in January are those that will nest there later in the year. On this view the feeding territory of the roost would be built up of the separate territories of the rookeries, the birds merely resorting to a common roost in winter.

#### VARIATIONS IN THE INTENSITY OF FEEDING.

During the afternoon, in midwinter, the Rooks are concentrating towards the roost, but still continue to feed.

It is probable that as much time is spent actually feeding after the homeward movement has begun as during the morning. It is evident that the country nearer the roost will be fed over for a longer period and by a greater number of birds than that at the borders of the feeding territory. In order to determine if these differences in the intensity of feeding were of significant dimensions the problem was treated mathematically. Several assumptions had to be made but it was calculated that the ratio of the intensities at the centre and periphery of a territory twelve miles radius would be as 4 : 1. This result, though approximate, is large enough to show an important difference between the outer and central areas of a territory.

If the productivity of the territory is uniform much of the potential feeding capacity must be lost. The winter roosting of Rooks, by reason of its over-gregariousness, seems foredoomed to this limitation. It is not surprising that this should be corrected by the formation of subsidiary roosts in areas where feeding intensity would be low. It would also be expected that, as far as possible, roosts would be situated in the most fertile regions, and as far from unproductive areas as possible.

# NOTES

TREES USED BY NESTING ROOKS IN CHESHIRE. MR. J. S. ELLIOTT'S record (*antea*, p. 46) of the nesting of Rooks in Lombardy poplars has prompted me to send the following short note.

In 1930 and 1931 I made a census of the rookeries near Great Budworth, Cheshire, taking a circle with a radius of  $4\frac{1}{2}$  miles.

In each year one Lombardy poplar was occupied, holding two nests in 1930 and three in 1931. Just as in the case reported by Mr. Elliott, there were many more suitable trees available in the wood, and in 1931 the rookery contained, in addition, 89 nests in 22 oaks and 3 in 2 Scotch firs.

Oak (298 nests in 85 trees), sycamore (381 in 110 trees), beech (310 in 77 trees), ash (206 in 51 trees) and elm (151 in 40 trees) were favoured in turn according as they were the most prevalent large tree.

Conifers (30 in 16 trees), horse chestnut (19 in 5 trees), lime (7 in 3 trees) have not been planted to any extent and in consequence are little used. Alder (18 nests in 12 trees) is an abundant tree, but rarely attains a large enough size.

There were four nests in four black poplars, three in two birches, and five in a white beam.

In a big rookery just outside the radius, which contained 252 nests in 64 oaks, there was one nest in a hawthorn; as in the case of the Lombardy poplar, there were scores of oaks available and unoccupied close at hand. A. W. BOYD.

## BLUE TIT'S EGGS IN DOMED NEST.

IN May, 1933, I found near Dover twelve eggs of a Blue Tit (*Parus c. obscurus*) in a domed nest of moss, lined with feathers. The nest was built amongst ivy in the first fork of an oak tree. I identified the bird, and the eggs were typical of the Blue Tit. I have the nest, which is apparently that of a Wren (*Troglodytes t. troglodytes*), but with the opening enlarged considerably, which gives the nest somewhat the appearance of a Wood-Warbler's in shape. G. E. TOOK.

[When holes in trees are not available the Blue Tit will make use of old nests of other species, lining and adapting them to its own purpose. The species whose nests are most commonly used are Song-Thrush and Blackbird, but Hedge-Sparrow and Greenfinch have also been recorded. Open nests on branches are also occasionally constructed (cf. *Brit. B.*, III., p. 118 and



Rowley., *Orn. Miscell.*, I., p. 73). The Blue Tit has also been found breeding inside nests of House-Martin and Rook.—  
F. C. R. JOURDAIN]

#### FOOD OF BLACKBIRD.

I HAVE been greatly interested in the food that a cock Blackbird (*Turdus m. merula*) has been bringing to a nestful of young about eight or nine days' old in a garden at Harlech.

The bird constantly brought mouthfuls of large moths—often as many as four at a time—and when he did this he had a most grotesque appearance as he always alighted on a wall near by with his breast towards me and his head completely hidden by wings which stuck out in all directions. Some of the moths were undoubtedly male specimens of *Bombyx rubi* (the Fox) and others were, I think, very likely *Rumia luteolata* (the Brimstone) and *Angerona prunaria* (the Orange Moth). Many I could not name, but they were large, and brown in colour.

He brought many curious things that I was unable to identify, but the most interesting catch of all was a frog. This he held by the head and the body and legs hung down over his breast so that I could see it quite clearly. I took particular note of its size, and am sure that from the tip of its head to the end of its hind legs, which were hanging naturally and not unduly straddled out, it was at least 2½ inches. What happened when he offered this unusual meal to the young I would have given much to know, but as the nest was well hidden in a thick tangle of climbing rose it was impossible to see. After the parent had flown away I went and looked in the nest. Three young birds were sitting quiet, the fourth was opening and shutting its mouth incessantly, giving a big heave each time it did so. This continued for about half an hour. Whether it was possible for the young bird to have swallowed such an enormous mouthful, is, I think, an interesting question.

HILDA TERRAS.

#### SIZE OF CLUTCHES OF NIGHTINGALE.

OUT of sixty-five nests of Nightingales (*Luscinia m. megarhynchos*) found in east Suffolk this year (1933), I have been able to watch closely only fifty-four.

Of these the clutches of eggs or broods of young birds in the nests have been as follows: Two contained 6 eggs or young, forty-two 5, nine 4, and one (certainly a second clutch) 3.

For observations on the clutches in 1931 and 1932 I may refer those interested to Vol. XXV., pp. 79-80 and Vol. XXVI., pp. 163-4.

A. MAYALL.

NESTLING NIGHTINGALES WITH EXTRA  
HIND TOES.

IN June, 1933, I found in Epping Forest the nest of a Nightingale (*Luscinia m. megarhyncha*) with three young, two of which had an abnormal number of hind toes.

One bird had normal toes (three in front, one behind).

The other two had three normal front toes, but in one of them there were two hind toes on each foot and in the other bird there were three hind toes on the left foot and four hind toes on the right foot.

My friend, Mr. R. McKenzie Smith has seen the birds and can verify these statements. Incidentally, the nest was built against a tree-trunk and was 8 ft. above the ground.

STUART BOARDMAN.

## BREEDING OF BLACK REDSTART IN KENT.

ON July 8th, 1933, I received a message that Lieut.-Commander S. Brown, R.N., had found a nest containing young birds of the Black Redstart (*Phœnicurus o. gibraltariensis*) and I was asked to come and see the nest and birds to confirm his identification as being correct.

On July 10th, together with Lieut.-Commander Sir John K. Shaw, Bt., R.N.—a keen field naturalist—we proceeded to examine the birds and nest.

The birds had chosen a most extraordinary place for their nest, it being placed in the corner of the eaves of a small shed about 10 feet from the ground, situated in Woolwich Arsenal about 200 yards from Middle Gate House. This shed is in one of the busiest parts of the Arsenal, frequent traffic of all descriptions passing by all the day.

On our arrival at 12 noon we found the nest empty and that the birds had flown. In a few minutes the cock showed us where he and the hen were feeding at least three young ones. One young bird, very strong on the wing, was sitting on a gun wagon and allowed us almost to touch it; all the time the cock was close by, giving us a splendid view; he was so close that field-glasses were not really necessary. The hen was equally conspicuous.

I have taken the nest which is composed entirely of grass. There are a few feathers in the cup of the nest, probably belonging to the Redstarts.

I believe this to be the second authentic record of this bird nesting in Kent, the first being found by Mr. T. J. Wallace in 1930 (*antea*, Vol. XXIV., p. 190).

JAMES R. HALE.

## EAGLE-OWL IN DEVONSHIRE.

ON April 23rd, 1933, an Eagle-Owl (*Bubo b. bubo*) was shot at Morchard Bishop, Devon. The bird was harrying young Pheasants at their coops.

The skin has been presented to the Royal Albert Memorial Museum, Exeter, where I have had an opportunity of examining it. I am inclined to think it may be an "escape", because its tail feathers and one or two of the primaries of the right wing are abraded, as if the bird had rubbed itself against the bars of some enclosure. I have made enquiries at the Zoos at Paignton, Clifton and Oxford, and of Miss Chawner of Leckford, Hants., who breeds Eagle-Owls, but none are reported as missing.

F. C. BUTTERS.

## KING-EIDER SEEN IN ORKNEY.

ON June 9th, 1933, I had an excellent view of a drake King-Eider (*Somateria spectabilis*) close to land at Finstown, Orkney. Together with my wife I again saw the bird the next day and the following notes were made on the spot with the aid of field-glasses and telescope. In the *Practical Handbook* the last record for Orkney is 1906.

Tip of bill, horn colour. Remainder of bill, blood red. Orange patch on each side at the base, divided by black in front. Pale apple green on cheeks. Head pale blue grey. Pinkish-buff breast (making the Common Eider look white by comparison.) Dull yellow leg occasionally appeared above water. White patch each side of rump. Dark brown feathers on each side of lower back formed distinct tufts. On both days it was with Common Eiders, which repeatedly attacked it.

A. G. HAWORTH.

## OYSTER-CATCHER BREEDING IN CO. DURHAM.

AS there seems to be no previous record of the Oyster-Catcher (*Hæmatopus o. occidentalis*) having nested in co. Durham, a nest containing three eggs which I saw on May 27th, 1933, in rather an unusual kind of site, may be worthy of mention.

The slag reclamations which have absorbed large stretches of the estuarine mud flats on both sides of the Tees estuary and now provide breeding places for such birds as Ringed Plover, Redshank, Sandpiper, Common and Little Tern, was the chosen place for these pioneers. The nest was on one of many small mounds of coal shale refuse from the adjacent Clarence Steelworks and the eggs showed up most glaringly against the dark surroundings. Furthermore, the place is only about three miles from the Town Hall of Middlesbrough.

C. E. MILBURN.

## YOUNG LAPWING CROSSING WIDE RIVER.

ON June 25th, 1933, I found and ringed a young Lapwing (*Vanellus vanellus*) on the left bank of the Ribble at Mytton, Lancashire. The youngster, apparently the sole survivor of a brood, was about eight days old and was picked up on a shingle-bed where the river bank on this side is densely wooded to the water's edge, with no breeding pairs within about a mile. This, of course, refers to the left bank. Directly opposite, however, is an open field which is occupied annually by two pairs of Lapwings, but, notwithstanding my surprise in finding the chick where I did, I dismissed the idea that it had succeeded in crossing the water either by wading or swimming in face of the fact that the Ribble, although fairly low at the time, is fifty yards wide at this spot and runs very strongly over a rocky bed. My companion on this occasion, Mr. W. Balderstone, was in agreement with me on this point. Despite this conclusion, however, on July 2nd, Mr. E. Davis and I found the bird on the opposite bank, about a hundred yards further downstream, with its ring intact and one parent still in attendance. There is thus no doubt that the bird had crossed the river at least twice, and the return journey, where the river takes a sweep to the right, must have been against a strong current. From this it may be inferred that young Lapwings even in the downy stage can swim more strongly than is usually supposed.

CLIFFORD OAKES.

BREEDING OF THE WHIMBREL IN  
INVERNESS-SHIRE.

WITH reference to the breeding of the Whimbrel (*Numenius ph. phæopus*) in Inverness-shire, which I recorded in 1931 (*antea*, Vol. XXV., pp. 62-5), it is of considerable interest to report that the following year, 1932, two pairs appeared on the same ground. It is not possible to state the exact date of their arrival, but one pair was observed for the first time on May 21st. The nest of the first pair was found with four eggs on June 1st at a distance of about 200 yards from the site of the nest of 1931. The eggs hatched on June 15th. One chick, which was found dead at the nest, and an almost entire egg-shell, have been preserved for purposes of record.

The nest of the second pair was found with four eggs on June 3rd. It was at a distance of about 200 yards from the other nest. The birds sat closely until July 1st in any case, but on the 7th the nest was found deserted and the eggs, which were apparently infertile, were taken and have been preserved.

I was able to gain some further information as regards the birds' notes and general behaviour.

In addition to the ordinary call and the bubbling note, both of which are made on the wing and on the ground (and, as far as I could ascertain, by both birds), the bird, while on the ground, frequently produces a single mournful "koo", which it repeats at short intervals like the Redshank. If the bird is undisturbed, this in most cases eventually runs into the bubble, although on one occasion I heard this note uttered 30 times, after which the bird rose and no bubble eventuated.

Quite apart from its usual quickly-beating flight, the bird has a characteristic flight usually near the nest, or near an intruder, in which the rapidity of the wing-beats is greatly increased without resulting in any additional speed. This is apparently a distinct flight and is not unlike that of the Kestrel just before it actually starts to hover.

In the case of the nest found in 1931 and of both nests found in 1932, a scrape was found a few yards from the nest but considerably deeper and more hidden, but whether this serves any purpose or not I was unable to discover.

I was unable to visit the locality in 1933, but a friend who accompanied me in previous years, reports as follows:—

"During the early part of May, 1933, the ground was frequently visited, but there was no trace of the arrival of any Whimbrel.

"On May 23rd a single Whimbrel was flushed, but it did not show itself until the searcher was within about thirty yards. This bird remained within a few yards of the spot where it was flushed, feeding quietly on flies, but there was no trace of a mate.

On May 26th the nest was found, containing two eggs, but although the whole area was very carefully searched by four people, there was still no trace of more than one bird. On May 29th, and again on June 6th, the nest still contained two eggs only, and there was still no sign of more than one bird.

"No further opportunity occurred of visiting the nest till June 23rd, when both the eggs were found to have hatched, and after about an hour's search both young ones were found about 300 yards away from the nest, and both parent birds were seen for the first time. The young ones were estimated, judging by the experience of the last two years, to be five or six days old.

"There was a very marked difference in the behaviour of the birds in 1933 to their behaviour in the two previous years. In 1931 and 1932 the birds always showed themselves readily, and at least one invariably left the ground as soon as anyone

arrived within sight. In 1933, however, it was necessary to get quite close to the bird in order to flush it, and during the whole time that the nest was under observation there was no sign of a second bird." A. H. DAUKES.

BLACKBIRD SINGING WHILE SUNNING ITSELF.—The Rev. C. S. S. Ellison writes that on May 28th in co. Carlow he watched for a considerable time a cock Blackbird (*Turdus m. merula*), which was on the top of a wall with out-stretched wing and fluffed-out feathers, sunning itself in the usual fashion, and singing at frequent intervals.

## REVIEWS.

### LOCAL REPORTS.

#### *The London Naturalist*, 1932.

PAPERS of interest to ornithologists are:—"The Great Crested Grebe in the London Area" by P. A. D. Hollom, with some very interesting figures regarding the numbers present on the London reservoirs in various months in 1931 and 1932; "At the Bird Table" by Stuart Boardman details observations on Tits made by the use of coloured rings; and "Birds in the London Area, 1932". This last is a valuable yearly report to which fifty observers contributed notes, and the following items which have not already appeared in our pages may be mentioned: Rock-Pipit (*Anthus s. petrosus*), one on December 31st at King George V. Reservoir, Essex, one on February 20th, and one October 15th at Barn Elms Reservoir, Surrey; Heron (*Ardea c. cinerea*), Essex, Wanstead Park, 24 pairs nested, Surrey, Gatton Park, one pair nested, Hersham 15 pairs and Richmond Park approximately 33 pairs; Common Sandpiper (*Tringa hypoleucos*), single birds seen on several occasions in winter months in 1931 and 1932 at Surrey Reservoirs; Little Gull (*Larus minutus*) at Staines Reservoir on November 21st; Kittiwake (*Rissa tridactyla*) near Hounslow on February 14th.

#### *Report of the Cambridge Bird Club*, 1932.

IN this excellent Report we find that the Hobby, Great Crested Grebe, Woodcock and Water-Rail were found nesting in 1932 in Cambridge-shire, and there appear to be no previous authentic records of the breeding of these birds in the county. A heronry at Bottisham Park had twelve nests in 1932 and this is an addition to our 1928 Census. This heronry dates from about 1850, but was subsequently deserted and then re-colonized about 1890. This makes three existing heronries now known in the county. A number of interesting birds were again seen at the sewage farm and these are reported on by W. R. D. Harrison. An article on the winter distribution of the Starling, showing roosts and flight lines in the southern portion of the county, is contributed by M. E. W. North, who was assisted in making observations by a number of other members.

#### *Report of the Oxford Ornithological Society*, 1932.

THIS Report, which covers Oxfordshire, Berkshire and Buckinghamshire, has become the most important local ornithological report we receive. This year the arrangement of the systematic notes is improved by keeping all the notes referring to each bird under its species

heading, the observations from each county being separated in paragraphs, instead of having separate lists for each county. This portion of the Report contains a large number of useful observations, the most notable of which appear to be the following:—A pair of Black-headed Gulls (*Larus r. ridibundus*) nesting on Otmoor, the first record for Oxfordshire; a Rock-Pipit (*Anthus s. petrosus* or, less likely, *littoralis*, but certainly not *spinoletta*) clearly identified at Startopend Reservoir, Tring on October 16th is a new bird to Buckinghamshire and Hertfordshire, for it crossed the boundary; a Red-necked Phalarope (*Phalaropus lobatus*), which was picked up dead on October 18th near Newbury, is an addition to the Berkshire list; and the discovery of a heronry in a very thick spruce plantation at North Aston, Oxfordshire, which was overlooked in the Census of 1928 and does not appear to have been previously recorded in print, though it has existed for at least twenty years and in 1932 had six to eight occupied nests.

Besides the section devoted to systematic notes, this Report contains special reports on the local distribution of the Stonechat, Whinchat and Redshank, a report on Ringing, an account based on the Great Crested Grebe investigation of 1931 in the three counties concerned, with a comparison for 1932, in which year occupied and possible waters were revisited and showed a slightly smaller total, but it is stated that there is no reason to suppose that the maximum density has yet been reached; and a report on the birds at the Reading Sewage Farm from 1922 to 1932, by H. M. Wallis and J. D. Wood. To the latter paper, which will interest many, is appended a systematic list with notes on 132 species which have been observed at the farm. The only breeding bird of note is the Shoveler, and the chief interest lies in the passing migrants (chiefly waders), as readers of this magazine will know from a number of notes that have appeared on the subject. Of recent years, especially from 1928 to 1932, there has been a great decline in the number of waders, but in 1932 there was a sudden marked revival, and such birds as Sheld-Duck, Turnstone, Ruff, Curlew-Sandpiper, Black-tailed Godwit and Little Gull were seen. This is attributed to changes in the methods of sewage disposal and variation in the number of ponds produced. The question of possible routes of waders across country is discussed in connexion with observations from other places, and this is a subject which we hope will be thoroughly investigated at some time in the future.

#### *Report on the Birds observed in Hertfordshire in 1931.*

MR. C. OLDHAM is responsible for this excellent report, which has many points of interest. We may draw attention to an interesting detailed account of nest-building by Song-Thrushes (*Turdus ph. clarkei*), a great passage of Hirundines and Swift, at Tring Reservoirs in May, the breeding of Garganey (*Anas querquedula*) at Elstree and probably at Tring, and occurrences of all the Grebes—the Red-necked (*Podiceps griseigena*) at Tring in September and October.

#### *Dorset Phenological Report for 1932.*

THIS is issued by the Dorset Natural History and Archaeological Society and is compiled by the Rev. F. L. Blathwayt, and is concerned chiefly with birds. The Buzzard has become so plentiful in its chief centres that extensions may be expected and a pair is recorded as attempting to breed in east Dorset. The Great Crested Grebe bred in this county for the first time. A party of six Black-tailed Godwit visited Poole Harbour in February. A bird seen near Whitenose on June 13th and



identified as the Eastern Black-eared Wheatear (*Ænanthe h. melanoleuca*) is not described in detail and it is impossible to judge of its correctness, but we should have been inclined to have placed it within square brackets.

*Report on Somerset Birds, 1932.*

INTERESTING points in this Report are the continued inland nesting of Raven and Peregrine, the increase and extension of range of the Buzzard and the reported breeding of the Pochard at Blagdon—the first record for the county. Special reports are given of the status of the Wood-Lark, Nightingale and Red-legged Partridge.

*Report of the Devon Bird-watching Society, 1932.*

IN this Report a Yellow-browed Warbler (*Phylloscopus inornatus*) is reported as having been seen at Exeter on March 27th, a very unusual date. At first sight the observer thought it was a Goldcrest, but a prolonged view convinced him of the species, though no detail is given to show how the bird differed from a Goldcrest. Several Black-tailed Godwits are reported.

*Report on the Birds of Wiltshire for 1931.*

IN this Report there are several notes of special interest about which we should like further particulars. The Pied Flycatcher (*Muscicapa h. hypoleuca*) is stated to have bred near Chute and both birds of the pair were watched at the nest, but no indication is given of the site. A Goshawk (*Accipiter gentilis*) is said to have been seen by a keeper at Stourton on October 7th, but the identification appears to have been uncertain and we think this note should have been enclosed with brackets. Several Buzzards were reported in summer, which points to breeding. The Peregrine Falcon (*Falco peregrinus*) is recorded as having bred on Salisbury Cathedral after an absence of two years. A flock of a dozen Dotterel (*Eudromias morinellus*) is reported in early spring from Laverstock. The most cryptic note of all is that under Common Bittern (*Botaurus s. stellaris*), "Reported breeding in the county in 1930". Such a statement is really worthless without evidence, which could have been given satisfactorily without indicating the locality, and certainly the interesting nature of the observation makes it deserving of proper treatment.

## LETTER.

### ROOK POPULATION.

*To the Editors of BRITISH BIRDS.*

SIRS,—In his "Survey of the Rooks in the Midlands," Mr. Roebuck deals (*antea*, p. 23) with the change in population on breeding. But in only a few lines he tells us that, after May, either a wholesale slaughter in some rookeries or a gradual fall in numbers in the others reduces the population by the end of August to the January total.

It seems a pity that he does not provide any of the evidence which he must have for this all-important finding. And is the slaughter by men or Rooks? And has he any explanation for the "gradual fall"?  
ENNISKILLEN, CO. FERMANAGH. J. P. BURKITT.



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EDITED BY

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ASSISTED BY

REV. F. C. R. JOURDAIN, M.A., M.B.O.U., H.F.A.O.U., F.Z.S., AND  
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## FIELD NOTES ON THE LITTLE GREBE.

BY

P. H. TRAHAIR HARTLEY.

THE following observations on the Little Grebe (*Podiceps r. ruficollis*) were made at Fetcham Pond, near Leatherhead, in Surrey, during the last three years.

## TERRITORY.

Little Grebes begin to defend territories in the middle of February. These are small areas—about  $\frac{1}{4}$  acre—situated in the parts of the very shallow lake that are overgrown with marestalk (*Hippuris vulgaris*). Where several territories border on an open space, free from weeds, this constitutes a neutral area where paired birds can meet and associate with others, without fighting.

The actual territories are strictly protected. Both sexes defend their borders, sometimes working together. Territorial demonstrations—far more often than not they do not end in actual fighting—take place many times daily between pairs whose marches adjoin. One bird makes a series of short rushes towards his neighbours' territory, flapping his raised wings, and keeping his head and neck outstretched; at the same time he utters the shrill, tittering call. The owner of the territory advances in the same set style; between each rush, both birds float with heads drawn in, flank feathers fluffed out, and wings slightly raised. So they approach each other, until they float about a foot apart, and strictly on the territorial border. As they face one another, I have seen one, or both birds peck with an almost nervous movement at the surface of the water, as though picking something up. On one occasion the bird which had started the encounter splashed the water with its beak, and snatched at a weed stem. Both birds then dive, at the same moment, or one very quickly after the other; frequently they emerge farther apart than they went down. After one or two plunges, honour is satisfied and, as an almost invariable finish to the demonstration, each bird swims back to float close beside its mate, and to utter several long "titters" in duet. Both birds of a pair may begin a territorial demonstration, advancing side by side; and sometimes an incubating bird whose mate is being menaced will leave the nest, and hasten to join in.

The demonstrations do not always end harmlessly. There may be furious submarine scrimmages, or fights upon the surface, when the birds strike with wings and feet and seem to try

to drive each other under water. A bird caught in the territory of another never seems to show fight; occasionally the threatened bird does not respond to its neighbour's rushes, but merely floats just within its borders in the "ready" position. If it does this, the attacks are not pressed home. The loud tittering of paired birds is the one feature of territorial encounters which never varies.

In 1932 a pair of birds, K-L in my notation, whose nest had been continually wrecked by a Coot, took up a new territory in mid-May, and built a nest without disturbance. The birds which had been their immediate neighbours—H-I—extended their marches so as to take in almost the whole of the deserted territory, while the next pair again—X-Y—annexed a little water on the far side of H-I's original domain.

Birds with late broods keep up territorial rights until mid-September.

#### SEXUAL RELATIONSHIPS.

There is no elaborate display as with the Great Crested Grebe. In March I have seen two birds floating side by side with necks stiffly erect and beaks sharply horizontal; this pose may be but slowly relaxed. On one occasion (March 18th, 1933) two Grebes swam some twenty yards together, and then floated close with their foreparts raised, and necks upright. Before a nest has been built I have seen one bird carry some weed to its mate with upright neck (March 12th, 1932), while this same pair, after the loss of their first brood, floated breast to breast while one held some weeds (May 22nd, 1932). These birds continually plucked scraps of weed, and placed them anywhere on the water, not on any of the three small platforms of weed in their territory. Perhaps one bird occasionally feeds the other.

The most marked feature of the inter-sexual behaviour of Little Grebes is their habit of calling in duet—as already observed by Professor Julian Huxley (*B.B.*, Vol. XIII., p. 155). Paired birds are continually calling. Frequently they swim, or emerge from dives close together, and float side by side as they utter their long rippling call. If this habit is any criterion—and I believe it is—some birds pair for life, for in November and January it is quite usual. The interesting feature is that these winter birds not only frequently "titter" together, but that they do so in certain fixed places—keeping an undefended territory throughout the winter. Duets from birds within the flocks that haunt Fetcham in winter are fairly

frequent, but far more often two birds will leave a fleet of Dabchicks, and "titter" when they reach their own "marches"—or one bird will swim from a flock and call with a second which is already at this trysting place. So fixed is this habit in some Little Grebes that, in 1933, two pairs which left the pond at the end of March, kept well-defined, though undefended, territories during January and, in one case, began to defend their borders in February. In mid-March they grew restless, making long excursions outside their own territories, and early in the fourth week of that month had gone.

The only formal sexual behaviour immediately precedes and follows mating, which takes place on the nest. The female has a marked "invitation" pose, crouching low on the platform with her neck sharply angled, and beak almost touching the weeds. If the male is slow to respond she will break her pose to fiddle with the materials of the nest. During actual copulation the female keeps her neck very upright, and with her beak sharply horizontal turns her head slowly but rhythmically from side to side. On June 19th, 1932, I saw the male make this same steady side to side swing of his head before mating took place; at the same time he uttered a high whirring note. On April 25th, 1931, both birds crouched on the nest in the typical "invitation" pose. After coition both birds stand very upright on the nest, and may touch beaks; twice I have seen the female pick up and hold weeds. The platform on which mating takes place is not always used for the reception of eggs.

#### INCUBATION.

I have not been able to ascertain the incubation-period; it is about twenty-five days. Up to four clutches may be laid in a season, but the proportion of chicks to eggs is small. Many nests are destroyed by flooding.

The first egg laid is brooded at intervals. At this time the birds relieve each other every five to six minutes, whereas, when the full clutch is laid, changes take place about three times in two hours. If a bird be frightened off a clutch of incubated eggs, it covers them carefully with nest materials before leaving, but the first egg is only sometimes hidden, though I have seen a bird get on to the nest, cover the single fresh egg, and immediately leave (April 18th, 1932). So far as my very limited experience of the Great Crested Grebe at the nest goes, that bird, when covering its clutch, picks up strands of weed and actually lays them across the eggs. But the



Dabchick merely rakes some of the material lying on the rim of the cup over its eggs.

#### CARE OF THE YOUNG.

The young are fed by both sexes; while they are very small they remain on the nest with one parent while the other brings food. Although small fishes are carried to the nest and swallowed whole by the chicks, some of the food given at this period is, I think, regurgitated. On these occasions, when several feeds in quick succession are given to one chick, the parent makes a small scooping movement of its head and neck, slightly opening its mandibles, while the throat can be seen working in a manner very suggestive of regurgitation. When the young are rather older, food is sometimes bitten up before being given to them. After the first week of their lives they are fed chiefly on the water, being taken back to the nest for rests. The practice of carrying young birds about upon the back is not so common as with the Great Crested Grebe, though on the nest the chicks always sit beneath their parents' scapulars. Only with a September brood have I seen the chicks regularly carried; in this case there was no nest to which they could repair.

The chicks preen themselves when very small, but I have frequently seen an adult preening the young one's head; this attention seems to be much appreciated judging by the curious, sinuous movements of the head and neck which the chick makes.

#### RELATIONS WITH OTHER SPECIES.

On Fetcham Pond the Little Grebe is more than a match for both Coot and Moorhen, which seem to have no means of defending themselves against the smaller birds' submarine attacks. So healthy a respect have the two larger species for the Dabchicks' torpedoing tactics that they will sometimes turn away or retreat upon its approach. In 1932 a Coot certainly succeeded in driving a pair of Grebes from their territory by destroying their nest, but it did so in spite of several successful attacks, before which it was compelled temporarily to retreat. On May 10th, 1931, two Grebes were joined in their attack upon a Coot by a bird from the next territory.

Little Grebes seem to be afraid of birds flying low over them. Should some of the Black-headed Gulls which visit the pond in winter wheel above a party of Grebes, the latter

make "crash" dives, throwing up flashes of water, and only exposing the head and neck when they emerge; and they will keep this up for as long as the Gulls are overhead. One day, four Grebes dived with a considerable splash when a Peewit wheeled above them.

#### BEHAVIOUR IN FLOCK.

Most of the birds wintering at Fetcham—the population is considerably augmented by migration during this season—spend their time in fairly close flocks. The birds in these companies sometimes perform simple mass evolutions. The most usual of these is for a fleet of 20-25 Grebes to dive absolutely as one bird, several times in succession. The movement of a fleet in any direction may, in the same way, be commenced by all the birds making a simultaneous pattering rush along the surface.

At dawn, in January and February, Dabchicks indulge in antics which seem to be quite spontaneous and literally playful. Small parties of birds race to and fro, pattering over the surface, or make simultaneous dives, throwing up big splashes of water. There is a good deal of calling while these games are in progress.

## RECOVERY OF MARKED BIRDS.

OWING to the large number of recoveries, especially through trapping, now being received, it has been found necessary to alter somewhat the form of publication in these periodical lists, which it must always be remembered are merely preliminary. To make the lists more easy of reference, all the recoveries referring to one species will be recorded under the species and when sufficiently numerous will be divided into two main categories—"Ringed as nestlings" and "Ringed as full-grown". These categories will be sub-divided when necessary into "Recovered away from where ringed", and "Recovered where ringed". So far as possible "where ringed" will be reckoned approximately as within one mile of the place of ringing in the case of small birds and within three miles in large birds.

With regard to recoveries at the same place, publication will be restricted at present to those cases which afford evidence on some definite point, such as return of a strict migrant, residence in the district at various seasons, or absence at one season and presence in another, breeding where bred, longevity and so on.

NOTE.—Where a bird has been recovered in a series of months, the number of times recovered in any one month is not shown.

\* Indicates that particulars have already been published of previous recoveries of the same bird.

**Jackdaw** (*Colæus m. spermologus*).

No.	Ringed.	Recovered.
RT.3185	Ullswater (Westmor.), —.6.32, young, by H. J. Moon.	Penrith (Cumb.), 29.5.33, by W. Howe.
RR.4579	Gt. Budworth (Ches.), 24.6.32, ad., by A. W. Boyd.	Where ringed, 9.7.32, by ringer; 1.5.33, by W. Jacks.
RT.4343	Lower Culham (Berks.), 29.5.32, young, by R. J. Spittle.	Henley-on-Thames (Bucks.), 16.3.33, by W. Hatton.

**Starling** (*Sturnus v. vulgaris*.)

## RINGED AS NESTLINGS.

## (a) RECOVERED AWAY FROM WHERE RINGED.

RR.9344	Penrith (Cumb.), —.5.30, by H. J. Moon.	Temple Sowerby (Westmor.), 12.3.33, by ringer.
AN5153	Near S. Nutfield (Surrey), 2.7.31, by F. Offen.	Near Sevenoaks (Kent), 30.4.33, by R. P. Baker.

Starling (*continued*).

<i>No.</i>	<i>Ringed.</i>	<i>Recovered.</i>
(b) RECOVERED WHERE RINGED.		
Y.6060	Dalston (Cumb.), 16.5.25, by R. H. Brown.	13.4.33.
T.4410	Gt. Budworth (Ches.), 18.5.29, by A. Boyd.	24.2.32.
R.1114	Ditto 9.7.30	28.2.31 ; 18.3.32.
P.5778	Bluntisham (Hunts.), 2.6.31, by Rev. E. Peake.	23.11.32.

## RINGED AS FULL-GROWN.

(c) RECOVERED AWAY FROM WHERE RINGED.		
U.6076	Scone Estate (Perth.), 30.1.30, by Lord Scone.	Near Inchtute (Perths.), 26.4.33, by E. H. Brunton.
V.9487	Carlisle (Cumb.), 15.1.30, by J. N. D. Smith.	Gretna Green (Cumb.), —.3.33, by A. B. Dickson.
WF.96	Near Gt. Budworth (Ches.), 30.1.33, by A. W. Boyd.	Near Växiö, S. Sweden, 19.4.33, by Prof. Jägerskiöld.
VF.590	Malvern (Worcs.), 5.3.33, by P. E. A. Morshead.	Aarslev (Fyen), Denmark, 29.5.33, by N. O. Brorby.
AN.9435	Oxford, 24.1.33, for Oxford Orn. Soc.	Near Marienwerder, East Prussia, —.3.33, by E. Wiedwald.
AN.6879	Fyfield (Berks.), 12.12.31, for Oxford Orn. Soc.	Near Woburn (Beds.), 10.1.33, by W. C. Gait.
HF.73	Kelling (Norfolk), 1.2.33, by R. M. Garnett.	Near Frome (Som.), 24.5.33, by C. J. Dowden.
VF.452	Branscombe, released Sidbury (Devon), 16.1.33, by P. E. A. Morshead.	Near Bremen, Germany, 11.4.33, by Dr. Drost.

## (d) RECOVERED WHERE RINGED.

<i>No.</i>	<i>Ringed.</i>	<i>Recovered.</i>	<i>No.</i>	<i>Ringed.</i>	<i>Recovered.</i>
Scone Estate, Perth. By Lord Scone.			Oundle (Northants.).		
S.9260	7.1.31	25.12.32	By J. McC. Fisher.		
Edinburgh. By Miss Bickersteth.			03066	4.3.29	3.4.32
JF.369	11.5.32	18.11.32	S.2911	14.1.30	—.5.33
Carlisle (Cumb.). By J. N. D. Smith.			Oxford.		
V.9523	23.2.30	27.3.33	By Oxford Ornithological Society.		
Barnard Castle (Durham).			U.4151	22.1.29	30.5.33
For Barnard Castle School.			U.4181	25.3.29	9.3.32
Y.7866	26.3.31	27.3.31 ;	R.7193	10.11.30	22.12.32
[Y.7900]	[1.11.31 ;	10.6.32	P.2719	6.11.31	17.4.33
Great Budworth (Ches.).			P.3890	21.11.31	25.3.33
By A. W. Boyd.			P.2755	8.2.32	24.3.33
T.4044	27.8.28	23.12.31	AN.7019	19.2.32	24.1.33
T.4098	15.12.28	15.4.32	AN.7619	23.2.32	17.11.32
R.1190	25.3.31	9.5.32	AN.7714	8.3.32	24.1.33
Wilmslow (Ches.). By E. Cohen.			LF.597	3.11.32	16.4.33
T.9922	14.7.29	31.5.32	AN.9484	21.11.32	14.6.33

**Starling** (*continued*).(d) RECOVERED WHERE RINGED (*continued*).

No.	Ringed.	Recovered.	No.	Ringed.	Recovered.
Bluntisham (Hunts.). By Rev. E. Peake.			Laindon (Essex). For London Nat. Hist. Soc.		
V.8288	28.I.29	18.2.33	TF.9	4.12.32	22.5.33
P.5707	2.3.31	27.7.32	Chudleigh (Devon). By J. M. Hepburn.		
P.5791	31.12.31	14.2.33	R.6947	8.1.32	—.2.33
P.5796	1.1.32	13.7.32	Seaton (Devon). By A. L. W. Mayo.		
P.7169	28.1.32	23.11.32	AN.3256	12.3.32	13.3.33

**Greenfinch** (*Chloris ch. chloris*).

RINGED AS FULL-GROWN.

(c) RECOVERED AWAY FROM WHERE RINGED.

No.	Ringed.	Recovered.	No.	Ringed.	Recovered.
VF.879	Near Shipley (Yorks.), 26.2.33, by C. Wontner- Smith.			Near Bradford (Yorks.), 18.5.33, by L. Lambert.	
YF.782	Ditto	10.3.33.		Near Otley (Yorks.), 24.5.33, by J. Searle.	
WF.324	Gt. Budworth (Ches.), 5.3.33, by A. W. Boyd.			Winsford (Ches.), 27.5.33, by G. Furber.	
WF.317	Ditto	2.3.33.		Near Lancaster, 24.4.33, by H. W. Robinson.	
MF.554	Malvern (Worcs.), 7.11.32, by P. E. A. Morshead.			Alcester (Warwicks.), 25.2.33, by C. Corbett.	
P.6815	Beckley (Oxon.), 6.1.33, by Oxford Orn. Soc.			Near Wellington (Salop), —.4.33, by P. Lloyd.	
L.7120	Oxford, 25.1.32, by Oxford Orn. Soc.			Headington Quarry (Oxon.), 12.4.33, by T. Richards.	
J.5266	Bluntisham (Hunts.), 13.2.31, by E. Peake.			Stevenage (Herts.), 19.6.33, by B. Pitcher.	
VF.337	Branscombe (Devon), 10.1.33, by P. E. A. Morshead.			Beer (Devon), 22.1.33, by E. Burrough.	

(d) RECOVERED WHERE RINGED.

No.	Ringed.	Recovered.	No.	Ringed.	Recovered.
Wilmslow (Ches.).	By E. Cohen.		K.8663	27.1.31	Dec. 1931 (2)
L.2439	11.5.31	May 1931 (2);	*K.8779	27.1.31	Dec. 1931 (2)
[L.2441]		1.6.32	K.8665	5.2.31	13.2.31; 30.12.31
Gt. Budworth (Ches.). By A. W. Boyd.			K.8799	23.2.31	9.1.32; [3.3.32; 24.5.32
H.3756	11.12.28	5.2.32	K.8886	16.3.31	29.12.31; [4.1.32; 21.5.32
*H.3932	30.1.29	Jan. 1932 (2); 21.2.32	K.8914	29.3.31	Ap., May, [June 1931; Feb., Mar., Ap., [May 1932
J.5661	11.5.30	21.6.30; Jan. 1932 (2)	K.8942	24.4.31	16.1.32
*J.5687	23.5.30	Dec. 1931;	K.8944	25.4.31	Dec. 1931; [Jan., Feb., Mar. 1932
[Jan., Feb., Mar., May, June 1932			K.8978	12.5.31	25.5.32
*J.5992	23.6.30	Jan., Mar., Ap. 1932	J.6122	16.5.31	25.4.32
*J.6117	23.11.30	29.12.31			

Greenfinch (*continued*).(d) RECOVERED WHERE RINGED (*continued*).

No.	Ringed.	Recovered.	No.	Ringed.	Recovered.
Church Stretton (Salop). By W. A. Cadman.			Bluntisham (Hunts.). By Rev. E. Peake.		
L.1418	7.1.31	31.12.31	TU.379	16.2.31	28.2.31 ; 12.4.32
Malvern (Worcs.). By P. E. A. Morshead.			L.3181	22.2.31	3.3.31 ; 25.4.32
N.1026	19.12.31	11.10.32	N.2098	29.3.32	Ap. 1932 (3) ; [Jan. 1933 (2)]
Oxford. By Oxford Ornithological Society.			Saxlingham (Norwich). By Mrs. Wilson.		
L.1161	13.1.31	27.2.32	*K.8498	27.1.31	11.5.32
L.1865	24.2.31	3.2.33	K.8520	18.3.31	11.5.32
L.4621	4.2.32	Feb. 1932 (2) ; [2.12.32 ; 21.1.33]	*L.4309	25.3.31	4.4.32
L.4623	9.2.32	10.11.32	M.3016	8.7.31	15.7.31 ; 7.7.32
L.4630	16.2.32	20.2.32 ; [Feb. 1933 (3)]	M.3022	12.7.31	7.7.32
L.4602	17.2.32	17.2.33	Shanklin (I.O.W.). By J. F. Wynne.		
L.4604	17.2.32	1.3.33	L.7335	27.2.32	28.12.32 ; [Jan. 1933 (3)]
L.4611	18.2.32	Feb. 1933 (2)	L.7346	3.3.32	Jan. 1933 (2)
[TF.506]			Branscombe (Devon). By P. E. A. Morshead.		
N.3681	23.2.32	26.2.32 ; [2.3.32 ; 27.1.33]	H.4460	31.12.28	4.1.31 ; 31.12.31
N.3699	3.3.32	22.1.33	K.6069	23.12.30	7.1.32
L.1294	4.3.32	Jan. 1933 (2)			
Beckley (Oxon.). By Oxford Ornithological Society.					
G.2801	16.11.31	6.1.33			

Linnet (*Carduelis c. cannabina*).

No.	Ringed.	Recovered.
L.5359	Near Dundee (Angus), 14.6.32, young, by E. C. Sharp.	Blairgowrie (Perth.), 11.11.32, per <i>Cage Birds</i> .

Chaffinch (*Fringilla c. cælebs*).

RINGED AS NESTLINGS.

(a) RECOVERED AWAY FROM WHERE RINGED.

NA.735	Rye (Sussex), 15.6.32, by R. G. Williams	Peasmarsh (Sussex), 24.4.33, by J. Yealland.
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(b) RECOVERED WHERE RINGED.

D.4042	Scone (Perth.), 13.6.26, by Lord Scone.	21.7.32.
*H7228	Ullswater (Westmor.), —.6.29, by H. J. Moon.	23.11.31 ; 31.1.32 ; 10.2.32.
L.8662	Bealings (Suffolk), 26.5.31, by A. Mayall.	17.3.32.

Chaffinch (*continued*).

## RINGED AS FULL-GROWN.

(d) RECOVERED WHERE RINGED.

No.	Ringed.	Recovered.	No.	Ringed.	Recovered.
Scone (Perth.). By Lord Scone.			Grasmere (Westmor.). For London Natural History Society.		
G.3700	13.7.29	9.4.30 ; 7.2.31	K.1216	28.9.32	14.3.33
H.6379	13.2.30	4.2.31 ; 10.4.31	Gt. Budworth (Ches.). By A. W. Boyd.		
F.2663	11.3.30	19.3.31	*D.3301	28.12.25	5.5.30 ; [Jan. 1932 (2)
F.2665	11.3.30	26.1.31 ; 8.4.31	K.8959	6.5.31	Ap., May, [July 1932
F.2678	17.3.30	23.3.31	J.6121	15.5.31	10.9.32
H.6514	9.4.30	3.2.31	J.6125	17.5.31	30.12.31 ; 18.3.32
J.6853	23.8.30	26.1.31 ; 25.3.31	Bluntisham (Hunts.). By Rev. E. Peake.		
J.6870	26.8.30	15.2.31	*L.3226	28.2.31	14.3.33
J.6876	31.8.30	July 1932 (2)	N.3148	10.1.32	28.3.33
Kilbarchan (Renfrew). By F. J. Ramsay.			N.3290	6.4.32	11.4.32 ; 18.1.33
N.3378	11.3.32	11.5.33	Battle (Sussex). By H. Whistler.		
Ullswater (Westmor.). By H. J. Moon.			H.6049	7.2.30	25.4.33
H.3069	30.12.30	Mar. 1931 (2); 11.2.33	M.4953	21.8.31	2.2.33 ; 2.3.33
H.3071	3.1.31	13.1.31 ; [Jan. 1932 (2)	M.4954	27.10.31	Nov. 1931(2); 19.5.32
SY.995	11.1.31	Nov. 1931 (2); 20.1.33	M.4932	18.7.32	19.3.33
TZ.602	12.1.31	Mar. 1931 (2); 24.1.33	M.4930	27.7.32	July 1932(3); 11.3.33
TZ.605	17.1.31	27.1.32	M.4940	5.8.32	12.3.33
TZ.644	31.1.31	13.3.31 ; 20.2.33	NB.121	6.8.32	21.6.33
TZ.645	31.1.31	19.5.33	NB.126	8.8.32	Mar. 1933
TZ.586	31.1.31	24.2.33	Shanklin (I.O.W.). By J. F. Wynne.		
TZ.596	31.1.31	11.3.32 ; [Feb. 1933 (5) ; 4.3.33	L.7287	27.11.31	18.12.32 ; Jan. 1933 (2)
TZ.598	31.1.31	Jan. 1933 (2)	L.7338	1.3.32	8.1.33
TZ.652	31.1.31	14.3.31 ; 26.1.32	Belfast (Antrim). By J. Cunningham.		
TZ.672	31.1.31	25.11.31	H.7063	17.3.31	7.9.31 ; 27.12.31
TZ.694	31.1.31	17.12.31	H.7069	17.3.31	July, Aug., [Sept. 1931 ; 20.3.32
TZ.709	9.3.31	24.1.33	L.4105	1.4.31	17.12.31
TZ.713	10.3.31	Mar. 1931 (3); [M.4247] [Nov., Dec. 1931 ; 26.1.32			
J.2158	17.3.31	9.2.32			
M.4270	8.1.32	24.1.33			
M.4272	24.1.32	Jan. 1933 (2)			

**Yellow Bunting** (*Emberiza c. citrinella*).

RINGED AS FULL-GROWN.

(d) RECOVERED WHERE RINGED.

No.	Ringed.	Recovered.	No.	Ringed.	Recovered.
Scone (Perth.). By Lord Scone.			J.5624	22.4.30	23.7.30 ; 27.6.32
H.6454	23.3.30	20.5.31	K.8708	4.2.31	5.2.31 ; 3.10.32
H.6486	24.3.30	21.5.31			
H.6493	24.3.30	24.7.32	K.8719	5.2.31	6.2.32
H.6521	25.3.30	28.2.31	J.6134	14.6.31	June 1931 (2); 7.2.32
H.6526	30.3.30	Mar. 1931 (2)			
H.6504	10.4.30	23.3.31	J.6138	17.6.31	18.12.31
Gt. Budworth (Ches.).			J.6148	27.6.31	June 1932 (2)
By A. W. Boyd.			J.6156	5.7.31	1.6.32 ; 16.7.32
J.5587	18.3.30	31.12.31			

**Reed-Bunting** (*Emberiza s. schœniclus*).

No.	Ringed.	Recovered.
L.2467	Wilmslow (Ches.), 9.1.32, ad., by E. Cohen.	Where ringed, 18.1.33, by ringer.

**Sky-Lark** (*Alauda a. arvensis*).

G.6580	Gt. Budworth (Ches.), 14.6.28, ad., by A. W. Boyd.	Where ringed, 7.3.32, by ringer.
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**Meadow-Pipit** (*Anthus pratensis*).

H.6971	Oxford, 24.1.31, ad., by Ox- ford Orn. Soc.	Where ringed, Dec., 1932 (3); 23.1.33 ; 23.2.33.
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**Pied Wagtail** (*Motacilla a. yarrellii*).

J.8242	Hickling (Norfolk), 30.5.30, young, by Mrs. Wilson.	Catfield (Norfolk), 1.6.33, by R. M. Garnett.
H.6051	Battle (Sussex), 25.7.29, young, by H. Whistler.	St. Leonard's (Sussex), 16.3.33, by Rev. M. James.

**Mistle-Thrush** (*Turdus v. viscivorus*).

AN.6484	Largo (Fife.), 2.5.32, young, by A. H. Eggeling.	Near Masseur (Gers), France, 5.12.32, by <i>Chas- seur Francais</i> .
V.8524	Wilmslow (Ches.), 8.3.29, ad., by E. Cohen.	Where ringed, 1.3.31; 20.3.32; 24.11.32, by ringer.
U.2812	Malvern (Worcs.), 19.2.29, ad., by P. E. A. Morshead.	Where ringed, 8.12.31, by ringer.

**Song-Thrush** (*Turdus ph. clarkei*).

RINGED AS NESTLINGS.

(a) RECOVERED AWAY FROM WHERE RINGED.

AN.5289	Scone (Perth.), 24.4.32, for Perth N.H.S.	Forgandenny (Perth.), 24.6.33, by A. Stewart.
T.8194	Penrith (Cumb.), —.5.29, by H. J. Moon.	Pooley Bridge (Cumb.), 24.5.33, by ringer.



**Song-Thrush** (*continued*).

(b) RECOVERED WHERE RINGED.

No.	Ringed.	Recovered.
G.3587	Scone (Perth.), 16.5.29, by Lord Scone.	7.3.31.
P.7326	Dundee (Angus), 12.5.31, by E. C. Sharp.	—.7.33.
AN.4740	Cumdivock (Cumb.), 27.6.31, by R. H. Brown.	25.4.33.
PF.494	Ingleton (Yorks.), 2.7.32, by H. J. Moon.	2.4.33.
U.9785	Near Oxford, 8.5.30, by Oxford Orn. Soc.	7.4.33.
MF.398	Farnham Royal (Bucks.), 3.6.32, by R. J. Spittle.	18.4.33.
R.4791	Harrow (Middx.), 19.5.30, by T. H. Harrison.	8.6.33.
AN.9406	Wittersham (Kent), 21.4.32, by R. G. Williams.	22.3.33.
R.1809	Bristol (Glos.), 1.5.31, for Clifton Coll. Sci. Soc.	2.4.33.

RINGED AS FULL-GROWN.

(c) RECOVERED AWAY FROM WHERE RINGED.

NF.560	Wilmslow (Ches.), 7.8.32, by Alderley Edge (Ches.), E. Cohen.	19.3.33, by Mrs. Mc- Ilraith.
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(d) RECOVERED WHERE RINGED.

No.	Ringed.	Recovered.	No.	Ringed.	Recovered.
	Arnside (Westmor.) By J. A. G. Barnes.			Malvern (Worcs.) By P. E. A. Morshead.	
P.2995	15.3.31	31.12.31	S.2398	18.3.30	12.3.32
	Wilmslow (Ches.) By E. Cohen.			Oxford. By Oxford Ornithological Society.	
S.8997	23.5.30	25.7.30; [10.3.32; 8.6.32	*P.2635	4.2.31	7.3.32; 19.1.33
P.3420	15.5.31	Feb., Mar., [May, June 1932	P.6683	19.1.32	18.10.32
AN.6645	14.1.32	28.1.33	AN.6989	17.2.32	19.6.33
AN.6655	11.2.32	Feb. 1933 (2)	P.6689	4.3.32	19.10.32
	Gt. Budworth (Ches.) By A. W. Boyd.			Hemsby (Norfolk.) By J. M. Ferrier.	
T.4049	30.9.28	5.3.32	T.5954	15.2.29	29.1.33
*T.4316	23.2.29	21.2.32		Shanklin (I.O.W.) By J. F. Wynne.	
S.4529	11.3.30	Mar. 1932 (2)	P.7730	12.11.31	3.1.32; 7.12.32
[R.1413]			P.7748	19.2.32	Dec. 1932 (2); 30.1.33
R.1147	4.1.31	Mar. 1931 (3); 1.1.32		Belfast (Antrim.) By J. Cunningham.	
R.1158	28.2.31	9.3.31; 21.2.32	P.5803	16.3.31	22.11.31

**Blackbird** (*Turdus m. merula*).

RINGED AS NESTLINGS.

(a) RECOVERED AWAY FROM WHERE RINGED.

No.	Ringed.	Recovered.
T.3171	Penrith (Cumb.), —.7.28, by H. J. Moon.	Culgaith (Cumb.), 19.4.33, by ringer.
FC.410	Kirkby Lonsdale (Westmor.), —.5.33, by H. J. Moon.	Leck (Lancs.), —.6.33, by Rev. E. U. Savage.
FC.355	Ingleton (Yorks.), —.5.33, by H. J. Moon.	Leck, 13.6.33, by Miss Har- greaves.
T.8687	Milford (Hants.), 26.4.30, for Clifton Coll. Sci. Soc.	Highcliffe (Hants.), 9.7.33, by Mrs. Vernon.

**Blackbird** (*continued*).

(b) RECOVERED WHERE RINGED.

<i>No.</i>	<i>Ringed.</i>	<i>Recovered.</i>
AN.5383	Perth, 6.6.32, by Perth N.H.S.	24.4.33.
R.3566	Dundee, 8.5.30, by E. C. Sharp.	26.6.33.
GF.863	Ditto 16.5.32.	9.4.33.
R.1515	Carlisle (Cumb.), 29.6.30, by J. N. D. Smith.	13.5.33.
T.7560	Arnside (Westmor.), 28.6.30, by J. A. G. Barnes.	26.5.33.
*T.6049	Gt. Budworth (Ches.), 29.5.29, by A. W. Boyd.	12.2.32 ; 13.3.32 ; 22.6.32.
V.7416	Church Lawton (Ches.), 10.5.29, by G. Townsend.	17.5.33.
N.3898	Sandford (Oxon.), 10.6.32, by Oxford Orn. Soc.	25.4.33.
AN.516	Hemsby (Norfolk), 14.5.31, by J. M. Ferrier.	22.1.33.
MF.421	Udimore (Sussex), 29.5.32, by R. G. Williams.	13.7.32 ; 13.4.33.
T.7099	Shanklin (I.O.W.), 25.4.32, by J. F. Wynne.	27.9.32 ; 17.10.32 ; 12.12.32 ; Jan., 1933 (12).
R.2113	Laugharne (Carms.), 26.4.32, by J. F. Thomas.	—3.33.

## RINGED AS FULL-GROWN.

(c) RECOVERED AWAY FROM WHERE RINGED.

S.5754	Ullswater (Westmor.), 28.1.33, by H. J. Moon.	Bolton (Lancs.), 17.5.33, by ringer.
FC.412	Kirkby Lonsdale (Westmor.), —.5.33, by H. J. Moon.	Leck (Lancs.), —.6.33, by Rev. E. U. Savage.
YF.795	Shipley (Yorks.), 5.3.33, by C. Wontner-Smith.	Nämdö, near Stockholm, Sweden, 6.7.33, by G. Pott.

(b) RECOVERED WHERE RINGED.

<i>No.</i>	<i>Ringed.</i>	<i>Recovered.</i>	<i>No.</i>	<i>Ringed.</i>	<i>Recovered.</i>
Dornoch (Suth.)	By E. Cohen.		U.6190	5.3.30	9.2.31 ; 9.3.31
	28.6.31	30.6.31 ; 19.7.32	T.7145	16.3.30	11.3.31
			T.7209	18.3.30	Feb. 1931 (3)
Scone (Perth.)	By Lord Scone.		T.7211	18.3.30	7.3.31
U.1315	11.6.29	Mar. 1931 (3)	T.7214	19.3.30	6.3.31
U.6140	6.2.30	2.2.31	H.6471	21.3.30	15.2.31
U.6205	10.2.30	3.2.31 ; 7.3.31	T.7181	21.3.30	15.2.31
		6.2.31	T.7182	21.3.30	Mar. 1931 (2)
U.6206	10.2.30	6.2.31	T.7237	21.3.30	7.1.31 ; 22.7.32
U.6207	10.2.30	Feb. 1931 (2)	T.7238	22.3.30	1.3.31
U.6208	11.2.30	7.2.31	T.7255	5.4.30	16.3.31
U.6209	11.2.30	17.2.31		Edinburgh.	By H. F. D. Elder.
U.6210	11.2.30	9.3.31	PF.843	19.6.32	11.4.33
U.6218	14.2.30	24.2.31 ; 6.1.33		Holy I. (Northumb.).	
T.7268	16.2.30	5.2.31 ; [Mar. 1931 (3)]		By Oxford Ornithological Society.	
U.6189	23.2.30	9.1.31	P.3864	22.9.31	19.9.32
U.6234	2.3.30	27.3.31	P.3869	22.9.31	12.9.32
			P.3930	26.9.31	27.9.32

**Blackbird** (*continued*).(b) RECOVERED WHERE RINGED (*continued*).

No.	Ringed.	Recovered.	No.	Ringed.	Recovered.
Carlisle (Cumb.).			R.1185		
By J. N. D. Smith.			10.3.31 Mar. 1932 (3);		
V.9140	28.9.28	25.6.33	1.6.32		
V.9558	16.5.30	25.6.33	R.1349		
Ullswater (Westmor.).			30.7.31 30.11.31 ;		
By H. J. Moon.			[18.12.31 ; 1.3.32		
*S.1795	13.1.30	Jan. (2) ;	R.1353		
		Mar. 1933	9.8.31 29.8.31 ;		
S.1794	15.1.30	20.3.30 ;	[19.12.31 ; 5.3.32		
		29.12.31	R.1357		
J.4276	19.3.30	20.3.30 ;	29.8.31 13.3.32 ;		
		16.1.33	20.6.32		
*J.4261	22.3.30	Oct. 1931 (3) ;	R.1387		
		20.1.33	22.11.31 Mar. 1932 (3);		
S.2052	2.2.31	23.11.31	20.6.32		
S.2048	2.3.31	Oct. 1931 (2)	Church Stretton (Salop).		
S.2050	2.3.31	29.12.31 ;	By W. A. Cadman.		
[Feb., Dec. 1932 ; Jan., Feb. 1933			AN.1997		
*P.5263	—5.31	13.12.32	11.3.32 12.6.33		
RS.4974	22.10.31	24.10.31 ;	Malvern (Worcs.).		
[Jan., Feb., Mar., Dec. 1932			By P. E. A. Morshead.		
RS.4975	21.11.31	1.3.33	R.8949		
Arnside (Westmor.).			23.6.30 Feb., Ap.		
By J. A. G. Barnes.			[1931 ; Feb., June 1932		
T.7562	7.1.31	31.12.31	R.8823		
Andreas (I.O.M.).			2.12.30 8.3.31 ;		
By F. A. Craine.			[Ap., May 1932		
AN.2671	5.1.32	24.6.33	Oundle (Northants.).		
Wilmslow (Ches.).			By J. McC. Fisher.		
By E. Cohen.			95258		
R.8632	17.9.30	14.3.32	20.1.29 15.1.32		
P.3440	9.6.31	19.12.31 ;	R.3922		
		12.2.32	3.1.32 19.5.33		
P.3443	11.6.31	23.12.31 ;	Oxford.		
		5.6.32	By Oxford Ornithological Society.		
GF.775	3.6.32	7.12.32	*P.2629		
NF.566	23.8.32	18.2.33	9.1.31 Jan. 1932 (2);		
Gt. Budworth (Ches.).			23.1.33		
By A. W. Boyd.			AN.6884		
W.5091	22.1.27	19.2.32	21.2.32 Mar. 1932 (3);		
*W.5431	17.12.27	21.2.32 ;	15.11.32		
		23.6.32	AN.6911		
T.4052	31.10.28	18.12.31 ;	21.2.32 13.11.32		
		1.1.32	Hungerford (Berks.).		
T.4330	1.3.29	12.3.32	By G. Brown.		
S.4549	19.2.30	22.2.32	AN.2161		
S.4539	19.3.30	12.2.32 ;	31.12.31 23.1.33		
		11.3.32	AN.2178		
R.1171	2.3.31	Dec. 1931 (2)	17.3.32 23.1.33		
			AN.2162		
			18.3.32 12.12.32 ;		
			15.4.33		
			Bluntisham (Hunts.).		
			By Rev. E. Peake.		
			P.7166		
			11.1.32 12.12.32		
			Hemsby (Norfolk).		
			By J. M. Ferrier.		
			T.5923		
			22.1.29 27.1.33		
			Bealings (Suffolk).		
			By A. Mayall.		
			T.9644		
			12.3.31 16.3.32		
			Woodford (Essex).		
			By London Natural History		
			Society.		
			LF.864		
			31.10.32 27.4.33		

**Blackbird** (*continued*).(b) RECOVERED WHERE RINGED (*continued*).

No.	Ringed.	Recovered.	No.	Ringed.	Recovered.
Shanklin (I.O.W.). By J. F. Wynne.			P.7775	14.3.32	12.2.33 ; 21.3.33
T.6577	28.2.29	15.3.33	P.9223	18.5.32	30.9.32 ; 12.12.32
*P.3043	25.1.31	3.1.33	P.9230	27.9.32	12.12.32 ; [Jan., Feb., Mar. 1933
P.4140	25.9.31	5.12.31 ; 13.3.33	P.9232	30.9.32	Oct., Dec. [1932 ; Jan., Mar. 1933
P.7724	10.10.31	27.9.32	Belfast (Antrim). By J. Cunningham.		
P.7726	12.10.31	20.3.33	T.7659	3.3.31	8.11.31
P.7727	7.11.31	Feb., Mar. [1932 ; 27.1.33	T.7648	7.3.31	10.1.32
P.7749	20.2.32	Mar., Oct., [Dec. 1932 ; Jan., Feb., Mar. 1933	86461	7.3.31	Dec. 1931 (2)
P.7752	25.2.32	Mar. 1932 (5); 7.12.32	86463	8.3.31	10.1.32
P.7765	1.3.32	7.3.32 ; 27.1.33	86467	8.3.31	Dec. 1931 (2); [AN.5858] [Jan., Feb. 1932
P.7770	5.3.32	6.3.32 ; 22.2.33	86472	9.3.31	20.12.31

**Robin** (*Erithacus v. melophilus*).

## RINGED AS NESTLING.

(a) RECOVERED AWAY FROM WHERE RINGED.

No.	Ringed.	Recovered.
NA.573	Ullswater (Westmor.), 4.6.32, by H. J. Moon.	Glencoyne (Cumb.), 29.3.33, per ringer.

## RINGED AS FULL-GROWN.

(d) RECOVERED WHERE RINGED.

No.	Ringed.	Recovered.	No.	Ringed.	Recovered.
Dornoch (Suth.). By E. Cohen.			*H.9972	13.2.30	28.1.32
*H.8645	22.7.29	23.7.32 ; 2.12.32	H.3068	19.11.30	Jan. 1931(2) ; [26.10.31 ; 7.3.32
Aberdeen. By A. J. Davidson.			SY.993	13.1.31	14.3.31 ; 27.1.33
N.1783	21.11.31	19.9.32	TZ.619	13.1.31	21.1.31 ; [23.11.31 ; Jan., Feb. 1932
Scone (Perth.). By Lord Scone.			TZ.739	16.3.31	11.2.32
H.6461	17.3.30	Feb., Mar. 1931	M.4242	11.11.31	Nov. 1931 (2); 14.1.33
H.6524	29.3.30	2.2.31	M.4266	30.12.31	Jan., Feb. [1932 ; Jan. 1933 (3)
H.6512	9.4.30	13.2.31	Arnside (Westmor.). By J. A. G. Barnes.		
L.2584	13.3.31	27.12.32	H.6561	12.12.30	Dec. 1930 (2); [12.1.31 ; 3.1.32
Ullswater (Westmor.). By H. J. Moon.			H.6562	12.12.30	24.12.30 ; [Jan., Mar. 1931 ; 9.1.32
*H.2868	27.2.29	Dec. 1931 ; [Jan. 1932 ; Feb. 1933	H.6567	14.12.30	12.1.31 ; [31.12.31 ; Jan. 1932
*H.3027	13.1.30	31.12.31 ; 26.2.31			

Robin (*continued*).(d) RECOVERED WHERE RINGED (*continued*).

No.	Ringed.	Recovered.	No.	Ringed.	Recovered.
York.	For Bootham School.		*K5523	18.8.30	18.3.32
N.1822	14.12.31	28.10.32.	L.8240	26.6.31	17.11.31; 26.1.32
Wilmslow (Ches.). By E. Cohen.			Oxford.		
*K.6005	7.8.30	22.1.33	By Oxford Ornithological Society.		
L.2492	25.6.31	27.8.31; [Jan., Feb. 1932	L.1830	3.2.31	25.1.33
L.2493	26.6.31	1.8.31; [Jan., Feb. 1932	L.1267	31.1.32	11.2.32; 19.11.32
M.1679	14.7.31	July, Dec., [1931; Feb., Ap., Aug. 1932; [21.3.33	Reading (Berks.).		
M.1642	30.7.31	Aug., Oct. [1931; 18.2.32	For Oxford Ornithological Society.		
N.1856	12.12.31	25.1.33	L.7078	10.2.32	8.5.33
N.1869	18.2.32	7.12.32; 11.1.33	Burghfield (Berks.).		
N.1874	29.2.32	7.12.32; 21.2.33	By T. G. H. Kirkwood.		
N.1879	16.3.32	2.4.32; 21.1.33	L.9611	2.1.32	Sept. 1932 (2)
NJ.837	9.8.32	31.12.32; [Jan., Mar. 1933	Hungerford (Berks.).		
Gt. Budworth (Ches.).			By G. Brown.		
By A. W. Boyd.			J.7607	31.11.31	2.2.32; 23.1.33
*H.3752	8.12.28	27.1.32; 3.3.32	J.7612	29.12.31	Jan. 1932 (3); [Jan. 1933 (3)
*J.5999	25.6.30	Dec. 1931 (3); 18.1.32	N.3200	16.3.32	24.1.33
*J6073	10.8.30	26.3.32; 26.4.32	Bluntisham (Hunts.).		
K.8718	5.2.31	1.3.31; 18.2.32	By Rev. E. Peake.		
K.8863	10.3.31	16.3.31; 31.12.31	H.4559	—	2.29 25.1.33
L.5948	25.9.31	Jan., Feb., [Mar., May 1932	L.5264	15.10.31	Jan., Feb. [1932; 28.2.33
Church Stretton (Salop).			N.2061	30.11.31	5.9.32
By W. A. Cadman.			N.2063	14.12.31	25.2.33
K.8543	29.8.30	21.4.32	N.5138	5.8.32	20.3.33
K.8545	31.8.30	12.12.30; [25.12.31; Mar., Sept. 1932	NK.646	27.8.32	26.2.33
L.1401	23.12.30	29.12.31	Battle (Sussex). By H. Whistler.		
E. Norton (Leicester).			M.4974	Winter, 1931	July, [Aug. 1932
By P. E. A. Morshead.			M.4979	30.12.31	8.9.32
L.8301	4.8.31	23.12.31; 26.5.32	Shanklin (I.O.W.).		
Malvern (Worcs.).			By J. F. Wynne.		
By P. E. A. Morshead.			L.1444	3.2.31	Dec. 1932; [Jan., Feb. 1933
*J.1074	31.7.29	29.11.31; 6.2.32	*L.1451	1.3.31	Nov., Dec. [1932; Jan., Feb. 1933
			*L.2155	11.3.31	10.12.32; [Jan. 1933 (6)
			*L.4189	7.4.31	10.12.32; 19.1.33
			*L.6512	12.8.31	Dec. 1932; [Jan., Feb. 1933
			*L.6520	22.9.31	Dec. 1932; [Jan., Feb., Mar. 1933
			L.6539	14.10.31	Jan. 1933 (3)

**Robin** (*continued*).(d) RECOVERED WHERE RINGED (*continued*).

No.	Ringed.	Recovered.	No.	Ringed.	Recovered.
Shanklin (I.O.W.) ( <i>continued</i> ).			Chudleigh (Devon).		
L.7311	17.1.32	Jan., Feb.,	By J. M. Hepburn.		
	[Mar., Sept., Oct., Dec. 1932 ;	[1.1.33	*J.5562	24.12.30	25.9.32
L.7314	20.1.32	Jan., Mar.,	Belfast (Antrim).		
	[Dec. 1932 ; Jan., Feb. 1933		By J. Cunningham.		
L.7339	1.3.32	9.1.33	G.7476	8.3.31	12.2.32 ;
L.7345	3.3.32	Mar. 1932 (5) ;			20.3.32
	[Jan. 1933 (5)		G.7477	8.3.31	21.2.32
L.7350	6.3.32	26.1.33	G.7478	8.3.31	Nov., Dec.
L.7351	6.3.32	Mar., Dec.,		[1931 ; Jan., Feb., Mar. 1932	
	[1932 ; Jan., Feb. 1933		H.7088	2.8.31	27.12.31 ;
L.7482	20.9.32	19.12.32 ;			20.3.32
	[Jan., Feb., Mar. 1933				

**Hedge-Sparrow** (*Prunella m. occidentalis*).

RINGED AS FULL-GROWN.

(d) RECOVERED WHERE RINGED.

No.	Ringed.	Recovered.	No.	Ringed.	Recovered.
Scone (Perth.). By Lord Scone.			Gt. Budworth (Ches.).		
H.6419	28.2.30	8.2.31	By A. W. Boyd.		
H.6428	3.3.30	1.3.31	*H.3718	25.8.28	8.2.32 ;
F.2667	11.3.30	7.2.31			30.10.32
J.6901	10.11.30	10.4.31	J.5831	21.6.30	9.1.32
J.6904	10.12.30	11.3.32	J.6051	25.7.30	12.10.30 ;
K.9305	8.2.31	2.1.32		[Jan., Mar., June 1932	
Holy I. (Northumb.).			*J.6088	19.8.30	19.12.31 ;
For Oxford Ornithological Society.					31.1.32
G.9065	28.9.31	16.9.32	*J.6119	29.11.30	6.12.31 ;
G.9069	29.9.31	20.9.32			21.2.32
Ullswater (Westmor.).			K.8632	1.1.31	Jan., Mar.
By H. J. Moon.					[1931 ; 5.3.32
H.9978	7.2.30	Oct., Nov.,	L.5801	3.8.31	Jan., Feb.,
		Dec. 1931			[April, 1932.
TZ.733	14.3.31	16.11.31	L.5952	28.9.31.	Oct., Dec.,
J.2160	17.3.31	2.1.32		[1931 ; Jan., Feb., Mar. 1932	
TZ.744	17.3.31	31.12.31 ;	L.5967	30.10.31	29.12.31 ;
	[11.2.32 ; 18.12.32			[Jan., Mar., May 1932	
M.4253	29.11.31	4.3.32 ;	Malvern (Worcs.).		
	[Jan., Feb. 1933		By P. E. A. Morshead.		
M.4276	27.1.32	28.1.32 ;	*K.6218	10.7.30	5.3.31 ;
		18.1.33			28.2.32
Wilmslow (Ches.). By E. Cohen.			*K.5537	5.10.30	6.3.32
*G.5075	1.11.28	17.12.31	L.8376	26.7.31	6.3.32
K.6032	26.1.31	25.6.32	Oxford.		
M.1731	17.8.31	16.10.31 ;	For Oxford Ornithological Society.		
	[Feb., Ap., Sept. 1932		L.1313	25.1.31	Oct., Dec.
M.1713	7.10.31	9.1.32 ;		[1932 ; Jan., Feb., Mar. 1933	
		10.5.32	L.1228	17.3.31	Mar., Ap. 1931 ;
N.1860	7.1.32	10.3.33			15.4.32
N.1882	20.3.32	23.10.32			

**Hedge-Sparrow** (*continued*).(d) RECOVERED WHERE RINGED (*continued*).

No.	Ringed.	Recovered.	No.	Ringed.	Recovered.
Oxford ( <i>continued</i> ).			Swaffham (Norfolk).		
L.1236	22.3.31	20.4.32 ; 1.5.32	By R. S. Broke.		
L.1237	22.3.31	22.4.31 ; [16.4.32 ; 7.4.33	*J.5505	12.8.30	25.9.32
L.1242	30.3.31	Ap. 1931 (9) ; 25.7.32	*L.2136	16.9.31	18.9.32
L.1256	21.4.31	25.7.32	Shanklin (I.O.W.).		
Hungerford (Berks.).			By J. F. Wynne.		
By G. Brown.			*L.1454	7.3.31	1.1.33 ; 1.3.33
J.7620	1.1.32	29.1.33	L.7477	15.9.32	Sept., Dec.
Bluntisham (Hunts.).			[1932 ; Jan., Feb., Mar. 1933		
By Rev. E. Peake.			L.7484	21.9.32	Sept., Dec.
*J.5232	6.1.30	18.2.33	[1932 ; Jan., Feb., Mar. 1933		
			Belfast (Antrim).		
			By J. Cunningham.		
			G.7473	5.3.31	21.2.32

(e) MOVED TO A DISTANCE AND RELEASED EXPERIMENTALLY.

No.	Ringed.	Recovered.
L.6964	Oxford, released Yarnton [3 m. N.W.], 28.11.32, by Oxford Orn. Soc.	Where ringed, 21.1.33, by ringer.

[NOTE.—This bird was ringed as a nestling, 29.5.31, and was recovered where ringed in every month, except Dec., from Oct., 1932, to March, 1933].

**Swallow** (*Hirundo r. rustica*).

RINGED AS NESTLING.

(a) RECOVERED AWAY FROM WHERE RINGED.

L.5121	Laugharne (Carms.), 21.8.31, by J. F. Thomas.	Whitland (Carms.), —.6.33, by O. Rowlands.
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(b) RECOVERED WHERE RINGED.

L.8194	Near Lancaster, 25.8.31, by H. W. Robinson.	16.7.33.
L.5763	Gt. Budworth (Ches.), 1.8.31, by A. W. Boyd.	15.6.32.
L.5795	Ditto 2.8.31.	10.6.32.
L.5869	Ditto 11.8.31.	27.6.32.
NA.270	Penmon (Anglesey), 12.8.32, for L.N.H.S.	17.5.33.
SY.26	Wrington (Som.), 1.7.31, for Clifton Coll.	14.5.33.

RINGED AS FULL-GROWN.

(d) RECOVERED WHERE RINGED.

No.	Ringed.	Recovered.	No.	Ringed.	Recovered.
Gt. Budworth (Ches.).			TY.984	16.8.30	30.7.32
By A. W. Boyd.			TZ90	1.8.31	8.8.32
K.8981	15.5.31	28.6.31 ; 21.7.32	L.5021	11.8.31	16.8.32
L.5841	8.8.31	16.6.32	L.5061	12.8.31	15.8.32
L.5890	13.8.31	—.6.32	L.5087	15.8.31	2.8.32
Laugharne (Carms.).			L.5088	17.8.31	18.8.32
By J. F. Thomas.			L.5095 }	17.8.31	29.7.32
TY.938	12.8.30	9.8.32	L.5100 }	17.8.31	29.7.32
These birds were mates in both years					

- | <i>No.</i>                                   | <i>Ringed.</i>  | <i>Recovered.</i>                    |
|--|---|--------------------------------------|
| <b>Martin</b> ( <i>Delichon u. urbica</i> ). |   |                                      |
| K.5958                                       | Wolsingham (Durham),<br>22.5.31, ad., by R. Martin-<br>son. | Where ringed, 15.5.32, by<br>ringer. |

**Swift** (*Apus a. apus*).

- |        |  |  |
|--------|--|--|
| SX.472 | Shenfield (Essex),<br>16.7.29, young, by R. Edwards. | Where ringed, 25.5.33, by<br>F. Cownley. |
| J.2147 | Bray (Wicklow), 4.6.30, ad., for<br>H. J. Moon.      | Ditto, 8.5.32, by ringer.                |

**Kingfisher** (*Alcedo a. ispida*).

- |        |  |  |
|--------|--|--|
| NW.404 | Muirend (Renfrew.), 18.5.33,<br>young, for J. Bartholomew. | Blantyre (Lanark.), 27.6.33,<br>by W. Brown. |
|--------|--|--|

**Kestrel** (*Falco t. tinnunculus*).

- |         |   |   |
|---------|---|---|
| RT.3670 | Netheravon (Wilts.), 8.6.32,<br>young, by H. Gillman. | W. Ilsley (Berks.), 19.4.33,<br>by H. Bailey. |
|---------|---|---|

**Sparrow-Hawk** (*Accipiter n. nisus*).

- |         |   |  |
|---------|---|--|
| RT.4689 | Near Heskett-Newmarket<br>(Cumb.), 26.6.32, young, by<br>R. H. Brown. | Borrowdale (Cumb.), 25.4.33,<br>by F. Jackson. |
|---------|---|--|

**Heron** (*Ardea c. cinerea*).

- |        |  |  |
|--------|--|--|
| 109315 | Henley-on-Thames (Bucks.),<br>7.5.32, young, for G. P.<br>Pollitt. | Stratford-on-Avon (War-<br>wicks.), 17.1.33, by J.<br>Spencer. |
|--------|--|--|

**Mallard** (*Anas. p. platyrhyncha*).

- |         |   |  |
|---------|---|--|
| AG.300  | Leswalt (Wigtown), 14.3.32,<br>ad., by M. Portal.   | Near Overkälix, Swedish<br>Lapland, Autumn, 1932,<br>by Prof. E. Lönnberg. |
| 6 Birds | Hickling (Norfolk), 8.3.30, ad.,<br>for A. W. Boyd. | Where ringed, Winter, 1931-<br>32, by ringer.                              |
| 2 Birds | Ditto 8.3.30.                                       | Ditto, Winter, 1932-33.  |
| AL.321  | Ditto, 2.3.31, by J. Vincent.                       | Ditto 18.11.31.  |

**Cormorant** (*Phalacrocorax c. carbo*).

- |        |   |  |
|--------|---|--|
| 109415 | Badcall Is. (Suth.), 27.6.32,<br>young, by E. C. Sharp. | Inverness Firth, 8.4.33, by<br>W. Foster.          |
| 109453 | Ditto 27.6.32.  | S. Uist (O. Heb.), —.4.33<br>by Mrs. Seton Gordon. |

**Shag** (*Phalacrocorax a. aristotelis*).

- |        |   |  |
|--------|---|--|
| 109494 | Handa (Suth.), 28.6.32, young,<br>by E. C. Sharp. | Near Fraserburgh (Aber-<br>deen), 18.4.33, by J.<br>Smith. |
|--------|---|--|



**Wood-Pigeon** (*Columba p. palumbus*).

No.	Ringed.	Recovered.
RR.9866	Largo (Fife.), 14.8.30, young, by W. J. Eggeling.	Where ringed, 22.4.33, by B. Farmer.
RS.256	Glenorchard (Stirling.), 14.5.30, young, by J. Bartholomew.	Ditto, 2.4.33, by ringer.
RS.2714	Lower Culham (Berks.), 7.6.31, young, for W. H. Thorpe.	Near Saint-Calais (Sarthe), France, 15.11.32, by <i>Chas- seur Francais</i> .

**Turtle-Dove** (*Streptopelia t. turtur*).

## RINGED AS FULL-GROWN.

## (d) RECOVERED WHERE RINGED.

No.	Ringed.	Recovered.	No.	Ringed.	Recovered.
	Gt. Budworth (Ches.). By A. W. Boyd.		RR.4532	10.6.31	20.6.32 ; 20.7.32
*73710 [RR.4531]	8.7.25	25.7.32	RR.4535	17.6.31	30.6.31 ; 5.5.33
RR.4441	15.5.29	21.6.32	RR.4548	24.7.31	24.5.32

**Lapwing** (*Vanellus vanellus*).

## RINGED AS NESTLINGS.

## (a) RECOVERED AWAY FROM WHERE RINGED.

No.	Ringed.	Recovered.
AP.1457	Glenorchard (Stirling.), 7.6.32, for J. Bartholomew.	Kilpatrick Hills (Stirling.), 10.3.33, by D. Graham.
T.1043	Ditto 24.5.29.	Bruff (Limerick), 20.2.33, by D. Conway.
AP.770	Penrith (Cumb.), —.5.32, by H. J. Moon.	Ditto 7.2.33.
AP.3388	Ullswater (Cumb.), —.6.32, by H. J. Moon.	Medoc (Gironde), France, —.3.33, by F. Poret.
AN.4067	Kirkby Lonsdale (Westmor.), —.6.31, by H. J. Moon.	Middleton (Westmor.), 26.3.33, by Rev. E. U. Savage.
P.8983	High Wray (Lancs.), 17.5.31, by R. H. Brown.	Near Hawkshead (Lancs.), 15.5.33, by J. Christo- pherson.
P.9891	Hornby (Lancs.), 25.5.32, by H. S. Greg.	Near Preston (Lancs.), 19.3.33, by R. Price.
AN.3897	Ingleton (Yorks.), —.6.31, by H. J. Moon.	Medoc (Gironde), France, 5.2.33, by <i>Chasseur Fran- cais</i> .
AP.3438	Clapham (Yorks.), —.6.32, by H. J. Moon.	Bentham (Yorks.), 4.6.33, by G. Fretwell.
P.8900	Hickling (Norfolk). 1.6.32, by Mrs. Wilson.	Medoc (Gironde), France, 22.3.33, by R. Thierry.
U.4524	Kelsale (Suffolk), 31.5.28, by R. M. Garnett.	Halesworth (Suffolk), 20.5.33, by T. C. Rising.
AP.332	Stone (Kent), 15.5.32, by R. G. Williams.	Le Crotoy (Somme), France, 10.6.33, by M. Jeanson.

**Lapwing** (*continued*).

RINGED AS NESTLINGS.

*(b)* RECOVERED WHERE RINGED.

<i>No.</i>	<i>Ringed.</i>	<i>Recovered.</i>
U.2119	St. Andrews (Fife.), 13.5.31, by C. R. Stonor.	1.5.33
RS.4041	Kippen (Stirling.), 30.5.31, by Sir S. Bilsland.	21.4.33
AN.246	Glenorchard (Stirling.), 5.6.31, by J. Bartholomew.	20.4.33
R.9607	Ullswater (Westmor.), —.6.30, by H. J. Moon.	—.6.33
U.9255	Ulverston (Lancs.), 29.5.28, by H. S. Greg.	18.6.33
U.9995	Sandford (Oxon.), 14.5.30, by Oxford Orn. Soc.	27.4.33

**Curlew** (*Numenius a. arquata*).

71338	Rusland (Lancs.), 28.5.26, young, by C. F. Archibald.	Ulverston (Lancs.), —.1.33, by T. J. Chadwick.
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**Snipe** (*Capella g. gallinago*).

P.4053	Mytton (Lancs.), 17.5.31, young, by C. Oakes and E. Battersby.	Where ringed, 19.3.33, by ringer.
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**Woodcock** (*Scolopax r. rusticola*).

P.4849	Almondbank (Perth.), 21.5.31, young, by Lord Scone.	Near Fordingbridge (Hants.), —.1.32, by R. Cook.
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**Sandwich Tern** (*Sterna s. sandvicensis*).

AN.986	Collieston (Aberdeen), 20.6.32, young, by M. Portal.	Axim Dist., Gold Coast, W. Africa, 16.3.33, by Colonial Office.
P.1616	Scolt Head (Norfolk), 2.7.32, young, by A. W. Boyd.	Near Barcelona, Spain, 5.3.33, per <i>The Times</i> .
AN.8545	Salthouse (Norfolk), 14.6.32, young, by R. M. Garnett.	Near Keta, Gold Coast, W. Africa, 25.2.33, by E. Amegashie.
AP.3279	Northern Ireland, 9.7.32, young, by J. Cunningham.	Near Benguela, Port. W. Africa, —.12.32, by J. Valente.

**Black-headed Gull** (*Larus r. ridibundus*).

AP.5381	Dornoch (Suth.), 3.7.32, ad., by E. Cohen.	Rogart (Suth.), 8.5.33, by S. Murray.
V.6298	Littleton (Middx.), 16.3.33, ad., for Lond. N.H.S.	Fulham, London, 13.4.33, by L. Hawkins.

**Great Black-backed Gull** (*Larus marinus*).

102847	Near Scourie (Suth.), 27.6.23, young, by A. W. Boyd.	Elphin (Suth.), 28.4.33, by A. Wilson.
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**Moorhen** (*Gallinula ch. chloropus*).

RS.1289	Dorman's Park (Surrey), 12.9.31, young, by R. Bick- ersteth.	Where ringed, Oct. 1932 (2), by ringer.
RT.5502	Ditto	30.7.32. Ditto, 6.10.32 ; 1.4.33.

# NOTES

## NORTHUMBERLAND ROOK ROOSTS.

MR. W. RAYMOND PHILIPSON'S paper on Rooks and their roosts in South Northumberland (*antea*, p. 66) prompts me to forward some notes I made in the same area nearly thirty years ago. From 1904 to 1906 I lived on the west side of Newcastle. Rooks were notable birds there, and interest in them led me to attempt a survey. My opportunities were not very great. They consisted of odd moments during the day for local observations, and alternate Saturday and Sunday afternoons for more extended journeys. These had to be made on foot or on a bicycle, so that not very much ground was covered, and it was hopeless to attempt to trace the Rooks directly to their roosts. The result was that, when I finally left Newcastle, my survey was very incomplete.

In those days the Dilston, Kirkley and subsidiary Chopwell roosts were much as they appear to be now. There was also a large roost one mile east of Corbridge-on-Tyne. This may have been a subsidiary of Dilston. The Tyne for some miles to the west of Newcastle formed, then as now, an important barrier which Rooks seldom crossed in either direction. The Dilston roost drew birds from the Tyne valley as far down river as Ryton. Otherwise, the Tyneside boundaries of the areas of the three roosts—Dilston, Kirkley and Durham—were much as Mr. Philipson has outlined them.

With Mr. Philipson I agree on the importance of the rookeries at all times of the year in the daily round of the Rook. I would go further and suggest that the morning and evening movements of the Rook might be made to produce indications of the original mode of extension from the primary centre. For this purpose the area west of Newcastle seemed to be specially suitable for intensive observation.

For example, the birds, which arrived in the morning from Kirkley roost at Ponteland rookery, later gave off parties which spread fanwise S.W., S. and S.E. to seven or more rookeries. These rookeries were small and appeared to be situated in less aged trees than the large and evidently ancient rookery at Ponteland. In the evening the birds of these smaller rookeries converged on Ponteland rookery before going on to Kirkley.

A more striking instance was a small rookery at Stella-on-Tyne. It was situated about midway between the large Blaydon and Ryton rookeries. The Stella rookery belonged to about two dozen birds, and was situated in quite small trees. Each morning, in winter, the nests were visited by a dozen birds which came from Ryton rookery (Dilston roost), and a similar dozen which came from a rookery at Axwell Park (Blaydon) (Durham roost). The two parties met apparently on good terms with each other. Both the Ryton and Blaydon rookeries were large and probably of ancient origin. In the evenings the Stella rookery was revisited by the same number of birds, half of which went on to the Ryton rookery, the other half to the Blaydon rookery. These observations, which were often repeated, suggest that the colonization of the Stella rookery took place from two different stocks, since the Ryton Rooks roosted at Dilston and belonged to a feeding territory distinct from that of the Blaydon Rooks which roosted near Durham. The Stella Rooks must, in part at least, have been hatched at Stella, and it was interesting to find that they were still bound by a Blaydon and a Ryton tradition.

J. M. DEWAR.

#### THE SEXUAL CHASE AMONG STARLINGS.

IN his book *An Introduction to the Study of Bird Behaviour* Mr. H. Eliot Howard states that the sexual chase is confined to the "territory"; that it does not take place until the male has definitely entered into occupation of his chosen estate, and not even then, of course, until a female pays him a visit; that in the earlier stages of the occupation, that is, while he is engaged in the important business of pegging out his claim but still spends a considerable part of the day feeding with the flock, it is never seen and that when he makes those periodic returns to the flock he behaves as he has done normally throughout the winter, that is, with complete emotional indifference to his companions of either sex.

The species he studied was the Reed-Bunting, but he makes it quite clear that he believes that all other species are dominated by a similar rhythm in their annual sexual development. He divides this rhythm into four stages, and the portion which I have summarized represents the first two of these stages.

I have not had an opportunity of making a close study of any species he mentions during the pegging out and the courtship stages of their territorial life, but my observations of the Starlings (*Sturnus v. vulgaris*) during this spring have

given me evidence that in at least one species the rhythm is varied definitely and drastically.

The object of my observations was to ascertain at what date the influence of spring manifested itself among the Starlings that roosted in Trafalgar Square during the winter. I found that from the end of December right up to the end of March there was practically no difference in the numbers and none at all in the behaviour of the flocks from day to day. During the latter half of March the birds on the east end of the National Gallery may have been a little less crowded than they had been, and, if they were, this may have indicated the dropping out of a few pairs, but on the other hand it may only have been a first sign that some of them were beginning to resort again to the trees in St. James's Park.

But in the first week of April there was a very decided change both in numbers and in behaviour. A considerable reduction of numbers was shown by large unoccupied spaces on the ledges, and when the flocks arrived over the Square they were no longer as compact as they had been hitherto; in fact the impression they gave was that they were already more or less disintegrated. But there was something more remarkable in their behaviour than this. Their custom had been to drop at once to one or another of the various roosts in the Square. Now, however, only some of them did this while others scattered in pairs which careered excitedly hither and thither over the Square. These pairs were obviously engaged in the sexual chase. One of each pair was fleeing and the other pursuing, and as they flew overhead I could see that the hunter made repeated grabs at his quarry and by the squeaks of protest that followed these grabs, it was obvious that he had seized the other's plumage.

I counted from ten to twenty of these pairs in the air at one time, and no sooner had one lot subsided than another flock arrived and the scene was repeated. So for an hour and a half almost without a pause the air was full of courting couples, and in that period some hundreds of Starlings must have decided their fate.

Clearly these birds were indulging in courtship while they were still members of the flock, and not in the territory of the male nor within sight or hail of any nesting territory of the species but in the winter dormitory of their flock and of a vast community of other flocks. In other words they were mated before any question of territory or of nesting had arisen among them. That means that the first

two stages of a bird's sexual development as defined by Mr. Howard were non-existent for at least a very large proportion of the birds comprising that huge flock. Perhaps some other observer will be able to say whether at the same season Starlings engage in courtship at intervals during their working day, that is, while they are still feeding in flocks, and what is the practice among those Starlings which roost during the winter in isolated pairs in their nesting areas.

My impression is that the Starling does not occupy a territory in the sense intended by Mr. Howard. Each pair has its nesting hole, of course, and naturally resents intrusion into that, but I have never known a Starling to peg out a claim beyond that. Though several pairs of Starlings nested every year under the eaves on my old home I never saw them quarrelling among themselves, and quite commonly two males would sing close together on the same chimney stack. There was fighting when the Swifts arrived and tried to take possession of the nesting holes and the Swifts got the worst of it. That was the only untoward event that disturbed the even tenour of the Starlings' nesting season.

The food on which they reared their young was fetched from a considerable distance, a quarter of a mile or more. So the question of territory in relation to food supply did not arise in their experience.

There are other species which do not occupy territory in Mr. Howard's sense of the term, notably House-Sparrow, Rook, Jackdaw. As these birds are so common and so easily observed, a careful study of their courtship habits would probably result in some useful critical work on Mr. Howard's theory.

CHARLES S. BAYNE.

#### THE INCUBATION-PERIOD OF THE GOLDCREST.

It is difficult to reconcile the various communications on this subject, and in the following note the evidence is reviewed with a view to enlisting the help of those who may have opportunities to settle the points in question.

In the *Ibis*, 1891, p. 58, William Evans estimated the incubation-period of the Goldcrest (*Regulus r. anglorum*) as ending on the twelfth day as observed in an incubator, and the thirteenth day when placed in another bird's nest. J. Steele Elliott gives fourteen to sixteen days in the *Zoologist*, 1914, p. 273; Colonel B. H. Ryves fifteen days (*in litt.*).

Miss Winifred Ross informs us that she found a nest with six eggs on April 25th; on the 30th it contained ten eggs,

and the bird was sitting closely. On the following day and on May 2nd and 3rd the bird continued to sit when observed.

On May 13th observation was resumed, but it was not till May 17th that three young were found hatched at 7 p.m. By the morning of the 18th all ten were hatched.

Presumably the last egg was laid on April 29th. Incubation apparently continued at any rate from April 30th to May 17th-18th, which would give an incubation-period of at least seventeen days.

The shorter periods may perhaps be explained by supposing that the eggs hatched out in incubators, etc., had already been brooded for a few days. We have good evidence that in some species incubation begins sometimes while the clutch is being laid, and at other times after its completion, but it is noteworthy that Miss Ross's bird hatched out all her eggs within twenty-four hours and probably less. Mr. Steele Elliott also observes that incubation begins with the last egg laid which agrees with Miss Ross's note.

There is also a good deal of difference in the estimates of the fledging-period of this species, which range from fourteen days (Dr. T. G. Longstaff), sixteen to nineteen days (J. Steele Elliott), nineteen days (Miss Ross) to about the twenty-first day (Dr. N. H. Joy). Combined incubation- and fledging-periods, thirty-two to thirty-six days (B. H. Ryves), thirty-three days (T. A. Tallis).

We may add that Palmgren's observations on the Continental Goldcrest in Finland give a minimum fledging-period of fifteen to sixteen days.

If we eliminate Evans's incubation records as possibly based on eggs slightly incubated, and Longstaff's fledging-period as under estimated, we have a very remarkable case of an exceptionally small bird with long incubation- and fledging-period as compared with the genera *Muscicapa*, *Phylloscopus*, *Acrocephalus*, *Sylvia*, *Turdus* and *Motacilla* as far as they are known, but on the other hand approaching more closely to those of the genera *Sitta*, *Parus* and *Troglodytes*. This is interesting in view of the difference of opinion as to the taxonomic position of the Regulidæ. F. C. R. JOURDAIN.

#### ATTITUDES ASSUMED BY YOUNG NIGHTJAR.

ABOUT seven o'clock one evening in July I came across a young Nightjar (*Caprimulgus e. europæus*) able to fly a little. I had never seen one of this age before and its performance struck me as curious. It lay flat, head on ground, then slowly

raised its head and neck until finally it had risen on its feet with its head high in air and pointing up and then very rapidly sank down again to the prone position. It did this five or six times. After this it opened its beak wide, showing a pink mouth and throat and then lay prone. This display appeared to be intended to alarm. M. PORTAL.

#### MARSH-HARRIER IN LANCASHIRE.

ON June 4th, 1933, I was with two other observers on a north Lancashire marsh, when a Marsh-Harrier (*Circus æruginosus*) rose from the reed-beds below us and started quartering over the open water, attacked by Red-shanks and Lapwings. The bird was near enough for us to see the pale marking on the head with the naked eye, and as we are all three familiar with the bird in its Norfolk haunts, there could be no mistake in identification.

As far as can be made out the bird was not seen by the keepers or other bird-watchers who frequent the marsh, so this must have been just a passing visit. SIBYL CROPPER.

#### HABITS OF OSPREY IN NORFOLK.

AN Osprey (*Pandion haliaetus*) was at Gunton Great Water, Norfolk, from July 1st-19th, 1933. I saw it every day during that time, and made a few notes upon it.

The first time I saw the Osprey was in the evening. It was just rising from the water with a large fish in its talons, carrying it head foremost. The fish looked nearly as long as the Osprey, which could only with difficulty struggle up to a tree on an island with it. Here it laid it across two dead branches and proceeded to eat it. I noticed particularly that it first ripped the fish right up the middle with its beak, but I did not actually see the bone taken out.

One early morning I was watching the Osprey with Mr. R. M. Garnett. It was just finishing eating a fish on its usual tree on the island. It then took a flight round—suddenly flew low over the lake, then dropping down both its legs it dragged them through the water, flapping its wings all the time. It did likewise to beak and head, immersing them in the water while still flying, evidently washing off the scales and slime of the fish.

I was watching the Osprey one afternoon against a cloudless blue sky, as it sailed around on almost motionless wings. Suddenly it rose higher and higher, then actually “looped the loop” twice, head downwards, dropping each time. It



repeated this "stunt" three times before returning to its favourite tree on the island. I never heard it utter any note.

M. BARCLAY.

### UNUSUAL BEHAVIOUR OF YOUNG SHELD-DUCKS.

AT 9.30 p.m. on July 1st, 1933, while staying in one of the huts on Scolt Head Island, Norfolk, my wife and I were attracted to the door by a noise of young birds, and found there six young Sheld-Duck (*Tadorna tadorna*). There was an old bird flying over the sea in wide circles calling, so we took the ducklings down to the dunes, hoping that they would be seen, but the parent, after flying wider, eventually disappeared. Meanwhile the ducklings had returned to the hut and, as it was getting dusk and cool, we made up a "nest" in a basket and put them in it.



The next morning early the ducklings were grouped round our bedroom door. We gave them a bowl of water and a bowl of bread and milk, but they made no attempt to drink until my wife had taken them up and held their bills in the bread and milk, after which they cleared it up, and subsequently fed eagerly on this, but practically ignored the water, even on a very hot day.

The ducklings now insisted on following us everywhere we went, even if it was only to cross from one hut to another. If we remained inside they settled down by the door and if

left by themselves they started calling, but stopped immediately when one of us came out. When we sat outside they gathered round our feet and dozed or crawled under our legs for shelter from the sun and even climbed up us if we were lying down.

By the next day it had become almost embarrassing to act thus as foster parents as the ducklings insisted on following us, and as there was no sign of the real parents we took them down to the marshes in the evening, but even in the undergrowth here, where they could not possibly see us, they made a bee-line for us from the edge of a creek for a distance of about 200 yards, so that we were forced to take them back to the hut again.

On the following day, July 4th, we left the hut to walk over to the mainland at low water. Although we tried to drive them back, the ducklings persisted in following us. So we walked away quickly, but apparently they kept straight on after us for about a quarter of a mile until they came to water, as they were seen later (when we were on the mainland) swimming down Overy Creek.

On our return we saw an old Sheld-Duck flying low over the Creek so it is to be hoped that the ducklings were eventually found by their parent.

A. PELHAM.

[The above note was forwarded by Miss Judith M. Ferrier, who was staying at her bungalow on Scott Head Island at the time and witnessed the behaviour of the young Sheld-Duck.—EDS.]

#### UNUSUAL NESTING-SITES OF FULMAR PETREL IN ORKNEY.

THE Fulmar Petrel (*Fulmarus glacialis*) has nested for a number of years on the rocky cliffs of the mainland of Orkney, and on some of the islands. On Sanday—at any rate as regards Northwall on the north end—they were first found breeding in 1926. They now breed in fair numbers throughout the island and seem exclusively to be of the form with white underparts. On the west and south sides the sites chosen are the normal rocky cliffs, from ten to fifty feet above the surface of the sea. On the north and east sides of the island, however, there are no rocky cliffs and here I found the birds nesting on the low sandy banks facing the sea at a height of from four to ten feet above sea level; also at the entrances to rabbit burrows on the links at a distance of as much as a hundred yards from the sea. In one particular instance I



FULMAR PETRELS BREEDING ON SANDAY, ORKNEY.

*Upper*—Bird nesting on level surface of sand and stones in middle of colony of Arctic Terns at a distance of about 40 yards from the sea.

*Lower*—Bird nesting at entrance to rabbit burrow in low sandy bank.

(Photographed by A. H. Daukes.)



found a pair nesting on the absolutely level surface of sand and stones in the middle of a colony of Arctic Terns (see Plate 3). This habit does not appear to have been previously observed except on Bear Island and is particularly interesting in view of the fact that the rock cliff type of coast vastly predominates in Orkney over the low sandy type.

A. H. DAUKES.

#### WOOD-SANDPIPER IN MIDDLESEX.

ON July 30th, 1933, while walking on Staines Moor, I saw a Wood-Sandpiper (*Tringa glareola*) on the River Colne. The bird was feeding on a mudbank in the middle of the river in company with two Common Sandpipers and some Green Plover, the river being very low after the dry weather. Its coloration and size were characteristic. When put up it rose to a considerable height, showing its white rump and zigzagging and twisting in its flight, but not so much as a Green Sandpiper, nor had it the black and white appearance so characteristic of that species on the wing. It did not call and was evidently a bird of the year. G. CARMICHAEL LOW.

NESTING MATERIALS USED BY JACKDAWS.—*Correction*.—In the note under this heading, *antea* p. 46, the words "Innumerable sticks, from two feet five inches" should read "Innumerable sticks from two and a half inches".

SONG-THRUSH'S NEST WITHOUT MUD AND BLACKBIRD NESTING ON GROUND IN SURREY.—Mr. J. E. S. Dallas sends us a photograph of a nest without a mud-lining containing typical eggs of a Song-Thrush (*Turdus ph. clarkei*), which he found some years ago in a wood at Warlingham. The season was rather a dry one, but other Thrushes' nests found in the neighbourhood were normal (*vide antea*, p. 25).

Mr. Dallas also forwards a photograph of a nest of a Blackbird (*Turdus m. merula*) at the foot of a beech tree and remarks that in the particular wood at Warlingham where this nest was found it was not unusual to see nests of other "hedge building" species at the foot of trees.

AMERICAN BLACK-BILLED CUCKOO IN SCILLY.—Mr. A. F. Griffith exhibited at the meeting of the British Ornithologists' Club in December, 1932, an American Cuckoo, which he described as the Yellow-billed, but at the next meeting Dr. P. R. Lowe showed that the bird was an undoubted Black-billed Cuckoo (*Coccyzus erythrophthalmus*). The tail-feathers alone

were distinctive of that species, being grey with faint sub-terminal darkish band and small white tips. The bird, which was apparently immature, was picked up dead at Tresco, Isles of Scilly, on October 27th, 1932. It had been killed by striking the wall of a shed.

There is only one previous record of the occurrence of this species in the British Islands, viz., Antrim, Ireland, Sept. 25th, 1871, though the Yellow-billed has occurred ten times in England (including once at Scilly), once in Scotland and twice in Ireland.

### LETTER.

#### BREEDING STATUS OF THE TUFTED DUCK IN SUSSEX.

*To the Editors of* BRITISH BIRDS.

SIRS,—I shall be grateful for any information respecting the breeding of this species in a *really* feral condition in Sussex.

JOHN WALPOLE-BOND.

11, TENNIS ROAD, HOVE.

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ASSISTED BY

REV. F. C. R. JOURDAIN, M.A., M.B.O.U., H.F.A.O.U., F.Z.S., AND  
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## SOME HABITS OF THE STONE-CURLEW.

BY

G. BIRD.

(Plates 4 &amp; 5.)

FOR several seasons I have watched Stone-Curlews (*Burhinus æ. ædicnemus*) in Suffolk. Perhaps one of the most outstanding points of interest is their habit of returning to exactly the same haunts each year to nest. Had my hide for observation been weatherproof it could easily have remained from one season to the next in exactly the same spot, for the returning bird made scarcely any perceptible movement from the former site. Still more remarkable was the case of a



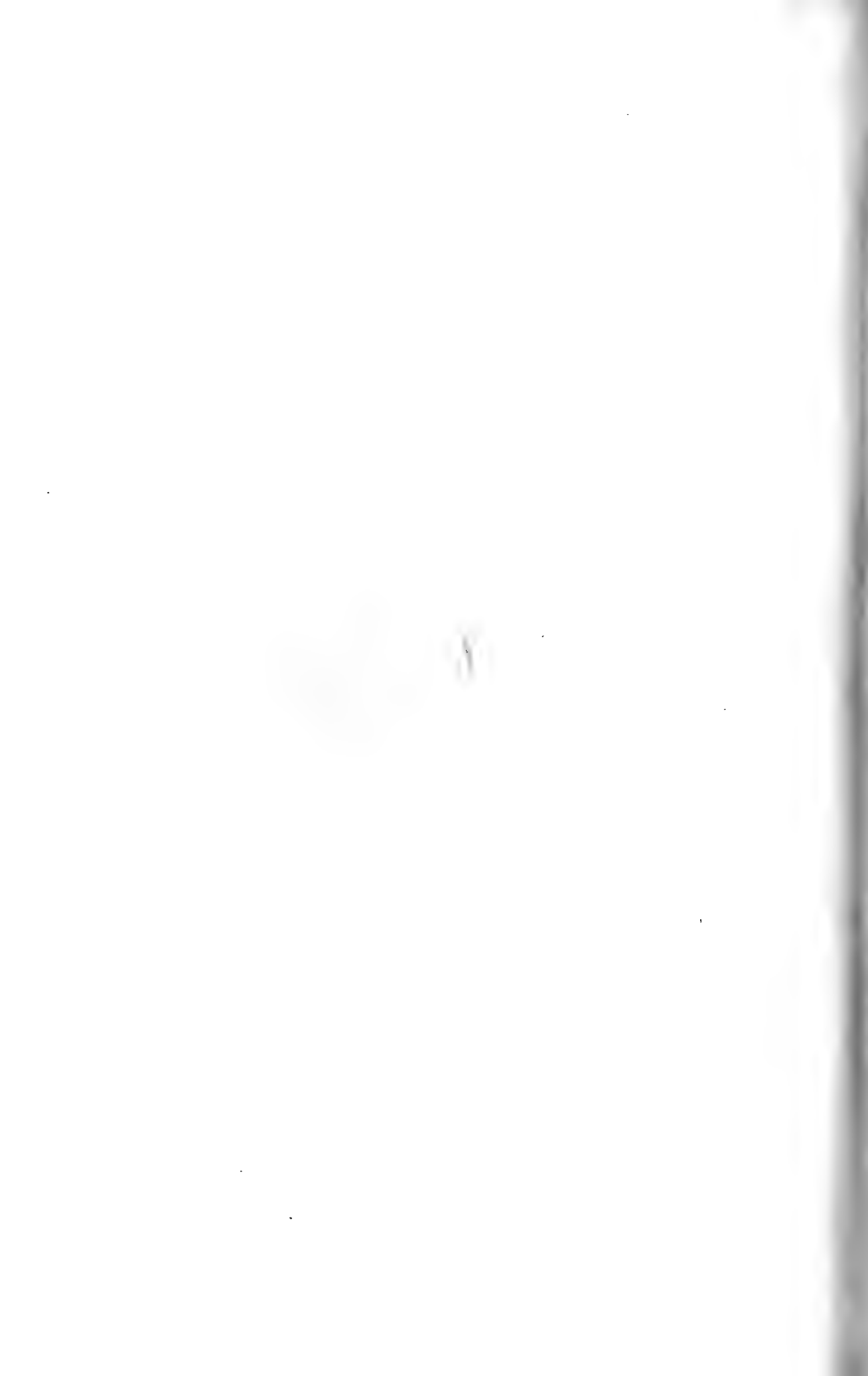
STONE-CURLEW: Chicks 3 days old hatched about September 13th, 1932.

(Photographed by G. Bird.)

young one hatched and ringed in 1929. The following season, 1930, I photographed this bird of the previous year at the nest where it had been hatched, the ring on its foot clearly showing it to be the same bird; while this season, 1933, I have again photographed the chick of 1929, standing over its clutch of two eggs, on the same site. One wonders what has become of the parent whose place it has taken?



STONE-CURLEW: Approaching nest.  
(*Photographed by G. Bird.*)





STONE-CURLEW: Returning stealthily and with some suspicion  
to nest.

*(Photographed by G. Bird.)*

Although I have watched Stone-Curlews at the nesting site from as early as the second week in March, they have always appeared to be already paired. During the courting period various scrapes have been seen and the actual site of the nest noted some days before the eggs were laid. Little excitement or display takes place during courtship, the habit of these birds being reserved and stately, and it is scarcely even possible to detect which is male and which female.

The eggs are laid on alternate days and incubation takes place as soon as the second egg has been laid, the period being twenty-six to twenty-seven days. The chicks, which are weak on their legs at first, soon leave the nest. (A pair this year, having hatched out in the evening, were seen several yards away at an early hour the next day). Their habit is to shuffle along with extended wings and legs, and head forward.

It has often been asked why the two eggs of the Stone-Curlew lie on the ground without touching. I took the accompanying photograph to show the habit of the bird standing *between* the eggs with one foot (her usual custom) and not standing with legs wide apart over the eggs, as most brooding birds.

Both birds take part in incubation, the one not sitting acting as sentinel for the other, occasionally coming up quite close to the sitting bird, but never remaining there for long. The sentinel stands in a convenient shelter some distance away; should *real danger* be noted, the bird utters that weird mournful wail resembling that of a human being in great pain.

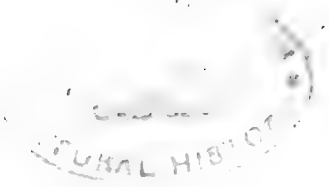
It has been generally thought that only one brood of the Stone-Curlew is reared each year, but I was able to record recently hatched young on September 13th, 1932, which goes to show that at least occasionally two broods may be reared, this date also creating a record for late hatching (*antea*, Vol. XXVI., p. 201).





STONE-CURLEW: About to settle on nest. Note position of foot between the eggs.

*(Photographed by G. Bird.)*



## SOME HABITS OF THE BRITISH WOODPECKERS.

BY  
N. TRACY.

## GREAT SPOTTED WOODPECKER.

FOR the last two years I have been watching specially the three British Woodpeckers near King's Lynn, Norfolk, and the following notes are the result of my observations of the Great Spotted Woodpecker (*Dryobates m. anglicus*). At the end of the breeding-season the sexes appear to separate and do not come together again until the following spring. At 7.15 a.m. on March 14th, 1933, a male Great Spotted Woodpecker was busy opening up fir cones at a favourite place in my wood, when a female settled on a dead branch of a Scots pine just over my border and started to drum. The male took no notice but went on opening up cones. The female drummed three times and then flew away. The next morning at the same time the male was again opening up cones at the same place and again the female drummed from the same branch it had used the previous day. The male paused in his work and hopped up to the end of the branch in which it had fixed its cone and drummed in answer, it then went back to its cone and worked at it for three minutes. Again the female drummed and the male hopped up to the end of the branch and answered it. The male then flew off and cut off a fresh cone and fixed it in the cleft and began to split it open. For the third time the female drummed and the male left his cone, hopped up to the end of the branch, drummed back an answer, and then flew away towards the female. The next morning I saw them chasing each other through the trees on the other side of the road and drumming to each other from any handy branch.

On April 13th, 1932, I noticed that a pair of Great Spotted Woodpeckers had started to excavate a nesting hole in an old dead silver birch stump in my wood. They made very little progress until the 30th, upon which day I erected a hide near the stump and spent most of the day watching them at work. I went into the hide at 9 a.m. At 9.5 a.m. the male flew up to the nesting-hole, went in and started to hammer at once. It worked for five minutes, then came out backwards with its beak full of chips and threw them over its right shoulder. It then went into the hole again and came out with another beakful of chips. It did this fourteen times and then went into the hole again and worked for another five minutes, when it backed out and did the same as before.

It kept on hammering and throwing out chips alternately until 9.45 a.m. when the female flew up to the stump and settled near the hole. The male then came out of the hole and flew away to the left and the female worked round to the hole, stopped just outside, preened itself for about three minutes, gave four taps inside the roof of the hole, hopped round to the side of the tree and then flew off to the right. I then left the hide for a time. When I returned at 10.50 a.m. the male was again at work. It carried on as before until 11.20, at which time it was resting outside the hole, when the female flew into a neighbouring tree. The male flew away and soon after the female followed without even looking at the hole. I then left. I returned for a few minutes at 12.10. The male was still busy throwing out chips. At 1.50 the male was again at work. The first time it came out it carried on as before, but the next time instead of coming out of the hole it remained inside and just put its head out and broadcasted the chips with a sweeping movement of its head from left to right. It got on much quicker this way, throwing out a beakful about every second, whereas before it took four seconds each time. It repeated this several times throwing out 20, 28, 26, 11 and 21 beakfuls. Next time it varied its procedure by coming out backwards with a beakful, then went in and brought out two more beakfuls. It then appeared to find out that this was too slow, as it went back and stayed inside and threw out 26 more beakfuls. Each time after it had thrown all the chips out, it came out head first, waited outside for half a minute and then went in again. The male worked on until 2.42 and then flew away. It was back again in three minutes and worked away as hard as ever. I then left the hide. At 4.15 p.m. I returned. The male was working in the hole and continued until 4.45 when I left.

May 1st was practically a repetition of the previous day except that on this day I saw the female work for the only time. At 11.35 a.m. the male was working in the hole when the female flew up to the hole and looked in. The male flew out and away and the female went in and threw out three beakfuls of chips and then came out and flew off in the opposite direction to that taken by the male. The male worked hard until the evening of May 7th, by which time I think the hole was nearly finished.

On May 1st I had seen two Starlings near the hole and I drove them away, and on the 6th, seeing a Starling looking into the hole, I drove it away and later on shot it. On May 8th I was watching the hole at 8.30 a.m. when the male Wood-

pecker flew up and settled on the tree just below and to the right of the hole. A Starling was watching from the next tree. It suddenly pounced on the Woodpecker and struck it a sharp blow on the back of the head with its bill. The Woodpecker turned round and grappled with it, and they both fell to the ground with their claws locked together. I ran up and chased the Starling away, and the Woodpecker flew up and settled half-way up the stump, then hopped up to the top and stayed there for about a minute shaking its head from side to side. It then flew away. I went and got my gun and when the Starling came back I shot it. Shortly afterwards another Starling flew up, but this I unfortunately missed. In the meantime a pair of Redstarts had been flying about near the hole, so I began to fear that it was doomed. At 9.40 a.m. the male Woodpecker was back in the hole clearing out a few chips, when the female flew up and settled just above the hole. It worked down to the hole and put its head in and then moved down to about two feet below the hole and remained like this for five minutes looking round in all directions. After the female had been quite still for ten minutes, it stretched one of its wings and then froze for another ten minutes. Suddenly a Starling flew down and attacked the female and she flew away, and the male came out of the hole and flew after her. Three minutes later the male Woodpecker flew back and went into the hole again.

The fight for the hole went on until the following Sunday; sometimes the Woodpeckers were in possession, and sometimes the Starlings. The Starlings would start taking dry grass into the hole and as soon as they left the Woodpeckers would take it out again. One morning I saw six Starlings flying round the top of the tree. In the meantime, I had been busy with my gun and altogether had shot ten Starlings. The end of it was that the Woodpeckers and the Starlings, if there were any left, gave up the hole and it was unused during the season.

On May 16th I saw the male Woodpecker excavating another hole in a silver birch just outside my wood, and about two hundred yards from the old nesting-hole. The tree proved too tough for it and after working for an hour or two it gave it up. About two days afterwards I went away for a holiday and lost sight of the Woodpeckers until June 14th. On this day I was passing a dead beech tree near my gate when I heard young Woodpeckers calling from a hole near the top of the stump. I spent several short sessions watching the young being fed and found that the old birds took an equal

share in the feeding. Most of the food brought consisted of small dark flies which were obtained from oak apples, the ground under the oak trees being littered with the remains. The birds fixed these in any convenient crack on a branch or cleft in the bark and hacked them to pieces. Sometimes they used the same clefts in which they cut up their fir cones. I also on several occasions saw them on the ground splitting open oak-root galls, *in situ*, for the grubs contained therein. They would also hack dead birch branches to pieces for the small white grubs. On some occasions they brought caterpillars. The general way of feeding seemed to be for one of the young Woodpeckers to come to the entrance and put its head out. It would then open its beak wide and the old bird would push its bill right to the back of the young one's throat. The parent would do this three or four times, then wipe its bill on the side of the tree and fly off for a fresh lot of food. The tree that contained the nesting-hole was situated just beside a busy main road, and I think the birds were not fed so often as they would have been in a quieter situation.

The night before the young left the nest I went into the hide at 8.40 p.m. At 8.45 the male flew to the hole with a bunch of flies in its bill. It fed one of the young ones twice, then wiped its beak on the side of the hole, then hopped to the top of the stump, hammered there for a few seconds, and then "*gicked*" and flew away. At 9.10 the female flew up to the hole and fed one of the young ones, then hopped just above the hole and caught one or two flies, then bent down and pushed its beak to the back of the young one's throat, then went quickly into the hole and was in for about eight seconds. It then flew out quickly with a lump of excreta, which it carried to the other side of the road. It was back again in about eight seconds and looked into the hole. It then hopped to the top of the stump and after a second or two flew away. I left for a few minutes and at 9.24 the female flew out of the hole and across the road. At 9.28 the male flew up to the hole and fed one of the young ones four times and then worked round the tree and flew away. At 9.32 the female flew up to the hole and went straight in. The noise made by the young ones gradually subsided and at 9.38 p.m., when I left, all was silence. The female was still in the hole.

Early the next day, June 27th, all the young Woodpeckers, except one, left the hole and went off with the female and I never saw them again. The last young one stayed in the hole

until the next morning, being fed by the male in the meantime. I noticed that when it left it was making a sound very much like the "*gick, gick*" of the old birds, but rather more highly pitched and more rapid. For three weeks after leaving the nest this young one remained in the care of the male and I often saw it being fed. It would open its beak wide and flutter its wings and keep up an excited "*gick, gick*". One evening when the two were together in the top of a silver birch, one of them started making a noise like castanets. It seemed to be rattling its mandibles together very rapidly, but the birds were so hidden by the leaves that I could not see which one was doing it. One morning the young one was missing and for the rest of the year the male was alone.

During the spring of 1933 I had seven Great Spotted Woodpecker holes under observation. These I have numbered in the order in which I found them. Nearly all my observations were made at Numbers 1 and 2. In Numbers 3, 4 and 6 the rightful owners were turned out by Starlings. Number 7 was too far off for me to spend much time watching.

Number 5 was a hole which I found being excavated at the end of November and beginning of December, 1932. One day towards the end of April, as I was passing the stump, I saw the male bird fly out of this hole. I thought that perhaps it might be used for nesting purposes, as every time I went past a bird flew out of it. I noticed, however, that it was always a male, so came to the conclusion that it was using it for roosting purposes. I believe that all the British Woodpeckers roost in holes at night time, and often in the day as well. I have put all three kinds out of old holes at different times of the year. If, during the breeding-season, there is not a convenient hole somewhere in the vicinity of the nest for the male to roost in, it will soon make one. I have several times seen a male Great Spotted Woodpecker excavating a hole in August and September.

Number 4 belonged to the pair of Woodpeckers that were turned out of the hole in the silver birch in 1932. They started excavating early in April at the top of the same birch stump and about four feet above last year's hole. Starlings were already building in the latter. On April 13th I saw the male Woodpecker dancing about on the tree just outside the Starling's hole. It put its head in several times and then flew away. Soon a Starling came out of the hole and also flew away. The Woodpecker returned and started to pull the nest out, but soon tired of this and left. About a fort-

night after the Woodpecker had been turned out of Number 3, I saw the male bird fly up to the hole and start pulling the Starling's nest out. The Starlings do not always have it all their own way. Some years ago they turned a Great Spotted Woodpecker out of a hole in a very rotten silver birch. In a week or two the Woodpecker returned and cut away all the front of the hole, right down to the bottom, and pulled the Starling's nest out and threw it to the ground. The Woodpeckers progressed very slowly with hole Number 4, and by April 23rd had only gone in about half an inch. Upon this day I watched the male bird excavating. The wood was very soft and the bird was working with its mandibles open and pecked out one chip at a time and immediately threw it over its right shoulder. When I was watching Number 6, which was in an apparently live Scotch fir, it was again the male that was working. This time the bird worked with its beak closed and used it as a chisel.

On May 13th, at 1.50 p.m., I hid up near hole Number 2, where the birds were incubating. At 1.55 the male flew up to the hole and went in. At 2.7 it put its head out of the hole and then went down again until 2.10, when it repeated this. It looked out again at 2.15 and at 2.17 came right out and preened itself for six minutes and then flew away. On May 15th I hid up near the same hole at 1.55 p.m. At 2.10 the male suddenly came out of the hole and hopped to the side of the tree. It preened itself for about a minute and then suddenly flew off to the left, mobbing. At 2.14 it flew into the top of a nearby tree, and at 2.17 flew down to the hole and went in. At 2.28 it came out, preened itself for half a minute and then flew away to the left, mobbing. At 2.33 it flew back to the hole and went right in. At 2.51 it came out, preened itself for a minute, and then flew away to the left. It flew up to the hole again at 2.55, but went off to the right, without going in. The female flew up to the hole at 2.58 and went straight in. At 3.4 the male flew up to the hole, the female came out, and the male chased her away and came back and went in at 3.5. At 3.12 the female "*gicked*" away to the right, the male looked out and went back again until 3.25, when it came out and preened itself for two or three minutes. It then looked around for two minutes as though looking for its mate, then preened for three more minutes, then flew away at 3.33 and started "*gicking*" away to the left. At 3.35 the female flew up quickly to the hole and went in, and was still in at 4 o'clock when I left.



On May 16th, when watching the same pair, the male once flew quite close to me and then on to the top of the stump. Here it went into an old hole and started throwing out some dirty chips and pretended to be very busy, keeping one eye on me all the time. It then came out and went in to another old hole and pretended to work there for a while. It then flew away, but returned in a few minutes and settled on a tree to the left of the nest and made a subdued noise. The female came up to the entrance and put its head out several times, then "*gicked*" loudly and flew away.

On May 17th I watched the same pair from 9.20 a.m. until 3 p.m., and again on the 20th from 4.15 a.m. until 5.50 a.m., and on both occasions the birds put their heads out of the entrance, came out and returned and changed over at intervals in a similar way to that described above in detail.

On May 21st I fixed up my hide about fifteen feet from the hole and went into it at 4.44 a.m. At 4.50 the female suddenly flew out of the hole and off to the right, making a curious peevish sound. Nothing happened for about four minutes, then one of the birds flew rapidly past the back of the hole and settled in a nearby tree and started tapping. Soon it came and tapped on a branch about two feet from my hide. I then knew that I was discovered and left.

During all this period I had been spending a certain amount of time each day watching hole Number 1, where precisely the same thing was happening, the birds changing over every hour or half-hour throughout the day from early morning to late in the evening. I was also watching five Green Woodpecker holes and three pairs of Lesser Spotted Woodpeckers. Under these circumstances I found I had less time to give to Number 2, and I am afraid that I missed the day when the young hatched. I first saw food being carried into the hole on May 29th, but, in the light of what followed, I believe they actually hatched out on May 26th. I did not watch the hole from May 22nd to the 25th and only put in half an hour near it on the 26th, evidently at a time when they were not feeding the young. On May 27th I fixed up a hide about 15 feet from the hole at 8.45 a.m. As soon as I got into the hide, one of the birds came quite close to me and tapped on the trunk of a tree. The bird in the hole answered it by tapping inside the hole. They seemed very agitated so I left. The sound made was simply tapping, not drumming. I found that after incubation started, drumming slackened down considerably, and stopped altogether when the young were hatched.

On May 29th I hid up by hole Number 1 at 10.10 a.m. The male was sitting inside with its head just showing at the back of the entrance. It put its head out once or twice and after about two minutes went down out of sight. At 10.24 the female flew up from the left "*gicking*" and settled on a nearby tree. The male flew out and off to the left "*gicking*," and the female flew up and went in. I then left, and returned at 1.20 p.m., when the female was sitting with its head out of the hole, but some bird settled near the top of the tree and she withdrew. Soon she came out and went in again and repeated this in a minute's time. At 1.32 the male flew up and settled on a branch on the right side of the tree and "*gicked*" loudly. The female flew out and the male, after a slight pause, settled on the trunk beneath the hole and went straight in. I then left for a short time and a minute after returning the male flew on to the tree and the female came out of the hole and the male went in. Two minutes later the female flew on to the tree "*gicking*", the male flew out of the hole, and the female went in. I now realized that the young had hatched. At 2 p.m. the male flew up to the stump with a small caterpillar in its beak, and hid behind a branch and "*gicked*". The female flew out "*gicking*". After waiting a minute the male flew down to the hole and went in. At 2.8 the female "*gicked*" away to the right. The male came out and the female flew up and hid behind a branch, then flew down to the hole, but appearing startled, went back to the branch again, then returned to the hole and went in. At 2.12 the female came up to the entrance and put her head out and two minutes later a Woodpecker "*gicked*" far away to the right and she came out of the hole, but turned round and went in again and disappeared until 2.20, when she put her head out and looked round in all directions for a couple of minutes, then came out, turned round and went in again. A minute afterwards a Woodpecker again "*gicked*" far away to the right, and then the male arrived and settled on a tree to the right. He then flew on to the nesting stump "*gicking*," and the female came out and left. After hiding behind the back of the stump the male worked round to the hole and went in. He behaved in the same way as the female had, coming up to the entrance and putting his head out, then coming right out, turning round and going in again. When the female arrived and settled on a branch above the hole, "*gicking*", he flew out and away and the female flew to a branch below the hole, then straight up to it and went in.

On June 1st I arrived at hole Number 2 at 11.10 a.m. and noted the following times of feeding the young by the two parents: 11.15 male, 11.19 female, 11.20 male, 11.22 female, 11.25 male, 11.31, 11.36, 11.37, 11.40, 11.42 and 11.44 female, 11.45, 11.50 and 11.53 male, 11.56 female, 12 male. Just after the male left, both the birds began to chase a Starling round and round. This continued for more than five minutes, when the Starling settled on the top of the stump. The female Woodpecker then settled just above the nesting-hole but soon flew up and attacked the Starling and drove it away. I revisited the nest at 4.46 p.m. and noted the following intervals of feeding: The male at 4.48, 4.50 and 4.52, the female at 4.55, male at 4.58, female at 5 and 5.1, male at 5.2 and 5.4, female at 5.6 and 5.9, male at 5.10, female at 5.16.

On June 2nd I again hid up by hole Number 2, this time at 5.2 a.m. The male fed at 5.6, 5.10 and 5.14, the female at 5.15 and removed a small lump of excrement, male at 5.16, female at 5.19, male at 5.20, 5.22, 5.24 and 5.26, female at 5.29 and afterwards removed a large lump of excrement, male at 5.30 and removed lumps of excrement, female at 5.31 and removed large lumps of excrement, male at 5.32 and removed lumps of excrement. The birds generally flew with these for a short distance and then dropped them. Once the male flew in my direction carrying the excrement and settled on a branch upon which it wiped its beak. The lump fell to the ground and I picked it up and examined it. It consisted of a white gelatinous capsule containing the undigested parts of small dark flies which I think the old birds had obtained from oak apples. On this morning I heard the young ones calling in the hole for the first time. I did not hear the young calling in Number 1 until June 5th. I think they begin to call when they are just a week old.

The young Woodpeckers left hole Number 2 on the morning of June 11th, seventeen days after hatching, if my surmise was correct. The young left Number 1 on June 19th, twenty-one days after hatching.

In June, 1926, I was passing a dead silver birch stump which contained a Great Spotted Woodpecker's hole about twelve feet from the ground. The young were very noisy and I tapped the trunk with my stick. Immediately five young Woodpeckers came tumbling out of the hole and fluttered to the ground. I picked one of them up and examined it and put it down again. I then went about twenty yards away from the tree and waited to see what would happen.

Within five minutes one of the young ones had climbed a third of the way up to the nesting-hole. The old birds were flying around and seemed very perturbed, so I left for about twenty minutes; when I returned all the young ones were back in the nesting-hole and were calling for food.

I believe that the pair of Great Spotted Woodpeckers that usually nest in my wood, and had been turned out by Starlings, nested again somewhere in the vicinity. Although I did not find the nesting-hole, I often heard them calling in my wood throughout May and June, and saw where they had been working on oak apples and oak-root galls. On June 21st, at 7.30 a.m., I found the female quite dead, hanging upside down by one foot to the bark of a poplar tree, just outside my bungalow.

#### LESSER SPOTTED WOODPECKER.

On May 3rd, 1933, I found a freshly-worked hole of a Lesser Spotted Woodpecker (*Dryobates m. comminutus*) in a dead branch at the top of an alder. The next day I hid up near the tree at 6.15 a.m. and at 6.20 the male flew up to the hole and went in and started to work at once. At first it appeared to throw out every chip as it pecked it off but afterwards waited until there were several. It did not stay in the hole more than three seconds at a time. At 6.30 the female flew up to the hole, the male flew away and the female went in and worked for five minutes, when two Starlings (*Sturnus v. vulgaris*) flew into the next tree and the Woodpecker left the hole and hid underneath a branch. In about two minutes the Starlings left and the female returned to the hole and worked until 6.40, when she was relieved by the male. At 2 p.m. the female was working in the hole and the male was drumming and calling in a nearby tree. At 2.10 someone went by and scared the female away. I then left, and when I returned at 2.30 the female was again working in the hole, but stayed in longer than in the morning, sometimes being in for twenty seconds before coming out backwards and throwing out the chips. She worked for ten minutes and then the male flew up and chased her from the hole, but she flew round the tree and returned to it and went on working until someone went past and scared her away. I then left for ten minutes and when I returned the male was working in the hole. It worked for several minutes and then someone else came past and scared it away. I then left.

On May 6th I hid up by the tree at 5 a.m. At 5.5 a female Great Spotted Woodpecker (*Dryobates m. anglicus*) flew up

to the hole and I chased it away. At 5.40 it returned and started hammering at the hole, and I drove it away again. At 5.43 the female Lesser Spotted Woodpecker flew up to the hole and went in and worked for eight minutes. It would work for a minute or two and then put its head out and broadcast the chips. It threw out five, five, two, ten, five beakfuls, and then the Great Spotted Woodpecker flew back. I drove it away again. At 6.0 the male Lesser Spotted Woodpecker called nearby and at 6.10 it flew up to the tree, settled about four feet above the hole, hopped down to it backwards and tapped twice just outside. The female put her head out of the hole and they "spoke" softly to each other for half a minute. The female then flew out and away and the male went in and threw out seven beakfuls quickly. In two minutes the Great Spotted Woodpecker flew up to the hole and tapped twice just outside. The male Lesser Spotted Woodpecker flew out like an arrow and chased the Greater Spotted round the tree. It came back, however, and settled just under the hole. The Lesser Spotted mounted about twelve feet into the air and swooped down on to the Greater Spotted and struck it on the back. All the time it was uttering a very rapid and highly-pitched "*gick, gick, gick*", very similar to the noise made by young Great Spotted Woodpeckers when they are ready to leave the nest. The Lesser Spotted Woodpecker repeated this manœuvre about eight or nine times in the next five minutes, but after the first attack the Great Spotted Woodpecker threw itself into an attitude of defence each time and warded off the blows. I now thought it was time to interfere and I drove the Great Spotted Woodpecker away. It went off with the Lesser Spotted in hot pursuit, mounting and swooping at it all the time. In two minutes the female Lesser Spotted Woodpecker flew up to hole and went in. Three minutes afterwards the Great Spotted Woodpecker flew back with the male Lesser Spotted still attacking it. The Great Spotted flew up to the hole and put its head in. The female, in the hole, tried to drive it away, but the Great Spotted stabbed at it with its beak and the female crouched back into the hole. In the meantime the male was making frantic swoops at the Great Spotted, striking it once or twice on the back, and "*gicking*" continuously. I then drove the Great Spotted away and it went off with the male Lesser Spotted still attacking. Within three minutes the female was throwing out chips again. At 6.30 I heard the Great Spotted Woodpecker again with the Lesser Spotted still in hot pursuit. Soon the male Lesser

Spotted flew up to the tree calling. The female came out of the hole and settled on a branch. The male flew down to her and coition took place. Afterwards the birds sat side by side, touching each other, for about two minutes, and then both flew away together. In half a minute the male was back and went into the hole and started working. At 6.40 a pair of Starlings, which had been watching the fighting from a neighbouring tree, flew up to the hole. One of them put its head in and the male Lesser Spotted withdrew further into the hole. I drove the Starlings away. The male remained in the hole and went on working and throwing out chips. At 6.45 the female flew up and settled above the hole and then hopped down to it. The male came out and flew away and in a few seconds the female followed him. At 7.2, and again at 7.30, the Great Spotted Woodpecker flew up to the hole, but I drove it away each time. I then left.

I went back to the tree at 8.30 a.m. The Great Spotted Woodpecker was hammering at the hole and the Lesser Spotted was attacking it as before. I chased the Great Spotted away and the Lesser Spotted followed it. At 8.45 the male Lesser Spotted was back at the hole and was just going in when the Great Spotted flew up to the tree, slipped down a branch and made a flank attack upon it. The Lesser Spotted, however, was too quick for it and flew high into the air and swooped down upon it. I drove the Great Spotted away and the Lesser Spotted followed flying above it, swooping at it and mobbing it. It chased it round and round the trees, and whenever the Great Spotted perched the Lesser Spotted would settle about ten feet above it. The Great Spotted Woodpecker then flew back to the hole and I drove it away again. It came back again several times after this and I drove it away each time, but I saw no more of either of the Lesser Spotted Woodpeckers. At intervals throughout the day I went back to the tree and each time the Great Spotted Woodpecker was making the entrance hole bigger, and a few days later I saw a Starling fly out of the hole.

On May 19th I visited an alder that stands in a hedge between two fields, and where I had heard a good deal of drumming for several weeks. When I arrived near the tree at 10.15 a.m. I heard a subdued drumming and saw a male Lesser Spotted Woodpecker on a dead branch near the top of the tree. It drummed six times, moving upwards to a fresh place each time. It was soon joined by its mate. I went round the other side of the tree and saw a freshly-worked hole in a dead branch near the top. Both birds flew away.

I hid up in a ditch about eighty yards from the alder. Soon the male returned and started drumming again. Directly afterwards I heard an excited "gicking" right over my head, and, looking up, saw three more Lesser Spotted Woodpeckers fly over. They flew right over the alder and the male flew up and joined them; they then went into an oak tree in the middle of the field where a lot of fighting and mobbing took place. Soon, three of them returned to the alder and started fighting in the top of the tree, flying up and swooping at each other, the one attacked crouching against the tree trunk and spreading its wings out like a huge moth. This went on for half an hour, the intruder being occasionally put to flight, always returning. Eventually it was driven away for good. The male then came back and started a subdued drumming on another branch, doing the same as before and using about six different places, and ended up with a slow-motion drum in which I could see its beak hit the branch each time.

I thought that the other pair of Lesser Spotted Woodpeckers must have a nest in the vicinity, so went off to search for it. I heard a lot of calling and subdued drumming amongst some oak trees about two hundred yards from the alder, but could not find the nesting hole. There were some long dead branches that ran right up amongst the foliage in the top of the trees, and I think the nest must have been in one of these.

I was away for some time and returned to the alder at about 12.30 p.m. At 12.55 the male settled on the top of the tree, then went down to the hole and went in and started hammering and throwing out chips. It worked for about five minutes and then the female arrived. The male chased her away and went on with his work. Very soon the female flew back. The male was having a rest at the top of the tree, but the female, instead of going on with the original hole, started to make a fresh one in another branch. After working a few minutes she flew away, and the male went on with the work at the new hole. It worked for about ten minutes and then flew away. I then went off again to hunt for the other nest and when I returned at 2.10 the male was still working at the new hole, but soon flew away. I examined the new hole which seemed to be about three-quarters of an inch across and the same depth in the middle. I visited the tree again next day. The hole was a little larger, but although I remained in the vicinity nearly all day I only saw the male bird once. I kept an eye on this tree for a week or two afterwards but no further progress was made.



On May 28th I found a freshly-worked Lesser Spotted Woodpecker's hole in the side of a nearly horizontal branch of a beech tree. On the 31st I watched the male bird working in this hole, which appeared nearly finished, for about five minutes. On June 4th I went to examine it again. I found that the whole of the side of the hole had been cut away, and all of the inside was exposed, evidently the work of a Great Spotted Woodpecker that had its nesting hole about a hundred yards away. Unfortunately I did not find the second attempts of either of these pairs.

#### THE GREEN WOODPECKER.

On April 22nd I found that a Green Woodpecker (*Picus v. virescens*) was excavating a nesting hole just over my boundary. On April 23rd I hid up near the hole and at 2.42 p.m. the female flew up and went in head first. Soon its head appeared at the entrance and it threw out ten beakfuls of chips, using a sweeping motion from left to right. It disappeared for a second or two, then its tail appeared out of the hole and it worked for about four minutes. It then disappeared and a second or two afterwards its head appeared at the entrance and it threw out thirty more beakfuls. It then disappeared for about half a minute, then its head came out again and it threw out thirteen beakfuls. Then it disappeared and shortly afterwards its tail appeared out of the hole and it worked for two minutes and then threw out nineteen beakfuls. It then disappeared into the hole until 3 o'clock, when it came out and flew on to a branch about two feet away. It "froze" here for about five minutes and then started moving its head around, once keeping it in the same position for two minutes and kept its right eye fixed on me. It then turned its head back and flew away.

On April 24th I went into my hide at 6.30 a.m. The female flew on to a branch of the nesting tree uttering a subdued "pee-u, pee-u, pee-u", and after waiting about two minutes went into the hole at 6.52. It started throwing out chips almost immediately and threw out thirty-seven beakfuls. It then put its tail out of the hole and started hammering. After about three minutes its head appeared at the entrance hole and it threw out thirty-four beakfuls. Its head then disappeared and it worked for three or four more minutes, but this time its tail was not visible. It then threw out forty-three beakfuls. Then I think it must have seen me move in the hide as it came suddenly out of the hole on to a small



branch just outside and looked towards the hide. It stayed here for a minute or two and after calling flew away.

On April 26th I went into the hide at 6.30 a.m. At 7.5 the female arrived and after watching a minute it went in. It then put its head out about a dozen times, but did not appear to be throwing out chips. Five minutes after going into the hole it put its head and half its body out and stropped its beak on the bark. It then came right out and hung on the trunk just beneath the hole for about a minute and then went in again and stayed with its head out of the hole for a minute or two. Then it suddenly flew out of the hole and settled on the trunk about two feet below it, waited there for about two minutes, then hopped up to the hole and went in again. After putting its head out three or four times it remained quiet for five minutes. Then it put its head and half its body out of the hole and appeared to be listening. It then came right out and went in again and started throwing out chips. It then disappeared inside the hole and was out of sight for ten minutes. It then threw out between eighty and ninety beakfuls, and was still working when I left at 7.50.

On April 28th I went into the hide at 6.30 a.m. At 6.44 the female flew to the hole and went in and remained out of sight until 6.56, when it put its head out and withdrew it again. Directly afterwards the male flew up to the hole and "froze" to the trunk immediately beneath it. It remained like this for ten minutes, then suddenly flew away and started calling. At 7.25 the female put her head out of the hole and withdrew it again and was still inside when I left at 7.35. The female did not throw out any chips and I think the nest was finished. This was the first occasion upon which I saw the male.

On May 2nd the Woodpeckers were turned out by Starlings, and the same day the female Woodpecker drove a Lesser Spotted Woodpecker away from a hole it was excavating in a silver birch on the borders of a heath on the other side of my wood and about 200 yards away from the original hole. Again it was the female which did all the work. Altogether this pair excavated at least four complete nesting holes and did not use one of them except for roosting purposes. No other bird nested in the holes. Woodpeckers at times seem to develop a mania for excavating holes. Some years ago I found a silver birch with no less than six fresh Woodpecker holes excavated in it, all of which, except the lowest, were finished. In the lowest hole, which was only half finished, I found a dead male Great Spotted Woodpecker. Many years ago, in a Hampshire wood, I found seven or eight fresh

Lesser Spotted Woodpecker's holes all quite close together, and in one of the lowest holes I found a dead male Lesser Spotted Woodpecker.

On May 21st, at 7 a.m., I was going past a silver birch tree where I knew a pair of Green Woodpeckers were excavating their hole. I could hear one of the birds hammering inside, so I crept up to the back of the tree very quietly and got within seven feet of the hole. After a few minutes the bird went up to the entrance hole and threw out about a dozen beakfuls of chips and then went back again. It then hammered for about five minutes and then I heard it climbing to the entrance hole. It then suddenly looked at me round the trunk. I remained perfectly still and it went back into the hole again and kept quite quiet for ten minutes. I then crept very quietly round to the front of the tree and sat down about ten feet away in full view of the hole. In about five minutes its mate called from some distance away, and it answered it from inside the hole. Soon it put its head out and looked at me, and I saw that it was the female. It then withdrew again and was still in the hole when I left at 8 a.m.

I noticed that as a rule the chips thrown out by the Green Woodpecker were smaller than those thrown out by the Great Spotted Woodpecker, but were at least four times as large as those thrown out by the Lesser Spotted Woodpecker.

# NOTES

## BRAMBLING REPORTED BREEDING IN INVERNESS-SHIRE.

DURING June, 1933, I spent a few days at Tomdoun, Glengarry, west Inverness, and had much conversation about the birds of the region with Mr. Murdoch Matheson, head gamekeeper and deer-stalker in Glengarry. Mr. Matheson has a very wide knowledge of the local birds, has accompanied many naturalists who have explored the region, beginning with Harvie-Brown and Buckley, and has published an account of The Birds of Glengarry, which appears as a chapter in *The Place-Names of Glengarry and Glenguoich*, by E. C. Ellice (second edition, 1931). He told me that Bramblings (*Fringilla montifringilla*) had nested in Glengarry on several occasions. Since my return to England I have received a letter from him in which, after referring to other matters, he says: "This will interest you more. A cock and hen Brambling and four young again appeared on July 20th on the field in front of my house, the parent birds feeding the young. I do not think the nest could be far away but the woods are so extensive that the nest could only be found by chance."

The Brambling is said to have been found breeding by E. T. Booth in Glen Lyon, Perthshire, in 1866 (*Zool.*, 1877, p. 60) and by a keeper at Monar Forest (*Brit. Birds*, XIV., p. 212); but the nest and eggs found by C. and T. E. Hodgkin in Sutherland in 1920 (*Scott. Nat.*, 1920, p. 181) form the only record accepted by the Misses Baxter and Rintoul.

W. B. ALEXANDER.

## BLUE-HEADED WAGTAIL BREEDING IN KENT.

ON June 3rd and 4th, 1933, I located a pair of Blue-headed Wagtails (*Motacilla f. flava*) occupying a field adjoining the railway line between New Eltham and Sidcup, only twelve miles from Charing Cross.

The field is a large one, and has, hitherto, been highly cultivated, but has not been tilled since last autumn and is now pegged out for building sites and roads and covered with weeds. A hedge and ditch run along the western boundary, and the stream is about two feet wide, with banks several feet high.

The Blue-headed Wagtails occupied a fairly central position, about 120 yards from the stream. The cock bird was calling

vigorously and constantly in a circle of 30 or 40 yards from the spot where the nest was subsequently discovered.

The weather during the two days when I was able to observe was brilliantly hot and sunny, and I was therefore able to watch at close quarters under most favourable conditions.

The cock repeatedly soared up 15 or 20 feet at an angle of about 45 degrees, descending at the same angle with a peculiar fluttering of its wings, uttering its note, "*chirp-chirp*", or sometimes "*Chirp-chirp-chirp*", more rarely, four or five times. It sometimes alighted on a tall weed, but often on the ground, from which it continued to call.

It became more excited as the locality of the nest was approached, and fluttered around within 15 or 20 yards of me, calling its "*chirp-chirp*".

The cock bird had the head and ear-coverts slate blue, and the eye-stripe is described by Mr. D. W. Musselwhite as pale and less conspicuous than might have been expected. The throat was pale whitish cream, shading on the breast to pale buff yellow and on the belly to deeper yellow. There was none of the brilliant canary yellow of the cock Yellow Wagtail.

During the two days I watched this Wagtail the hen bird did not appear. Although I spent hours beating out the field I could not flush the hen, but marked with two sticks about 15 yards apart the position where the cock showed most excitement.

On June 9th Mr. D. W. Musselwhite went to this place, which I was unable to revisit, and found the nest containing six eggs, about three days incubated, almost between the two sticks, built in a slight depression under the spreading foliage of the wild field daisy, a green and feathery branching plant.

Both cock and hen were then very much in evidence, and Mr. Musselwhite thought that the eye-stripe of the female was the more noticeable.

DOUGLAS H. MEARES.

#### LARDER OF RED-BACKED SHRIKE.

ON a clump of dead sloe bushes, thickly intergrown with bracken, in the New Forest, there were no fewer than twenty humble-bees impaled by Red-backed Shrikes (*Lanius c. collurio*). Though differing in size the bees were apparently all of the species *Bombus terrestris*; they were impaled through the thorax in each case, some in a natural position, some upside down, and some sideways. They were placed singly, or in groups of two or three, at a height usually of

two or three feet from the ground. Three visits were paid to the place: on July 16th two or three bees only were seen, on the 20th there were twenty, and on August 4th there were two only and the birds were no longer at hand. No other prey was found in the larder, but two pellets were found lodged on the bracken; these castings were from half an inch to three-quarters long and not thicker than a lead pencil. It was noted that the usual alarm note was uttered on the wing as well as when the Shrike was perched on a bush.

C. I. EVANS.

#### LARGE CLUTCH OF EGGS OF GRASSHOPPER-WARBLER.

IN Denbighshire, on May 26th, 1933, I flushed a Grasshopper-Warbler (*Locustella n. naevia*) from a tussock of common rush, one of many similar tussocks on an ill-drained meadow. The not particularly well concealed nest, that I soon discovered, held no less than *seven* eggs, which, on being emptied, were found to be, quite obviously, variably incubated from "slight red" to "small embryo." I would not trouble to record this find if it was not that my various oological friends inform me that a clutch of *seven* is of extreme rarity. The second nest was easily found by again flushing the bird from a really well concealed nest—again in common rush—and just fifteen paced yards from the first site. This was on June 1st, and it contained two eggs (time-period six days). The spot was not again revisited until June 6th (eleventh day) when the bird was again flushed from a normal clutch of six eggs.

An interesting point is the variable incubation, pointing to the fact that, anyway, this particular Warbler commenced to sit some days before the completion of the clutch. There most certainly was only one pair of these birds on this rush patch, and the eggs of the two nests were identical in appearance.

W. M. CONGREVE.

[See *Bull. Br. Ool. Ass.*, No. 35, p. 112, for a note on eight eggs in a nest; about four other cases of clutches of seven are on record.—F.C.R.J.]

#### EARLY NESTING OF NIGHTJAR.

ON June 2nd, 1933, near Hindhead, Surrey, I flushed a Nightjar (*Caprimulgus e. europæus*) off two chipping eggs, and could hear the young calling inside the shells.

The *Practical Handbook* gives 18 days as the incubation-period, which would bring the date to May 16th for completion of the clutch, and first egg probably laid on May 14th.

As the site was 500 feet above sea-level it appears to be an exceptionally early date, as at these altitudes most birds are about a week later with their nesting than in the surrounding countryside.

H. T. GOSNELL.

#### NOTES ON CUCKOOS FROM HAMPSHIRE, 1933.

ALTHOUGH no eggs were found during 1932 of the Cuckoo (*Cuculus c. canorus*) whose promiscuous laying was recorded in *British Birds*, Vol. XXV., p. 132, she appeared again in 1933, not very far from her old haunt.

On May 18th, 1933, my neighbour was attracted by the behaviour of a Willow-Warbler (*Phylloscopus t. trochilus*), which had a nest in his garden. A Cuckoo was continually settling in a tall dead tree overlooking the nesting site, and the Willow-Warbler repeatedly flew towards the Cuckoo and attacked it.

The next day, on inspecting the nest, he found it contained a Cuckoo's egg, and four eggs of the fosterer. The Willow-Warbler had deserted, and the egg of the Cuckoo was identical with the three others found by me in 1931.

In Vol. XXVI., p. 226, are some notes on Cuckoos parasitic on Meadow-Pipits (*Anthus pratensis*).

Visits were paid to the same common through the last half of May, 1933, but no Cuckoos were seen, and most of the Pipits in evidence were feeding young. On June 1st there were four Cuckoos, which remained on the common until the 22nd, after which there were none to be seen or heard, a date two days earlier than was the case in 1932.

Eggs were found of all four Cuckoos. Again two were working in harmony, using the same small birch trees as observation posts as they did last year; but, to the watcher's surprise, in the only Pipit's nest (20 yards from the birch trees) to contain two Cuckoos' eggs, only one small green one belonged to last year's Cuckoo. The other was brown, thus proving that only one of last year's hens returned to her old haunt, the places of the two absentees being filled by three new birds.

These Cuckoos appear to have difficulty in locating nests in the long heather. One was observed searching exhaustively for two nests, both of which were known to contain young

Pipits, and a visit was paid by a Cuckoo to a nest that contained three eggs on which the Pipit was sitting, but no egg was ever deposited there.

Both this year and last, fresh Cuckoos' eggs were found placed in nests where incubation had begun, and in one case this year the fosterer's eggs were on the point of hatching, while the Cuckoo's was quite fresh. Another nest was deserted when half-built, after a visit from the Cuckoo.

It has been noticed that the Cuckoo leaves small patches of white feathers sticking to the heather; some of these are shed as she flounders about, falling forward on her breast, with wings outstretched; others are knocked out in repulsing attacks of the infuriated Pipits. It would seem at first sight that these feathers should be a sure guide to the location of a victimized nest, but in actual practice this is by no means the case. The reason is that the Cuckoo often alights a long distance from the nesting site, completing the journey on foot, and because on this particular common the Pipits are so numerous, and their nesting sites sometimes so close together, that she is often attacked by birds from neighbouring nests.

H. T. GOSNELL.

#### WADERS IN THE LEA VALLEY, ESSEX.

OWING to the continued dry weather, the level of the water in King George's Reservoir, Chingford, Essex, has fallen to such an extent that a margin of mud and gravel has now taken the place of the usual concrete "shore" of normal times. Thus an excellent feeding-ground is temporarily provided for waders passing through the Lea valley, and several species, hitherto unnoticed, have been observed there during recent visits.

On August 26th, 1933, four Green Sandpipers (*Tringa ochropus*) were seen feeding amongst a number of Common Sandpipers (*Tringa hypoleucos*). Later, several Dunlin (*Calidris alpina*) were identified in a party consisting of five Turnstones (*Arenaria interpres*)—four of which were young birds, and four Ringed Plover (*Charadrius hiaticula*). The Green Sandpipers were most difficult to approach, but the Dunlin and Turnstones showed no signs of the same wariness. Herons (*Ardea cinerea*) also appear to appreciate the new conditions, although it may be that the drought has driven them from their shallower feeding-grounds. At one time I counted twenty-nine of these birds standing in scattered groups along the sloping concrete interior.

The occurrence of even the commonest wader in this area seems worth recording, when it is considered that on one side the reservoir is flanked by factories, and that St. Paul's Cathedral can be seen on any clear day. K. R. ASHBY.

### GREAT MORTALITY AMONG YOUNG TERNS IN LANCASHIRE.

IN *British Birds*, Vol. XXV., p. 135, and Vol. XXVI., p. 168, I published the percentage of dead among the ringed Common Terns (*Sterna hirundo*) in a north Lancashire colony situated on a gravel bed, where there is no shade for the chicks, to show that the mortality was higher in hot weather than in cold, due largely to heat stroke.

Below I give the figures with those of this year, which are appalling :—

1929	Very hot	460	ringed.	Percentage of dead	4.13
1930	do.	610	„	Do.	4.87
1931	Cold & Wet	355	„	Do.	2.81
1932	Hot	549	„	Do.	5.44
1933	Hot & Dry	500	„	Do.	12.0

When there is plenty of herbage for shade the mortality is small, but on this gravel bed there is no shelter at all for the chicks.

The tremendous death rate this year is largely due to the number of visitors keeping the parents from sheltering the young from the sun. In former years such visitors have been comparatively few, for they confined their attentions to the main colony of Sandwich Terns on ground well provided with cover and shade. Last year, and again this year, this colony was wiped out by a newly-established colony of Lesser Black-backed and Herring-Gulls, and so permit-holders visited the colonies on the gravel bed instead. Even the off-shoot colony of Sandwich Terns on this gravel bed suffered, for the mortality among them this year was 13.1 per cent., as compared with under one per cent. in former years. In the old colony, up to 1931, the mortality was under one per cent. in spite of the large numbers of visitors, for there was plenty of herbage.

The watcher is employed chiefly in keeping non-permit holders off the land, for his hut overlooks the now extinct nesting-site of the main Sandwich Tern colony, where he guards vast numbers of Black-headed Gulls and the large mixed colony of big Gulls which wiped out the Sandwich



Tern colony, whilst the gravel bed, where three, if not four, species of Tern nest, is almost quite unprotected, being out of sight of, and some distance from the hut, and quite open to landing parties by boat.

As I pointed out (*antea*, Vol. XXVI., p. 167), the main Sandwich Tern colony, when wiped out last year, went further up the coast to Cumberland where they are again nesting in large numbers this year. H. W. ROBINSON.

#### DURATION OF LIFE OF ARCTIC SKUA.

ON the Isle of Foula, in the summer of 1929, a female Arctic Skua (*Stercorarius parasiticus*) came daily to be fed at the door of the house in which I was staying. I was told that the bird was tamed as a nestling in 1910 by a lad who used to feed it on his way home from school. The bird came back to Foula next spring and subsequently. When the lad was killed in the war, his friends continued to feed it for his sake. It returned as usual this year. It is believed to have nested regularly; sometimes it brings its mate to the doorway, but neither mate nor young has ever emulated its familiarity. Its identity is proved by its being rather below the average size; it is always known as "the little Skua", and its birth in 1910 is vouched for by one of the lad's schoolfellows. The potential duration of life in the Arctic Skua is, then, twenty-three years. It may be more, for in 1928 I saw a bird which, like the one on Foula, came to the door of the watcher's hut on Hermanness and ate scraps that were thrown to it. The watcher said the bird had returned regularly for "more than thirty years", but no definite evidence in support of this statement was adduced. Yarrell (*Hist. Brit. Birds*, IV., edit. iii., p. 667) mentions a Great Skua which, in captivity, attained the age of twenty-four years. CHAS. OLDHAM.

GANNET INLAND IN HANTS.—Mr. L. Palmer informs us that a young Gannet (*Sula bassana*) in second year's plumage was picked up alive on the Blackmoor Golf Course in north-east Hants on August 28th, 1933, by Mr. J. Dewey. It was presented to the Zoological Gardens and survived till September 3rd, when a post-mortem revealed a diseased liver. Though a fairly regular winter visitor to the coast, only four inland occurrences are recorded in the *Birds of Hants*.

## LETTER.

## ROOK ROOSTS IN NORTHUMBERLAND.

*To the Editors of BRITISH BIRDS.*

SIRS,—It is extremely interesting to have Mr. Dewar's notes on the Roosting of Rooks, taken thirty years ago, over the same area that I dealt with in the August number of *British Birds*. It is of great importance that the two sets of notes agree so closely in all essentials. The roost Mr. Dewar records as being east of Corbridge might well have been the main roost in that area, as I had heard that my Dilston roost is of recent formation, the birds having moved because of tree felling.

I am very much in sympathy with Mr. Dewar's theory that the flight lines might indicate the original mode of extension from the primary centre, as it is one which I had constantly before me while making my observations. But I did not include it in my account, as the detailed observations I made on the morning and afternoon flights (fortunately in the Ponteland district, as were Mr. Dewar's) did not appear to bear this out, and for these reasons. The collecting places to the south and east of Kirkley were constant at Ponteland and near Dinnington respectively. Rooks from Wolsington, between these two collecting places, flew to the roost either by Ponteland or Dinnington. At least a preference for one flight line would be expected on Mr. Dewar's theory, but I could not detect this. But I rejected the theory for a more radical, if theoretical, reason, viz., that the rookeries should not be considered as growths out from the roost; some at least will be equally or, perhaps, more ancient. The flight lines cannot be considered as the lines of a genealogical table, if such a table does not exist.

Admittedly, the growth of new rookeries can be observed from older ones and these might be expected to go to roost via the parent rookery. But the birds from the truly ancient rookeries would be expected to fly to roost independently of their neighbours. That they do not do so directly but join forces with other flocks is due, at least in part, not to a genetic relation between the flocks, but merely to the strong gregarious habit of Rooks, which could not be expected to pass unheeded large flocks of their fellows. This view is supported to some extent by some of the great collecting places not being on the sites of rookeries but at the junction of flight lines.

In this connexion the paper by T. H. Harrisson in *Rept. Cambs. Bird Club* for 1931 is of importance. Here it appears that the Fen area has been added on to the Maddingley roost as the land was drained. In this case it might be expected that the lines of flight would show the derivation of the rookeries, one from the other. But this is surely an exceptional case, and even here it is difficult to see how enough data could be collected to substantiate the theory.

I think Mr. Dewar's observations on the Stella rookery, where half the birds go to different roosts, are of exceptional interest; here the genetic factor can hardly be excluded because of the probable newness of the rookery. However, my main thesis, that all flight lines cannot be interpreted to show the derivation of rookeries, must, I think, stand.

Finally, I regret, with Mr. Dewar, the incompleteness of my observations, which is inevitable with the aid only of a push-bicycle.

W. RAYMOND PHILIPSON.

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EDITED BY

H. F. WITHERBY, M.B.E., F.Z.S., M.B.O.U., H.F.A.O.U.

ASSISTED BY

REV. F. C. R. JOURDAIN, M.A., M.B.O.U., H.F.A.O.U., F.Z.S., AND  
NORMAN F. TICEHURST, O.B.E., M.A., F.R.C.S., M.B.O.U.

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## THE GRASSHOLM GANNETS—A SURVEY AND A CENSUS.

BY

H. MORREY SALMON AND R. M. LOCKLEY.

(Plate 6.)

IN recording a still further increase in the number of Gannets (*Sula bassana*) breeding on the island of Grassholm, South Wales, it may be of interest to recapitulate briefly what has already been recorded of the history of this gannetry.

Owing to its insignificant size, some 22 acres only, and its comparative inaccessibility, Grassholm has no authentic place in history and we believe that the first mention of it occurs in literature of the early part of the seventeenth century. It has apparently never been inhabited, hence it is not surprising that efforts to trace the early records of its gannetry have been comparatively unsuccessful. The late J. H. Gurney (1) was able to elicit from an old inhabitant of St. Davids, Pems., hearsay evidence that there were Gannets there possibly about 1820, and from another that he had seen them there in 1860.

The first figures, however, are given by the Rev. M. A. Mathew (2), who states that Mr. M. D. Propert counted 250 nests in 1886. Howard Saunders, editing Yarrell's *British Birds* (3) in 1884/5, inserts the statement that the Grassholm colony had been occupied for over twenty years, and in his own *Manual* (4), in 1889, he mentions that the Grassholm colony is larger than that of Lundy. (Saunders visited Lundy but we do not know whether he ever went to Grassholm.)

From about 1890 the island passed into the hands of the late Mr. J. J. Neale, a prominent member of the Cardiff Naturalists' Society, and it is due to him and to his sons and to other members of that Society that we have several records of the Gannets during the following twenty-five years, published in the Society's *Transactions* (5). Thus we learn that in 1890 there were over 200 nests, and in 1893 about 240 nests divided into two colonies (photographs are given of these). In 1890, also, we learn of the wanton shooting of breeding birds by officers from a W.D. vessel, followed by a prosecution instigated by members of the Society. In 1898 the island was raided by egg-collectors and one colony is said to have deserted.

In 1903 Gurney (1) attempted to visit Grassholm but was prevented from landing by bad weather, though he sailed around the island and made an estimate of the number of





THE GRASSHOLM GANNETRY, June 26th, 1933.

To the right (south) of the dotted line is the ground which was occupied in 1924, now more densely populated and extending farther inland; to the left (north) of it is the new area occupied since 1924.

(*Photographed by H. Morrey Salmon.*)

ST. MARY'S  
CHURCH  
1874

Gannets from the boat. We consider he errs considerably on the low side in computing them then at 400 birds only, as we consider he does in the case of each colony he visited personally, by making inadequate allowance for birds in flight above the breeding-area and away fishing. From his details of the distribution of the birds his count would be between 320 and 340 birds on the breeding-area, and from our own experience at about this time of year, during day-time, less than 10 per cent. of the nests have two birds present, so a deduction of this proportion would give a figure of about 300 pairs. This closely approximates to the figure for 1905. In that year the Milford Haven Sea Fisheries Committee, moved by local prejudice against the Gannets, evidently made enquiries about the colony, with the result that the Cardiff Naturalists' Society presented to them a report in which was stated that the Gannets did not exceed 300 pairs, that there had been no increase for several years, and that owing to disturbance by visitors hardly any young reached maturity in 1905. Again, in 1906, so Mr. Neale writes Gurney, only 100 to 130 young were reared. In 1907, owing to continuous bad weather preventing the fishermen landing, the young reared were up to about 300. At that time the local lobster-fishermen largely used sea-birds for bait, but this practice has now died out.

Thus it will be seen that the Grassholm gannetry, though it suffered occasional setbacks, was a moderately thriving small colony, showing only a slight tendency to increase over the period of nearly thirty years from 1886. Mr. Morley H. Neale informs us that at no time up to 1914 were there more than 300 pairs nesting.

The gap of the Great War follows, and it is not until 1922 that we have another record. In that year Grassholm was visited by Captain Vivian Hewitt (6), who reported a considerable increase, and estimated a population of 800-1,000 nesting pairs, and possibly 3,000 birds in all.

In 1924 follows the census taken by Miss C. M. Acland and one of the present writers (7), when the numbers were found to have increased tremendously to a figure very near to 2,000 pairs breeding.

This concludes the recorded history of the colony.

#### CENSUS, 1933.

Since the figures of the 1924 census were published, and although a number of ornithologists have visited the island meanwhile, no one has (so far as we are aware) attempted to

take another. As it had been obvious for some time that a considerable increase had taken place, the present writers decided, on a visit together on June 26th, 1933, to take a second census on the lines done in 1924 by sectional photographs, and an opportunity to check and adjust minor points was afforded by a second visit together on August 6th.

The weather being favourable, ample time was available to cover the whole colony from viewpoints both from land and from the sea, thus avoiding the necessity of having to make considerable allowances for birds out of sight of restricted viewpoints, as had to be done in 1924 owing to unfavourable weather limiting the time.

It was decided beforehand that each would work independently, taking photographs covering the whole colony from, as far as was possible, entirely different viewpoints, so that two counts should be made quite separately.

This was done and the resulting totals, when compared, were found to approximate extremely closely, the difference being under 3 per cent. of the total. They were:—

First count—all adults at nests in the colony—

R.M.L. ...	...	...	5,045
H.M.S. ...	...	...	<u>5,181</u>
Mean total	...	...	<u><u>5,113</u></u>

From a close examination of the foreground portions of the photographs it was found that the proportion of cases in which the pair was at the nest was 7 per cent., so a deduction of this percentage (363) gives a net total of:—

4,750 occupied nests, or breeding pairs, of Gannets.

This figure may be taken as an approximately correct minimum, and no attempt has been made to make allowances for additions such as the very few nests at which no adult was present, some nests which must be invisible from any but an aerial viewpoint and some few on the near edges of the colony which only a somewhat extravagant number of exposures could have brought in, but all these were comparatively very few.

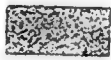
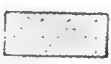
In addition, however, there were present a very considerable number of non-breeding birds; all along the inner fringe of the breeding-area and along the ridge of West Tump, standing six or seven deep, was a company of immature birds in all stages from some few obviously first-year birds to those showing only a dark feather or two in tail or secondaries, and some apparently adult.

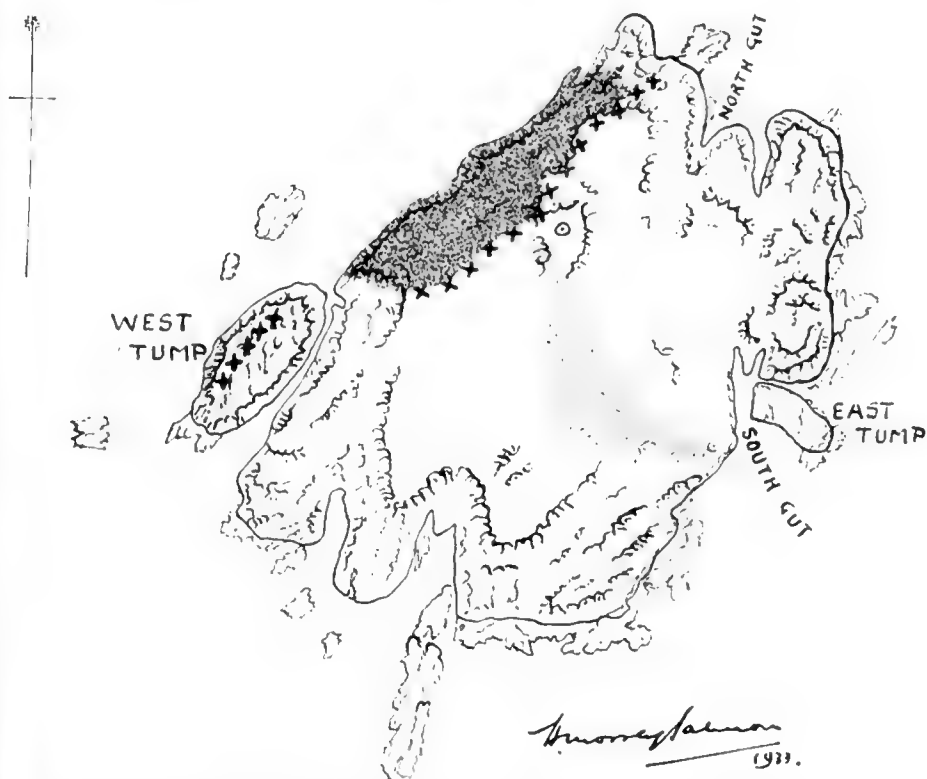
It was not practicable to make a count of these, but as they were fairly evenly distributed all along the edge of the colony it was possible to estimate, with reasonable accuracy, that they numbered about 1,500 birds.

## A SKETCH MAP OF GRASSHOLM.

AREA - 22 $\frac{1}{2}$  ACRES.



- Gannet breeding ground 1933 - 
- Ground occupied by non-breeding birds, March-May 1933 - 
- Immature & non-breeding birds, June 1933 - x x x



The result of this census shows that in the nine years 1924-33 the Grassholm Gannets have rather more than doubled their numbers, and the colony now extends from West Tump

(exclusive) almost to the extreme northerly point of the island, in all covering an area of about two acres. This is shown on the accompanying map, and also in the view of the island from the sea.

The Grassholm colony has thus, from its comparatively insignificant size less than twenty years ago, become one of the more important gannetries anywhere within the breeding range of the species.

It was not possible to photograph from the same viewpoints as in 1924, although the original photographs were brought for the purpose, as it was found that the colony had overgrown the 1924 limits greatly. Comparison of the present extent with what H.M.S. saw in that year shows that the greatest extension has been to the north-east. This might be expected, since the birds cannot very well extend south-westwards, where the breeding-area already terminates in an abrupt cliff and steep rocky slope, down which are, however, a few hundred more nests than in 1924. The main part of the 1924 breeding-ground, the earth and guano-covered rocky slopes from the cliff edge inland, has been extended inland for a considerable distance, right up to the rocks which rise up somewhat sharply to the highest point of the island, but the most noticeable extension is northwards from the foreground of photographs 4 and 5 of the 1924 census. A photograph taken from a short distance to the north of this brings in at least a thousand more birds, and this is by no means the end of the colony (see illustrations Nos. 1 and 2).

#### IMMATURE BIRDS.

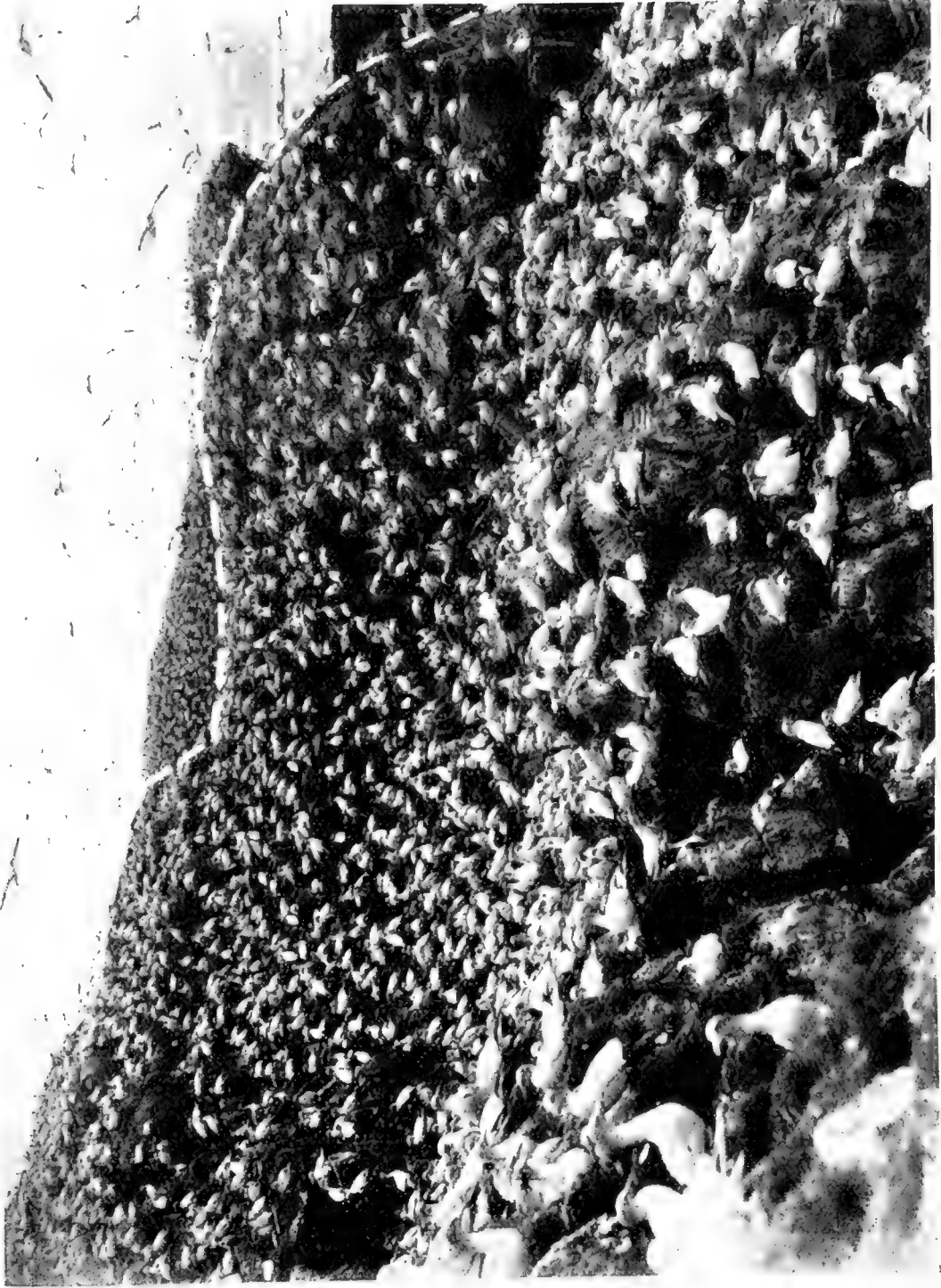
We would like here to draw attention to a point which is without doubt the cause of much confusion and inaccuracy in comparing records of the past with those of the present, viz:—the failure of recorders, then and now, to distinguish sufficiently between breeding and non-breeding birds. We would suggest that all future census figures or records of Gannet breeding stations should be made on the basis of a count or estimate of the number of breeding *pairs*, with an estimate of the number of non-breeding birds present at the colony given separately.

As it is, the recent great increase in the number of immature birds frequenting Grassholm is remarkable. In 1924 H.M.S. saw so few that comment was made whenever one was noticed flying among the many adults on the wing. In 1928 R.M.L. saw less than 500 ranged along the edge of the colony, and so



*Photographed by*

No. 1. GANNETS AT GRASSHOLM IN 1924. A view at the extreme north end of the colony for comparison with the 1933 photograph. This is nearly equivalent to photographs Nos. 4 & 5 (combined) of the 1924 census.



*Photographed by* H. Morrey Salmon.  
No. 2. GANNETS AT GRASSHOLM IN 1933. The corresponding view to that in illustration  
No. 1, taken on June 26th, 1933, from farther north and a little more to the right than the  
1924 view. The dotted lines are in the same relative position in each photograph.



few on West Tump that the rock was practically free of guano. In 1930 the fringe of immatures was just visible, on a clear day, from the neighbouring island of Skokholm; with the glass a line of birds could be seen standing along the extreme edge of the north end of the island, immediately above the gannetry (which, facing in a westerly direction, is, of course, not itself visible from any point to east or south-east). In 1931 this fringe had thickened, and could be seen with the naked eye from the mainland ten to twelve miles distant. In this year some attempt was apparently made to annex new territory on the south-east slope of the island. From Skokholm a small patch of Gannets could be seen grouped on this slope during the months of April and May. There was a larger group on the same spot in 1932, while in the early spring of 1933 the new colony appeared to have spread in the form of a serpentine column (see map) from the summit to the base of the south-east corner of the island. This was in addition to the usual fringe, which in 1933 had become a thick white line from the summit (centre) of the island right down to the north shore, as viewed from Skokholm.

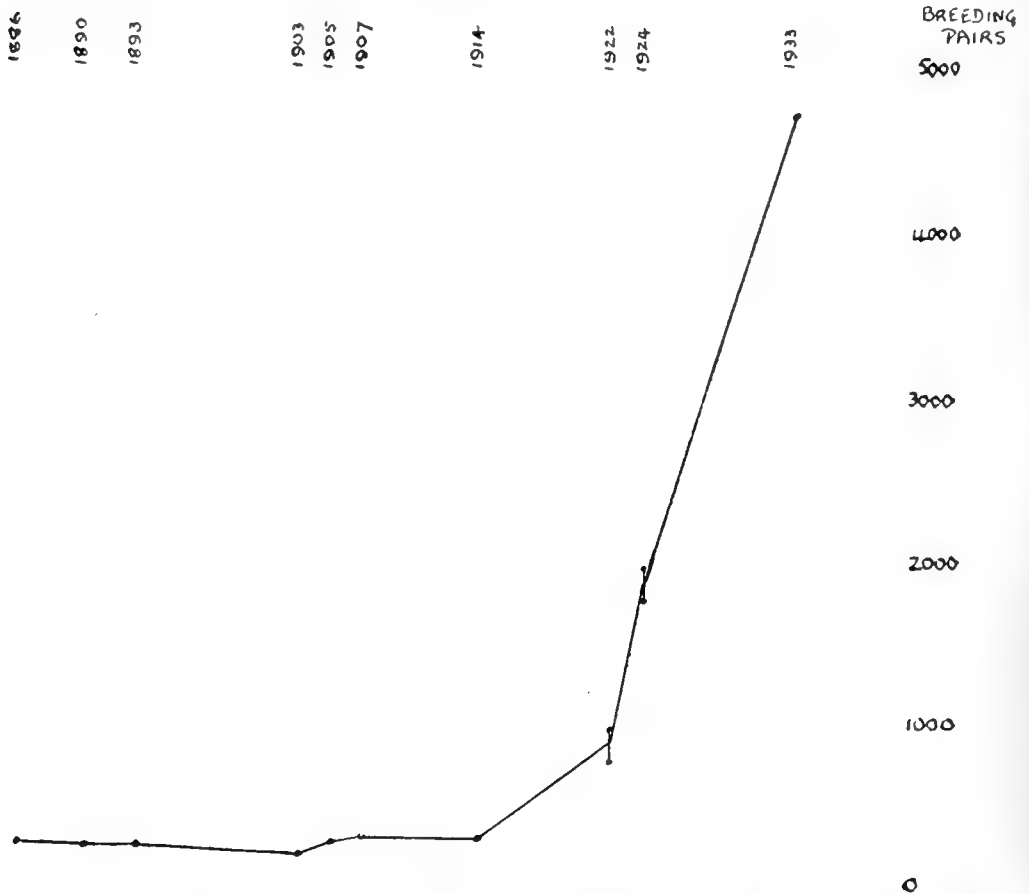
No opportunity was afforded in any spring to visit Grassholm, but it was obvious that the new ground to the south-east had been occupied by non-breeders, since it was deserted by June each year. Examination, then, of the guano-splashed site revealed that the birds had been active in tearing up both the dead grass on and the green grass around the spot, but that no attempt worthy of the name had been made to build a typical hummock nest.

#### RATES OF INCREASE.

The actual figures of the increase since 1886 are shown in the accompanying graph. In examining these figures on the basis of annual increment at a percentage rate, it is found that the regular annual increase required to reach Capt. Hewitt's maximum figure of 1,000 pairs in 1922 from the 1914 figure of 300 pairs is at the rate of fractionally over 16 per cent. increase each year over the preceding one. From 1,000 pairs in 1922 to 2,000 pairs in 1924 is, however, at the rate of nearly 42 per cent. increase per annum on the same basis—a tremendous jump! While from 2,000 pairs in 1924 to the present figure of 4,750 pairs in 1933 is represented by an annual increment of only 10 per cent., great though to-day's figure is.

While the fact that the young Gannet takes from four to five years to reach breeding age must necessarily affect some-

what such calculations as the above, for practical reasons this factor has had to be ignored.



In considering the incidence of the above rates of increase the 10 per cent. annual increment between 1924 and 1933 might reasonably, we think, be considered a not excessive rate to come from within the colony itself, and similarly the 16 per cent. between 1914 and 1922 might not be an excessively high rate in view of the probable complete cessation of interference of any kind to the then small colony during the years of the War. The jump to nearly 42 per cent. annually, 1922-24, however, needs consideration in quite another category. Even if Capt. Hewitt underestimated the number of breeding pairs—and, if his total estimate is the more accurate of his two sets of figures, we are inclined to think he did—the circumstances would still seem to point to a considerable influx from some other breeding-area during the two years preceding 1924. At the same time we must admit that in the present state of our knowledge of this species over the whole of its breeding range any theory put forward must be almost purely speculative.

## POSSIBLE RELATIONS WITH OTHER BRITISH COLONIES.

In connexion with the apparent exceptional increase at Grassholm between 1922-24, Miss Acland has suggested to us the possibility of a move southwards from Ailsa Craig as a result of a plague of rats, which is said to have made great havoc amongst the young birds about the years in question, but we cannot trace any actual record of a corresponding diminution of breeding birds at this station.

Mr. B. B. Roberts, to whom we are much indebted for valuable information of his personal visits to Irish and Icelandic gannetries, suggests that any influx would be likely to come from the already overcrowded and very large Irish colony on the Little Skellig, and points to a move eastwards evidenced by the appearance of the nucleus of a new colony on the Great Saltee (8). It seems to us possible, at any rate, that in part the explanation of the great and increasing assemblies of immature birds on Grassholm may lie here. Driven forth from the over-populated colonies of the Little Skellig and the Bull Rock, where competition for breeding territory is exceptionally keen, and accommodation for immatures almost non-existent, the two, three and four years' old birds would find more congenial surroundings at Grassholm. Here there is plenty of room to stand near the breeding adults, and, unmolested by them, to indulge in half-hearted courtship activity or rest peacefully asleep. But it cannot be overlooked that Grassholm itself has for some years been putting on the wing several thousand young Gannets per annum.

The rather generally stated supposition that the Grassholm colony was established as an offshoot from a colony on the neighbouring island of Lundy, some forty miles to S.S.E., is hardly tenable if the history of that colony is examined. Lundy is the oldest known breeding station of the species, since there is evidence of the existence of its gannetry in the year 1274 (9). There are, however, large gaps in the history of the Lundy Gannets. Gurney, in spite of exhaustive researches for his book, was quite unable to trace any record of Gannets there between 1631 and 1830; a list of birds taken from a diary of 1787 does not include the species nor are they mentioned by any of the writers who visited the island, or in ornithological works, during this period. After 1830 Gurney mentions another reference to them in 1839, and subsequently the existence of the colony appears to have been widely known. Quoting various authorities Gurney notes the first actual figures: 16 nests in 1887, nearly 70

nests in 1889, and 30 pairs in 1893. It seems evident that continual persecution prevented the rearing of any young from about 1883. From under 10 pairs in 1900 they dwindled to vanishing point about 1907. Since then only sporadic and unsuccessful attempts to re-occupy this station have been made by isolated pairs at long intervals.

Comparing dates it will be seen that Grassholm was a strongly-established colony and had been in existence for many years before the persecution which eventually wiped out the Lundy colony was recorded. It is also perfectly evident that the Lundy colony was always a very small one.

We prefer to suggest that, if Gurney's approximate date of 1820 for Grassholm can be considered acceptable, and if the 200 years' gap in the history of the Lundy Gannets can be taken as meaning that this station was unoccupied during that period, then perhaps both stations were occupied or re-occupied during the early part of the nineteenth century. It is even possible that Lundy was re-occupied *from Grassholm* about that time.

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## THE ASSOCIATION OF BIRDS AND A MOOR-GRASS ON THE PENNINES IN WINTER.

BY

JOHN ARMITAGE.

DURING the past ten years, in all seasons, I have been constantly in touch with the high moors and adjoining slopes of the Pennines, and particularly south-eastern Lancashire and the Peak District to its southern limit in Staffordshire. My records of birds on this area in winter have been surprisingly scanty, and would have remained so had I continued to overlook the importance of a type of grassland covered with the purple moor-grass (*Molinia cærulea*). Occasionally with friends, but more often alone, I have worked over huge waterlogged plateaux covered with cotton-sedge; over heather moors, and rush swamps, in winter, without finding any birds except the resident Red Grouse (*Lagopus s. scoticus*) and a few Common Snipe (*Capella gallinago*) which linger on wet ground if severe weather is delayed. Tramps over moors carpeted with bilberry, crowberry, cloudberry and dead bracken were similarly unproductive.

The annual noting of a few Snow-Buntings (*Plectrophenax nivalis*) in winter on the moors of south-east Lancashire by Mr. I. Whittaker, prompted Mr. F. Taylor and myself to search the district thoroughly, and we found that the saturated upland pastures covered with *Molinia* were often frequented by birds, while the drier mat-grass pastures were much less so—by birds presumably feeding on fallen grass-seeds. In many instances we found the ground below the *Molinia* tussocks littered with uprooted basal husks, the birds having extracted and eaten the remainder: a mixture of animal and vegetable matter consisting of gall-midge larvæ (*Cecidomyidæ*) and the plant's core supporting the clusters of white maggots. These creatures occur in countless millions in most of the *Molinia* beds examined. Some tufts separated and counted yielded an average of ten maggots per haulm, but a very large and swollen haulm found on December 7th, 1932, contained no fewer than thirty-seven larvæ in various stages of growth. Up to the present, only one species of gall-midge has turned up from a selection of infested tufts sent from various localities in three counties to Mr. H. Britten for examination, and this is *Oligotrophus ventricolus*, Rûbs.

Purple moor-grass has a wide range of forms and habitats from about 1,700 feet down to sea-level, and the bulk of

it is more or less infested by gall-midge larvæ. But the plant is much more local than mat-grass and in some parts of the Peak it might easily be overlooked. In *British Birds*, December, 1932, I mentioned the Snow-Bunting, Reed-Bunting (*Emberiza schæniclus*), Sky-Lark (*Alauda arvensis*), Chaffinch (*Fringilla c. cælebs*), and Starling (*Sturnus vulgaris*), as birds seen feeding on infested *Molinia*, and F. Taylor and I suspected Rook (*Corvus f. frugilegus*), Magpie (*Pica p. pica*) and Fieldfare (*Turdus pilaris*). During the winter of 1932-33 we confirmed Snow-Bunting, Reed-Bunting and Sky-Lark. Magpie, Stock-Dove (*Columba ænas*), Partridge (*Perdix p. perdix*), Yellow Bunting (*E. c. citrinella*), Twite and Meadow-Pipit (*Anthus pratensis*) were new birds proved, while Rook and Fieldfare remain suspect—making eleven species known by us to feed on the gall-midge larvæ, and two species suspected of doing so.

Through inability to find Snow-Buntings in a favourite haunt at 1,300 feet during severe frost in February, 1932, I imagined that the birds might fly down to the Lancashire coast, barely thirty miles away, but Mr. Whittaker suggested that some at least may descend to lower ground, as he had four records of Snow-Buntings under 1,000 feet during the three winters of 1926-29. On January 29th, 1933, F. Taylor and I made a discovery which proved conclusively that frost may not interfere with the birds and their feeding grounds. A large mass of *Molinia* on Chelburn Moor (900 feet) had been fired during the previous autumn; the bases of the tussocks were lying charred and exposed, but they literally bristled with haulms packed with live gall-midge larvæ, and although they had been bound together by days of prolonged frost, Buntings and Larks had been pecking into them and also roosting close by.

December and the early part of January, 1933, was exceptionally mild, and in various places in the hills, small parties and odd examples of Sky-Lark, Reed-Bunting and Yellow Bunting were seen, living on the *Molinia*; the two latter birds being far above their normal breeding districts. On October 23rd, 1932, a flock of fifteen Twites was flushed from *Molinia* at 1,150 feet, close to an old-established nesting haunt; on January 6th, 1933, a single Twite was on Chelburn Moor at 900 feet, and on March 26th, 1933, Twites were working on the fire-blackened tussocks previously mentioned, and at the same time Sky-Larks and Meadow-Pipits were also feeding there. On this last occasion there were no recent

signs of Snow-Buntings; the weather had been very mild, and some Merlins (*Falco c. aesalon*) were already back at their breeding places. We got a few fleeting glimpses of odd Merlins on the moors in the middle of winter and on two occasions we saw the remains of Snow-Buntings and considered they had been killed and eaten by Merlins. Such close-feeding birds would be easy prey on the ground, and almost as simple while in the air.

During the three winters engaged in locating Snow-Buntings, F. Taylor and I have never found the birds associating with other kinds, and although they may approach the moorland farms and fowl-houses when the moor-grass is buried under snow and ice, they do not visit them normally. Our experience has been that mild weather on the moors is not to their liking, and they seem comparatively inactive on boisterous days. Last winter we saw only one adult cock (December 11th)—a fine showy bird with a large amount of white on it and quite unlike most of the drab birds we see. One bird seen on February 12th, 1933, was very dark and without white in the wings; we might have assumed it to be a Snow-Bunting with soiled plumage but we were about six feet from it and two streaks of pure white in the tail showed that its plumage was clean.

**SNOW-BUNTING ROOSTS.**—We have seen much evidence of solitary birds roosting under peat-hags and in slight depressions by tufts of *Molinia* on the feeding grounds, and there were signs of roosting parties on the steep and sheltered clough-sides. While on Blackstone Edge, on December 25th, 1932, F. Taylor saw a party of twenty-three Snow-Buntings flying to a hill-top quarry at 1,300 feet, and a short time afterwards they flew from the quarry and disappeared. Two days later he met a rabbit-snarer on Blackstone Edge who had seen a party of "Snowbirds" leave the top quarry a week before, and on this day F. Taylor saw the same or a similar flock flying to it at 3.30 p.m. It was dull and misty at the time, and when the quarry was approached the Buntings flew out and vanished. The observer stayed in the vicinity until darkness fell but the birds did not return. The floor of the quarry was littered with *excreta* and there was no doubt that the quarry was their headquarters and regular roosting place.

As in previous seasons, I heard of many flocks of Snow-Buntings seen in their typical winter haunts (on *Molinia* grasslands) by gamekeepers and others, but numbers and

dates were in doubt or forgotten and therefore of no use, and I have only recorded below those which are positive, from the following observers, to whom I am grateful for their notes and suggestions: Messrs. T. Bell, A. W. Clarke, A. Sheppard, E. Southern, F. Taylor and I. Whittaker.

It will be seen from these records that some of the localities are different from those referred to in my previous notes on the subject. Snow-Buntings are regular winter visitors to many parts of the Pennine Chain, and by first locating *Molinia* beds at a suitable elevation between 1,600 feet and 800 feet, observers are sure to find the birds in localities where they are at present unknown. In conclusion, I am quite convinced that infested *Molinia* is the chief attraction of our moors to small birds in winter and of considerable value to larger birds such as Magpie and Partridge, which cling to the uplands when they might sustain themselves with ease on lower and more sheltered ground.

<i>Number.</i>	<i>Locality.</i>	<i>Elevation in feet.</i>	<i>Date.</i>	<i>Observers.</i>
About 20	Rooley Moor, S.E. Lancashire.	1,300*	27.11.32	A.S.
About 15	Nr. Rooley Moor, S.E. Lancashire.	1,350*	11.12.32	A.S.
1	Rooley Moor, S.E. Lancashire.	1,300*	11.12.32	F.T.; J.A.
1	Ashworth Moor, S.E. Lancashire	970*	11.12.32	I.W.
11	Blackbank Moor, N. Staffordshire.	1,350*	15.12.32	J.A.
11	Blackbank Moor, N. Staffordshire.	1,350*	16.12.32	J.A.
About 50	Nr. Cown Edge, N.E. Derbyshire.	1,000*	4.12.32	E.S.
About 50	Nr. Cown Edge, N.E. Derbyshire.	1,000*	6.12.32	E.S.
23	Quarry, Blackstone Edge, S.E. Lancs.	1,300	25.12.32	F.T.
4	Below Blackstone Edge, S.E. Lancs.	900*	25.12.32	F.T.
1	Below Blackstone Edge, S.E. Lancs.	900*	27.12.32	F.T.
Over 20	Quarry, Blackstone Edge, S.E. Lancs.	1,300	27.12.32	F.T.
3	Nr. Charlesworth, N.E. Derbyshire.	900	3.1.33	J.A.



<i>Number.</i>	<i>Locality.</i>	<i>Elevation in feet.</i>	<i>Date.</i>	<i>Observers.</i>
About 40	Raven's Low, N. Derbyshire.	1,400*	27.1.33	T.B.
1	Chelburn Moor, S.E. Lancashire.	900*	29.1.33	F.T.; J.A.
3	Below Blackstone Edge, S.E. Lancs.	900*	29.1.33	F.T.; J.A.
About 30	Below Blackstone Edge, S.E. Lancs.	900*	29.1.33	F.T.; J.A.
1	Chelburn Moor, S.E. Lancashire.	900*	12.2.33	A.W.C.; E.S.; F.T.; J.A.
7	Chelburn Moor, S.E. Lancashire.	900*	12.2.33	A.W.C.; E.S.; F.T.; J.A.
12	Goyt Valley, N.E. Cheshire.	1,200*	6.3.32	T.B.

\*Gall-infested *Molinia* grows here.

## ORNITHOLOGICAL NOTES FOR MAYO AND GALWAY.

BY

R. F. RUTTLEDGE.

THESE notes extend over the period between the end of April, 1932, and the end of February, 1933, during which time I was residing in south Mayo on the shores of Lough Mask.

Once again one has to report the apparent absence of the Yellow Wagtail (*Motacilla f. rayi*) as a summer visitor to these counties. Although a careful look-out was kept, especially in stormy weather, for Skuas on passage via the Connaught lakes, none were observed this autumn; in fact strangely little migratory movement was noted on this inland route, which in some years seems much resorted to, only Oyster-Catchers, Common (or Arctic) Terns, Sand-Martin, House-Martin and Ringed Plovers being noted.

Of winter visitors there was an almost total absence of Fieldfares. Not even during the spells of hard weather experienced over the Continent and the British Isles in January and February did any appear, only a few being seen throughout the whole winter. Woodcock were remarkably scarce, judging from all reports, and the famous Ashford coverts were not holding so many as usual, but Snipe were plentiful.

RAVEN (*Corvus c. corax*).—All reports indicate a rapid increase in both counties, especially in the mountains to the north of Clew Bay.

CHOUGH (*Pyrrhocorax p. pyrrhocorax*).—It is gratifying to be able to report how well these birds are holding their own, unpersecuted, on the islands off the coast. On one island in particular they were spread over the grassy slopes and the air rang with the cries of many others.

SISKIN (*Carduelis spinus*).—The discovery of a nest at Tourmakeady, on the western side of Lough Mask, on June 26th, constitutes the first recorded case of the bird nesting in co. Mayo, and was reported by me in *The Irish Naturalists' Journal*, Vol. IV., p. 76, in which reference was also made to the "half-hover" which is so distinctive a characteristic of the circular flights performed whilst singing, and worth noting as an aid to identification, though it appears to have escaped mention in the works I have consulted.

CORN-BUNTING (*Emberiza c. calandra*).—One or two noticed on Inishbofin in June, although that island is not mentioned as a resort for them in *Birds of Ireland* (Ussher and Warren), p. 74, and more particularly p. 75.

YELLOW BUNTING (*Emberiza c. citrinella*).—Noticed one singing on the ground on Inishbofin. There are bushes on the island.

BRITISH SONG-THRUSH (*Turdus ph. clarkei*).—Observed one singing from the ground in a wooded area on May 14th, the bird feeding in intervals between song. The only record I have of such a case.

BLACKBIRD (*Turdus m. merula*).—Noticed one in full song on an absolutely level field on Inishbofin on June 14th. The bird was feeding between spasms of song.

On May 8th a nest was found on the shore of Lough Mask on a gentle slope and placed against a rock, this in a well-wooded area.

SWALLOW (*Hirundo r. rustica*).—In *Birds of Ireland* (Ussher and Warren), p. 48, it is remarked that this species is absent or very scarce on the Aran Islands, Inishbofin and Achill. This is not the case nowadays as I have notes of many seen on Inishmore, in the Aran Islands group in June, and of quite a number nesting in outhouses on Inishbofin, and they are to be found quite plentifully in Achill.

PEREGRINE FALCON (*Falco p. peregrinus*).—One on the cliffs of Inishark swooped down and carried off a Storm-Petrel which I had released from its burrow. The Storm-Petrel is not actually mentioned under the food heading in the *Practical Handbook*, p. 111.

COMMON HERON (*Ardea c. cinerea*).—There were six nests on the Hog Island, L. Carra, this spring. This is a new site since the time of the census of heronries. The nests are placed at heights varying from six to twenty feet, in thorn trees covered with ivy.

STORM-PETREL (*Hydrobates pelagicus*).—In *Birds of Ireland*, p. 384, only two islands off the Galway coast are mentioned as breeding resorts. In addition they are to be found nesting in large numbers on Inishark, but no trace could be found of them on Inishbofin, nor on the Bills off Achill, though on the Mayo coast they nest in numbers on the Davillaun islands, Inishkeeragh and Pig Island.

OYSTER-CATCHER (*Hæmatopus o. ostralegus*).—In Ireland the Oyster-Catcher is considered very uncommon inland, so that the following instances of its appearance in co. Mayo are given. I have but one previous inland record for these counties. Single birds flying over Lough Mask on May 4th, July 14th and 23rd; four feeding on the shore of the Lough on September 21st and one flying about over a bog just north of Lough Mask on August 20th. The nearest salt water would be the head of Killary Harbour at a distance of eleven miles, the open sea being at least twenty miles with a range of mountains intervening.

COMMON SANDPIPER (*Tringa hypoleucos*).—An unusually early nest containing one egg was found on April 6th on an island in Lough Mask.

SANDWICH TERN (*Sterna s. sandvicensis*).—I was lucky enough to meet with this somewhat scarce Tern on several occasions, though endeavours to find the nesting places were not very successful. In 1928 I had a report of a nesting-site on an inland lake, but was unable to verify the statement until this year, when on June 12th I found them at this hitherto unrecorded site in co. Mayo. There were only a few Terns, but they were very demonstrative and a broken egg with well-formed chick was found. Obviously the Terns had young in hiding. A "local" states that the colony was previously larger, but that it is being rapidly over-run by the Black-headed Gull colony on the same island.

It is a matter of great regret that a visit to Rathroeen Lake, near Ballina, proved that the once famous colony\* there has now ceased to exist, it having been deserted now for a number of years, nor does a colony exist on Cloonagh Lough.

\* *Birds of Ireland*. Ussher and Warren, p. 316.

Sandwich Terns were identified on the Galway coast several times during the summer at widely separated places, in June and July.

On July 28th I was interested to observe one settle on the sea and there float over the waves. The bird appeared to be taking a bath in the fashion of a farm-yard duck, ducking itself, putting head and shoulders under and then shaking itself dry.

COMMON GULL (*Larus c. canus*).—A tremendous increase in breeding numbers has taken place on the islands of Lough Mask during the last few years. Enormous colonies exist on the larger islands and even the smallest boast a few pairs.

GREAT BLACK-BACKED GULL (*Larus marinus*).—The size of the colony on the Bills Rocks, off Achill, which in 1890 was estimated at over 100 birds, and in 1910 at 200, has evidently diminished. I was disappointed when I visited the rocks on June 6th to estimate "at most 50 pairs". Now that the rock is no longer used as a target by the Atlantic fleet, one had hoped that the colony would have further increased. There is no lack of space.

LAND-RAIL (*Crex crex*).—Those who think that the Land-Rail is becoming scarce would be surprised at the numbers in the more remote parts. Though possibly not so much in evidence in the eastern portions of the counties, yet they are plentiful in the mountain-side holdings, and I was struck by their numbers this summer on the western sea-board and particularly on Inishbofin.

# NOTES

## LATE SECOND BROODS OF STARLINGS IN SOMERSET AND SUSSEX.

A PAIR of Starlings (*Sturnus v. vulgaris*) hatched their young in the roof of a dwelling-house adjoining my house at Cheddar, Somerset, on September 15th, 1933. This is the second brood in the same nest.

The importance of this record seems to be that during egg laying and incubation, at least, the parched land was in the throes of one of the worst droughts of recent years, and the Starlings, as well as Blackbirds and a few other species, had difficulty in obtaining proper food, and were driven to live almost exclusively upon fruit. STANLEY LEWIS.

[Mr. P. Allen reports that on October 15th he watched an old Starling enter beneath the eaves of a house in Sedlescombe, Sussex, and heard the young birds being fed.—Eds.]

## HABITS OF STARLINGS BETWEEN WAKING AND FEEDING.

THROUGHOUT last winter (1932-33) about a score of Starlings (*Sturnus vulgaris*) roosted near our house at Plymouth. At an early hour they would fly from nesting-holes nearby into a large thick fir tree where they would immediately start singing. The song-period was very variable—say ten to twenty minutes—after which they would be seen to leave the tree, usually in pairs or groups of two or three pairs in order to settle on some nearby feeding ground. On leaving the tree the flight was usually zig-zag and excited. From this it seems that Starlings may go about in pairs throughout the winter, which suggests the possibility that, like Ravens, pairs may keep together from one season to another. In my daily watch I saw "chasing" in progress by one pair on February 10th and on subsequent days, but not prior to that date. Chasing, however, only develops as the breeding-season approaches.

On the morning of April 11th, 1933, I recorded the times of departure and number of Starlings leaving which had roosted on the monument in Charing Cross Station yard near Trafalgar Square. Singing commenced at 4.52 a.m. B.S.T. and at 5.47 a.m. they began to leave, chiefly in batches of a dozen or so. In a matter of less than ten minutes one half of the birds (c. 180 out of 360) had gone, yet there was no appreciable

diminution in the volume of song. From this point onwards, for a quarter of an hour, definite chasing and squawking was noted as the birds left the roost and at once the volume of singing began to decline. The last to leave nearly all chased and squawked after singing up to the time of their departure. From this it appears that the silent Starlings were the first to depart and that the songsters, which would be the more sexually developed birds, were later in leaving the roost.

It was interesting to find that in the case of a large roost near Plymouth (Morwelldown) the later exodus was the first to migrate this year. On March 5th, 7th, 12th and 14th the bulk of the first exodus from the roost took a more directly easterly direction than the second, which went chiefly south-eastward. On the last date mentioned (March 14th) the second exodus was missing, and it subsequently transpired that on the previous morning (March 13th) they were seen by Mr. A. H. Machell Cox flying over Yelverton, four miles from the roost, extra fast and exceptionally high. It was a very fine, still morning and Mr. Cox had no doubt they were leaving the district *en masse*. Evidently the second exodus went in this way while the earlier flight remained longer, and this is what one would expect if the former contained the larger proportion of the most sexually mature birds.

H. G. HURRELL.

#### GREENFINCH USING THE SAME NEST TWICE.

THIS summer (1933) a Greenfinch (*Chloris ch. chloris*) had a nest with five eggs in a branch of a cedar by the side of Old School House, Felsted, tennis lawn. Within a fortnight of the young leaving the nest fresh material was placed on it, no effort being made to clear away the excreta left by the young, to the height of about an inch. Another set of five eggs was laid in the nest and the second brood reared. Owing to the dryness of the summer the excreta of the first brood remained in position until after the second nestlings had gone; it was rather a strange sight to see the bird sitting on the nest with this ring of excrement about an inch below her, and later to see the second ring formed above it.

J. H. OWEN.

[This is a remarkable case, as the normal procedure for the Greenfinch is to build a fresh nest for each brood, and I have seen three nests from which broods had been reared in one season by one pair of birds within 50 yards of one another in Derbyshire. The fouling of the nest by the excreta of the young would seem to render this necessary.—F.C.R.J.]

## WHITE-WINGED LARK SEEN IN SUSSEX.

ON the evening of August 19th, 1933, while bicycling along the road from Rye to Camber that runs alongside the golf links, I saw a strange bird standing sentinel-like on a hump on the thin, brown turf. On dismounting it allowed me to approach within five yards of it and examine it at my leisure. When first seen it was standing facing three-quarters away from me, but afterwards turned and gave me an almost full view from in front. My description of it written down at the time was: "Size, that of a rather large Sky-Lark; the most striking feature was that its shoulders and crown were a bright, rusty red, the shoulders being brightest. The upper parts light brown, lined with black and with more rust colour just at the base of the tail. Another prominent feature was a bar of pure white on each wing. Underneath, dull white, looking darker towards the throat and lower throat. The flanks were apparently streaked with black. Eyebrows, dirty white." When I had finished writing I moved to put my note-book away and it flew off silently, giving me the impression as it flew of a patch of white on the under surface of the wings.

On comparing my notes with the printed descriptions there does not seem to be much doubt that the bird must have been a White-winged Lark (*Melanocorypha leucoptera*). P. ALLEN.

## FLYCATCHER DEPRIVING SONG-THRUSH OF NEST.

THERE is a niche in a large elm at Saling, Essex, that was used annually by a pair of Spotted Flycatchers (*Muscicapa s. striata*). This year (1933) it was occupied by a nest of a Song-Thrush (*Turdus ph. clarkei*) which had one fresh egg in it when the Flycatchers wanted the site. They proceeded to fill in the cup of the nest and cover the egg with the material that they usually used and the Thrushes gave way and built another nest very hurriedly on a branch of the same elm and about ten feet away. Unfortunately the Flycatchers were robbed by village boys before they had finished laying and probably that site will not be occupied by Flycatchers again. The Thrush escaped their notice, although the nest was so close to the ground that one had to stoop considerably to pass under it.

On July 18th I watched a Spotted Flycatcher using the top of the water tower at Felsted School, about 80 feet high, as a base for catching insects. I caught sight of it just after 8 p.m. and watched it for a full hour. The same evening Swallows, &c., were working over 150 feet high. J. H. OWEN.

## UNUSUAL NESTING PLACE OF SEDGE-WARBLER.

THE nest, with three heavily incubated eggs, of a Sedge-Warbler (*Acrocephalus schænobænis*) was found in a field of wheat, as it was being cut, on July 27th, near Buttington in Montgomeryshire. The nest was attached to the straw nearly two feet from the ground and at some distance from the fence. This is a very late date for a Sedge-Warbler to have eggs and the position is one that I have never heard of being used before by any bird.

J. H. OWEN.

[The site above recorded is, as far as I am aware, unprecedented for this species. Mr. J. Armitage, however, found a nest containing three young (about 5 days' old) and one egg in co. Sligo on August 3rd, 1930, an equally late date. The young in this nest were feathering on August 6th.—F.C.R.J.]

## SUB-ALPINE WARBLER IN CO. WEXFORD.

ON September 19th, 1933, I received from Mr. S. McMahon, light-keeper at the Hook Tower Lighthouse, co. Wexford, a small Warbler in the flesh which I considered to be a specimen of the Sub-Alpine Warbler (*Sylvia c. cantillans*). The identification was subsequently confirmed by comparison of the specimen with skins of the species from southern Europe in the Dublin Museum. Mr. McMahon reports that he found the bird lying dead on the west side of the lighthouse balcony at 9.0 a.m. on September 17th. He expresses the opinion that it was killed striking between midnight and sunrise as it certainly did not strike during the time he was on duty up to midnight. The weather conditions during the night of September 16-17th were: sky overcast and gloomy with a slight breeze from the south. It was not possible to sex the specimen, which appears to be a male of the year with the moustachial stripe not so well defined as in the adult.

Mr. McMahon, who knows most of our resident and migratory birds, stated that he was unable to identify the specimen under notice and therefore sent it to me as he very rightly considered it to be an unusual visitor. This, the first Irish recorded occurrence of the species, is also the first autumn record for the British Isles; the three previous records from Scotland occurred in the months of May and June. The specimen is being added to the collection of Irish birds in the National Museum, Dublin.

G. R. HUMPHREYS.

## DIPPER IN HAMPSHIRE.

ON May 28th, 1933, a Dipper (*Cinclus c. gularis*) was about on the River Itchen between Twyford and Bishopstoke. I



watched the bird for quite ten minutes before it flew off up stream.

C. W. G. PAULSON.

#### CUCKOO'S MODE OF LAYING ITS EGG.

ON May 24th, 1933, while standing with Mr. Fulcher beside a large peat stack in the railway yard at Shapwick Station, Somerset, a Cuckoo (*Cuculus c. canorus*), which had been sitting on the telegraph wires one hundred yards up the line, flew straight down towards us and alighted on the peat stack about a yard up the sloping roof, and only a few yards from us. At the exact spot where the Cuckoo pitched, a Pied Wagtail (*Motacilla a. yarrellii*) flew out and settled on the telegraph wires. I whispered to my friend to remain motionless for I guessed that the Cuckoo was about to lay its egg. The Cuckoo remained in full view for nearly ten minutes with both Wagtails perched on the overhead wires. She then shuffled her position somewhat, and gave me the impression that she had sat upon the nest to deposit her egg. In a few seconds she had turned about with her tail outwards and immediately flew off, followed by one of the Wagtails, and Mr. Fulcher and I clearly saw an egg in her bill. I fetched a short ladder and my companion went up, and after searching failed to see any sign of a nest. He then came down and I went up, and through a very small irregularly shaped aperture in a hollow in the turf I saw the Wagtail's nest with eggs in it, but could not see how many. The turves were firmly wedged and I took some little time to remove some of them so as not to break the eggs. The nest contained five eggs of the Pied Wagtail and one egg of the Cuckoo; the latter rested small end upwards, close to the rim of the nest near the aperture.

The uneven slope of the turves rendered it impossible for the Cuckoo to lay its egg on the roof, and then place it in the nest with her bill; besides, I am positive she did not do so, as I was watching her too keenly. There is no doubt whatever that she shifted her position until she was able to void the egg directly into the nest through the small aperture.

STANLEY LEWIS.

#### HOBBY BREEDING IN SUFFOLK.

As there do not appear to be many definite records of the Hobby (*Falco s. subbuteo*) breeding in Suffolk, I should like to record that a pair was heard and seen on various occasions in east Suffolk in 1933. During the week-end of August 12th I was in company with a keeper at the locality, and had the good fortune to see an adult Hobby alight on a

tree within view of the spot where we were concealed. The hawk immediately commenced to strip its prey, which was a small bird. It then flew to an adjoining tree and we had an excellent view of it feeding three young birds. These had apparently just left their nest and were close to the site where we had assumed the nest to be.

For some ten days subsequent to this the adults with the young were seen on various occasions in the immediate neighbourhood, and it would appear that they got off safely.

G. BIRD.

#### SNOW-GOOSE IN NORFOLK.

MR. ISAAC COOKE, of Salthouse, north Norfolk, when fighting ducks at dawn on September 8th, 1933, killed a Snow-Goose (*Anser h. hyperboreus*). Not knowing to what species it belonged he sent it to me for identification. It was in juvenile plumage, showing a good deal of ash-brown on the crown, hind neck, and mantle. It was seen the same day by a number of well-known ornithologists, and is now in Norwich Museum. Mr. Rivière, who saw it on its arrival in Norwich, informs me (*in litt.*) that it proved on dissection to be a young female, and that Mr. Colin McLean, who was with him, was of opinion that it was a wild bird on account of the healthy condition of its feet. This is made the more probable by the fact that sixteen birds of this species (one of which was shot) are recorded as having occurred in Inverness-shire on September 2nd (*Field*, 9.IX.33).

R. M. GARNETT.

I HAD the pleasure of seeing this bird at Mr. Gunn's, the Norwich taxidermist, on September 9th. Its measurements were as follows: Wing 385 mm. Bill 47 mm. Tarsus 67 mm. These are considerably less than those given for this species in the *Practical Handbook*, and the small size of this specimen is, I suppose, to be accounted for by its youth.

B. B. RIVIÈRE.

#### “INJURY FEIGNING” BY WOOD-PIGEON AND TURTLE-DOVE.

I CANNOT recollect having seen any record of what is known, for lack of a better phrase, as “injury feigning” by either Wood-Pigeon (*Columba p. palumbus*) or Turtle-Dove (*Streptopelia t. turtur*). Both species occasionally act in this way.

Some years ago, in Cheshire, a Wood-Pigeon had its nest in a copper-beech overhanging a high road and on my climbing to the nest, which contained young, the old bird dropped down to the road and flapped along on its breast for many yards before it finally flew away.

In June this year a local farmer showed me a Turtle-Dove's nest with young, built about five feet from the ground in a thorn hedge; the old bird flew off quite normally, but I was told that when the nest was first discovered it dropped down to the ground and flapped along on the grass for some way.

A. W. BOYD.

WITH reference to the above record, which Mr. A. W. Boyd has shown to me, I have notes of two occasions in different years when a Turtle-Dove has feigned injury when the young in the nest have been examined. The first was on June 21st, 1929, when the parent left the nest containing one half-fledged young bird, and flew down on to an open ploughed field about 60 yards away and scuffled about on the ground. The second was in August this year, when on two occasions (August 24th and August 25th) the parent left the nest containing two large young and went through a similar procedure, once about 12 yards from the nest in thick bracken, where it could only be heard, and once about 50 yards away in the sandy lane which leads to my house. Here it was watched by my daughter from a window. Both instances occurred at Kelling (N. Norfolk), and it is just possible that it was the same parent in each year, as the two sites are within a quarter of a mile of each other.

R. M. GARNETT.

#### TURNSTONE IN SURREY.

ON the afternoon of May 16th, 1933, a Turnstone (*Arenaria i. interpres*) was present by the edge of the water of No. 8 tank of the Barn Elms Reservoirs. At the time the water in this reservoir was low and the bird was feeding freely, only being flushed with difficulty. Later the same evening there was no sign of it.

C. W. G. PAULSON.

#### WADERS IN THE BRISTOL DISTRICT, 1933.

TURNSTONE (*Arenaria i. interpres*). A party of eighteen to twenty was seen by Mr. H. H. Davis on the Severn flats immediately above Avonmouth on May 14th, 1933. About six were in summer plumage.

RUFF (*Philomachus pugnax*).—Three were seen at Blagdon Reservoir by the Rev. F. L. Blathwayt on September 19th, and a male and two females on the 21st by Messrs. W. R. Taylor, A. C. Leach and L. A. Hawkins, and two males and one female on the 24th by Messrs. H. H. Davis, L. A. Hawkins and myself.

SPOTTED REDSHANK (*Tringa erythropus*).—One was at Barrow Gurney Reservoirs on September 17th (H.H.D.).

and H.T.), two were at Blagdon Reservoir on the 19th (F.L.B.), and on the 24th (H.H.D., L.A.H. and H.T.). These were three different birds. The one at Barrow was greyish-brown above, greyish beneath, with a distinct pale stripe above the eye, and a dark stripe through it, and its legs were bright orange-red. No white could be seen in its wing when the bird was resting, and none showed when it flew. In size it was slightly smaller than a Greenshank, alongside which it was feeding. The call was written as "*chu-ee, chu-ee*" and was soft.

The birds at Blagdon were much greyer above and whiter underneath and were adults in winter plumage, and not young birds as the one at Barrow was. They were distinctly larger than the Ruff, which was feeding by them.

GREENSHANK (*Tringa nebularia*).—These have been seen at the Barrow Gurney Reservoirs on September 17th, 20th and 30th, and have provided a note of interest as regards their call. Two birds which were suddenly startled from the bank where they were resting went off with a loud shrieking cry followed immediately by a "*tu-tu-tu*", very like the call of a Redshank. On the 20th there were at least five Greenshanks present, and of these two were solitary and three were continually together. The former were silent, even when they flew, but the latter kept up a continual "*tu, tu, tu-ee—tu, tu, tu-ee*" both when they were flying and when they were on the ground. It was a far-reaching call. On the 30th the only Greenshank present flew off calling "*tu-tu-tu*", a staccato call without the final "*-ee*" at the end of the last note, and I would suggest that this was an adult bird, while the three were young birds.

BLACK-TAILED GODWITS (*Limosa l. limosa*).—At Barrow Gurney Reservoirs two were seen by Mr. H. H. Davis and myself on September 17th, one by Rev. F. L. Blathwayt on the 19th, two by K. B. Rooke on the 20th, and two by myself on the 30th. Judging by the plumage, the two seen on the 17th were an immature and an adult in winter plumage, while those on the 30th were both immature.

One was seen at Blagdon Reservoir on September 19th by Mr. Blathwayt; and one at Beachley, Glos., on the Gloucestershire side of the River Wye, by Mr. H. H. Davis, with a large flock of Redshank, on the 10th. H. TETLEY.

#### BIRDS OBSERVED IN THE NORTH SEA.

WHILST tunny fishing at the end of August and beginning of September, 1933, off Scarborough, I made the following observations on birds which may be of interest:—

- Aug. 29th. Thirty miles N.E. of Scarborough. A Gannet (*Sula bassana*) and many Gulls seen.
- „ 30th. Twenty miles E. of Scarborough. Great Black-backed Gulls (*Larus marinus*), Herring-Gulls (*L. argentatus*), Kittiwakes (*Rissa tridactyla*) and a few Puffins (*Fratercula arctica*) seen.
- „ 31st. Twenty-five miles E. of Scarborough. A Great Skua (*Stercorarius skua*) and a few Gannets seen, and two Dunlin (*Calidris alpina*) flying south.
- Sept. 2nd. Fifteen miles E. of Robin Hood's Bay. At 8.30 a.m. three Sanderling (*Crocethia alba*), two young Gannets, a Fulmar (*Fulmarus glacialis*) and a few Puffins seen. At 5.0 p.m. many Great Black-backed and Lesser Black-backed Gulls (*L. fuscus*), Herring-Gulls and Kittiwakes, both adult and young, a few Fulmars and two Terns (sp. ?).
- „ 4th. Twenty-eight miles N.E. by N. of Scarborough. A tired Willow-Warbler (*Phylloscopus trochilus*) came on board at 8.0 a.m. At 2.0 p.m. many Great Black-backed Gulls and Kittiwakes, a Great Skua and two Terns seen.
- „ 5th. Fifteen miles E. of Scarborough. Some Razor-bills (*Alca torda*) and Gannets, and many Gulls seen.
- „ 7th. Thirty miles N.E. by N. of Scarborough. Many Gannets and Gulls, both adult and young, and one Arctic Skua (*S. parasiticus*) seen.
- „ 10th. Thirty miles N.E. by N. of Scarborough. Several Gulls seen, as large as Great Black-backs, with grey mantles and no black in their primaries, were almost certainly Glaucous Gulls (*L. hyperboreus*).  
Ten miles E. of Scarborough. A tired female Pied Flycatcher (*Muscicapa hypoleuca*) came on board at 6.0 p.m. and remained some time.
- „ 11th. Twenty-eight miles N.E. by N. of Scarborough. Many Gannets, adult and young, a good many Fulmars, and numerous Gulls seen.  
A female Wheatear, probably, from its size, of the Greenland race (*Enanthe a. leucorrhoea*) came on board 25 miles E. of Whitby. R. SPARROW.

#### GULLS FEEDING ON BEETLES.

A VISIT at the end of May and beginning of June this year to the Mullet Peninsula on the west side of Blacksod Bay, co. Mayo, coincided with the emergence of a small chafer

(*Phyllopertha horticola*) in numbers unusual even for that prolific creature. The beetles swarmed in every field and grassy place and particularly on the extensive areas of blown sand that cover several square miles. The Choughs and Jackdaws that resorted to the dunes and links as well as the Ringed Plovers, Wheatears and Meadow-Pipits that nested there, were, so far as I could see, feeding on the beetles, but the numbers so accounted for were negligible compared with those eaten by Gulls. Large mixed flocks composed of Herring-Gulls (*Larus argentatus*) and Common Gulls (*L. canus*) with Lesser Black-backed Gulls (*L. f. graellsii*) and Black-headed Gulls (*L. ridibundus*) in smaller numbers were scattered over the sandy area, which was littered with their ejected pellets. These castings, like the droppings of the domestic Ducks that had strayed on to the links, consisted solely of the indigestible chitinous parts of incalculable numbers of the chafers. Some years ago I saw large numbers of Black-headed Gulls feeding on a chafer—probably *Rhizotragus solstitialis*—on the fells inland from Ravenglass, Cumberland, and this Gull is known to feed on the larger *Melolontha vulgaris*. It is a check, too, on the numbers of the ghost moth (*Hepialus humuli*), which I have often seen it capture by beating to and fro at dusk just above the uncut hay. All these insects in the larval state do much damage to the roots of grass and other vegetation, and their wholesale destruction by Gulls is a substantial entry on the credit side of the account of the birds with the agriculturist.

CHAS. OLDHAM.

#### ICELAND GULL IN SOMERSETSHIRE AND GLOUCESTERSHIRE.

THE Iceland Gull (*Larus leucopterus*) recorded previously (*antea*, Vol. XXVI., pp. 338-9) has been seen later as follows: On April 22nd and 29th, 1933, by Miss M. Barclay; on May 5th and 6th Mr. C. Bartlett saw a very white Gull, while on June 11th and 25th Mr. W. R. Taylor definitely identified it as did Mr. H. H. Davis on July 16th and August 16th. With the exception of the last-named date, when it was seen on the Severn flats between Avonmouth and Severn beach, it has always been on the Avon just below Ashton Swing Bridge.

I saw it just below the Suspension Bridge on the morning of October 11th, when it was settled among some Herring- and Black-headed Gulls.

Its very white plumage showed clearly, as did the long pointed wings, giving the appearance of a slender, long, white Gull.

Miss Barclay heard the bird utter "a soft, long sort of whine". This it did when standing on a stone with its head thrown back.

H. TETLEY.

#### BREEDING OF QUAIL IN TAY AREA.

A NEST of the Quail (*Coturnix c. coturnix*) containing eleven eggs was found on August 20th, 1933, in a field of oats, when cutting was finished, at Balrennie Farm, two miles south-west from Edzell, Angus. The eggs were quite fresh, and were given to me by the son of the farmer. In Harvie-Brown's *Fauna of the Tay Basin* (1906) there are no definite records of breeding for the county and only one for the area, while the *Geographical Distribution and Status of Birds in Scotland* (1928) describes it as "occasional" in Forfar, N. Fife and S. Kincardine, and states that it "has bred" in N. Perth. This appears to be the first breeding record for Angus and the second definite one for the Tay area.

C. W. WALKER.

EARLY REDWING IN SUSSEX.—Mr. P. Allen informs us that he identified a single *Turdus m. musicus* at Brede on September 5th, 1933, and saw occasional single birds thereafter up to the 20th, on which day he drove upwards of thirty out of a single short length of hedge near Rye.

GARGANEY BREEDING IN MIDDLESEX.—Mr. Bertram Lloyd records (*Trans. Herts. N.H. Soc.*, Vol. XIX., part 3, Jan. 1933, p. 161) that on April 9th, 1931, he noticed a pair of Garganey (*Anas querquedula*) at Elstree, and on May 10th found a nest with twelve eggs upon which the duck was sitting closely. This was just on the Middlesex side of the Hertfordshire-Middlesex boundary. This nest was unfortunately subsequently deserted, but it is believed that a brood was eventually reared. This is, we believe, the first record of the bird breeding in Middlesex.

POCHARD BREEDING IN SURREY.—With reference to Mr. R. S. R. Fitter's note on this subject (*antea*, Vol. XXVI., p. 230), the same observer now informs us that he saw a duck Pochard with seven fair-sized ducklings at Beddington on the same water as in 1931, on July 25th, 1933, and several subsequent days.

GREY PHALAROPES IN HAMPSHIRE AND CHESHIRE.—Mr. J. B. Watson writes that on October 16th, 1933, he watched three Grey Phalaropes (*Phalaropus fulicarius*) on a pool on a marsh by the Solent. On the previous day he had seen a

single one on a pool about ten miles distant. On the 14th and 10th he saw two others. Fairly strong westerly winds had been prevailing.

Mr. B. J. Ringrose informs us that on October 11th he saw a Grey Phalarope on a permanently flooded marsh bordering on the Solent, near Keyhaven. It was quite tame, and allowed him to approach within 20 yards without flying away, picking up food busily from the surface of the water.

Mr. M. V. Smith writes that he saw a Grey Phalarope on the Marine Lake, West Kirby, Cheshire, on October 18th.

It would seem that there may have been an unusual number of these birds observed this autumn and we shall be glad if readers will send in details of any noted.

## LETTERS.

### ROOK ROOSTS IN NORTHUMBERLAND.

*To the Editors of BRITISH BIRDS.*

SIRS,—I do not wish to enter into a controversy with Mr. W. Raymond Philipson on the theoretical side of the above subject, which, it is agreed, needs much more observation in the field. If Mr. Philipson intends to continue the work and would find my notes of any use, I shall be very pleased to send a copy on receipt of his address.

J. M. DEWAR.

### ROOK POPULATION.

*To the Editors of BRITISH BIRDS.*

SIRS,—In reply to Mr. Burkitt's letter in the August issue of *British Birds* (*antea*, p. 80), the wholesale slaughter referred to is by shooting. The gradual fall in numbers is brought about by various factors each requiring fuller analysis. Accidents when learning to fly account for some, some lose their balance and are fatally injured during defæcation over the edge of the nest, some are killed by other birds, including Rooks, some appear to die of either starvation or parasites, &c. In very many rookeries there is an earlier loss in the nest caused by egg breaking, egg stealing, young birds killed by other birds, &c. The ultimate result, a fixed population, is more easily measured than are the various factors which produce that result.

A. ROEBUCK.

October 12th, 1933.

### WILLOW-WARBLER IN WINTER IN NORTHUMBERLAND.

*To the Editors of BRITISH BIRDS.*

SIRS,—The record of a Willow-Warbler, said to have been seen in Newcastle by me, on January 27th, 1912 (*Cat. Birds of Northumberland*—by George Bolam—*Nat. Hist. Soc., Newcastle, Transactions, Vol. VIII., page 40*), was an invention of a professional writer of nature notes—which was published in the *Newcastle Weekly Chronicle*, without my knowledge, and evidently copied by Mr. Bolam.

The writer carried the joke a little further—as he stated that I heard the bird trill its familiar notes.

ISAAC CLARK.

NEWCASTLE-UPON-TYNE.



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DEC. 1,  
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Vol. XXVII.  
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EDITED BY

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MY COLLECTION  
AND  
THE BRITISH TRUST FOR ORNITHOLOGY.

BY

H. F. WITHERBY.

FOR over forty years I have been collecting bird-skins for various scientific purposes, chief of which have been the study of plumages and moults, and geographical variation.

Recently I have had to give up, to a large extent, constant work on these subjects and consequently have not used my collection in a way which seemed to me to justify my keeping it. As I have for long regarded the collection as belonging to ornithology and not as personal property I sought means to benefit our science in some way with it.

The British Trust for Ornithology was then launched with the admirable object of creating an Institute and organization for the systematic study of the biology of birds. I could see an important future for such work in this country and determined to support it financially by means of my collection.

This has now been accomplished. It was announced by Mr. David Bannerman, Chairman of the British Ornithologists' Club, at the November meeting that the Trustees of the British Museum had agreed to purchase my collection for the sum of £1,500. Of that I am presenting £1,400 to the British Trust for Ornithology to form a nucleus of a permanent fund for carrying on its work in systematic field ornithology. The balance of £100 I am retaining to develop a bird reserve in my possession, where members of the Trust have already begun certain observations.

I shall greatly miss my collection, which has been a life's work to bring together, but this is fully compensated for by the knowledge that this arrangement will be a double benefit to ornithology, in that the collection will be of acknowledged value to systematic ornithology in reinforcing the study series of Palæarctic birds in the British Museum, and that the money provided from National funds will benefit that equally important and more widely attractive side of our subject—the study of birds in life.

Brief details of the collection may here be set out. It is entirely Palæarctic and consists of over nine thousand skins of some one thousand three hundred different forms. Many of the birds have been collected by myself, mainly in various parts of Europe and especially in the British Islands and the

Iberian Peninsula, as well as in Algeria, the White Nile and Persia. There are also a number of small but useful series obtained by exchange or purchase from the Continent and North America. Besides these there are many birds and several considerable collections for which I am indebted to many friends. Chief among these is my old friend Rear-Admiral H. Lynes, who gave me his collections from the Yangtse Kiang and the Mediterranean region. Admiral Lynes, I am glad to say, entirely approves of my present intentions and I feel sure that all those, and they are many, who have so kindly helped my work by giving me birds for various purposes (and especially the study of plumages) will also be content.

The Museum authorities have very kindly made arrangements for me to keep on loan a small reference collection of British birds. Without this it would be impossible for me to devote the time necessary to visit the Museum in order to answer those questions of my numerous correspondents which involve consulting skins. This work I therefore hope to be able to continue.

Finally, may I make an appeal to my readers to support the nucleus my collection has provided and to assist in building up a permanent fund, which will place the Trust in a sound position financially to carry out this research work.

I would remind readers that the main objects of the Trust are:—

To establish at or near Oxford an Institute to form a national centre of field ornithology.

To form an advisory committee of representative field ornithologists to consider projects for research in bird biology to be carried out through the Institute.

To form a chain of observers throughout the country to carry out programmes approved by this committee.

It is obvious that to carry out such work the Institute must be adequately housed and equipped, and however much voluntary help is given there must be an adequate whole-time staff. Before this can be done more financial support must be secured, but meanwhile the advisory committee will be appointed, and a provisional programme of research will be drawn up, so that a clear idea may be given of the lines on which it is proposed to work.

I have very carefully considered the project and I see a great future for it. It deserves all possible support and I am very glad that my collection has been the means of making a step towards its permanent foundation.

## VIPERS PREYING ON YOUNG BIRDS.

BY

M. V. WENNER.

(Plate 7).

ON the moors of North Wales the common viper (*Vipera berus*) habitually preys on chicks of Red Grouse (*Lagopus s. scoticus*) and young Meadow-Pipits (*Anthus pratensis*) and Ring-Ouzels (*Turdus t. torquatus*).

One hot day in early June, 1932, I was out photographing on the moors near Cerrigydruidion. Passing through a disused heather-grown quarry my attention was attracted by a loud hissing, and closer investigation revealed a Ring-Ouzel's nest, containing four fledgelings, and a viper lurking in an adjoining crevice of rock, from which the hissing proceeded (see Fig. 1).

Presently the viper emerged from its hiding place and slid over the nest, scattering the frightened occupants which, with one exception, hopped away and concealed themselves in the heather. Still hissing loudly the adder concentrated its attention on the remaining fledgeling, which kept absolutely motionless, apparently paralysed by fear. Soon, with wide-open jaws and hissing loudly, the viper slowly advanced on its prey (Fig. 2) and with a lightning stroke buried its fangs in the young Ring-Ouzel's shoulder and then coiled itself in front of its victim (Fig. 3) waiting for the poison to take effect, which it visibly did after the space of about fifteen minutes (Fig. 4). Unfortunately, I was prevented from photographing the concluding stages of this drama of the moors through some quarry men appearing on the scene and disturbing the viper. The fledgeling Ring-Ouzel died twenty minutes after being struck.

On a subsequent occasion I found a viper actually swallowing a nestling Meadow-Pipit, and it was remarkable to note the extraordinary extensibility of the viper's jaws so as to permit the swallowing of prey of greater diameter than itself.

The swallowing process occupies some considerable time, the prey passing by slow stages down the gullet (Plate 7).

The adder's bite soon proves fatal to small creatures and has very unpleasant effects on dogs, cattle and human beings. In the absence of permanganate of potash crystals rubbed freely into the excised wound, as much castor or olive oil as can be swallowed seems to be the best antidote.



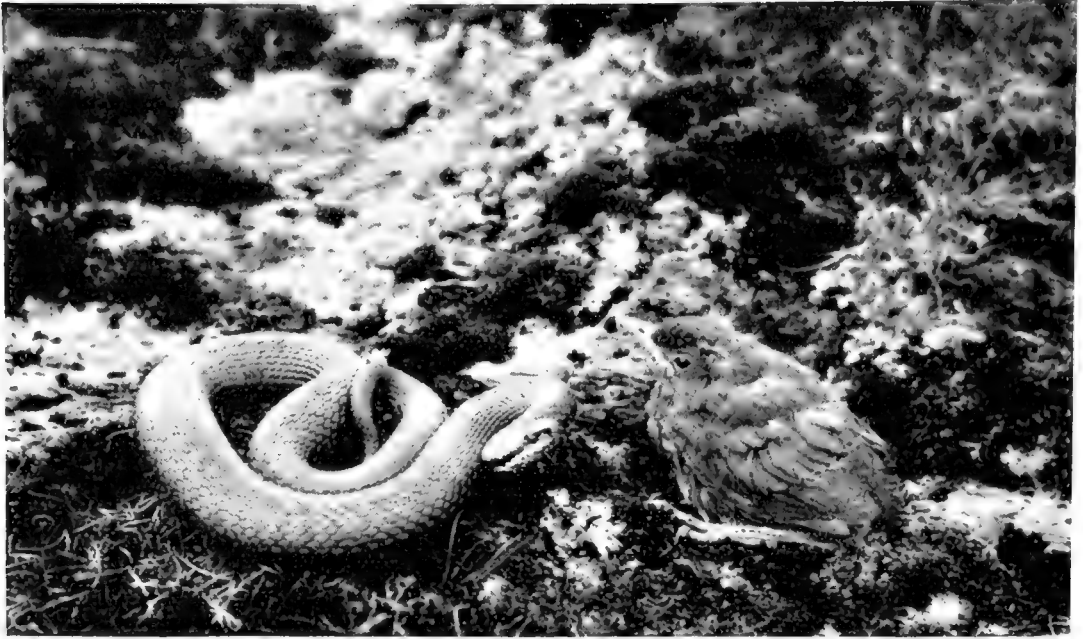


VIPER AND NESTLING RING-OUZEL.

(Upper) The Viper can be seen lurking in a rock cranny to the left of a nest containing three young Ring-Ouzels.

(Lower)—The Viper, jaws wide open and hissing loudly, slowly advances on its victim.

(Photographed by M. V. Wenner.)



VIPER AND NESTLING RING-OUZEL.

3 & 4.—The Viper, having struck, awaits the death of its victim. In the lower figure note the poison visibly taking effect.

*(Photographed by M. V. Wenner.)*



VIPER SWALLOWING YOUNG MEADOW-PIBIT.

North Wales, 1932.

*Photographed by M. V. Wenner.*



## TERRITORY REVIEWED.\*

BY

DAVID LACK, B.A., M.B.O.U., AND LAMBERT LACK, M.D., F.R.C.S.

IT is now some twenty-five years since the theory of "territory" in bird life was enunciated by Eliot Howard (1907-14, 1920, 1929) as the result of his intensive study of the behaviour of some of the Warblers and Buntings. The attractive nature of the theory itself, supported by a wealth of laborious observation, gained for it a ready acceptance. In our criticism we submit that so far sufficient evidence has not been adduced to show that territory is a general law of bird life, and that in especial there is no proof that territory is of food value, or is an important factor in the prevention of overcrowding.

### RECAPITULATION.

In Howard's conception "territory" is distinguished by certain special characters including a definite sequence of events. In the early spring the male bird of a species such as the Bunting (*Emberiza*) or Lapwing (*Vanellus vanellus*) separates itself from its winter flock and seeks isolation in some appropriate environment, which will later on become its breeding quarters. In this area it selects a headquarters—some conspicuous bough, bush or mound whereon it sings or otherwise displays, and it confines its movements within definite limits round this headquarters. Within the area thus delimited the bird spends at first an hour or so daily, then gradually more and more, and ultimately its whole time. While therein its character changes: it becomes hostile towards all other males of the same species and attacks and endeavours to drive away any that cross its boundaries. In this way a well-defined territory for breeding purposes is selected and secured. The same holds true of the migrants. The male Warblers (*Sylviidæ*) leave their winter quarters in the far south, preceding the females by some ten to fourteen days, and immediately they arrive in this country they proceed to stake out territories. In each case the male bird actually deserts the female at the commencement of the breeding season in order to secure a territory. The next step in this orderly sequence of events is that the isolated territorial male is joined by a female and then it becomes still more pugnacious. Soon the female learns to recognize the limit of her mate's territory and henceforth both will protect their chosen area against invasion.

\*Abstract of a Paper read before the London Natural History Society, September, 1933.

The fighting which is such a familiar feature of bird life in the spring is connected almost entirely with territory. A male will attack furiously any other male which invades its territory, but will fight only when in its territory and will cease to fight directly the intruder has been driven out. The will to fight is lacking in those males which have as yet acquired no territory or have wandered beyond the limits of their own territory, and they usually give way readily.\* The fighting continues throughout the breeding season and in the later stages male may fight male, or female fight female, or pair fight pair in defence of their territory. That the fighting by the male is not primarily for possession of a female is shown by two facts. In such species as the Buntings and Lapwings the males are quite friendly with other males even in the presence of females when, as often happens in the beginning of the season, they temporarily rejoin the winter flock; and in the migrants the males arrive and commence to fight long before the females arrive.

Howard also links song with territory. Only the male sings; it does not sing before it reaches its territory, and subsequently it sings only when in its territory. The most vigorous song occurs before the arrival of the females. Song serves to advise the wandering females of the position of a male with territory, thus enabling her to find him without delay, and it ceases, temporarily at least, directly the males are paired. Also song, by advertising the possession of a territory, warns off other males and thus lessens the amount of fighting, too much of which would weaken the males.

Thus the whole cycle of behaviour in the breeding season is centred round "territory". Howard claims for it many biological advantages (1920, Chap. V.). It ensures that the male shall obtain a mate. It provides a rallying point to keep the pair in touch before the nest is built if they should wander apart in search of food or temporarily rejoin different flocks. It "certainly serves to promote an ample supply of food for the young near the nest" and so allows time for brooding. The naked, helpless young of such birds as Warblers require constant brooding as well as feeding and therefore their food must be quickly obtainable. The "establishment of territories serves so to regulate the distribution of pairs that the maximum number can be accommodated in the minimum area". By preventing overcrowding it tends to

\*Later (p. 218) Howard relates numerous instances of Starlings (*Sturnus vulgaris*) attacking Woodpeckers (*Picidæ*) and House-Martins (*Delichon urbica*), Starlings being always aggressors, always attacking birds with territory, and yet nearly always successful.



promote a wider distribution of a species and the extension of its breeding range. The necessity of fighting for a territory ensures that only the stronger males succeed in reproduction, and at the same time gets some of the fighting over before the strenuous business of breeding commences. Howard concludes that the individuals which seek breeding territories earliest have an advantage as they find every locality open to them. (This seems to ignore the well ascertained fact that birds return year after year to the same breeding area.)

Turning to the colonial nesting species Howard claims that his theory still applies. Thus in the case of the Guillemot (*Uria aalge*), whose territory it limited to a few square feet or less of rock ledge, he states that food being unlimited but nesting sites strictly limited, this small space is the greatest amount that can be allowed in the general interests of the species. The territory is still real; the same instincts are displayed to stake out the claims; the same fights occur for possession. Similarly with the Reed-Warbler (*Acrocephalus scirpaceus*), the areas of suitable reeds being limited, each territory must be severely restricted or the species cannot survive. Other birds he considers colonial by limitation of nesting sites, nesting materials, or possibly because they require mutual protection for their eggs and young.

Although Howard's conception of territory has been generally accepted, indeed acclaimed as the greatest advance in ornithology in the century, it is remarkable how few workers have attempted to confirm or extend his views.

#### CRITICISM.

##### *The Colonial Bird.*

Our first criticism of Howard's theory is an obvious one. As Jourdain (1921) has shown, Howard's description of territory in the case of the Warbler and Bunting implies an area embraced by the activities of the parent pair, which provides them with a song or display centre, a nesting site and a food supply for their young, an area within which they confine their movements and from which they endeavour to expel all other individuals of the same species. We therefore agree with Jourdain, Alexander (1921) and others, that exception must be taken to applying the term to the mere nesting site of the Guillemot, a few feet or even inches of rock ledge. It is not a question of quantity; the sequence of events, the biological objects attained, almost all the distinguishing features of a territory as described by Howard are absent. The Guillemots are often crowded on their breeding cliffs until they actually touch each other; they may even brood

each others' eggs and young indiscriminately (Bertram and Lack, 1932). How can it be maintained of the Guillemot that "all the congenital and acquired capacities of the bird . . . are organized to sub-serve an end—isolation—and any individual which fails to make it good fails to procreate its kind?" (1920, p. 298).

If we now review various groups of birds it will be found that some groups are apparently territorial while others are gregarious (some perhaps by compulsion, but many by preference): that, as Jourdain (1921) has also pointed out, within the same family or genus some species may be described as territorial, others as gregarious: and, which is most suggestive, in certain species sometimes the pairs are spaced out and appear territorial, and at other times the nests are in colonies. Also it will appear that many species preserve a small territory round their nests only, and from this they drive away other species as well as their own.

#### *The Sea Birds.*

All the British breeding Petrels (*Procellariidæ*), Gulls, Terns and Skuas (*Laridæ*), Auks (*Alcidæ*), Cormorants (*Phalacrocoracidæ*), and the Gannet (*Sula bassana*) nest, at least usually, in colonies, and the argument previously stated for the Guillemot applies to them. Some of these forms may be almost forced to nest in colonies by the scarcity of suitable nesting sites. But in others, e.g., most Gulls, Terns and Skuas, there are often apparently suitable, uncolonized sites available elsewhere.

Conclusions as to territory must not be drawn from observations on birds in areas where they are not abundant. On Bear Island in 1932 Bertram and Lack found that the Great Black-backed Gull (*Larus marinus*), of which there were about thirty pairs, apparently had definite territories. The pairs were irregularly spaced out and the birds attacked and drove away both members of their own species and those of the closely allied Glaucous Gull (*Larus hyperboreus*). But in Britain, and in other places where the bird is common, it is colonial. There is no reason to suppose that the distribution of the species on Bear Island was other than random, their spacing out being due to their small numbers; for two pairs bred close to each other (as might be expected in a random distribution) and several nests were among colonies of the Glaucous Gull which has similar feeding habits.

#### *Birds of Prey.*

According to Howard (1920, p.298) the Birds of Prey (*Accipitres*) preserve large territories the whole year round



within which they find all their food and from which they drive away others of their species. Nicholson (1927) considers that to the bird-eating species a territory within which no other pairs are permitted to feed is an economic necessity. Certainly in this country the various pairs tend to be spaced out and some fighting may be observed to take place between them. But the chief argument for "territory" in this group seems to be the conviction that it would obviously be advantageous for birds with such feeding habits to have food territories, and this, of course, is not evidence. With regard to the spacing out the same argument holds as in the case of the Great Black-backed Gull. Observations in England, especially those before the War, are fallacious, most Birds of Prey being abnormally scarce as the result of human persecution. With regard to the fighting observed, the birds undoubtedly attack others which come too near their nests, but this is not in itself sufficient evidence of territory—a point discussed more fully later. Jourdain (1927) has really disposed of Howard's and Nicholson's claims. He states that many Birds of Prey are normally colonial under favourable conditions, and that there is evidence that all the British species, save the Sparrow-Hawk (*Accipiter nisus*), are colonial at times. He notes that during and after the War these birds increased enormously in number and that pairs of the Peregrine Falcon (*Falco peregrinus*) have been found breeding within a few hundred yards of each other, and Buzzards (*Buteo buteo*) much closer, whilst three pairs of Kestrels (*Falco tinnunculus*) were found nesting in one hedgerow all within two hundred yards. He adds that many non-British nesting species are colonial, and that the Osprey (*Pandion haliaetus*), considered territorial in Scotland, is gregarious in America and even at times in Europe.

We have found an American observation of some interest in this connexion. Errington (1930) considers that the Marsh-Hawk (*Circus c. hudsonius*) has definite territory. He reports that three pairs nested fairly close to each other (certainly closer than they need have done from the size of the meadow) and that each pair attacked the others when they came within a certain distance of their nest. It is clear that the birds did not feed exclusively within the small territories thus delimited round the nests. They were nesting and not feeding territories. Nor did the pugnacity of the birds achieve as great a degree of isolation as one might have expected had isolation been important. We may also note that other members of the genus *Circus*, with presumably similar habits, are described as colonial.

Probably other Birds of Prey are similar to the Marsh-Hawks. This type of territory (a small area round the nest) is very different from that postulated by Howard and Nicholson, for the existence of which we have as yet seen no adequate evidence. Moreover, if food territories were a fundamental necessity to the Birds of Prey, it is inconceivable that any colonial species could be successful.

#### *The Grebes.*

The Black-necked Grebe (*Podiceps nigricollis*) seems normally colonial. The Great Crested (*Podiceps cristatus*) is by some considered territorial. But according to Huxley (1926) the birds delimit territories only round their nests in the fringing reed beds, and make the open water a common feeding ground. Fighting occurs both inside and outside the territory. This implies that the territory has no connexion with food, and makes it easier to understand the cases where the species has been found breeding in large colonies. Thus Harrison and Hollom (1932) report that "on a few lakes . . . . territory has largely disappeared and numbers of pairs feed and breed without hostility". Also that "territory is rigid unless there is unlimited food and cover when it may break down and develop into colonial nesting". Hartley (1933) found that the Dabchick (*Podiceps ruficollis*) preserves territories within which it nests and apparently does most of its feeding, "but where several territories border on an open space this constitutes a neutral area where paired birds can associate without fighting."

#### *Wading Birds.*

Howard found that the Lapwing had a definite territory and claimed a food value for it, although the bird does not appear to feed exclusively in it. Brock (1911) has noted that the limits of ground claimed by each male are very vague.

Dewar (1915) concluded that the Oyster-Catcher (*Hæmatopus ostralegus*) had well-defined breeding, and also winter territories. He adduced evidence that in the area studied the bird's main food was scarce, and therefore concluded that Howard's conception of food territories held for this species. We consider this unproven. There was no real proof that the territory of each pair contained just sufficient food for them with enough over to allow the food population to reproduce itself by the next year. Too little is known about the shell-fish population for one to be able to assume this. Dewar also admits that some distance from the breeding ground there was a common feeding ground where the birds associated amicably.

We have found the Ringed Plover (*Charadrius hiaticula*) well spaced out on a Kent foreshore, and the birds were pugnacious when others approached their nests. But the nests were not on the feeding ground, where the birds fed amicably. On the other hand the Avocet (*Recurvirostra avosetta*) and some other waders nest in colonies. The Ruff (*Philomachus pugnax*) is an exceptional bird. Selous (1927) has described the communal display grounds where each male has its own restricted area wherein it displays. This "territory" is definitely used for courtship and for no other purpose.

It seems to us that territory, when present, is not of food value to wading birds. Most of the birds have communal feeding grounds and the size of these can bear no constant ratio to the size of the nesting areas. Hence a fixed size of nesting territory cannot regulate the amount of food for each pair. Finally, colonial forms apparently suffer no disadvantage.

#### *Parasitic Birds.*

Chance (1922) has shown in the Cuckoo (*Cuculus canorus*) that certain hens establish definite territories for laying from which other hens are driven out. Other less dominant hens fail to do this, and Gosnell (1932) records three hen Cuckoos all working the same corner of a common, two of which were observing, and ultimately laid in, the same nest without rivalry. Friedmann (1927, 1929) finds that in certain species of Cowbird the hens occupy definite territories for egg-laying. It is of interest that in the Shiny Cowbird (*Molothrus bonariensis*) the supposed territorial relations demonstrable when the birds are not extremely abundant "are largely over-ridden by pressure of numbers". Territory in these groups does not seem comparable with that in other birds.

#### *Passerine Birds.*

In this group gregarious forms are also not uncommon, some of which have been discussed by Nicholson (1927). Of the Corvidæ, the Rook (*Corvus frugilegus*) and the Jackdaw (*Colæus monedula*) are gregarious, while the Raven (*Corvus corax*) and the Carrion-Crow (*Corvus corone*) are apparently territorial. Selous (1912) relates instances of Carrion-Crows attacking Magpies and driving them from their nests, and also of the reverse position, of Magpies driving away Crows from their nests, both species apparently maintaining nesting territories. Among the Finches (*Fringillidæ*), while, as shown by Howard, the Reed and Yellow Buntings (*Emberiza*

*schaeniclus* and *Emberiza citrinella*) are territorial, the Linnet (*Carduelis cannabina*), the Greenfinch (*Chloris chloris*), the Lesser Redpoll (*Carduelis flammea cabaret*) and others, at times, nest in small colonies. The Linnet is clearly not forced to nest in colonies. It often nests solitarily and then appears to suffer no disadvantage. The Song-Thrush (*Turdus philomelus*) and the Mistle-Thrush (*Turdus viscivorus*) are usually assumed to be territorial, though Burkitt (1924) noted that the Song-Thrushes in his garden sang so close to each other that he could not hope to tell with certainty to which territory or nest each belonged. The Fieldfare (*Turdus pilaris*) normally nests in colonies. The Hirundines are more or less gregarious, and though it is possible that the Sand-Martin (*Riparia riparia*) may be forced to nest in colonies through the scarcity of suitable nesting sites, this cannot apply to the House-Martin (*Delichon urbica*). The latter often selects a common type of house and while on one house their nests may be crowded together, on an adjacent apparently identical house there may be none or, more illuminating still as showing its suitability, there may be one or two nests.

With regard to the Rook, Howard suggests that they nest in colonies because they require mutual protection for their eggs or young. He states that the Rook colony must be looked on as a unit and that there is evidence that each unit has its own territory and will fight with another for a group of trees. Further, that an individual Rook must fight for inclusion in a colony or it will have little or no chance for successful reproduction. The evidence for this does not seem at all conclusive. On the other hand Roebuck (1933), who investigated the Rook distribution in five English counties, found that there were no rigid boundaries to the territories of each rookery and that there was much poaching from surrounding rookeries where these were not far apart. In other words all that is meant by the territory of a rookery is that the birds tend to feed close to the rookery. Roebuck gives instances from each county of solitary nests, of a few nests here and there with gaps between straggling along for a mile, of several compact groups in a village, as well as of large rookeries. Rookeries containing one to five nests numbered six per cent. of the total (forty-one in seven hundred), and as rookeries when once established often remain for a very long period and tend to grow, this proportion is much more significant than might at first appear. Lastly, he gives instances of new rookeries starting with two or three nests and gradually increasing year by year. This presumably means that small rookeries or solitary pairs are under

little, if any, disadvantage. Roebuck records nothing to suggest that these small communities suffer molestation from larger rookeries.

Since writing the above Mr. Jourdain informs us that in his opinion "the Rook so far from having to fight for a place in the rookery as Howard states, has to fight if it tries to get outside the rookery". He continues: "Time after time I have seen one or two pairs try and found a new settlement within sight of an old rookery. Work goes on merrily for a few days. Then a scout carries the news, a raiding party is sent out and the nests are destroyed. Now and then a pair succeed in escaping notice. Then the single nest may become the nucleus of a new rookery. Sometimes, too, pairs which have lost their nests persevere and when the others are too busy feeding young to notice them manage to bring off a late brood. But the fact remains that it is against Rook law to nest outside the colony." (Privately communicated.)

We must now review in more detail the observations that have been made on certain individual species of territorial Passerine birds, since it is on these that Howard's main conclusions were based. We shall endeavour to show that probably in no species, even the most territorial, is there sufficient evidence that territory is as rigidly maintained as Howard believed, and that it appears to be strictly maintained only by the male bird and only in the earliest part of the breeding season, that is, before nesting. After the nest is built some species may defend a small area round the nest, but this area does not necessarily coincide with the previous territory of the male and need have no connexion with it.

#### *Warblers.*

H. G. and C. J. Alexander (1909) confirm the territorial spacing of Warblers, stating that a wood fills up by successive waves of invasion and that from the beginning each bird restricts itself to a definite territory. The same applies to the Nightingale (*Luscinia megarhyncha*). Burkitt (1919) found that Chiffchaffs (*Phylloscopus collybita*) had definite territories on their first arrival, but he could not be sure that these divisions were adhered to later in the season. Also the nests might be as much as 120 or 150 yards from the male's singing perch. This hardly accords with Howard's view that the nest always lies in the territory delimited by the male on his first arrival.

Brock (1910) watched Willow-Warblers (*Phylloscopus trochilus*) in a wood and found that the males had definite song-centres and regular beats, confining their feeding excur-

sions within more or less fixed limits. The song-centres were rarely intruded upon, but outlying parts were apparently common territory to two or three males; it was impossible to mark definite boundaries between individual territories and the birds concerned might either fight or ignore each other when they met. After the arrival of the females, the males began to wander much beyond what had been their beats. The nests were not evenly distributed, were often close together, and were often placed outside the male's territory, of which the female did not apparently recognize the limits. A male and female might build outside the former's territory and tolerate another bird within it. Two males might sing in adjacent interlacing trees and show no hostility. Also a male might chase a female far beyond the limits of his own territory.

#### *Chaffinch.*

The Chaffinch (*Fringilla cœlebs*) appears to be as territorial as any Bunting, and Burkitt (1921 b.) found that the males had restricted song-centres at the beginning of the breeding season from which they drove away other males. But after the nests had been built the pairs by no means confined their feeding excursions to their own territories, and yet they met with no opposition save from one unmated bird whose behaviour was still that of most males at the beginning of the breeding season. This last is a most significant observation and will be discussed later.

#### *Nightjar.*

The Nightjar (*Caprimulgus europæus*), closely allied to the Passerine birds, may be considered here. At first sight it seems a typical territorial species. The males arrive before the females; each appropriates one or a few closely adjoining perches on which it sings; and these singing males, and later the nests, are fairly evenly spaced out. Nevertheless Lack (1932) found that food territories are not strictly maintained. Strange Nightjars hunting round the nest of another pair are not molested, and several individuals may hunt together where food is abundant. Further, after the eggs have been laid (no observations were made before this), neighbouring males seem to seek out each other's company in the evening, and may roost by each other during the day. Finally, two pairs were found to be on amicable terms although the second brood nest of one pair was in the singing territory of an adjoining male, their nest actually being nearer the nest of this adjoining pair than to their own first nest.

These observations on Chiffchaff, Chaffinch and Nightjar agree with the more detailed observations of Brock on the Willow-Warbler, and though they in part confirm those of Howard they differ in some important respects. Brock's observations in particular are stated with a clarity that carries complete conviction, and it is unfortunate that Howard has made no attempt to reconcile them with his own views although they were published before either of his two later books.

Some observations made outside Britain may be briefly referred to. Nicholson (1930) noted that in West Greenland the Lapland Bunting (*Calcarius lapponicus*) was often seen feeding peaceably with others of its species quite close to its nest; although the pairs seemed dispersed on a more or less territorial basis, the males were singing freely, and some skirmishing was observed. Nice (1931), contrary to Butts (1927) and Haldeman (1931), found that the boundaries to the territories of the American Song-Sparrow (*Melospiza melodia*) were not rigidly fixed, each pair trespassing to some extent. Butts (*loc. cit.*) found that in the American Robin (*Planesticus migratorius*) most food was obtained in the territory, but some from common feeding grounds.

In tropical birds Nicholson (1931) showed that the Guiana King Humming-bird (*Topaza pella*) had a territory round its nest from which trespassers were driven off. But the birds fed several hundred yards away. Chapman (1932) found that in Gould's Manakin (*Manacus vitellinus*) the males have definite "courts" where they sing and display and from which they drive away other males, but these are neither nesting nor feeding areas.

#### WINTER TERRITORY.

##### *The Robin.*

A few species are said to maintain winter territories. Kirkman (1911) and especially Burkitt (1924), who watched more than thirty Robins over a period of three years and mapped out their territories, concluded that the Robin (*Erithacus rubecula*) had definite winter, as well as summer, territories. But Coward (1923) reports having ringed six Robins in his garden one January and yet others were coming there. Collenette (1931) found that there was one Robin which occupied his garden throughout the winter, singing there regularly. This bird he trapped in each winter month, and during this time six other Robins entered the trap. Yet he saw no signs of fighting, nor any attempt on the part of the Robin "in charge" to drive the others away. Again,

Boardman (1933) ringed twelve Robins in his small garden between October and April. Of these, two appeared repeatedly, and three others occasionally. Hence winter food territories are not strictly maintained. We therefore doubt whether their winter territories have food value, and this certainly cannot be considered proved until the food of the species has been more thoroughly investigated. Most species survive successfully without winter territories so that they are clearly not essential to bird life.

(The Robin is one of the few species which regularly sing in winter, which suggests a correlation between song and winter territory. But this does not necessarily imply, as some have asserted, that the purpose of winter song is to advertize the territory. Autumnal and winter song occurs to a variable degree in a number of other species apparently without territory. We would suggest that the difference in the Robin is that rather more of the spring behaviour complex—song, pugnacity, and restriction to a centre—has persisted; that there is no proof that this persistence has a different significance from the less marked persistence of spring behaviour in other species.)

There are also a few American observations on winter territory. Butts (1927) found that each pair of the White-breasted Nuthatch (*Sitta carolinensis*) kept together in winter, feeding within a small area which tended to be isolated from that of their neighbours. Apparently no fighting was observed in winter and neighbouring pairs occasionally fed in another's territory. Also Price (1933) reported that a semi-albino American Robin, a species which roosts gregariously, fed on the same lawn daily during a winter month. Such restricted winter feeding areas should hardly have been termed "territories", the same criticism applying as in the use of the term by Dewar (1915) for the Oyster-Catcher.

Tomkins (1933) suggests that the psychological make-up of a species with winter territory is different from that of a gregarious species. The San Francisco Spotted Towhee (*Pipilo maculatus falcifer*) vigorously attacked any strange individual of the species placed in a cage with it in winter, this behaviour contrasting with that of two species of Sparrow (*Zonotrichia*) placed under the same conditions. The former is said to maintain winter territories; the latter to feed in flocks.

#### TERRITORY AND FOOD.

The outstanding advantages that Howard claims for territory are that it insures "an ample supply of food for the young in close proximity to the nest", and that "it serves so



to regulate the distribution of pairs that the maximum number can be accommodated in the minimum area" (1920, p. 215). These are the features of territory which have captured alike the scientific and popular imagination. In our opinion neither of these contentions has been adequately proved and there are many considerations which render them doubtful.

First, many species nest in colonies and yet seem to experience little difficulty in obtaining food although some of them are closely related to territorial birds of apparently similar feeding habits. Nicholson (1927), realizing this objection, considers that among insectivorous birds it is only the weak-flying species, such as the Warblers, which require food territories, since they will have greater difficulty in obtaining their food quickly than will swift-flying birds, such as the Martins. This claim is far from proved. We cannot be certain that the Warblers would be unable to get sufficient food if they were colonial. It may be that they are weak-flying (it is usually assumed that they are), but the Reed-Bunting is also considered territorial and it is not a weak flier; it appears at least as strong on the wing as the Linnet, which is often gregarious.

Secondly, to insure sufficient food for the young it would be necessary for birds to maintain their territory against all birds with similar food requirements. Howard admits that "if territory is adequately to serve the purpose for which we believe it has been evolved, some provision must have been included in the system to meet this difficulty". He suggests that this is to some extent done but offers no real evidence of it. He bases his suggestion chiefly on the fighting he has observed but, as will be pointed out later, this fighting is often so confused that it is dangerous to attach any definite meaning to it. Many species, not only territorial ones, attack other species, and by no means only food competitors, which come near their nests. Thus we have seen the Ringed Plover attacking the Sky-Lark (*Alauda arvensis*), and the Linnet.

Thirdly, it has been shown that even the most territorial species may collect food for their young from outside the limits of their territory, either on communal feeding grounds or in the territory of an adjoining pair. As was pointed out when the Waders were considered, the size of the nesting territory cannot regulate the food supply in cases where communal feeding grounds are also resorted to, since the size of the former can bear no constant ratio to the size of the latter. In cases where a neighbour's territory is resorted to it is extremely significant that as a rule no attempt is made

to drive out the intruders. It has been shown that both Willow-Warbler and Nightjar may nest outside the male's territory and within the territory of a neighbouring male, and that these and also the Chaffinch will feed in a neighbour's territory without attempts from the latter to drive it out. Further, Nicholson (1927, pp. 34-35) noted that a group of fledgeling Willow-Warblers quartered themselves on the breeding ground of another pair without any friction arising. It seems therefore that even the most territorial species, which are extremely pugnacious in their song-centres at the beginning of the breeding season, do not attempt to maintain strict territories during the time of feeding of the young—that is, at the very time that the territories, as food territories, would be most valuable. This conclusion is strikingly confirmed by Burkitt's observations on the Chaffinch already quoted. Under these circumstances it is difficult to believe that food regulation is the main object of territory.

Fourthly, though it is obvious that the number of birds in a district must ultimately have a food limit, we have no proof that the limit imposed by territory would coincide with that imposed by food. At present we know far too little of the basic ecological facts to make such an assumption. We do not know how much food a given area contains; that is, how many birds it can support, consequently we cannot say whether it is saturated. Who would believe that the purely agricultural land round Scoulton Mere in Norfolk could support each year tens of thousands of Black-headed Gulls (*Larus ridibundus*) in addition to what seems a fairly normal bird population? The territory of the Willow-Warbler observed by Nicholson (*loc. cit.*) evidently contained more than enough for the one pair, since some fledgelings could also feed there without starving the original occupants. Howard has not proved his assertion that the Reed-Warbler requires a much smaller territory than other Warblers because its food is more plentiful.

Lastly, has it been proved that the pugnacity of the males does set a definite limit to the number of pairs in a given area? There is no real evidence that it does. Howard himself relates instances (1920, p. 104) where another male has, by persistent fighting, gained a territory in an area already divided up among several occupants. Thus one season he found a piece of ground divided up between three pairs of Reed-Bunting which presumably should be the optimum number allowed for food and the maximum number permitted by the pugnacity of the males. But late in the season a fourth pair established a territory in the same area, and there is

no evidence that several more pairs could not have done the same in spite of the pugnacity of the males in possession, and perhaps without exhausting the food supply. But assuming the marsh could support only four pairs, what would happen if we could double the amount of food? Until we know the answer to this, we cannot say whether the pugnacity of the males is sufficient to maintain a definite territory upon which another pair cannot encroach. We have seen that the Great Crested Grebe, and the Great Black-backed Gull, may attack other individuals which come too near their nests. Yet they often nest in colonies, hence their pugnacity cannot be considered as achieving any degree of isolation. From the evidence available at present the same may well apply to the Passerines. That they are spaced out (when not abundant) may well be assisted by the pugnacity of the males, but we do not consider it at all proved that the degree of separation is correlated with the pugnacity. The spacing depends on the number of pairs available, and perhaps on such factors as food and nesting sites.

We therefore consider that it is far from proved that territory is important in insuring a readily available food supply for the young, or that it serves so to regulate the distribution of pairs that the maximum number is accommodated in the minimum area. On the contrary it appears that few, if any, species maintain rigid food territories, and one may even doubt that food territories would be of significant value if birds did maintain them. Finally, it is not proved that pugnacity does limit the number of pairs in a given area.

#### FIGHTING AND TERRITORY.

The males of many species are pugnacious in their breeding season, and especially in the earlier part of the season. This pugnacity is mainly exhibited in hostility directed against other males of the same species and results in frequent fighting between them. The fighting may result in the spacing out of the males of certain species, especially of Passerines, and thus in the maintenance of an isolated area around their song-centres, which Howard designates a territory. But the fighting which occurs at this season appears not to be so strictly confined to territory as Howard claims. Vigorous fighting is also seen between the males of other species which are not territorial. Also in territorial birds Brock has noted that in the Willow-Warbler the fighting was not confined to its territory; the male might chase a female far beyond the boundary of its territory; also intrusion on its territory by

another male was not invariably followed by fighting. (Also Huxley reports that the Great Crested Grebe might fight in or out of its territory.)

There seems to us much evidence that this early fighting, and the behaviour complex which gives rise to it, should be distinguished from the fighting which occurs later in the season. The later fighting appears to come from a different source which may perhaps be expressed by saying it is excited by the well-recognized instinct of the parent birds to defend their nests and young. This fighting, Howard and those who follow him have apparently considered to be the same as the earlier fighting, and have ascribed both to territory. They seem to us distinct. The earlier fighting is limited to the male birds ; is centred round the male's song perch or display centre ; is directed almost entirely against other males of the same species, and greatly diminishes or ceases as the reproductive season progresses ; it is less after mating has occurred, and apparently ceases in almost all cases when the eggs have been laid. The second period of pugnacity is seen during the nesting time and is exhibited at its greatest intensity when the young are in the nest or remain in the parents' care. It is directed not much, if at all in Passerine birds, against males of the same species (which, as has been shown, are often friendly at this period of the season) but against intruders and especially large or predatory birds, as well as man or other animals. Also, the female at least equally with the male takes her share in this fighting. This later fighting may, as many observers have noted, result in the maintenance of what may be called a nesting territory, that is, usually a small area around the nest within which the birds resent intrusion. This area rarely coincides with, and may be entirely distinct from, the previous area around the male's song-centre. The reasons for considering that this is not a food area have been discussed. It may also be noted that the birds fight and endeavour to drive away not so much their own species or species with identical feeding habits, but those species which are likely to molest their nest or young.

Besides these two kinds of fighting there is a certain amount of general fighting, some of which has a definite object which is not territory. Thus the Starling or House-Sparrow (*Passer domesticus*) may fight other species for a desirable nesting hole, or one bird may try to annex the nesting material of another. There is also a certain amount of confused fighting to which it is perhaps dangerous to attach any definite meaning. It is not necessary, indeed it is unjustified, to assume that all fighting is purposeful.

Although it is never wise to stress an argument based on analogy, we may point to a parallel in the behaviour of certain mammals. They may also show two completely different kinds of fighting at separate times of their breeding period. There is first the pugnacity of the male in the rutting season, which is exhibited against other males of the same species and is often accompanied by loud challenging bellowing as the male bird's pugnacity is accompanied by song. Later, often some months later, there is the pugnacity which is aroused chiefly in the female when the young are approached. This later pugnacity is exhibited against man and other predatory animals and little, if at all, against others of the same species.

#### TERRITORY, SONG AND COURTSHIP.

Howard links song with territory. Its connexion exclusively with territory is considerably weakened by the fact that gregariously nesting species, for instance, Redwing (*Turdus musicus*), Linnet and House-Martin, also sing. Nicholson (1927) suggests that song is only song when associated with territory; that otherwise it is "sub-song". This is begging the question. He further suggests that only territorial species sing loudly, but this cannot be considered universally true. Thus the partly-gregarious Linnet and Lesser Redpoll have louder songs than the territorial Reed-Bunting.

Howard gives as one of the chief purposes of song that it serves to advertise the possession of a territory and so to warn off other males. The same function has been suggested by other writers for the bright colours of the males of certain species. Such an important claim cannot be accepted without full proof. Even had song been confined to territorial species, which it is not, we do not consider that Howard has produced sufficient evidence for this suggestion.

Nor does the possession of a territory seem essential to the securing of a mate among all species of Passerine bird, although Howard (1920, p. 88) asserts that he has "met with no single instance of failure to obtain and hold a mate when once a territory had been secured". Nicholson (1927, p. 22) found that in the Hawfinch (*Coccothraustes coccothraustes*) mating undoubtedly takes place before the break-up of the winter flocks. Bayne (1933) found that the love flight of the Starling occurred while the birds were still in winter flocks. Other Passerine species, even Warblers, may apparently breed year after year in the same spot and retain the same pairing. Further, Brock (1910) found that not all the Willow-Warblers with territories got mates. Burkitt

(1925, p. 120) gives instances from his territorial Robins and states that "there is each breeding season a proportion of mateless males. This compulsory matelessness, for a whole or part of the season, appears to occur in many species", and he instances the Common Whitethroat (*Sylvia communis*). Brown (1926) found that two out of four Pied Flycatchers (*Muscicapa hypoleuca*) with territories went unmated.

We agree with Howard that territorial species sing mainly in their territories. Both Howard and Burkitt (1921) note that the most vigorous song occurs before pairing, after which there is a marked, if temporary, decline. (The Blackbird (*Turdus merula*) is an exception). After pairing, the pugnacity of the males also appears to diminish and Brock and others note that the male birds are not nearly so restricted in their movements. That is to say, song is most conspicuous at the time when territory is most pronounced.

Song is undoubtedly correlated primarily with the breeding season. Autumn song, when present, is less vigorous and less persistent, although in some species it is stilled only in the moult. Song is perhaps used by some birds much as their conspicuous colours or special sex ornaments are used by others. Both song and plumage are at their best at about the same season and in both cases the males select a conspicuous, usually restricted, display ground in which to sing or show off their plumage. That song, the maintenance of a song-centre, and the arrival of the female are correlated, seems clear, although there is still much to be learnt as to the nature of this correlation.

#### CONCLUSION.

If territory were, as Howard describes it, the primary requirement for success in reproduction; if it were a fundamental necessity for the continued existence of a species, one would expect it to be a long-established racial custom and universal amongst birds. Observations on a large variety of species show that territory is by no means universal and that there are many species, including some of the most successful, which are colonial breeders. Further, we consider that there is no good evidence that territory is important in conserving a food supply for the young. Whilst therefore we must give Howard due credit for his remarkable field observations, and for the light he has thrown on the life history of the Warblers, we cannot wholly accept his interpretation of the facts, as we do not consider that he has brought forward sufficient evidence to prove his contentions.

What then is the meaning of the behaviour-complex that has given rise to the territory theory? It is generally

agreed that at the beginning of the breeding season the males of certain species select a conspicuous centre where they sing or otherwise display. It is agreed that in this headquarters the male is usually pugnacious and attacks other males of the same species which approach it too closely, and that it thus gains a certain amount of isolation, though there is no proof that the degree of isolation (size of territory) is determined by the pugnacity, or that it is constant. It is far from proved that this isolated area is an essential food area; for many territorial birds, like their colonial relatives, get their main food supply from a common feeding ground; only certain Passerines appear to derive their main supply from the male's territory, and they all allow other members, even families of the same species, to feed in it. Also the female does not recognize the male's territory and does not always build within it. Indeed she may place her nest in the territory of a neighbouring male. In fact, territory seems to be nothing more than an affair of the male bird, and its real significance seems to be that it provides him with a more or less prominent, isolated headquarters where he can sing or otherwise display. It is, in fact, in the Passerines, the male's "song-centre", and it is strictly maintained only at the beginning of the breeding season. It is thus strictly analogous with the display-ground of the Ruff and the Blackcock (*Lyrurus tetrix britannicus*), which Howard also calls territory. Territory in this limited sense with its accompaniment of song, plumage display, and some fighting, probably plays a definite role in courtship in certain Passerines, wading birds and some others. In other species the use of the term "territory" seems to us unjustified.

If this be the true interpretation it smooths out one great difficulty. Had the maintenance of food territories been proved, since both territorial and colonial species are found in nearly every group, one would have to postulate two entirely different types of life history evolved over and over again within various groups of birds. If food territories are non-existent, the gap between the colonial and the territorial nesting species may be only slight, as in fact the behaviour of many species suggests.

A last word. "During the amorous season such a jealousy prevails amongst the male birds that they can hardly bear to be together in the same hedge or field . . . . it is to this spirit of jealousy that I chiefly attribute the equal dispersion of birds in the spring over the face of the country." So much is true, but not new. It is Gilbert White of Selborne speaking.\*

\* Letter XI. to Daines Barrington.

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# NOTES

THE LATE DR. ERNST HARTERT.

It is with the greatest regret that we have to announce the death at Berlin, on the 10th of November, after an illness of only three days, of Dr. Ernst Hartert.

Dr. Hartert was renowned as an ornithologist all over the world, but in no country was he better known or more respected than here, where the best part of his life was spent at Lord Rothschild's Museum at Tring.

Dr. Hartert's vast knowledge of birds, and especially those of the Palæarctic region, his great influence in ornithological circles, and his unexampled generosity in giving help and advice, make his loss irreparable.

Our next number will contain an account of his life and work.

## UNUSUAL BIRDS IN PEMBROKESHIRE.

THE following records of birds which are scarce in, or new to, Pembrokeshire, may be of interest. With the exception of the Bittern, they were all made by the writer.

HOODED CROW (*Corvus c. cornix*). One seen October 24th, 1933, at Marloes. According to the farmer on whose ground I saw it, it had been seen for some days previously. According to Mathew (*Birds of Pembrokeshire*, 1894) it was almost a regular visitor in the early part of the nineteenth century. The only records for this century are : Tenby, 1910, two birds ; St. Davids, 1930, one.

SERIN (*Serinus canarius*? subsp.). On October 20th, 1933, the whole of the coast of Pembrokeshire between Linney Head and St. David's Head was subject to a very heavy diurnal (and probably nocturnal) migration of birds coming in from W. and W.N.W. On strategic points, such as the islands of Skokholm, Skomer and Ramsey, Starlings, Daws, Rooks and many Passerine species were passing singly and in flocks steadily all day, in the early hours, quite as fast as their numbers could be estimated and noted down. This movement continued with fluctuating strength until the end of the month, in the face of fresh or strong N. and N.E. winds. At 8 a.m. on October 21st, 1933, while I was sitting on the mainland point overlooking Jack Sound, two small yellowish Finches flew past, within about six yards. They were much smaller than the Greenfinches which, in company with Goldfinches and Linnets, were flying east at the same time. I suspected these birds to be Serins, although I have never seen the species

in the field before, but as they flew straight on I could only note down the small size, the different flight, and the bright yellow back of the nearer bird. Hundreds of the migrants were resting and feeding in and about farmyards along the coast, and in visiting several of these I kept a keen look out for unusual birds. At a farm near Dale a few hours later I again saw a Serin, and this time watched it feeding on weedy ground in the rickyard in company with Chaffinches, Bramblings, Goldfinches, Greenfinches and Corn and Yellow Buntings. I made a full description of its plumage, from which I have no doubt that the bird was an adult male. This is apparently the first record of the Serin in Wales.

BRAMBLING (*Fringilla montifringilla*). Probably a regular winter visitor to the coast of Pembrokeshire, though Mathew calls it "rare and irregular". I have seen it in most winters. During the last fortnight in October, 1933, the numbers seen among Chaffinches near coast farms in the west of the county increased from about .5 per cent. on the 20th to about 2 per cent. on the 29th.

TREE-SPARROW (*Passer m. montanus*). Two among Linnets and Goldfinches in a hedge at Martynshaven, October 21st, 1933. Not previously recorded in the county.

BLACK REDSTART (*Phœnicurus o. gibraltariensis*). Now regularly recorded on the coast, and seen in every month from October to December, and from March to June. For previous records see Vols. XXV., p. 80; XXIV., p. 106, and XXII., p. 373.

HOOPOE (*Upupa e. epops*). One, Skokholm, May 3rd, 1928.

BITTERN (*Botaurus s. stellaris*). One, shot by a farmer, Marloes Mere, December, 1927.

LITTLE STINT (*Calidris minuta*). An immature bird on the main pond, Skokholm, September 11th, 1933.

BLACK-TAILED GODWIT (*Limosa l. limosa*). One on the main pond, Skokholm, May 22nd, 1933.

BLACK GUILLEMOT (*Uria g. grylle*). One in Jack Sound, July 15th, 1933. For previous records see Vols. XXVI., p. 169; XIX., p. 256; XVIII., p. 143 and p. 234. With the exception of Miss Acland's record (June 18th, 1924) all these records are for July.

I am much indebted to Messrs. Ingram and Salmon for information on previous records.

R. M. LOCKLEY.

#### AVERAGE BROODS OF SWALLOWS IN CARMARTHENSHIRE.

THOUGH there were plenty of Swallows' nests in south Carmarthenshire during August, 1933, the number of young per brood was well below the average of the last ten years,

and was lower than any, except the year 1928. Here are the figures :—

Year.	No. of Nests Visited.	Average Brood.	Percentage Five or More.
1923 ...	32	3.94	21.9
1924 ...	24	3.96	29.2
1925 ...	40	3.90	30.0
1926 ...	45	4.04	26.7
1927 ...	41	3.90	36.6
1928 ...	32	3.34	6.25
1929 ...	45	3.96	33.3
1930 ...	36	4.06	36.1
1931 ...	46	4.11	34.8
1932 ...	50	3.96	32.0
10-year average,			
1923-32 ...	—	3.92	28.7
1933 ...	51	3.71	17.6

J. F. THOMAS.

#### SIZE OF SWALLOW BROODS IN YORKSHIRE.

THE figures below represent the numbers of the Swallow population in part of the county between Huddersfield and Brighouse for the last two years.

Unfortunately, mortality arising from infertility was not kept a record of this year, but as the clutches, though smaller than formally, appeared to hatch much better than in 1932, it is believed that this figure has fallen.

The decrease in breeding pairs is accounted for by three pairs losing or, in one case, deserting their first broods, and making no attempt at second ones.

		No. of Breeding Pairs.		No. of Broods.		Average Size of Broods.	
		1st Broods.	2nd Broods.	1st Broods.	2nd Broods.	1st Broods.	2nd Broods.
1932 ...	11	17	4.88	4.25			
1933 ...	8	11	4.1	4.0			

JOHN C. S. ELLIS.

#### RESULTS OF RINGING AND TRAPPING SWALLOWS IN CARMARTHENSHIRE.

FOR some years I have been catching a gradually increasing number of pairs of Swallows (*Hirundo r. rustica*) in order to show, as I hoped, that the adult bird returns to the shed where it nested the year before, and that quite frequently a pair might be recovered ; I am afraid, however, that the recoveries so far do not quite prove the theory.

The results obtained in 1930-2 were given in volumes XXIV., p. 127, and XXVI., p. 253. In August, 1932, 19 pairs were marked in Carmarthenshire, and on visiting their sheds in August, 1933, I found the following :—

Sheds 1-7.	Not nesting in August.
Shed 8.	Not nesting in August (male found dead in May close at hand).

- Sheds 9 & 10. Not nesting in August, but females caught (a) next shed, (b) 300 yards away, with different mates.
- Sheds 11-13. Different pairs.
- Shed 14. Different pair, but former male breeding in next shed (its mate not caught).
- Shed 15. Different male, female not caught.
- Shed 16. Not caught.
- Sheds 17-19. Males different, females same.

If we take the total of four years with their 48 pairs, we find that only eight birds were recaptured in the same sheds the year after ringing, and there is only one instance of a pair occupying a shed two years running.

There is undoubtedly a tendency for birds to return to their former home, but many things militate against it:—Mortality (what is the "expectation of life" of a Swallow that has bred once?), attachment to a new mate with another home, or the fact that its former shed has become uninhabitable owing to its falling down, being shut up, &c. In addition, it is possible that the older birds start nesting earlier than the one-year birds; they may then have completed two broods by the time they are visited by me in August.

A very interesting recovery followed on the ringing of the male bird in Shed 19: at the time, the young in the nest were about 20 days' old. Six days later (and also a fortnight after that) it was caught feeding young (two days' old) in another farm 700 yards away. This looks like a definite case of a bird, having seen its own young fly, going to the help of another that had lost its mate, but there are other possibilities, and it may be that it really belonged to the second farm, and that its presence in Shed 19 was merely casual; for sometimes one sees the same bird fly into two adjoining sheds one after the other.

J. F. THOMAS.

#### CAPTIVE CUCKOO EATING MICE.

SOME years ago a young Cuckoo (*Cuculus c. canorus*) was taken by a patient from the nest of a Greenfinch (*Chloris ch. chloris*) in the woods of the L.C.C. Asylum at Claybury, Woodford, Essex, and kept in captivity during a period of eighteen months, viz., for one whole summer and for nearly two winters. It was placed in a primitively constructed wooden cage and fixed near a large window in a well-lit, lofty room, facing S.W., which was the bakery of the Institution, kept at a constant temperature of about 75 degrees.

The intimacy between the captive and its captor was often hostile, although the bird at times seemed comforted by the appearance of its benefactor, but generally it showed the germ

of its nature and never demonstrated affection. On the contrary, it was pugnacious towards others and self-assertive, for it would stiffen its back, lift its wings and strike with its beak. Through the winter months it was fed upon raw meat finely cut up, also bread overspread with egg—but not bread alone. The food preferred was the larvæ of lepidopterous insects. It also devoured crickets, beetles (which it turned and crushed before swallowing), flies, spiders, wasps' eggs, moths and meal worms; but "hawk-like" it had a special predilection for mice, and live young mice, placed in its cage, were soon pecked, killed and devoured—apparently with relish—and the tail would often be seen out of its beak.

My cuckoo acquired a *piquant* vernal song in captivity, and was heard to "cuckoo", probably learning the sound by mimicry from the newly-returned elders of its race, or possibly even from its parents? ROBERT ARMSTRONG-JONES.

#### KESTREL TAKING BAT.

ON October 12th, 1933, I received a Kestrel (*Falco t. tinnunculus*) which had been shot in a garden at Somerton, Suffolk, while in the act of hawking for bats at dusk. It had been observed in the same place the previous evening, chasing the bats in and out among the trees, and the man who killed it was under the impression that it had caught a bat, which it had eaten while actually in the air (that is to say, he had not seen it alight).

On dissecting the bird I found in its stomach, along with the remains of a field-mouse, part of the body and one entire wing of a bat, which, judging from the size and colour, appeared to be a common pipistrelle. W. H. PAYN.

#### UNUSUAL NUMBERS OF WADERS AT HORNSEA MERE, YORKSHIRE.

THE water at Hornsea Mere, on the east coast of Yorkshire, this summer (1933) has been lower than for many years, mud or gravel being exposed several feet more than normally. Presumably correlated with this, there has been a considerable increase in the number and species of waders halting here during the autumn migration. In a normal year only Dunlin and a few Common Sandpipers and Ringed Plover are seen, so the following notes for this year may be of interest.

On August 21st a considerable number of waders appeared overnight, about forty Dunlin (*Calidris alpina*), twenty Ringed Plover (*Charadrius hiaticula*), two Common Sandpipers (*Tringa hypoleucos*), and three Ruffs and several Reeves (*Philomachus pugnax*). The Sandpipers left after three days and the Ringed Plover remained until about September 7th.

The majority of the Dunlin, and the Ruffs and Reeves were still there when I left the district on October 10th. On September 16th two Turnstones (*Arenaria interpres*) appeared and remained a week, and a single Knot (*Calidris canutus*), which joined the Dunlin flocks. Finally, on October 6th, several Sanderling (*Crocethia alba*) were seen.

This year has also been exceptional for the number of Curlew (*Numenius arquata*) seen in the district round Hornsea during August and September. Normally only a few of these birds are seen at this time of year, usually flying high, and in a southerly direction, but this year I have seen and heard many in the fields, and flocks noted have been travelling in no constant direction. The reason for this prolonged stay on passage this year is not clear, but I suppose that certain insects have been more available than usual. P. F. HOLMES.

#### BARTRAM'S SANDPIPER IN DUMFRIES-SHIRE.

MR. RICHARDSON, of Dumfries, on behalf of Mr. Jas. Paterson, of Collin, Dumfries, sent to Messrs. Malloch, taxidermists, Perth, a bird, to be set up and mounted, on October 16th, 1933. Mr. Gilbert D. Malloch, observing that it was unusual,



Bartram's Sandpiper, shot Ruthwell, Dumfries-shire.  
October 13th, 1933.

(Photographed by G. D. Malloch.)

brought it to me for identification. The only bird I could refer it to was Bartram's Sandpiper (*Bartramia longicauda*). It was sent to Mr. H. F. Witherby who confirmed my diagnosis. Examination in the flesh showed it to be an adult female, with well-developed ovary packed with ova maturing for next year's laying. The left oviduct was wide and tough as if eggs had been passed this year. I regret that I had not time to make an examination of its other organs as to its food or internal parasites. As I did not have any particulars regarding its capture I wrote to the sender and received from Mr. Paterson, of Brocklehurst, Collin, Dumfries, the following reply :—

“When shooting on October 13th over a part of Comlongon Castle Estate, belonging to the Earl of Mansfield, of which I am shooting tenant, this bird was driven over a party of guns, off a grass field, and was shot for a Golden Plover. Its call in flight was similar to that of the Golden Plover or Redshank. The bird was killed in the afternoon between 2.30 and 3.30, on the farm lands of “Kirkstyle”, parish of Ruthwell, Dumfries County, and approximately two miles from the shores of the Solway. I might add that the bird was a solitary one with flight similar to the Golden Plover.”

This is the first recorded occurrence of the bird in Scotland.

JOHN RITCHIE.

#### RUFF AND GREY PHALAROPE IN CARMARTHENSHIRE.

WE have recently received from Professor J. W. W. Stephens, of Ferryside, an immature Ruff (*Philomachus pugnax*) in the flesh, that had been shot on the Towyn Marsh, at the mouth of the Gwendraeth River, on September 29th, 1933, and given to him. Professor Stephens has two specimens of this species that he purchased from Jeffreys, the taxidermist at Carmarthen, some 30 years ago, but it is doubtful if these were obtained locally as he could obtain no data with them.

Professor Stephens also informs us that he watched and clearly identified a Grey Phalarope (*Phalaropus fulicarius*) on a pond close to Carmarthen on September 20th, 1933, and that it remained there for about a week.

As far as we are aware these are the only reliable records there are of both these species, and therefore the first for the county, although Barker in his *Natural History of Carmarthenshire*, 1905, lists the Grey Phalarope, stating that Jeffreys “thinks that one of these birds has been shot at Johnstown”.

The Grey Phalarope appears to be a fairly regular autumn and winter visitor to South Wales, and hardly a winter passes without it being recorded from one or other of the counties.



The Ruff is very rarely observed as an irregular autumn passage-migrant and it may therefore be of interest to give a summary of its appearances, the more recent ones not having been previously published.

GLAMORGAN.—Only one specimen is recorded in *The Birds of Glamorgan*, 1925, and that occurred a century ago. Since then a female was shot at Aberthaw West by Mr. T. H. Williams, on September 21st, 1930.

CARMARTHENSHIRE.—See above.

PEMBROKESHIRE.—Mathew, in his *Birds of Pembrokeshire*, 1894, mentions only one "obtained . . . . many years ago from the neighbourhood of Pembroke". Mr. Bertram Lloyd informs us of one shot near St. Davids, August 8th, 1912, and Mr. D. L. Lack saw three on Treveiddan Pill, September 20th and 21st, 1930.

CARDIGANSHIRE.—Professor J. H. Salter writes that Hutchings, the taxidermist at Aberystwyth, has had several specimens in winter plumage during the past fifty years (two prior to 1900) and one of these was definitely obtained at Ynyslas, but no dates or further particulars are given.

There are apparently no records from the counties of Monmouthshire, Brecknockshire or Radnorshire.

GEOFFREY C. S. INGRAM.

H. MORREY SALMON.

#### GREY PHALAROPES IN CHESHIRE, HAMPSHIRE, SUSSEX AND DEVON.

ON October 23rd, 1933, I watched two Grey Phalaropes (*Phalaropus fulicarius*) on the Marine Lake, West Kirby. When first seen they were busy preening themselves, then they commenced feeding, darting here and there after tiny forms of marine life; all their movements were extremely quick.

After a time they left the lake and took to the tide, which was ebbing strongly. They continued to feed until left on the shore by the tide, when they flew away.

Next day I watched one of them running about feeding in a shallow pool with a Ringed Plover, two Redshanks and several Dunlin; later they returned to the lake. During the night there was a change of wind and they both left.

They were so tame that I was able to obtain the accompanying photograph of them.

W. WILSON.

A GREY PHALAROPE was reported by Miss. C. Popham off Hengistbury Head, Christchurch, Hants., on September 14th, 1933. It was, I believe, subsequently shot, or picked up dead, and has been set up. It was a female in poor condition weighing only 1½ oz.

F. C. R. JOURDAIN.



Grey Phalaropes at Marine Lake, West Kirby, Cheshire,  
October 23rd, 1933.

(Photographed by W. Wilson).

MISS C. M. ACLAND informs us that she saw a Grey Phalarope on September 24th close to the sea marshes near Keyhaven (*cf. antea*, p. 172).

MR. E. E. WISHART writes that he saw a Grey Phalarope on October 11th near Seaford, and on the 16th another near Eastbourne.

MR. H. G. HURRELL states that the following were seen in Devon: one by Mr. G. M. Spooner and others at Slapton on September 16th, one at Wembury, near Plymouth, by himself on the 24th, and four at the same place by Mr. Spooner and himself on October 22nd.

#### PURPLE SANDPIPER IN SURREY.

WHEN visiting one of the Barnes reservoirs on November 2nd, 1933, I saw by the edge of the water a small wader, fast asleep and with its back turned towards me. While I

was attempting to determine its species with the help of my telescope a fisherman walked towards the bird and disturbed it. To my surprise it did not fly away but ran before the man and in doing so revealed the fact that its feet were yellow, and I then knew that I was looking at a Purple Sandpiper (*Calidris m. maritima*).

After the fisherman had retreated—taking the hint which, with his help I had received, as to the tameness of the bird—I went slowly towards it and, when I was twelve yards from it, sat down and examined it at my leisure while it had a series of “cat-naps”.

Inland occurrences of the Purple Sandpiper are uncommon, and in his *Birds of Surrey* Bucknill gives only two records for that county, one for 1871, the other undated. To watch one in London within sight of the passing omnibuses is an experience not likely to recur within my lifetime; I therefore send you a note of this curious event. DONALD GUNN.

#### BLACK-TAILED GODWITS IN CARMARTHENSHIRE.

I AM now able to give some more information about the flock of Black-tailed Godwits (*Limosa l. limosa*) which I recorded (Vol. XXVI., p. 312) as staying at least a month on the coast of Carmarthenshire.

After an absence of two or three months I visited their favourite haunt on 16 days from April 5th, 1933, to April 26th, and, with the exception of one day, always found them there in numbers varying from 23 to 28. On the 27th the flock seems to have divided in two, one party leaving the neighbourhood altogether; the other, numbering anything from 10 to 16, was seen every day, sometimes at the lagoon, sometimes on an estuary two and a half miles away. This latter party finally disappeared on May 4th.

It would be interesting to know when they first arrived in the district, but all that can be said is that they were present from December 20th, 1932, to May 3rd, 1933, with an interval of eight weeks\*, during which they may or may not have gone away. The former seems the more probable, since, about the middle of February, Carmarthenshire was visited by a very severe blizzard, which surely must have driven away all winter migrants that could possibly go. Corroboration is, perhaps, afforded by the fact that on March 11th Mr. H. G. Hurrell records (Vol. XXVII., p. 30) a flock of 26 Black-tailed Godwits on St. German's Estuary, near Plymouth; these may have been the Carmarthenshire birds returning.

During the period December 20th to January 16th it was noted that the birds never fed at the times of observation

\* Miss E. Falkener tells me that she saw them on March 18th.

(11.30 a.m.—2 p.m.) ; they merely stood in water a few inches deep, and either slept or preened their feathers ; they never took flight unless definitely disturbed. From April 5th to May 3rd, on the other hand, most of the time was spent in feeding ; occasionally, especially towards the end of this period, the whole flock would fly two or three times round the lagoon and then settle again in the spot they had just left. On one occasion two birds separated from the stationary flock and flew round together.

During August, 1933, Black-tailed Godwits were seen at the same place on two occasions : on the 4th, seven in two parties ; on the 12th, five were noted. J. F. THOMAS.

#### REGULAR APPEARANCE OF LESSER BLACK-BACKED GULLS AT BARNES ON THE THAMES.

FOR the last twenty years I have been living facing the Thames just before Barnes Bridge and have noticed recently a remarkable change in the Gull visitors to the river above the Port of London.

Up to three years ago a Lesser Black-backed Gull (*Larus f. grællsii*) was a comparative stranger, appearing only occasionally singly or two, but since 1930 these birds have arrived regularly about mid-June in fairly large numbers. At this time the birds visiting us are in all stages of immature plumage. About the last week of August they are reinforced by adults and birds of the year.

On September 10th, 1933, I saw several hundreds of all ages. This was the largest number seen, but they were still numerous by October 1st. From October 8th they began to diminish. I counted only thirty on the 14th and 15th, fifteen on the 17th, on the 18th none, on the 21st and 22nd five, and there appeared to be only one on the 27th and 28th.

On September 10th I noticed a number of the dark form (*Larus f. fuscus*). They were especially noticeable when adults of each form were standing next to each other and very distinct in the bright morning sunlight. A. H. BISHOP.

#### PTARMIGAN FEEDING ON SCURVY GRASS.

IN early September, 1933, when on Ben Nevis, I noticed, at a height of some 3,800 feet above sea level, a pair of Ptarmigan (*Lagopus m. millaisi*) alight on stony ground. They walked to a green patch, and as they were unusually tame I and two friends were able to watch them and approach to within a few yards without disturbing the birds. I was interested to see that they were feeding on the leaves of the alpine form of the scurvy grass (*Cochlearea*) and were picking off the green succulent leaves with quick movements and

great accuracy. I do not think it is on record that the Ptarmigan have been recorded to eat the leaves of this plant?  
SETON GORDON.

### QUAIL IN WARWICKSHIRE AND WORCESTERSHIRE.

SEVERAL occurrences of Quail (*Coturnix coturnix*) in Warwickshire and Worcestershire have been reported recently.

On September 2nd, 1933, one of a shooting party, while walking for Partridges near Stratford-on-Avon, put up from a stubble field a bevy of about fifteen birds, which he recognized were not Partridges, and shot one.

He states that shortly afterwards his brother saw a bevy approximately equal in number. A further report of Quail comes from the same district.

The bird shot was sent to the Birmingham Natural History Museum. It is a young bird of this year in excellent condition.

A single bird, reported to be a young one, was flushed from a grass field near Redditch, September, 1933, and on several occasions this year Quail have been heard calling near Bromsgrove.  
W. E. GROVES.

LATE MOULTING OF LESSER REDPOLLS.—Mr. E. Battersby informs us that he caught for ringing between September 2nd and October 7th, 1933, at Mytton, Lancashire, thirty-one males, thirteen females and twelve immature Lesser Redpolls (*Carduelis l. cabaret*). Of these he noted that seven males were still in full summer plumage and did not show signs of moult, with the exception of one got on October 7th, which was just commencing to moult. Mr. Battersby, in a long experience of this species, has never before found the bird so late in moulting, and this, he thinks, may possibly be due to their rearing later broods than usual during the exceptionally fine summer.

LATE NESTING OF SEDGE-WARBLER.—With reference to the late dates mentioned for the Sedge-Warbler (*Acrocephalus schænobæmus*) in our last number (*antea*, p. 164) Mr. J. F. Thomas informs us that he found a Sedge-Warbler's nest on July 30th, 1932, with three young about one or two days old, at Laugharne, Carmarthenshire, and found the young birds still in the nest on August 7th.

INJURY-FEIGNING BY TURTLE-DOVE.—With reference to the notes on this subject (*antea*, pp. 166-7), Mr. T. G. Powell informs us that he has a note dated June 29th, 1927, of watching a Turtle-Dove (*Streptopelia t. turtur*) performing this ruse for a hundred yards or so when put off the nest near Ramsholt, Suffolk.

RED-LEGGED PARTRIDGE IN TEESDALE, YORKS.—Mr. W. K. Richmond informs us that in April, 1933, he observed a single Red-legged Partridge (*Alectoris r. rufa*) at Manfield (Yorks.), near Darlington, and in June a pair which seemed to be breeding. He was unable to find any evidence of introduction, and as the bird does not appear to have been previously recorded from Teesdale, considers that the presence of this pair represents a natural spread of the species.

### LETTER.

#### THE GRASSHOLM GANNETS.

*To the Editors of BRITISH BIRDS.*

SIRS,—With reference to the suggestion that the increase of Gannets on Grassholm (1922-1924) might have been due to birds from Ailsa Craig (*antea*, p. 151), I must point out that there was also an increase on the latter island at that time.

During the years 1922-1925 I spent an annual fortnight on the island and always noted an increase. During 1924 in many places the Gannets had ousted Guillemots and were nesting lengthwise on abnormally narrow ledges.

Gannets suffered very little if at all from the rats; Guillemots and Puffins were the chief sufferers.

The largest single group of immature birds noted on the Craig was never more than forty and the percentage of immature birds was always very small.

DUNCAN MACDONALD.

NAILSEA, SOM.

*November 4th, 1933.*

#### SNOW-GEESE IN NORFOLK AND ELSEWHERE, PROBABLY FROM WOBURN.

*To the Editors of BRITISH BIRDS.*

SIRS,—I think it is more than likely that the immature Snow-Goose recorded in *British Birds* (p. 166) as having been shot at Salthouse, came from Woburn. Some of our young birds left at the end of August. Both they and their parents are full winged and neither they nor their parents have ever been in captivity.

Unfortunately our water birds seem to make a practice of going to Norfolk when they leave us, but the last migrant Snow-Geese did not get farther than the Ouse at Bedford, where they also have been immortalized.

Cranes, gallinules, geese, &c., have all been reported in Norfolk shortly after leaving us.

M. BEDFORD.

[Mr. C. Oldham informs us that on August 30th he saw four adult Snow-Geese on the Wilstone Reservoir, Tring. Mr. Oldham states that the birds were tame and that in the afternoon they flew away towards the south-west.

The Duchess of Bedford tells us that about fifteen Snow-Geese left Woburn at the end of August on account of the want of grass. There is no doubt that the Tring birds, as well as the Norfolk one, came from Woburn, and it seems likely that the sixteen birds which appeared in Inverness had the same origin. The date of September 2nd when they were seen makes this much more likely than that they were true migrants. It seems a pity that some means cannot be found to ring such birds.—EDS.]

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CENSUS OF HERONRIES, 1928**

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REVUE BELGE D'ORNITHOLOGIE (*Fondée en 1911.*)

La seule publication scientifique belge traitant des oiseaux, spécialement  
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Abonnement 25 francs belges - 5 Belgas par an.

Direction : Square Prince Charles 21, Bruxelles-Laeken (Belgique)

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EDITED BY

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ON THE BREEDING-HABITS OF THE PUFFIN:  
WITH SPECIAL REFERENCE TO ITS INCUBATION-  
AND FLEDGING-PERIODS.

BY

R. M. LOCKLEY.

(Plate 7.)

THE Southern Puffin (*Fratercula arctica grabæ*) rarely visits the coast of Pembrokeshire in winter, from October to February. The few solitary individuals which I have seen in November and December have been suffering from contact with oil waste, and were carried in helpless from a wintering area farther out in the Atlantic, and have all been adults. On November 21st, 1932, I did, however, see one juvenile, dark-beaked and in clean plumage, close to the shore.

In the third week of March one or two adults appear in the sounds, and at the end of the month they gather in thousands about the shore of the island of Skokholm, where these observations have been made.

TABLE OF ARRIVAL AND DEPARTURE.

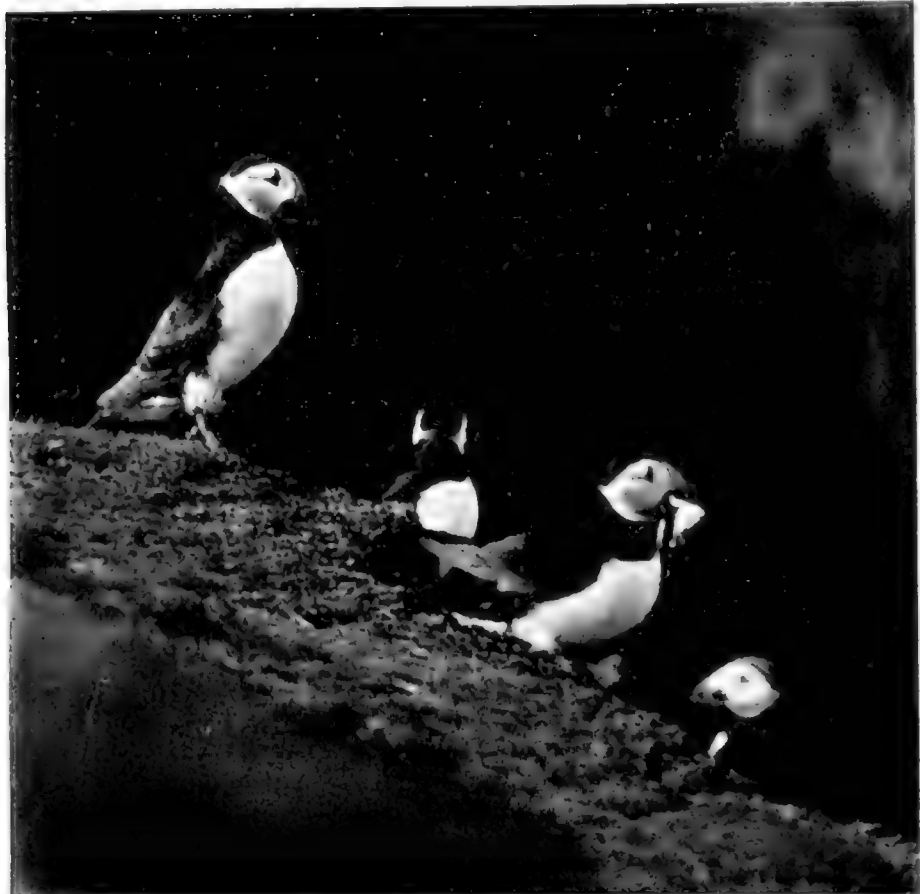
<i>Year.</i>	<i>First seen on sea.</i>	<i>First visitation on cliffs.</i>	<i>Last seen on land.</i>	<i>Last seen on sea.</i>
1928 ...	Mar. 28th	April 4th	Aug. 22nd	Sept. 7th
1929 ...	„ 25th	„ 6th	„ 16th	„ 12th
1930 ...	„ 31st	„ 8th	„ 18th	„ 10th
1931 ...	„ 25th	„ 6th	„ 15th	„ 17th
1932 ...	„ 22nd	„ 4th	„ 24th	„ 18th
1933 ...	„ 29th	„ 3rd	„ 26th	„ 8th

As will be seen by the above table the newly-arrived adults remain several days offshore before settling upon land. They are much influenced by the meteorological conditions at this stage, effecting an early landing in mild weather. Cold, dry, anticyclonic conditions may drive the flocks away from the island for long periods, both before and after a first landing has taken place.

The first visitation on land always takes place at noon, and the birds fly overhead a great deal before landing on the outcrops of rock, those favourite gathering places before the investigation of the breeding-holes is begun. This is not attempted as a rule on the first day "ashore", the flocks returning to the sea after an hour or two spent in this preliminary look around. From the second day onwards courtship

takes place both outside and inside the burrows and the birds, which are already paired, are active in digging out and enlarging the old burrows.

During these first few days ashore they do not appear to feed, but spend each day entirely in these activities, with frequent spells of sitting idly outside the burrows or upon some favourite outcrop. At night they rest upon the sea



ADULT PUFFINS, SKOKHOLM.  
(*Photographed by R. M. Lockley.*)

below the cliffs. After from two to seven days of this procedure the entire population deserts the island for an equal period, making their exodus late in the evening. The logical conclusion is that hunger has triumphed over sexual instinct. It is also obvious that the Puffin is obliged, during March and April, to travel a considerable distance out into the ocean, at least twenty to fifty miles, to obtain the small fry upon which it feeds exclusively.

There may be three or four of these periods, gradually shortening in length, of feeding at sea when the island is completely deserted, during April (in cold weather up to the first week in May and after egg-laying has begun) before they settle in for the season.

#### POPULATION AND NESTING-SITES.

There were only one or two colonies of Puffins on Skokholm about 1890 (C. Haydon-Bacon; *in litt.*). About that time it was estimated that Grassholm, seven miles to W.N.W., was the breeding-place of over a quarter of a million pairs of Puffins (*Transactions of the Cardiff Naturalists' Society*, Vol. 26, pt. I., pp. 6-13). It is believed locally that these moved by degrees to Skokholm. In 1928 I could only count 200 odd Puffins, and in 1933 perhaps 100, on Grassholm, though the ground was riddled with the roofless deserted burrows. There has been no diminution and probably an increase in their numbers on Skokholm during the years I have known the island (1927-1933).

Estimating the population each year has been very difficult, but, by counting the birds at their burrows and making all reasonable deductions for pairs in view, I have arrived at a fairly constant and representative minimum figure of approximately 20,000 breeding pairs. This gives a density of 86 pairs per acre. Actually the population is concentrated in a wide belt along the slopes of the cliffs, with very few pairs scattered inland on ground occupied by the Manx Shearwater (*Puffinus p. puffinus*).

Most of the nests are placed at the end of shallow burrows not more than from three to five feet long. Where the burrow was longer I noticed that in most cases the egg would still be placed within a few feet of the entrance. Holes in talus and soft rock, and under boulders, are also utilized. Although rabbit holes are freely adopted the Puffin is quite capable of digging for itself, using its bill as a pick and scratching out the earth and stones with backward shovelling movements of its strong webbed feet. The strength of these tools is well shown in some places on the cliffs which overhang and are therefore inaccessible to rabbits; here the Puffins have excavated two or three feet into the weathered broken-down sandstone.

#### RELATIONS WITH OTHER SPECIES.

No doubt this partiality for shallow ground has resulted in the Puffin leaving the deeper, more labyrinthine burrows of the

interior of the island to the Shearwater. To some extent the ecological boundary overlaps, giving rise to a certain amount of competition. In direct conflict the Puffin has a slight advantage in weapons (a stronger bill and quicker movements), but the Shearwater, being nocturnal, invariably has the great advantage of possession (in the spring, at least), and does, I believe, successfully resist aggression in the deeper burrows. It has also the desire to avoid being seen above ground by day, and in the few battles at the entrance to the burrow which I have witnessed, the Puffin soon flew away and the Shearwater hastily shuffled back into the recess. Probably mutual respect largely influences them when in contact.

Occasionally a rabbit may bury an egg under excavated earth or nesting material (dry grass and fur) during the absence of the owners, but otherwise the Puffin has nothing to fear from this mammal, which swiftly retires before its formidable bill.

Of the species which prey upon the Puffin, the Great Black-backed Gull (*Larus marinus*) is foremost. This large Gull habitually stands among the burrows, ready to surprise whatever comes forth, rabbit, Shearwater, or Puffin, and, as the last is the most active by day, it suffers considerably. When surprised and caught thus it fights vigorously with beak, claws and wings, and unless the Gull has got in a crippling first blow or a firm grip, the Puffin often escapes. Frequently the half-stunned Puffin is carried off to be drowned and devoured at sea. Examination of the remains, which are often washed ashore, show that the same method of skinning and devouring is followed at sea as on land. The breast is torn open, the viscera swallowed, and every bit of flesh is torn by degrees from the skin, which is turned inside out over the skull in the process. If the Gull is hungry, however, it will strike savagely, wrenching the head off and swallowing it whole, and will then devour every part save the wings. The head is later thrown up in a separate casting, and often the beak, skull and feathers of the head remain *in situ* almost unaffected by the digestive juices, which have disintegrated the softer parts. If the Gull is partly surfeited it only tears the body open and devours the viscera, leaving the rest to the Lesser Black-backed Gull (*Larus fuscus graellsii*), the Herring-Gull (*Larus a. argentatus*), the Buzzard (*Buteo b. buteo*), and the Carrion-Crow (*Corvus c. corone*), which are willing scavengers. I have never seen any of these

latter kill the Puffin, as they will the more helpless Shearwater, and I have only once found the Raven (*Corvus c. corax*) struggling with a live adult. The Peregrine Falcon (*Falco p. peregrinus*), when in residence on the island in the summer, lives almost entirely on the Puffin. A pair on the mainland, four miles away, also regularly hunted the island. An examination of their eyrie, when the eyases were nearly fledged, showed that they had been fed almost exclusively on a Puffin diet.

#### CALL-NOTES.

There is only one note, which is uttered at and in the burrows, as well as upon the sea below them, a low growling "arr", sometimes uttered singly, but generally thrice in slow succession, the first note being higher than the second, and the third lowest of all. When handled, and in fighting, the same growl is uttered, but more sharply. The young bird utters a rather sharp "chip-chip-chip" when being fed in the burrow, and later, at fledging, utters this note whenever it is hungry, whether its parents are near or not.

#### COURTSHIP.

For a species possessed of such strikingly coloured facial adornments in the breeding season there is surprisingly little courtship, at least visible to the human watcher. This, perhaps, is largely because the birds are paired on arrival.

Seen from the cliffs, on the water, the males (presumably) swim jealously near their mates, occasionally pursuing an apparently unattached bird which may have ventured too near. After swimming side by side the male paddles around the female until they are bill to bill. They then indulge in bill-shaking together, and coition, lasting about half-a-minute, throughout which the male vibrates his wings to keep position, frequently follows.

The typical attitude of bill-shaking or rubbing is best seen on land. The larger bird, presumably the male, approaches his mate with slow mincing steps, and nibbles at her bill tentatively, perhaps as an invitation. As a rule both at once draw breast to breast and commence shaking their heads to and fro rapidly so that their bills rattle against each other. At the same time their heads are frequently lowered and raised together, as if they were exchanging bows, while still bill-rubbing. This may go on for fully a minute,



with brief intervals when the birds may pause to look about them (without changing their breast to breast position, however) before resuming. Sometimes an onlooking male (?) of another pair, as if resenting their behaviour, will rush in and upset them. The two males now begin to fight, pecking and grasping with their bills and using feet and wings upon each other as they roll over and over down the cliff slope, until they are separated at last in the mutual effort to fly clear of the rocks below.

Courtship ceases in June, but both sexes keep up a certain amount of head-dipping or bowing when approaching each other, and this is to be seen in every month that they are on land.

#### NEST.

There is no serious attempt to line the nest, the one white egg being laid in a slight depression on the bare earth of the burrow. The adults frequently carry up withered blades of grass picked up on the sea but as likely as not toy with them and drop them before entering the burrow. Or they may pick material from the grass about the burrow, carry it inside and drop it haphazard along the passage.

#### INCUBATION.

Laying begins in the last week of April and is general by the first week of May. In eight nests in 1933 eggs were laid between April 24th and May 16th. Although in the *Practical Handbook* it is stated\* that incubation is undertaken by both sexes, I have never been able to catch more than one of the pair, presumably the female from its slightly smaller head, actually brooding the egg. In some twelve successful visits to eight nests in 1933, the same bird, identified by a B.B. ring, was caught in each burrow. This seems to point to the female incubating alone, a point which is partly confirmed by a certain amount of both driving and "leading" adopted outside the burrow by the male, as if he wished his mate to resume duty inside. The pair having entered the burrow, the male soon reappears and sits outside again or flies down to the sea.

\*In the *Pract. Handbook* it is stated that both sexes took part on the authority of O. A. J. Lee, B. Hantzsch, C. W. Townsend (who says by both sexes, but especially the female) and Romer and Schaudinn. The last-named authors and Hantzsch made their observations on northern races of this species.—EDS.

More often than not, visits to the marked burrows by day were not successful. That is to say, the egg was found barely lukewarm, or even quite cold, both birds being away at sea when the observation sod (cut out immediately over the nest) was lifted. From this it would appear that incubation is carried on chiefly at night, with occasional "shifts" of sitting by the female during the day, at least for the first four weeks. Since the male is never seen to bring fish to or feed the female in any way, it may reasonably be argued that the latter is obliged to be at sea seeking food for herself during some part of the day.

Experience taught me to visit the marked nests as seldom as possible. In 1930 the eggs in seven marked nests disappeared one by one during incubation. In 1931, out of nine marked nests, two eggs hatched, one was buried by an excavating Shearwater, one was found cracked, and the remainder disappeared. In 1933, out of eight nests, only one hatched, one was buried under a fall of "roof", and the remaining six, one by one, at varied intervals, disappeared completely. There are no rats on the island to account for these sudden disappearances. I can only suggest that the parents, resenting the occasional opening of the nest, removed the egg themselves, possibly to another burrow.\* Alternately, they may have pushed it outside and it may then have been devoured by a Gull. In the latter case there would have been some trace of a broken egg either outside the burrow or on the rocks below, but I could find nothing. The birds did not frequent the empty burrows afterwards.

As will be seen in the following table, the period of incubation varied between forty and forty-three days, and averaged 41.6 days, while that of fledging averaged forty-nine days.

Nest.	Year.	Egg Laid.	Egg Hatched.	Incubation-	Young Bird left.	Fledging-
				period, days.		period, days.
A	1931	April 30	June 9	40	July 30	51
D	1931	May 6	„ 18	43	Aug. 4	47
F	1933	„ 5	„ 16	42	„ 4	49

#### FLEDGING-PERIOD.

The nestling is very active from birth, shuffling away from an intruding hand after the first week, and in three walking upright down the burrow to meet its parents. The soft,

\* Cf. *Broadland Birds* by E. L. Turner, Chap. V., giving an account of a Water-Rail removing eggs to a fresh place.

stragglings natal down grows quickly; at fourteen days it is about an inch long, entirely black-brown above, and white on lower breast and belly. Quills sprout about the sixteenth day and at five weeks the young bird is completely feathered, but some down still clings about the nape (Plate 7).

In the first weeks it is fed with small sand-eels and the minute freshly-hatched fry of fishes (including at least that of herring and pollack) which swarm close inshore in June and July. These providential shoals are brought up against the island shores with every flood-tide, and it is noticeable that the adult Puffins take advantage of this, fishing over the flood and resting over the ebb. At each of the two principal periods of feeding which occur therefore in the long summer day, the nestling is given three or four beakfuls of fry from both parents. It must easily consume its own weight in fish every twenty-four hours. As the nestling grows, towards the end of July, the parents bring in still larger catches of larger fry to suit the appetite and stomach of the voracious youngster. At this later stage, and possibly throughout the fledging-period, the fish are dropped in the burrow beside the nestling, which picks them up and swallows them jerkily. Unlike the young Shearwater, and for the obvious reason that its food is not predigested, the young Puffin passes a great deal of excreta, until the burrow becomes thoroughly insanitary. Yet, as it grows up and as far as possible without actually going outside, the half-feathered young Puffin soon begins to keep the interior clean by backing to the entrance and voiding waste through it with considerable force. The semicircle of guano outside a burrow in July and August is a certain advertisement of the young Puffin within.

At six weeks it is very fat and prepared for the fast which it is then compelled to make.

#### DESERTION BY PARENTS AND FLIGHT TO THE SEA.

When I first visited the island in 1927 I was much struck by the fact that, whereas the young Guillemots (*Uria aalge albionis*) and Razorbills (*Alca torda*) were attended by the adults at sea in August, the young Puffins swam quite alone. As I could find no allusion to this in any book of reference or, indeed, any account of the young birds' mode of reaching the sea, I was anxious to watch them going down over the cliffs. But in 1928, when I began to live on the island, I soon discovered that no young Puffins left the burrows by day. The first indication of a night-passage was the

occasional discovery of the fledgelings in the garden on August mornings. Obviously these had "crashed" on a night flight to the sea.

Since then, by placing matchsticks in the mouths of marked burrows, I have found that the parents desert their young one about the fortieth day. Like the young Shearwater, the young Puffin remains alone fasting in the burrow for several days. During this period, day and night, it sits close to the mouth of the burrow as if too timid to venture out. The unanswered hunger calls gradually cease. Then one night, straight after dusk, moved by a force it has so long resisted, it walks forth. There is no awkwardness or scrambling. The young Puffin has become an expert walker through exercise in its natal burrow. If on or near a cliff slope it flutters and tumbles down into the sea. Unless the wind is very strong it is quite unable to do more than flutter downwards. If coming from an inland burrow it walks quickly along the level and may flutter down the steeper inclines. The direction taken appears to be ever downward, whether the slope leads inland or not, but as all slopes on the island lead eventually to the sea it is on the right course. I wish particularly to record my thanks to Mr. H. Morrey Salmon in connexion with the accompanying flashlight photograph of a young Puffin surprised on its way to the sea.

On reflection it will be recognized that this night-passage to the sea is essential to the survival of the species, at least on an island inhabited by predatory *Laridæ*, *Falconidæ* and *Corvidæ*.

#### BEHAVIOUR AT SEA.

To observe this it was only necessary to drop those young birds which had fallen into the garden into the sea. After paddling with their feet, their wings half open upon the surface of the water, they would dive swiftly, swimming rapidly under the water with easy, distinct strokes of their wings. They did not appear to use their feet when swimming thus, as far as I could see, but only used them in coming up to and swimming upon the surface. The average length of time spent under water was 21 seconds, the extremes 9 and 27, while the intervals of resting on the surface were much shorter, averaging less than 10 seconds. They seemed a little bewildered at first, and often swam near the shore as if they meant to land, but they soon appeared to get their bearings and make off straight to sea, proceeding by a series of dives with



YOUNG PUFFINS.

Top. Nestling in down: three weeks old.

Middle. Six weeks and four days old: deserted by parents.

Bottom. On its way to the sea at night, August 6th, 1933.  
(Flashlight photograph.)

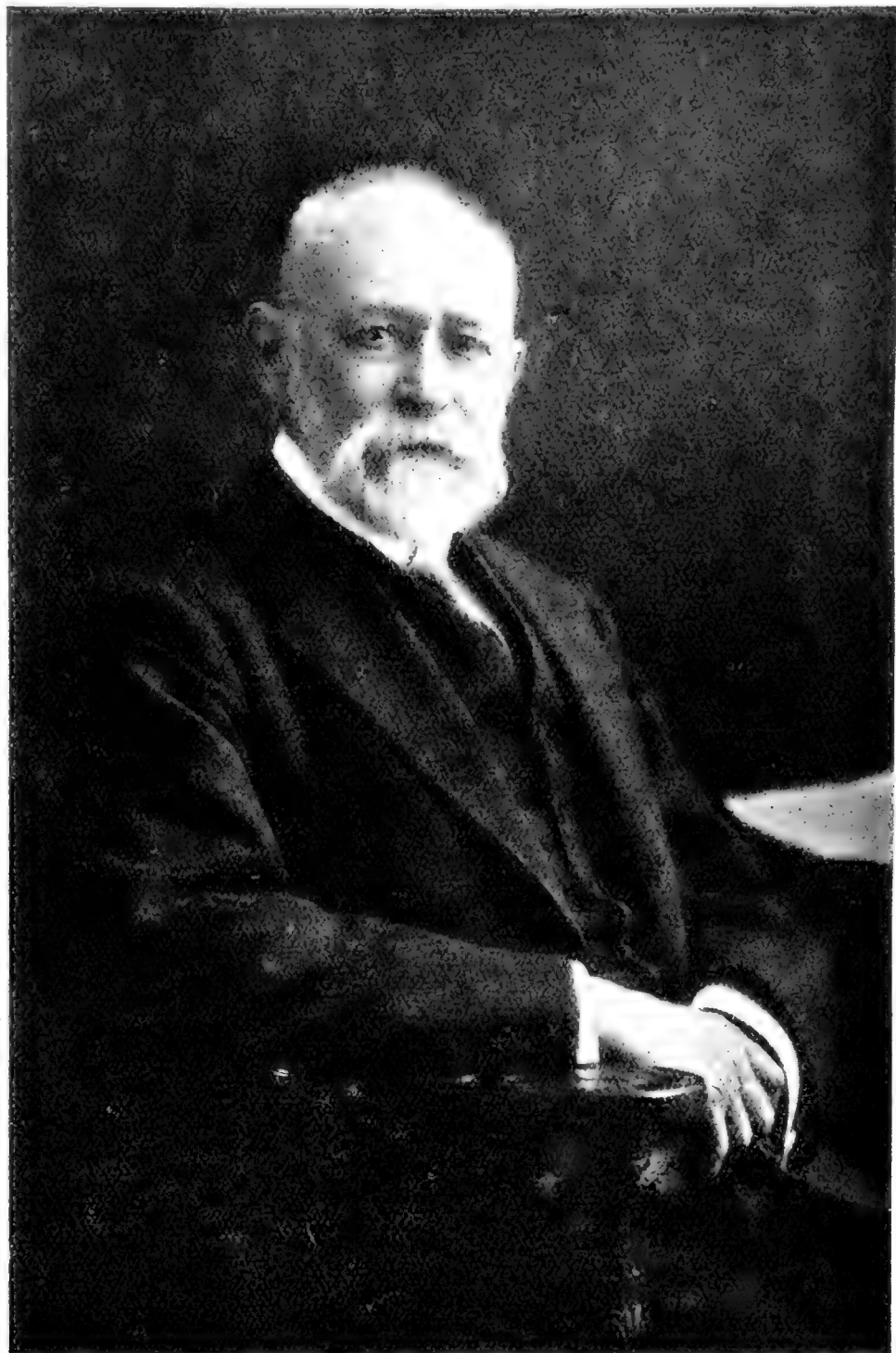
*(Photographed at Skokholm by R. M. Lockley.)*



increasingly longer intervals of swimming upon the surface. Most of them sipped water thirstily and afterwards washed themselves vigorously at the surface with wings spread and body-feathers fluffed out. One bird, released from a height, accidentally struck a mooring-cable suspended over the harbour, and dropping perpendicularly as if killed, plunged headlong to the bottom in two fathoms of water. Reflex action was so strong in the stunned bird that it swam perpendicularly up and down from top to bottom at tremendous speed and without a perceptible pause for breath at the surface. After nearly two minutes of this extraordinary performance it suddenly floated on the surface, head on one side, in an exhausted state. It resumed this performance a second and third time with decreasing vigour, and, gradually recovering, proceeded more normally to sea.

The desire to get far out into the ocean is very strong. Each morning in late July and August the night's contingent of young Puffins may be seen floating down with the currents in the sounds about the islands, but by the evening they have scattered and swum far out of sight offshore.

Until it has learned to fly with ease the fledgeling escapes the Gulls, which frequently swoop at it, by diving, and no doubt, in the more hospitable under-water world, soon obtains small fish with which to break its recent fast.



DR. ERNST HARTERT  
1859-1933.



## Obituary.

### ERNST JOHANN OTTO HARTERT. 1859-1933.

IT was with deep regret that we briefly announced in our last number the death of Dr. Hartert in Berlin. This took place on the 11th (not the 10th as stated) of November, 1933, after an illness of less than three days.

Ernst Johann Otto Hartert, to give him his full name, was born on October 29th, 1859, at Hamburg, where his father, General Hartert, was then living. When his father was appointed Kommandant of Pillau in East Prussia, Ernst Hartert accompanied him, and the egg-collection which he made in his school days in Schlesien was greatly increased by his work near this place and Königsberg. Later he learned the preparation of skins from Künow, and explored the Kurische Haff district and near Memel, while in 1882 and 1884 he spent three or four months in the marshes and heaths of Masurenland. He began to write about his observations in 1880-1, and in 1887 his first important work on the bird life of Prussia appeared in the Austrian periodical *Die Schwalbe*, where 274 species were recorded (a later summary was published in the *Ibis*, 1892).

In April, 1885, when he was twenty-five years old, he started on his first collecting trip abroad, and explored the Niger and Benue Basins, travelling from Loko to Benue, and thence to Kano and Sokoto and back to the Benue, then by the river from Loko to Lokoja and Lagos. Returning to Europe via Sierra Leone, he reached Hamburg on August 29th, 1886, after an absence of one year and four months.

His second journey was begun on August 21st, 1887, when he left for Penang and crossed thence to Sumatra, collecting chiefly near Deli. From Sumatra he crossed over again to Penang and Perak. At Penang he met Doherty (this was in 1888) and they travelled together to Calcutta. He had intended to go on to Tibet, but when fighting broke out in Sikkim he made his way with Doherty to Assam and the Naga Hills instead. By the end of November he returned, but before reaching Calcutta visited Darjiling and then crossed India to Bombay, returning to Europe via Aden. The chief aim of the first part of this journey was to collect insects, but a number of interesting birds and notes on them were also obtained (see *Journal für Ornithologie*, 1889).

On his return to Germany he made a catalogue of the Senckenberg Collection at Frankfurt A/M, this being published in 1891. In that year he was married and came to London to work at Swifts and Goatsuckers for Vol. XVI. of the *Catalogue of the Birds of the British Museum*, which was published in 1892.

On May 1st, 1892, he left England with Mrs. Hartert for a collecting trip to St. Thomas, Puerto Rico and Venezuela, but owing to disturbed conditions in Venezuela most of the time was spent in the Dutch islands of Curaçao, Aruba and Bonaire. He contributed a paper to *The Ibis* (1893) on the birds of these islands, and subsequently wrote a fuller account of this and his other expeditions in "Aus den Wanderjahren eines Naturforschers" (*Novitates Zoologicae*, 1901 and 1902).

Returning to England in September, 1892, he took up the appointment of Director of the Museum at Tring, which the present Lord Rothschild had offered him. From this date Hartert gave up the idea of making other very long expeditions, and devoted himself for the next thirty-eight years (until his retirement in May, 1930) to systematic work and the building up of that wonderful collection of birds with which his name will always be associated.

During this period he made a number of shorter collecting trips, such as to the Channel Islands, Pyrenees, Engadine, Madeira and Canary Islands, while in 1908 he and Lord Rothschild began a systematic exploration of Algeria. Hartert visited this country six times between 1908 and 1920, including a long desert journey by camel in 1912 to In-Salah, a part of the Sahara which had not before been visited by a zoologist. In 1922 he went to Cyrenaica, and subsequently he made three trips (the last in 1930) to Marocco, which country he had first visited in 1901. In this way he became personally familiar with the avifauna of Africa Minor, and the Tring Museum became famous for its collection of birds from that region, and Hartert for his intimate knowledge of them. A number of papers on the subject are to be found in *Novitates Zoologicae*, the organ of the Tring Museum, some written jointly with Lord Rothschild on Algeria and one with Jourdain on Marocco, while two on the same country appear in the *Bulletin de la Société des Sciences Naturelles du Maroc*.

Hartert probably knew more birds of the world than any other ornithologist, but with this wide acquaintance was combined a remarkably intimate knowledge of the birds of certain regions often very remote from each other. Besides

his close study of the avifauna of N.W. Africa, he devoted special attention for many years to the birds of the East Indian archipelago, parts of which he had visited earlier in life. Numerous collections made in these islands came to Tring and were worked out by Hartert, as his many papers in *Novitates Zoologicae*, as well as his descriptions in the *Bulletin of the British Ornithologists' Club*, will bear witness.

He will, however, be best remembered for his prolonged and intensive study of the birds of the great Palæarctic Region and his monumental work, *Die Vögel der paläarktischen Fauna*, on the subject. Although he did so much besides, undoubtedly this work, and the building up with the active assistance of Lord Rothschild, of the wonderful collection of bird skins from all over the world at Tring, were the main tasks of his life. The book was dependent to a large extent on the collection and was based mainly on the fine series of Palæarctic birds which was gradually brought together. In this connexion the acquisition of the Brehm Collection in 1897, and Hartert's critical study of it, formed a basis of the utmost importance, as at that time little progress could be made in European systematic work before discovering which of the multitude of names proposed by Brehm could be employed.

Hartert's great work was issued in parts, which commenced in November, 1903, publication being suspended between October, 1914, and March, 1920, and was completed in 1922. In 1923 he published a *Nachtrag*, which, in 1932, was superseded by an *Ergänzungsband*, of which two parts have appeared. In the latter he was assisted by Professor Steinbacher, who, it is hoped, will complete it.

Hartert's systematic work was based on the recognition of geographical forms and the use of trinomials, while in nomenclature he adopted the International rules of 1891 involving strict priority dating from the 10th (1758), instead of the 12th (1766), edition of Linnæus's *Systema*. His views met with great opposition from most of the older ornithologists of Europe at the time, and in England this was brought to a head by the publication in 1912 of the *Hand-List of British Birds*, in which Hartert was responsible for the classification and nomenclature employed. Hartert's sound work, his sincerity and constant advocacy of this system, which was the most practical yet devised and expressed the true relationship of nearly allied birds, won many adherents, while the opposition gradually died down, so that by the time

the *Practical Handbook of British Birds* appeared (1919-24), with Hartert as specialist in nomenclature and classification, the system had become generally adopted. The importance of his work and influence in effecting this change of opinion in Europe, and thus enabling ornithologists all over the world to work on the same system, cannot be overestimated.

So far as British ornithologists were concerned he not only demonstrated the value of this system, but by comparative study showed us that a number of our birds could be clearly distinguished from those of the same species on the continent, and himself described and named eighteen of these geographical forms.

Of other special British work mention may be made of his account with Lord Rothschild of the birds of Buckinghamshire in the *Victoria History*, and the later and fuller account, with Jourdain, of the same county, and the Tring reservoirs (*Nov. Zool.*, 1920).

Although Hartert wrote chiefly in the Tring publication, *Novitates Zoologicae*, and the *Bulletin of the British Ornithologists' Club*, as well as occasionally in the *Ibis* and the *Journal für Ornithologie*, he contributed to many other publications, and also wrote sections of such works as *Genera Avium* and *Das Tierrich*. One of his most important pieces of work which must be specially mentioned, was the series of critical articles in *Novitates Zoologicae* on the types of birds in the Tring collection.

He described as new a very large number of birds and his name is perpetuated in many which were named after him by others.

Hartert was elected a member of the British Ornithologists' Union in 1893 and then joined the B.O. Club, though he had already attended some of its earliest meetings (it was founded in October, 1892) as a guest. Subsequently for nearly forty years he was a very constant attendant at the meetings of the Club, and usually had some interesting birds to exhibit and remarks to make. He was elected a Corresponding Fellow in 1891, and an Honorary Fellow in 1902, of the American Ornithologists' Union.

To commemorate his seventieth birthday, October 29th, 1929, a *Festschrift*, to which ornithologists all over the world contributed papers, was published in Germany, while the British Ornithologists' Union presented him with the Godman-Salvin Gold Medal. In 1930 he severed his long connexion with the Tring Museum, and, returning to Germany, settled

in Berlin. Although he had nominally retired he never ceased to study birds, and the use of a room being given to him in the Berlin Museum, he worked there regularly until within two or three days of his death. In 1933 he was made an Extraordinary Member of the B.O.U., and in the same year an Honorary President of the German Ornithological Society, honours which he greatly appreciated.

Hartert had considerable knowledge of other branches of natural science (he collected and studied, for instance, beetles of the genus *Carabus* for many years), but he made systematic ornithology his aim in life, and his unceasing labours have given us the necessary foundation of a very carefully considered account of the differences and ranges of Palearctic birds, upon which present-day and future ornithologists can safely build up biological facts. He was always intensely keen and sincere and invariably ready with help and advice. He had a very interesting personality, made the more engaging by his accent and certain German characteristics, which he never lost though he lived here so many years. He became naturalized soon after his appointment at Tring.

During the war when his best friends were opposed to each other, and his only son, having joined the British Army, was killed in action, Hartert's position was one of great difficulty courageously faced. After the war his insistent urgings that science should have no regard for politics resulted in the revival of the International Ornithological Congresses, and it was fitting that he should be president of the first post-war Congress at Copenhagen in 1926.

Hartert's retirement in 1930 and then the sale of the great Tring collection of birds in 1932, made gaps never likely to be filled, and now the death of this great master of systematic ornithology closes a chapter of great importance in the history of the science.

H.F.W. and F.C.R.J.

# NOTES

## LARGE FLOCK OF TREE-SPARROWS IN LEICESTERSHIRE.

THE Tree-Sparrow (*Passer m. montanus*) is sparingly distributed in Leicestershire, and up to November 19th, 1933, I had never met with more than six or seven together at one time, although I have heard of a flock of about forty being seen on the Melton side of the county.

On November 19th, on the Beaumont Leys Sewage Farm, within two miles of Leicester, I came across a flock containing several hundred, possibly a thousand, birds. They were feeding in a cabbage field apparently on a weed. In the same field was a flock of Chaffinches, about forty Greenfinches and a few House-Sparrows, but the Tree-Sparrows seemed to keep to themselves. On November 26th I found the birds dispersed over a greater area, although there was still a flock of 200 to 300 Tree-Sparrows in the same field. ALEC BONNER.

## GRASS-SNAKE PREYING ON YOUNG ROBINS.

MR. M. V. WENNER's article (*antea*, p. 176) reminds me that in June, 1933, my keeper killed a grass-snake and opened it in my presence. Inside we found the recently swallowed bodies of three young Robins (*Erithacus r. melophilus*). They were evidently taken from the nest, for the birds were just ready to fly. They had been swallowed whole.

M. PHILIPS PRICE.

## MIGRATION OF ROBINS.

AT Blakeney, Norfolk, and I believe all along the north coast of the county, there was an enormous migration rush of Continental Robins (*Erithacus r. rubecula*) on September 27th, 28th and 29th, 1933. In the bushes on Blakeney Point, on a frontage of about two miles, there must have been about 3,000. On the afternoon of the 28th I saw several lying on the beach too exhausted to move. By the 29th a general movement inland had commenced, and the birds did not seem inclined to continue along the coast line. The weather conditions during this period were a strongish N.E. wind, with a fog along the coast.

During the same period two friends of mine, staying on the south-west coast of Hampshire, had also made independent observation of large numbers of Robins along the coast. Not being naturalists, they had not noticed whether they were of the British or the Continental race.

Furthermore, Colonel Meinertzhagen, who was in Ushant, off the coast of Brittany, at this time, tells me that there was an arrival of British Robins (*Erithacus r. melophilus*) on September 24th and subsequent days (see *Bull. B.O.C.*, Vol. LIV., p. 8).

It seems possible that these great invasions of Robins, which occur from time to time in the autumn on the east coast of England, must penetrate inland, and I have myself picked up Robins, casualties from various accidents, that were evidently of the Continental race.

On January 12th, at Hartest, in west Suffolk.

On November 13th, at Leadenham, in Lincolnshire.

On October 9th, at Oundle, in Northamptonshire.

Before we can determine what effect on our own Robins these invasions have, and to what extent they spread over the country, and how long the birds stay here, we must have many further observations. One of my objects in recording the above facts is to draw attention to our want of information on these points.

W. A. PAYN.

#### SPECIES OF FLIES BROUGHT BY SWALLOWS TO NESTLINGS.

AT the end of the 1932 nesting season an adult Swallow (*Hirundo r. rustica*) that I had caught, disgorged four or five flies as I was ringing it; the flies were alive and crawled away, but of course could not fly. Thus the thought struck me that one might find out the food of nestling Swallows in this way, and so in August, 1933, I examined most of the 50 or so adults that I caught as they were going to feed their young; this was in south Carmarthenshire. In many cases those examined had, or appeared to have, nothing in their beaks, but on ten occasions flies (19 in all) were obtained. These have all been identified, so far as was possible, with the very kind help of Miss D. Aubertin, of the Natural History Museum, South Kensington, and their names are given below with, in brackets, the number of specimens of each.

Family.	Genus.	Species.	
Bibionidæ	<i>Dilophus</i>	<i>febrilis</i> L.	(7)
Syrphidæ	<i>Melanostoma</i>	<i>mellinum</i> L.	(2)
	<i>Syrphus</i>	?	(1)
	<i>Rhingia</i>	<i>campestris</i> Mg.	(1)
Dolichopodidæ	?		(1)
Anthomyiidæ	?		(1)
Tabanidæ	<i>Hæmatopota</i>	? <i>italica</i> Mg.	(1)
Stratiomyiidæ	<i>Microchrysa</i>	<i>polita</i> L.	(4)
Muscidæ	<i>Orthellia</i>	<i>cæsarion</i> Mg.	(1)

*D. febrilis* occurred on four occasions, and *M. mellinum* twice.

In addition to the above flies two whitish stones were obtained (measuring  $5 \times 3.5 \times 3$  mm. and  $4.5 \times 3.5 \times 1.5$  mm. respectively). The young Swallows in both nests were then about 15 days old. It looks rather as if these stones were given for digestive purposes, and it would be interesting to know if other insect-eating birds do the same thing. J. F. THOMAS.

### SWALLOW BROODS IN CHESHIRE, 1933.

THE following table gives the size of Swallow broods in the neighbourhood of Great Budworth, Cheshire, in 1933:—

Month	Broods examined and Ringed.	Broods of					Average Brood.	Total No. of Broods.	Total Average for the Year.	
		1	2	3	4	5				6
June	50	1	1	6	14	23	5	4.44	107	4.31
July	12	—	—	3	3	5	1	4.33		
Aug.	42	1	1	5	17	18	—	4.19		
Sept.	3	—	—	—	3	—	—	4.00		
	107	2	2	14	37	46	6			

The average brood is larger than in any of the six previous years and as in each other year the first brood is larger than the second or later broods. The hot dry summer was doubtless effective in preventing addling of eggs during long absences of the adult bird and there were, in consequence, fewer broods of one or two than in any other year. Mr. J. F. Thomas's average (*antea*, p. 202) was of August broods only, and was, with one exception, his lowest in eleven years. Taking August separately the average recorded above was my highest in seven years. Possibly the number of nests examined in the two localities was too small for this difference to be significant, and a comparison of the average of *both* broods from both places would be interesting. One Swallow ringed as a nestling on June 6th, 1932, at Great Budworth, was found on May 16th, 1933, half a mile distant. A. W. BOYD.

### SIZE OF SWALLOW BROODS IN KENT.

THE following figures were obtained as the result of ringing young Swallows (*Hirundo r. rustica*) in a group of farm buildings in south-west Kent in 1933. Eighteen first broods were ringed between June 11th and July 8th and thirteen second broods between July 25th and September 15th, and give an average of 4.27 young ones in the first broods and 3.15 in the second:—

Numbers in brood	...	6	5	4	3	2	1
No. of first broods	...	1	8	4	5	0	0
No. of second broods	...	1	0	3	6	2	1

HUGH F. TICEHURST.



EIDER, SCOTER AND BLACK-TAILED GODWITS IN  
KERRY AND GALWAY.

IN connexion with Mr. R. F. Ruttledge's notes for Mayo and Galway (*antea*, p. 158), it may be of interest that my brother, A. E. Cohen, and I spent from August 13th-19th, 1933, at Killary Bay, co. Galway, and from August 20th-26th at Caragh Lake, co. Kerry, during which time we, too, failed to see any Yellow Wagtails, although we moved about the country a good deal.

We saw a single female Eider (*Somateria mollissima*) and one Common Scoter (*Oidemia nigra*), both close inshore at Dingle Bay, co. Kerry, on August 21st. We had a good view of both from the cliff above. The former is given in the *Practical Handbook* as a rare vagrant except in Donegal, most frequent in the north; the latter is a regular visitor to the northern half of Ireland but scarce elsewhere.

We also saw seven Black-tailed Godwits (*Limosa limosa*) on some mud flats at the side of the Dublin road at the east end of the town of Galway on August 19th. We watched them for some little time with field-glasses and telescope.

EDWIN COHEN.

GREY PHALAROPE AND OTHER WADERS AT  
BLAGDON RESERVOIR, SOMERSET.

ON September 16th, 1933, I had the pleasure of watching for some time a Grey Phalarope (*Phalaropus fulicarius*) feeding in company with a Spotted Redshank (*Tringa erythropus*) on the soft mud and moss left by the now fast receding water at Blagdon reservoir.

On September 8th, two Black-tailed Godwits (*Limosa l. limosa*) were feeding together only a few yards from the central clump of bushes in the reservoir, and a very small wader which must have been a Little Stint (*Calidris minuta*) stood for a long time, quite immobile, close by.

At this date the drought was being very severely felt, and at the eastern end of this reservoir there were many acres of sun-baked mud lying upon either side of the river Yeo, which was now a mere trickling stream. STANLEY LEWIS.

INJURY-FEIGNING BY WOOD-PIGEON AND TURTLE-DOVE.—  
In connexion with the notices which have appeared on this subject (*antea*, pp. 166-7 and 211) Mr. W. A. Cadman writes that while in Caithness in 1933, he was walking through a spruce plantation when a Wood-Pigeon (*Columba p. palumbus*) came out of a tree and fluttered off along the ground in front of him. It progressed thus for about 15 yards, and after

scrambling through some very thick brambles suddenly took to wing and flew off. It had come from a nest containing two young birds, one half-fledged and the other nearly ready to fly.

Mr. P. A. D. Hollom has a note that on June 16th, 1931, at Addlestone, Surrey, he was climbing to the nest of a Turtle-Dove (*Streptopelia t. turtur*) when the bird flew off and "tumbled" to the ground, where it began staggering and fluttering away as if unable to fly. It continued only for a short time and Mr. Hollom noted that there was no special display of the plumage such as the fanned tail of a Ringed Plover in similar circumstances. The nest contained one half-feathered young one.

Mr. P. Allen writes that on July 7th, 1933, he found the nest of a Turtle-Dove at Brede, Sussex. It was situated in a dense bramble-thicket, on one side of which was a gap and through this the birds came and went when feeding their fairly old young. On his approach the old bird left the nest, fluttered through the gap and dropped on to the clear ground below, about twelve feet from the nest. There she grovelled on her *breast* with wings violently flapping and the whole body tilted forward. Directly he ventured towards her she quickly recovered and flew strongly away.

## LETTERS.

### "TERRITORY REVIEWED."

*To the Editors of BRITISH BIRDS.*

SIRS,—Dr. and Mr. Lack have ranked me as a principal accomplice of Mr. H. Eliot Howard in their indictment of the territory theory and its perpetrators. ("Territory Reviewed," *antea*, pp. 179-199.) May I say that I am proud to stand in the dock by the side of a man who, in my opinion, has done at least as much to further the study of birds as any other living person. No doubt Mr. Howard will defend himself as he thinks fit, either by replying or by silently awaiting the verdict of future ornithologists. He can well afford to be judged by the work he has published, even if he does not, as I hope he will, contribute even more to our understanding in the future.

For myself I cannot claim the many pages of your space which would be required in order to deal with these charges in detail. I would like, however, to put in a warning against the fallacy (which I believe underlies the Lacks' argument) of assuming that a fundamental law does not exist because its application in practice may be inhibited by outside factors, or because there may be a lag in its operation. For instance, the fact that the Malthusian law has during the past hundred years been offset over a large part of the world by technical development (including birth control) does not invalidate it as a principle in the study of population. We do not have to conclude when an air liner weighing many tons passes overhead that Newton was wrong about gravity.

The fact that many observers (including myself) have been able to give numerous instances in practice where the fundamental economics of bird distribution are not apparent is perfectly natural, nor does the collection and marshalling of any number of such exceptions damage, in my view, any sober statement of the territory theory. After reading "Territory Reviewed" I feel that I have already, four years ago, given my answer to the main points raised in my article Bird (Reproductive Habits) in the 14th Edition of the *Encyclopædia Britannica*. May I ask those interested who have not read that brief considered statement to read it now, and to consider in the light of it whether the Lacks have made out their case?

I am all in favour of frequent re-examination of the territory theory, from which it has everything to gain and nothing to lose. I have, in fact, already made some progress with a re-examination of it on my own account, bringing Arctic and tropical experience into play. I appreciate the moderation and candour with which the Lacks have stated their view, although I disagree with it. I feel, all the same, that they have done me a little less than justice, particularly on p.189. If my notes from abroad are to be brought into the argument I should like to put forward my study of the Greenland Wheatear's territory, as contrasted with the Snow-Bunting's, the Lapland Bunting's and still more with the Greenland Redpoll's in "Field Notes on Greenland Birds" (*Ibis*, 1930, 287-309). To quote simply the tolerant individualism of the Lapland Bunting gives a very partial impression. To say on the same page that I

"showed that the Guiana King Humming-bird (*Topaza pella*) had a territory round its nest from which trespassers were driven off. But the birds fed several hundred yards away"

is misleading. May I quote from my own summary (*Ibis*, 1931, 553):—

"The sex-ratio was apparently very low, and males in full plumage were certainly disproportionately scarce. Sub-song was noted. The nest and young seemed to be *attended by the females alone, and these kept distinct beats of their own which were, however, too small to constitute feeding-territories.*"

As the Lacks are arguing that "territory seems to be nothing more than an affair of the male bird" this omission of any mention that existence of male territories was not in this case ascertainable is unfortunate. The case is not comparable with those quoted, and should not be included unless it could be adequately dealt with.

If this interesting paper puts bird-watchers on their guard against over-simplifying the territory theory and taking too much for granted it will do a great deal of good. I hope, nevertheless, that it will be appreciated that these objections have in the main already been taken into account, and that they do not invalidate the territory theory.

LONDON, S.W.1.

E. M. NICHOLSON.

*To the Editors of BRITISH BIRDS.*

SIRS,—In the criticism levelled by Messrs. David and Lambert Lack against part of Mr. H. Eliot Howard's well-known theory of "Territory in Bird-Life", so much care is taken specially to demolish the supposed "food value" of appropriated areas that I would like to question at once whether the existence of such a value is in any way essential to the doctrine that territory is the main object for which birds fight in spring. I think, as one who can claim to have advanced this belief (*Irish Naturalist*, 1903, pp. 152-166) some eighteen years before Mr. Howard's splendid book brought it into such general popularity. I may fairly point out that the idea of "food-value" was never so much as suggested in my statement of what I hear called "the territory notion".

My contention, when writing on the "Spring Rivalry of Birds", was that the battles of the male birds, each claiming a territory, resulted in such a parcelling out of the land as must limit the number of breeding pairs to a fairly constant figure, and prevent indefinite increase in the case of any species—at the same time condemning the less powerful individuals to unproductiveness rather than to death. This purpose can, I think, be equally well served whether or not we suppose the young birds of a brood to depend for their sustenance on what can be found within the special area claimed by their parents; and it is, of course, obvious that with some species—the Woodcock for example—this could not be the case.

C. B. MOFFAT.

#### WINTER TERRITORY OF ROBINS.

*To the Editors of British Birds.*

SIRS,—I can confirm the evidence given by the Messrs. Lack in your last issue regarding Robins' Winter Territory (*antea*, p. 189). Between June and August, 1933, I ringed twelve Robins in my garden, five of which were nestlings and the rest trapped adults. In December I recovered three of the adults several times but also trapped eight fresh ones which I did not catch in the summer. These appear to have drawn into the garden with the oncoming of winter from the surrounding fields, possibly with a view to better feeding grounds and proximity to the house. But I have seen no fighting between any of these Robins.

On the other hand I have noticed that three of the birds that I trap regularly now are only caught in one part of the garden and two others in another part of the garden on the other side of the house. Some of the Robins certainly seem to have definite quarters but I have not seen them defending it.

M. PHILIPS PRICE.

THE GROVE, TAYNTON,  
GLOUCESTER.

#### SNOW-GEESE IN MORAYSHIRE.

*To the Editors of BRITISH BIRDS.*

SIRS,—I am the shooting tenant of Lochindorb, *Morayshire* (not *Inverness-shire*), where the sixteen Snow-Geese (referred to on pages 166 and 212) were seen on August 27th (not September 2nd), and where one was shot on that day as a specimen. The birds did not behave at all as if they were tame ones as they rose at least 200 yards away, flew three miles to the south, but owing to the terrific S.W. gale they could not get over the Cairngorms and eventually came back to the loch, after which one was obtained. The flock then left and did not return. They were all *old* birds as they were *pure* white except for the black wing tips.

We all had a splendid view of them as they passed within 30 yards of us.

J. A. JOICEY.

[The date would be unusually early for wild birds and it seems to fit in with the time at which the Woburn birds were missed. The observation that all were adults is, however, puzzling, and Mr. Joicey informs us that none of them appeared to have any grey feathers. The bird shot was an adult female, and we are informed by Messrs. Macleay, who set up the bird, that the wing measured 16 inches (407 mm.) and the bill  $1\frac{7}{8}$  inch (48 mm.)—decidedly small.—Eds.]

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WITH WHICH WAS INCORPORATED IN JANUARY, 1917, "THE ZOOLOGIST."

EDITED BY

H. F. WITHERBY, M.B.E., F.Z.S., M.B.O.U., H.F.A.O.U.

ASSISTED BY

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## RECOVERY OF MARKED BIRDS.

THE reasons for this new form of publishing these lists and an explanation of the categories now used were given on page 87 of this volume.

**Carrion-Crow** (*Corvus c. corone*).

## RINGED AS NESTLINGS.

No.	Ringed.	Recovered.
RT.6671	Portmore (Peebles), 29.5.33, for Midlothian Orn. Club.	Near Peebles, 26.10.33, by W. T. Blackwood.
RT.6701	Giggleswick (Yorks.), 14.5.33, by A. H. Eggeling.	Upper Wharfedale (Yorks.), 24.7.33, by H. B. Booth.
RT.6702	Ditto 14.5.33.	Malham (Yorks.), —.7.33, by J. Reeve.
RT.6703	Ditto 14.5.33.	Ditto —.7.33.
75424	Malvern (Worcs.), 22.5.27, by P. E. A. Morshead.	Ripple (Worcs.), 7.10.33, by E. Butler.
RT.7114	Near Rugby (Warwicks.), —.5.33, for Rugby Sch.	Where ringed, 10.11.33, by ringer.

**Rook** (*Corvus f. frugilegus*).

This group of records has considerable interest as showing that some of these Rooks found their way back to the place where they were caught after having been transported as far as 65 miles. Two hundred and thirty Rooks in all have been caught at Chipping Norton and transported to various places, and of these nine have so far been reported, five at the place where originally caught and four away (for previous records see Vol. XXV., p. 319; XXVI., p. 208).

## RINGED AS FULL-GROWN:

(e) MOVED TO A DISTANCE AND RELEASED EXPERIMENTALLY.

RR.8820	Near Chipping Norton (Oxon.), transported to and released at Oxford [19m. S.E.] 24.2.33, by Oxford Orn. Soc.	Where caught, near Chipping Norton, 28.2.33, by ringer.
RS.5652	Ditto 24.2.33.	Ditto 28.2.33.
RS.5700	Ditto 24.2.33.	Ditto 27.2.33.
RR.8938	Ditto 21.2.33.	Near Towcester (Northants.), 28.11.33, by H. Kingston.
RT.2471	Near Chipping Norton (Oxon.), transported to and released at Addlestone (Surrey), [65m. S.E.], —.1.31, by T. H. Harrisson.	Where caught, near Chipping Norton, 10.7.33, by W. B. Alexander.
RT.2551	Ditto 3.7.31.	Ditto 10.7.33.

**Jackdaw** (*Colæus m. spermologus*).

RR.47	Lundie (Angus), 5.6.26, young, by T. L. Smith.	Auchterhouse, (Angus), 7.12.33, by D. Stratton.
-------	--	---

**Starling** (*Sturnus v. vulgaris*).

## RINGED AS NESTLINGS.

(a) RECOVERED AWAY FROM WHERE RINGED.

FA.919	Kirkby Lonsdale (Westmor.), —.5.33, by H. J. Moon.	Near Galway, 27.11.33, by P. Connolly.
EF.959	Near Leeds (Yorks.), 12.5.33, by C. Wontner-Smith.	Near Ormskirk (Lancs.), —.7.33, by M. Morris.

Starling (*continued*).(a) RECOVERED AWAY FROM WHERE RINGED (*continued*).

No.	Ringed.	Recovered.
FF.134	Near Shipley (Yorks.), 14.5.33, by C. Wontner-Smith.	Near York, —.9.33, by E. Cockerill.
PF.890	Mansfield (Notts.), 12.5.33, by R. Martinson.	East Kirkby (Notts.), —.10.33, by T. Glossop.
P.8838	Woodbastwick (Norfolk), 23.5.31, by Mrs. Wilson.	Blofield (Norfolk), 10.12.33, by S. Patterson.
V.3988	Walton - on - Thames (Surrey), 13.5.33, by F. J. Mitchell.	Near Alton (Hants.), 11.12.33, by A. Shiner.

## (b) RECOVERED WHERE RINGED.

T.2800	Hartfield (Sussex), 22.5.32, by P. Chance.	15.11.33.
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## RINGED AS FULL-GROWN.

## (c) RECOVERED AWAY FROM WHERE RINGED.

NF.530	Dornoch (Suth.), 3.7.32, by E. Cohen.	Kinbrace (Suth.), 23.12.33, by G. Campbell.
V.9259	Carlisle (Cumb.), 8.1.29, by J. N. D. Smith.	Near Penrith (Cumb.), 3.12.33, by Miss Richard- son.
SF.172	Cheltenham (Glos.), 18.1.33, for Cheltenham Coll.	Stansted (Essex), 3.9.33, per <i>Cage Birds</i> .
SF.196	Ditto 24.1.33	Burford (Oxon.), 18.7.33, by W. Wakefield.
VF.40	Marlow (Bucks.), 8.1.33, by H. Pease.	Hughenden (Bucks.), —.6.33.

## (d) RECOVERED WHERE RINGED.

No.	Ringed.	Recovered.	No.	Ringed.	Recovered.
	Kilbarchan (Renfrew.). By F. J. Ramsay.			Bluntisham (Hunts.). By Rev. E. Peake.	
P.9949	5.11.31	17.7.33	P.5791	31.12.31	14.2.33 ; 21.4.33
AN.7169	29.3.32	14.10.33	P.5797	1.1.32	28.4.33
	Wilmslow (Ches.). By E. Cohen.			Laindon (Essex). For London Nat. Hist. Soc.	
NF.555	26.7.32	6.5.33	TF.28	29.1.33	11.12.33
	Rugby (Warwicks.). By Rugby School.			Woodford Green (Essex). For London Nat. Hist. Soc.	
P.8552	5.11.31	3.11.32	AN.3306	21.10.31	10.8.33
	Oundle (Northants.). By J. M. Fisher.			Rye (Sussex). By R. G. Williams.	
AN.8407	6.1.33	—.8.33	AN.6756	30.10.31	5.7.33
AN.8411	9.1.33	23.8.33		Chichester (Sussex). By R. Carlyon-Britton.	
	Oxford. By Oxford Ornithological Society.		W.6157	2.3.29	12.5.33
LF.714	24.11.32	22.11.33	W.6197	17.10.30	1.9.33
	Kelling (Norfolk). By R. M. Garnett.			Chudleigh (Devon.). By J. M. Hepburn.	
P.5997	20.3.32	23.4.33	R.6943	24.12.30	—.8.33
			R.7175	5.1.32	14.9.33

**Greenfinch** (*Chloris ch. chloris*).

## RINGED AS NESTLING.

No.	Ringed.	Recovered.
NP.478	Penrith (Cumb.), —.6.33, by H. J. Moon.	Evenwood (Durham), 27.10.33, by A. Crisp.

## RINGED AS FULL-GROWN.

YF.829	Near Shipley (Yorks.), 16.3.33, by C. Wontner-Smith.	Haltwhistle (Northumb.), 3.8.33, by W. Edgar.
N.4346	Birmingham, 3.3.32, by H. G. Alexander.	Where ringed, 18.12.32, by ringer.
N.3060	Bray (Wicklów), 8.2.32, by D. J. Waterhouse.	Where ringed, 1.3.32; 11.11.32; 1.3.33, by ringer.

(e) MOVED TO A DISTANCE AND RELEASED EXPERIMENTALLY.

SF.665	Shanklin (I.O.W.), released 3m. N.W., 2.2.33, by J. F. Wynne.	Where ringed, 2.2.33, by ringer.
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**Goldfinch** (*Carduelis c. britannica*).

NH.142	Penrith (Cumb.), —.6.32, young, by H. J. Moon.	Armathwaite (Cumb.), 16.10.33, by R. Graham.
--------	--	--

**Linnet** (*Carduelis c. cannabina*).

NX.114	Stanway (Glos.), 21.5.33, young, by Hon. G. Charteris.	Cestas (Gironde), France, 10.10.33, by <i>Chasseur Francais</i> .
NC.971	Farnham Royal (Bucks.), 4.6.32, young, by R. J. Spittle.	Near Bordeaux (Gironde), France, 23.10.33, by R. Guérineaud.

**Chaffinch** (*Fringilla c. œlebs*).

## RINGED AS FULL-GROWN.

NL.680	Blenheim (Oxon.), 2.3.33, by Oxford Orn. Soc.	Herenthout, Antwerp, Belgium, 15.10.33, by V. van Straelen.
NM.299	Near Redditch (Worcs.), 4.3.33, by Oxford Orn. Soc.	Hoboken, Antwerp, Belgium, 23.10.33, by V. van Straelen.
NJ.909	Ullswater (Westmor.), 22.1.33, by H. J. Moon.	Where ringed, 20.9.33, by ringer.
NA.995	Malvern (Worcs.), 26.2.33, by A. Morrison.	Where ringed, 17.12.33, by P. E. A. Morshead.
M.4935	Battle (Sussex), 31.7.32, by H. Whistler.	Where ringed, 10.4.33, by ringer.

**Brambling** (*Fringilla montifringilla*).

K.8709	Great Budworth (Ches.), 4.2.31, ad., by A. W. Boyd.	Koprivnica, Krajina, Yugoslavia, 12.7.33, by Dr. Jovanovitch.
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**Tree-Sparrow** (*Passer m. montanus*).

G.5461	Oxford, 6.12.28, ad., by Oxford Orn. Soc.	Near where ringed, —.7.33, by E. Tuckwell.
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**Yellow Wagtail** (*Motacilla f. rayi*).

No.	Ringed.	Recovered.
NM.672	Guildford (Surrey), 5.6.33, young, for Oxford Orn. Soc.	Léon (Landes), France, 20.9.33, by <i>Chasseur Fran- cais</i> .

**Pied Wagtail** (*Motacilla a. yarrellii*).

M.4137	Ribblehead (Yorks.), —.7.31, young, by H. J. Moon.	Mindrum (Northumb.), 20.7.33, by J. Wilkinson.
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**Great Tit** (*Parus m. newtoni*).

NH.878	York, 7.11.32, ad., for Bootham School.	Near Scarborough (Yorks.), 25.12.33, by T. Calvert.
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**Mistle-Thrush** (*Turdus v. viscivorus*).

AP.9465	Near Evesham (Worcs.), 15.5.33, young, by A. J. Harthan.	Childswickham (Worcs.), 20.12.33, by S. Keyte.
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**Song-Thrush** (*Turdus ph. clarkei*).

## RINGED AS NESTLINGS.

## (a) RECOVERED AWAY FROM WHERE RINGED.

X.3390	Kingoldrum (Angus), 3.5.26, by T. L. Smith.	Near Dundee, 7.7.33, by Mrs. McCulloch.
P.7084	Lundin Links (Fife.), 7.5.31, by A. H. Eggeling.	Leven (Fife.), 20.11.33, by Mrs. Wedderburn.
FA.633	Clifton (Cumb.), —.5.33, by H. J. Moon.	Lowther (Cumb.), 21.9.33, by A. Lowther.
FG.339	Penrith (Cumb.), —.6.33, by H. J. Moon.	Strokestown (Roscommon), —.12.33, by M. Geoghe- gan.
YF.99	Ditto —.5.33.	Ballinrobe (Mayo), —.11.33, by J. Flannery.
AN.7505	Andreas (I.O.M.), 25.4.32, by F. A. Craine.	Ennis (Clare), 25.11.33, by Miss Finucane.
T.7020	Hemsby (Norfolk), 4.5.31, by J. M. Ferrier.	Near Fowey (Cornwall), 20.12.33, by J. Healey.
DF.195	Bealings (Suffolk), 23.5.33, by A. Mayall.	Trimley-St.-Mary (Suffolk), 31.8.33, by A. Potter.
DF.201	Ditto 24.5.33.	Queven (Morbihan), France, 2.1.34, by J. Livyier.
CF.740	Lisnagry (Limerick), 4.5.33, by M. Goodbody.	Ballysimon (Limerick), —.11.33, per <i>Irish Press</i> .

## (b) RECOVERED WHERE RINGED.

No.	Ringed.	Recovered.
T.9733	Burnham (Bucks.), 25.5.29, by A. Mayall.	—.11.33.

## RINGED AS FULL-GROWN.

No.	Ringed.	Recovered.
RR.8801	Oxford, 3.2.33, by Oxford Orn. Soc.	Near Dunstable (Beds.), 14.10.33, by L. Blow.
YF.818	Near Shipley (Yorks.), 11.3.33, by C. Wontner-Smith.	Where ringed, 27.6.33; 11.9.33, by ringer.
S.7521	Kelling (Norfolk), 11.3.31, by R. M. Garnett.	Ditto 29.1.32; 28.1.33.
P.5988	Ditto 29.1.32	Ditto 22.1.33.

**Blackbird** (*Turdus m. merula*).

## RINGED AS NESTLINGS.

## (a) RECOVERED AWAY FROM WHERE RINGED.

<i>No.</i>	<i>Ringed.</i>	<i>Recovered.</i>
R.9049	Kirkwall, Orkney, 13.7.30, by D. J. Robertson.	Holm, Orkney, 16.8.33, by D. Eunson.
AP.6380	Methven (Perths.), 9.5.33, by Lord Scone.	Perth, 29.6.33, by J. MacIntosh.
DF.904	Stirling, —.4.33, for Rugby School.	Near Crianlarich (Perths.), —.10.33, per <i>Ill. Leicester Chronicle</i> .
R.9464	Penrith (Cumb.), —.6.30, by H. J. Moon.	Six Mile Bridge (Clare), 28.11.33, by J. Liddy.
FD.729	Cliburn (Cumb.), —.6.33, by H. J. Moon.	Whinfell (Cumb.), 22.11.33, by ringer.
BF.853	Arnside (Westmor.), 6.5.33, for Bootham School.	Milnthorpe (Westmor.), 26.7.33, by Miss Williamson.
EF.809	Alderley Edge (Ches.), 6.5.33, by E. Cohen.	Sallins (Kildare), 11.11.33, by Mrs. Burke.

## (b) RECOVERED WHERE RINGED.

<i>No.</i>	<i>Ringed.</i>	<i>Recovered.</i>
U.6737	Moniaive (Dumfries), —.5.32, by Miss Macmillan.	—.7.33.
S.1643	Barbon (Westmor.), 9.6.30, by E. Savage.	26.8.33.
U.4030	Nelson (Lancs.), 16.5.29, by D. Jopson.	29.9.33.
P.2781	Kelling (Norfolk), 5.5.31, by R. M. Garnett.	20.1.33.
HF.108	Ditto 20.5.32.	27.4.33.

## RINGED AS FULL-GROWN.

## (d) RECOVERED WHERE RINGED.

<i>No.</i>	<i>Ringed.</i>	<i>Recovered.</i>	<i>No.</i>	<i>Ringed.</i>	<i>Recovered.</i>
	Helensburgh (Dumbarton). By T. Kerr.			Styal (Ches.). By T. Perrin.	
Y.2103	12.9.24	9.10.33	P.1063	16.2.32	3.1.33
	Shipley (Yorks.). By C. Wontner-Smith.			Kelling (Norfolk). By R. M. Garnett.	
VF.766	11.2.33	Mar., Ap., [July, Sep., 1933	S.7361	11.7.30	29.10.32
VF.781	19.2.33	11.3.33; 7.9.33	S.7515	11.3.31	13.3.31; 27.1.33
VF.886	1.3.33	28.3.33; Sept. 1933 (8)	HF.145	19.6.32	10.12.32
YF.838	17.3.33	3.9.33			
	Wilmslow (Ches.). By E. Cohen.			Bluntisham (Hunts.). By Rev. E. Peake.	
NF.566	23.8.32	Feb., Ap., May, 1933	P.7233	3.10.32	9.5.33
SF.148	15.1.33	18.7.33			

**Robin** (*Erithacus r. melophilus*).

The bird recovered at Rouen is of interest as it is only the third ringed Robin we have had reported from abroad.

## RINGED AS NESTLINGS.

## (a) RECOVERED AWAY FROM WHERE RINGED.

No.	Ringed.	Recovered.
MC.685	Carlisle (Cumb.), —.7.33, by H. J. Moon.	Wreay (Cumb.), —.8.33, by W. Fawkes.
J.1184	Near Ledbury (Hereford.), 22.5.30, by P. E. A. Morshead.	Rouen (Seine Inf.), France, 11.12.33, by Dr. Regnier.
NX.107	Stanway (Glos.), 21.5.33, by Hon. G. Charteris.	Dumbleton (Glos.), 5.12.33, by F. Nurden.

## (b) RECOVERED WHERE RINGED.

No.	Ringed.	Recovered.
NT.121	Lisnagry (Limerick), 20.4.33, by M. Goodbody.	6.12.33.

## RINGED AS FULL-GROWN.

## (c) RECOVERED AWAY FROM WHERE RINGED.

No.	Ringed.	Recovered.
MB.544	Heslington (Yorks.), 16.6.33, for Bootham Sch.	Acomb (Yorks.), 20.12.33, by F. Hebden.

## (d) RECOVERED WHERE RINGED.

No.	Ringed.	Recovered.	No.	Ringed.	Recovered.
	Rusland (Lancs.).			Kelling (Norfolk).	
	By C. F. Archibald.			By R. M. Garnett.	
D.4587	25.8.28	2.1.29 ; 15.9.33	J.3733	15.1.31	10.3.31 ; 1.7.33
	Shipley (Yorks.).			Bluntisham (Hunts.).	
	By C. Wontner-Smith.			By Rev. E. Peake.	
NR.137	29.1.33	Feb., Mar., [Ap., Sep., 1933	L.5264	15.10.31	Jan., Feb., [1932; 28.2.33; 10.9.33
NR.197	5.3.33	Mar., Ap., Sep., 1933	N.2061	30.11.31	5.9.32 ; [July, Aug., 1933
NR.213	9.3.33	Mar., Ap., [July, Sep., 1933	NK.646	27.8.32	26.2.33 ; 9.8.33
	Styal (Ches.).		NK.679	27.1.33	Feb., 1933 [ (2); Sep., 1933 (3)
	By T. Perrin.			Cambridge.	
K.6442	10.2.32	18.1.33	NL.816	15.11.32	24.10.33
	Birmingham (Warwicks.).			Harpenden (Herts.).	
	By W. E. Kenrick.			By H. L. N. Davis.	
NK.916	26.9.32	20.12.32 ; [Jan., Mar., 1933	N.5243	14.4.32	27.12.32
NK.938	1.10.32	12.12.32 ; 17.9.33		Shanklin (I.O.W.).	
NL.49	18.10.32	Nov., Dec., [1932 ; Mar., Sep., 1933	L.7575	3.1.33	27.12.33
				Bray (Wicklów).	
				By D. J. Waterhouse.	
			N.3052	18.1.32	19.11.32 ; 18.1.33

**Hedge-Sparrow** (*Prunella m. occidentalis*).

## RINGED AS NESTLING.

No.	Ringed.	Recovered.
NX.941	Castle Howard (Yorks.), 27.5.33, for Bootham Sch.	Kirkham Abbey (Yorks.), 5.11.33, by C. Lazenby.

## RINGED AS FULL-GROWN.

## (d) RECOVERED WHERE RINGED.

No.	Ringed.	Recovered.	No.	Ringed.	Recovered.
	Shipley (Yorks.). By C. Wontner-Smith.			Cley (Norfolk). By R. M. Garnett.	
NR.202	12.3.33	8.9.33	TW.328	12.2.32	26.2.32 ; 28.8.33
NR.214	18.3.33	Ap., 1933 (2); 15.9.33		Saxlingham, Norwich. By Mrs. Wilson.	
	Wilmslow (Ches.). By E. Cohen.		M.3035	7.8.31	14.4.33
NK.496	12.10.32	Feb., Mar., [Ap., May, 1933		Battle (Sussex). By H. Whistler.	
	Birmingham. By W. E. Kenrick.		M.4967	23.6.32	July, Sep., [1932; 19.12.33
NK.915	26.9.32	Oct., Dec., [1932; Jan., Mar., 1933		Bray (Wicklow). By D. J. Waterhouse.	
			N.3083	20.2.32	22.11.32

**Swallow** (*Hirundo r. rustica*).

## RINGED AS NESTLINGS.

## (a) RECOVERED AWAY FROM WHERE RINGED.

No.	Ringed.	Recovered.
NH.327	Cumdivock (Cumb.), by R. H. Brown.	26.6.32, Tarraby (Cumb.), 23.5.33, by A. Twiddle.
N.1705	Newton Bewley (Durham), 3.9.31, for Col. Pollitt.	Near Doncaster (Yorks.), 28.7.33, by J. Robinson.

## (b) RECOVERED WHERE RINGED.

K.9931	Weybourne (Norfolk),	2.7.32, by R. M. Garnett.	3.6.33.
L.5168	Laugharne (Carms.),	29.8.31, by J. F. Thomas.	10.8.33.
N.4602	Ditto	10.8.32.	9.8.33.

## RINGED AS FULL-GROWN.

## (d) RECOVERED WHERE RINGED.

No.	Ringed.	Recovered.	No.	Ringed.	Recovered.
	Bluntisham (Hunts.). By Rev. E. Peake.		N.4527	3.8.32	2.8.33
NK.661	11.10.32	29.4.33	N.4578	8.8.32	7.8.33
	Laugharne (Carms.). By J. F. Thomas.		N.4584	9.8.32	3.8.33
L.5095	17.8.31	29.7.32 ; 23.8.33	N.4668	16.8.32	7.8.33
			N.4711	20.8.32	16.8.33
			N.4719	20.8.32	11.5.33

**Swift** (*Apus a. apus*).

These records showing return so many years after ringing are of special note.

No.	Ringed.	Recovered.
C.6295	Leamington (Warwicks.), 13.7.25, ad., by P. Chance.	Where ringed, 1.7.33, by ringer.
E.6141	Ditto	8.7.26. Ditto 17.6.27; 15.6.29; 1.7.33.



**Kingfisher** (*Alcedo a. ispida*).

<i>No.</i>	<i>Ringed.</i>	<i>Recovered.</i>
L.8583	Crookston (Renfrew.), 19.5.32, young, for J. Bartholomew.	R. Kittoch (Lanark.), 19.8.33, by ringer.
NW.419	Mid-Pollok (Renfrew.), 25.5.33, young, for J. Bartholomew.	Kelvinside (Glasgow), 24.11.33, by Miss Murdoch.

**Cuckoo** (*Cuculus c. canorus*).

This record is of special interest as it confirms previous recoveries (see Vol. XXV., pp. 174 and 358), showing migration in a south-easterly direction from the British Islands.

AN.7388	Donadea (Kildare), 29.6.33, young, by D. J. Waterhouse.	Bione, Brescia, Italy, 20.10.33, by Dr. A. Duse.
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**Little Owl** (*Athene n. vidalii*).

RT.6622	Cliffe (Kent), 20.6.33, young, for Oxford Orn. Soc.	Cuxton (Kent), 22.9.33, by A. Jeffery.
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**Short-eared Owl** (*Asio f. flammeus*).

AK.806	Hickling (Norfolk), 12.5.33, young, by Mrs. Wilson.	Peterstone Wentloog (Monmouth), 14.9.33, by J. Williams.
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**Merlin** (*Falco c. æsalon*).

79599	Elsdon (Northumb.), 20.6.31, young, by Mrs. Hodgkin.	Chatton (Northumb.), 6.10.33, by R. Simpson.
RR.4771	Sedbergh (Yorks.), 30.6.32, young for B. A. Carter.	Redmire (Yorks.), 30.7.33, by F. Horn.

**Kestrel** (*Falco t. tinnunculus*).

RT.6661	Portmore (Peebles), 29.5.33, young, for Midlothian Orn. Club.	Netherby Estate (Cumb.), 31.8.33, by H. Mounsey.
RT.6669	Ditto 29.5.33.	Delvine (Perths.), —.9.33, by H. Hogarth.
RT.4278	Cumdivock (Cumb.), 12.6.32, young, by R. H. Brown.	Walby (Cumb.), Summer, 1933, per <i>The Field</i> .
77457	Reach (Cambs.), 17.6.25, young, by G. W. Thompson.	Where ringed, 5.6.33, by ringer.

**Heron** (*Ardea c. cinerea*).

## RINGED AS NESTLINGS.

103314	Almondbank (Perths.), 21.5.32, by Lord Scone.	Near Loch Awe (Argyll), 27.7.33, by D. McDougall.
112261	Kilbarchan (Renfrew.), 25.6.33, by F. J. Ramsay.	Near Greenock (Renfrew.), 9.8.33, by W. Murray.
105263	Henley-on-Thames (Bucks.), 29.4.28, for Lt.-Col. Pollitt.	Daimiel (Ciudad Real), Spain, 16.11.33, by Foreign Office.
112010	Mepal (Cambs.), 9.5.33, by C. S. Clarke.	Near Wadebridge (Cornwall), —.10.33, by T. J. Willcocks.
112024	Ditto 8.6.33.	Pymoor (Cambs.), 30.11.33, by J. Bell.
104774	Sandy (Beds.), 28.4.28, for Lt.-Col. Pollitt.	Where ringed, 21.12.33, by J. Norman.
106171	Toy (Down), 6.5.33, by J. Cunningham.	Crombie Loch (Angus), 15.11.33, by P. Milne.
106174	Ditto 1.5.33	Gurteen (Sligo), 19.11.33.

**Mallard** (*Anas p. platyrhyncha*).

## RINGED AS FULL-GROWN.

No.	Ringed.	Recovered.
AK.900	Leswalt (Wigtown), 7.3.33, by M. Portal.	Zarnowiec, Baltic Coast, Poland, 13.10.33, by Herr Reich.
AK.898	Ditto	6.3.33. Trollhatten (Elfsborg), Sweden, 3.8.33, by E. Hultman.
AF.174	Hickling (Norfolk), 8.3.30, for A. W. Boyd.	Iniö, Aboland, Finland, 19.4.33, by A. Danochson.
AF.164	Ditto	8.3.30. Ebeltoft (Jylland), Denmark, 18.12.33, by C. C. Andersen.
AA.5061	Ditto by J. Vincent.	26.2.33, Norrköping (Östergotland), Sweden, 1.9.33, by G. Falkenberg.
AA.5071	Ditto	27.2.33. Lake Takern (Östergotland), Sweden, —.10.33, by T. Johansson.
AA.4989	Ditto	21.2.33. Le Touquet (Pas-de-Calais), France, 3.12.33, by E. Holland.

**Teal** (*Anas c. crecca*).

## RINGED AS NESTLING.

RT.4839	Wolsingham (Durham), 4.7.33, by R. Martinson.	Shotley Bridge (Northumb.), 18.9.33, by G. Cowen.
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## RINGED AS FULL-GROWN.

73082	Longtown (Cumb.), 1.3.33, by late Sir R. Graham.	Where ringed, 24.8.33, by J. Westoll.
73160	Ditto	1.3.33. Kirkpatrick Fleming (Dumfries.), 25.11.33.
73178	Ditto	1.3.33. Brampton (Cumb.), 8.12.33, by Captain G. Johnson.
73153	Ditto	1.3.33. Seascale (Cumb.), 14.12.33, by T. Hartley.
73165	Ditto	1.3.33. Near Preston (Lancs.), 9.12.33, by A. Roskell.
Netherby 124	Netherby Estate (Cumb.), —.1.31, by late Sir R. Graham.	Töre (Norrbotten), Sweden, —.9.33, by <i>Fauna o. Flora</i> .

**Pintail** (*Anas a. acuta*).

73168	Longtown (Cumb.), 1.3.33, ad., by late Sir R. Graham.	Stenness, Orkney, 31.10.33, by D. Coghill.
73170	Ditto	1.3.33. I. of Amrum (Schleswig-Holstein), —.9.33, by T. Fensen.

**Eider** (*Somateria m. mollissima*).

112119	Collieston (Aberdeen), 2.6.33, ad., by M. Portal.	Cove Bay (Aberdeen), 31.7.33, by G. Robb.
112084	Ditto	4.6.33. Tay Estuary, 26.8.33, by D. Watson.
112110	Ditto	2.6.33. Tay Estuary, 1.10.33, by J. Wilcock.

**Cormorant** (*Phalacrocorax c carbo*).

No.	Ringed.	Recovered.
109444	Badcall Is. (Suth.), 27.6.32, young, by E. C. Sharp.	Isle of Jura (Inner Heb.), 22.10.33, by Seton Gordon.
102040	Mochrum (Wigtown), 18.7.31, young, by Lord D. Crichton-Stuart.	Luce Bay (Wigtown), 25.8.33, by W. McQuillan.
112342	Skomer (Pembs.), 29.6.33, young, by R. M. Lockley.	I. de Noirmoutier (Vendée), France, 30.10.33, by D. Rémy.
112157	Ditto 29.6.33.	Pouldu-s.-Elorn (Finistère), France, 5.11.33, by <i>Chasseur Français</i> .

**Shag** (*Phalacrocorax a. aristotelis*).

104692	Edrachillis Bay (Suth.), 6.7.27, young, by W. and A. B. Duncan.	Scourie (Suth.), 25.8.33, by G. Norton.
101408	Ditto 6.7.27	Lochmaddy (N. Uist), —.10.33, by W. Maclennan.

**Gannet** (*Sula bassana*).

The bird from the west coast of Morocco is considerably further south than any previous record of a ringed Gannet.

112386	Grassholm (Pembs.), 26.6.33, young, by R. M. Lockley.	Ile d'Yeu (Vendée), France, —.8.33, by M. Poiraud.
112441	Ditto 26.6.33.	Off C. Ghir, Morocco, 12.11.33, by Capt. H. Biron.

**Manx Shearwater** (*Puffinus p. puffinus*).

RINGED AS FULL-GROWN.

(c) RECOVERED AWAY FROM WHERE RINGED.

RS.2294	Skokholm (Pembs.), 1.4.33, by R. M. Lockley.	St. Nazaire (Loire Inf.), France, 28.8.33, by Office des Pêches Maritimes.
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(d) RECOVERED WHERE RINGED.

No.	Ringed.	Recovered.	No.	Ringed.	Recovered.
	Skokholm (Pembs.).		RS.2259	5.5.30	11.5.31 ;
	By R. M. Lockley.		[AG.701]	[28.3.32 ;	2.4.33
RS.2247	14.5.31	28.3.32 ;	RS.2262	19.5.31	10.5.33
		1.4.33	RS.2263	24.6.31	7.4.33
RS2250	6.5.31	2.4.33	RS.2266	24.5.31	7.4.33
RS2251	6.5.31	28.3.32 ;	RS.2271	24.6.31	21.3.32 ;
		1.4.33			7.4.33
RS2255.	6.5.31	2.4.33	RS.2272	5.5.30	13.5.31 ;
RS.2256	15.5.29	29.3.30 ;	[AG.702]	[29.3.32 ;	2.4.33
[AE.682]	[2.5.31 ; 21.3.32 ;	1.4.33	RS.2279	24.5.31	28.3.32 ;
RS.2257	11.5.31	26.7.33			3.4.33
RS.2258	14.5.31	8.4.33			

**Stock-Dove** *Columba ænas*).

No.	Ringed.	Recovered.
AP.1561	Glenorchard (Stirling.), 16.5.33, young, for J. Bartholomew.	Near Cambridge, 22.12.33, by W. Doggett.

**Stone-Curlew** (*Burhinus æ. ædicnemus*).

RS.4368	Oxfordshire, 17.5.33, young, for Oxford Orn. Soc.	Pontoux-les-Forges (Landes), France, 16.10.33, by <i>Chasseur Français</i> .
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Lapwing (*Vanellus vanellus*).

An unusual number of Lapwings have been reported this winter from the Spanish Peninsula.

## RINGED AS NESTLINGS.

## (a) RECOVERED AWAY FROM WHERE RINGED.

No.	Ringed.	Recovered.
AP.5864	Brechin (Angus), 31.5.33, by Lord Scone.	Carhaix (Finistère), France, 9.11.33, by E. le Janne.
AN.6737	Near Leuchars (Fife.), 3.5.33, by A. H. Eggeling.	Salas (Asturias), Spain, 18.12.33, by V. Rodriguez.
Y.7744	Strathblane (Stirling), 24.6.25, by J. Bartholomew.	Borris-in-Ossory (Queen's), 21.12.32, by M. Carroll.
T.1006	Glenorchard (Stirling.), 4.6.28, by J. Bartholomew.	Granard (Longford), 26.11.33, by J. Carrigy.
AN.274	Ditto 11.6.31.	Gibbstown (Meath), 29.11.33, by T. Gerrard.
AP.1489	Ditto 18.5.32.	Ballinasloe (Galway), —.11.33, by J. Silk.
AP.1626	Ditto. 27.5.33.	Charleville (Cork), 12.12.33, by P. O'Donnell.
76548	Near Thornhill (Dumfries.), 6.6.25, by H. S. Gladstone.	Charleville (Cork), 7.12.33, by M. O'Connor.
AP.2765	Penrith (Cumb.), —.5.32, by H. J. Moon.	Delvin (Westmeath), 2.11.33, by Mrs. Lynch.
AR.700	Ditto —.6.33.	Evora (Alemtejo), Portugal, 29.12.33, by W. A. Tait.
AP.7009	Ditto —.5.33.	Lebrija (Sevilla), Spain, 12.1.34, by J. Barde.
S.2016	Ditto —.6.29.	Niebla (Huelva), Spain, 23.12.33, by J. P. Orta.
T.8135	Kirkby Lonsdale (Westmor.), —.5.29, by H. J. Moon.	Kendal (Westmor.), 22.10.33, by Col. W. D. Crewdson.
AP.4753	Horton-in-Ribblesdale (Yorks.), —.6.32, by H. J. Moon.	Near Wigan (Lancs.), —.10.33, by W. Smith.
U.5293	Ingleton (Yorks.), —.5.28, by H. J. Moon.	Loctudy (Finistère), 11.12.33, by Prof. Bourdelle.
AP.8655	Clapham (Yorks.), —.5.33, by H. J. Moon.	Forest of Bowland (Yorks.), 7.10.33, by F. Harris.
AP.7172	Ditto —.5.33.	Niebla (Huelva), Spain, 23.12.33, by J. P. Orta.
X.2869	Near Lymm (Ches.), 10.6.26, by A. W. Boyd.	Limpas (Santander), Spain, 17.12.33, by S. Brooke.
AP.9475	Evesham (Worcs.), 31.5.33, by A. J. Harthan.	Badajoz, Spain, —.12.33, by Sec. Junta de Turismo.
AP.6113	Ditto 30.4.33	Near Oporto, 15.12.33, by Dr. Cunha Coutinho.
X.9053	Penybont (Radnor.), 4.5.27, by P. E. A. Morshead.	Near Bilbao (Vizcaya), Spain, 17.12.33, by C. S. Torres.
AN.7868	Near Oxford, 5.6.32, by Oxford Orn. Soc.	Molledo (Santander), Spain, 24.12.33, by M. Pedraja.
S.2454	Near Bristol (Glos.), 10.5.30, by Clifton Coll. Sci. Soc.	Vivero Burela (Lugo), Spain, 23.12.33, by J. Lestao.
T.6659	Marlborough (Wilts.), 27.5.29, by N. T. Walford.	Ascain (Basses Pyrénées), France, 12.12.33, by Mrs. Cunliffe-Owen.

**Lapwing** (*continued*).

(b) RECOVERED WHERE RINGED.

No.	Ringed.	Recovered.
AN.9293	Penrith (Cumb.), —.5.32, by H. J. Moon.	31.8.33.
AN.5615	Shap (Westmor.), —.6.31, by H. J. Moon.	25.7.33.
R.8486	Ulverston (Lancs.), 30.5.31, by H. S. Greg.	—.2.33.

**Redshank** (*Tringa t. totanus*).

RF.749	Near Chollerton (Northumb.), 5.6.33, young, by Mrs. Hodgkin.	Mouth of R. Charente, France, 15.10.33, by <i>Chasseur Francais</i> .
DF.362	Kelling (Norfolk), 16.5.33, young, by R. M. Garnett.	Mouth of R. Charente, France, 17.10.33, by <i>Chasseur Francais</i> .

**Curlew** (*Numenius a. arquata*).

RT.7535	Penrith (Cumb.), —.6.33, young, by H. J. Moon.	Cargo-on-Eden (Cumb.), 18.11.33, by J. Beattie.
25849	Carnforth (Lancs.), —.6.29, young, by H. J. Moon.	Furbough (Galway), 1.10.33, by M. Kelly.

**Snipe** (*Capella g. gallinago*).

FF.285	Glenorchard (Stirling.), 18.5.33, young, by J. Bartholomew.	Greenlaw (Berwick), 2.10.33, by Col. C. T. Menzies.
FJ.547	Malvern (Worcs.), 29.11.33, ad., by P. E. A. Morshead.	Whitland (Carms.), 16.12.33, by W. Riddell.
AN.7543	Tewkesbury (Glos.), 7.5.33, young, by Hon. G. Charteris.	Hemyock (Devon.), —.12.33, by E. Farrant.
L.7104	Otmoor (Oxon.), 7.6.31, young, by Oxford Orn. Soc.	Elmham (Norfolk), 26.9.33, by A. Buxton.

**Woodcock** (*Scolopax r. rusticola*).

RINGED AS NESTLINGS.

(a) RECOVERED AWAY FROM WHERE RINGED.

AP.6189	Inchtute (Perths.), 20.4.33, by Lord Scone.	Plounévez - Quintin (Côtes- du-Nord), France, 20.12.33, by P. Mégnin.
V.6620	Dupplin (Perths.), 14.6.28, by Lord Scone.	Near Auchterarder (Perths.), 8.9.33, by G. Buchanan.
R.3249	Crieff (Perths.), 8.5.32, by Lord Scone.	Muthill (Perths.), 21.10.33, by C. P. Ker.
AP.6261	Greenloaning (Perths.), 2.7.33, by Lord Scone.	St. Mary's, Scilly Is., 20.12.33, by Major A. Dorrien-Smith.
AN.6730	Upper Largo (Fife.), 27.4.33, by A. H. Eggeling.	Ladybank (Fife.), 16.12.33, by <i>The Field</i> .
AN.9904	Cairnsmore (Kirkcudbr.), 29.4.32, by Col. Blair-Imrie.	Near Newton Stewart (Kirk- cudbr.), 29.8.33, by Col. Knowles.
T.7371	Comlongan (Dumfries.), 23.4.29, by Lord Scone.	Near Dalton (Dumfries.), 15.5.33, by L. Beattie.
AP.1066	Kirkmichael (Dumfries.), 4.5.33, by W. and A. B. Duncan.	Near Johnstone Bridge, (Dumfries.), 14.11.33, by Capt. Whitehead.
U.5507	Abbeystead (Lancs.), —.6.28, by H. W. Robinson.	Trough of Bowland (Yorks.), 21.11.33, by C. N. Trappes- Lomax.
AP.301	Ditto —.6.33.	High Bentham (Yorks.), 13.9.33, by R. Remington.

**Woodcock** (*continued*).(a) RECOVERED AWAY FROM WHERE RINGED (*continued*).

No.	Ringed.	Recovered.
AP.5405	Woodford (Ches.), 22.4.33, by E. Cohen.	Whaley Bridge (Derby.), 25.11.33, by W. Pickford.
AP.6981	Wickham (Hants.), 19.4.33, by Commander Cornwallis.	Newmarket (Suffolk), 2.11.33, by J. Paine.

## (b) RECOVERED WHERE RINGED.

No.	Ringed.	Recovered.
S.9342	Coupar Angus (Perths.), 28.4.30, by Lord Scone.	8.12.33.
R.3391	Thornhill (Dumfries.), 17.5.31, by Lord Scone.	28.10.33.
AP.1058	Kirkmichael (Dumfries.), 24.6.33, by W. Duncan.	19.12.33.

**Sandwich Tern** (*Sterna s. sandvicensis*).

## RINGED AS NESTLINGS.

No.	Ringed.	Recovered.
U.2098	Tentsmuir (Fife.), 13.6.32, by C. R. Stonor.	Accra, Gold Coast, W. Africa, 25.10.33, by F. W. Annan.
AP.4456	Leuchars (Fife.), 10.7.33, by Perth N.H.S.	Middlesbrough (Yorks.), 23.8.33, by J. Walsh.
AP.5339	Farne Is. (Northumb.), 20.6.33, by Mrs. Hodgkin.	Saltfleetby (Lincs.), 17.9.33, by F. Boothman.
S.5881	Walney I. (Lancs.), 5.6.29, by H. W. Robinson.	St. Bees (Cumb.), —.7.33, by J. Hornell.
AR.2126	Salthouse (Norfolk), 19.6.33, by Oxford Orn. Soc.	St. Valery-s-Somme, France, 18.8.33, by E. Chavanes.
AR.2380	Ditto, 8.6.33, by E. Cohen.	Aberlady (East Lothian), 4.9.33, by W. Serle.

**Black-headed Gull** (*Larus r. ridibundus*).

RT.9434	Molesey (Surrey), 10.10.33, imm., by P. A. D. Hollom.	Virginia Water (Surrey), 9.11.33, by G. Othen.
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**Lesser Black-backed Gull** (*Larus f. graellsii*).

AA.5422	Foulshaw (Westmor.), 24.7.33, young, by H. W. Robinson.	Old Colwyn (Denbigh.), 28.10.33, by M. Mitchell.
AA.5387	Walney I. (Lancs.), 21.6.33, young, by H. W. Robinson.	Near Liverpool (Lancs.), 14.9.33, by J. Latimer.
AA.7853	Ditto 8.6.33.	Loctudy (Finistère), France, —.8.33, by M. Ribet.
AL.972	Ditto 18.6.31.	La Rochelle (Charente Inf.), France, 12.3.33, by Dr. Dalmon.

**Great Black-backed Gull** (*Larus marinus*).

112406	Skokholm (Pembs.), 19.7.33, young, by R. M. Lockley.	Lastres (Asturias), Spain, 25.11.33, by L. M. Braña.
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**Razorbill** (*Alca torda*).

AL.657	Skokholm (Pembs.), 17.7.31, ad., by R. M. Lockley.	Where ringed, 7.7.33, by ringer.
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**Southern Guillemot** (*Uria a. albionis*).

AA.7242	Skomer (Pembs.), 29.6.33, young, by R. M. Lockley.	Near Swansea (Glam.), 21.9.33, by V. Griffiths.
AA.7268	Ditto 29.6.33.	Portrush (Antrim), 2.10.33, by S. McLaughlin.

## ON SOME BREEDING-HABITS OF THE PIED FLYCATCHER.

BY

SIR C. VENABLES LLEWELYN, BART.

ABOUT 25 years ago I started a few nest boxes in my garden at Llysdinam, Newbridge-on-Wye, Radnorshire. This garden is about 400 to 500 yards from the River Wye—here of an average width of about 45 yards—and some 150 feet above it. There is a more or less open wood at each end of the garden, with pasture fields beyond, and the trees are of some 120 years' growth. At first a few Tits, Redstarts and Robins occupied the boxes, along with one nest of Pied Flycatcher (*Muscicapa h. hypoleuca*), in the first year. The Pied Flycatchers had previously nested in fair numbers in trees along the river bank and still continue to do so. After the first year they took to the boxes rapidly: there were four nests in them the second year and with an increased number of boxes the number soon rose to nine; but this increase of Pied Flycatchers appears to have the effect of driving away the Redstarts and Robins which have now almost ceased to use the boxes.

During the War records were not kept and some of the boxes were damaged or fell; but in 1924 fresh boxes were obtained and have been since maintained. There is one series of 28 to 32 boxes within a radius of about 100 yards and another series of four boxes within a radius of 30 yards, about 200 yards from the first series. These boxes have been of various types; but all with a hole of  $1\frac{1}{8}$  inch diameter and movable lids. They are all from 3 feet to 4 feet 6 inches above the ground, so that observation is simple without disturbing birds from the nest. I have never had any trouble from vermin of any sort.

After 1924, with the increased number of boxes, the nests of Pied Flycatcher in them rose to as many as fifteen or sixteen in a season, and in 1931 sixteen nests produced 82 young birds that left the nest. The site of some of the boxes has been changed for various reasons from time to time and I have, therefore, selected twenty of the boxes for the following table, since they are the only ones for which I have complete records in precisely the same position—for the last eight years.

Here, perhaps, I should remark that nothing is put in or taken out of these boxes at any time except by the birds themselves.

Table of nests in twenty permanent boxes for the years 1926 to 1933 inclusive :—

<i>Box.</i>	<i>Aspect.</i>	<i>Tree.</i>	<i>Light.</i>	<i>Pied Fly-catcher.</i>	<i>Blue Tit.</i>	<i>Great Tit.</i>	<i>Coal Tit.</i>	<i>Nut-hatch.</i>	<i>Empty</i>
1x	N.E.	Oak	medium	1	1	—	—	3	3
2x	W.	S. Chest-nut	do.	8	—	—	—	—	—
3x	N.N.E.	Wych Elm	open	2	4	—	—	—	2
4x	N.N.E.	do.	do.	5	2	—	—	—	1
1	E.S.E.	Scots Pine	very open	1	7	—	—	—	—
2	E.N.E.	Spruce	medium	6	—	—	—	—	2
3	S.	do.	very dark	—	—	—	—	—	8
4	E.	Oak	medium	6	—	—	—	—	2
5	E.S.E.	Spruce	rather dark	6	1	—	—	—	1
6	E.N.E.	Scots Pine	do.	4	1	—	—	—	3
7	S.E.	Spruce	do.	1	—	3	—	—	4
8	E.N.E.	do.	do.	7	1	—	—	—	—
9	E.	Ash	medium	3	—	—	3	—	2
10	S.E.	Scots Pine	rather dark	5	—	—	—	—	3
11	S.S.E.	Ash	medium	2	1	—	1	—	4
12	N.E.	Scots Pine	rather dark	5	—	1	—	—	2
13	E.S.E.	do.	dark	5	—	—	—	—	3
14	S.	Beech	medium	6	—	—	—	—	2
15	S.E.	Scots Pine	fair	4	—	2	—	—	2
16	E.N.E.	Beech	fairly open	5	2	—	—	—	1
Total nests in the eight years				82	20	6	4	3	45

While it is useless to attempt to say exactly when the Pied Flycatchers arrive, it is certain that the first arrivals are cock birds; that they disappear for a few days, perhaps a week, after their arrival; then cocks and hens fill the garden until they settle down to nesting. They find a few boxes already occupied by Tits; but they generally select an empty box and make no attempt to interfere with these.

Once I have seen a cock Pied Flycatcher driven away from a Blue Tit's nest, and once I found a dead Pied Flycatcher in a Blue Tit's nest. It had apparently entered the box and been killed by the Tits inside it. The Tits in this case incubated their eggs and reared a fine brood without attempting to remove the carcase, and I may add, incidentally, that none



of the species using these boxes remove dead young birds as a rule ; though most of them appear to remove fæces.

The date of laying the first egg by the Pied Flycatcher is generally from May 14th to 18th ; but in 1914 some pairs began as early as May 3rd, and in 1928 on May 8th. Nearly all will have started within a few days after the first egg ; but usually one or two nests may be found freshly started a fortnight or even three weeks later than the main body. This is not, however, evidence of late arrivals ; it is probably due to first nests having been deserted for some reason.

The number of eggs is usually from five to eight. I have never found more than eight, but eight is by no means a rare number, and it is not necessarily the earliest starter that achieves this full clutch. The late nests often lay only four. I have not seen here the rare spotted eggs of the Pied Flycatcher ; the eggs have been normal in every case except the one mentioned below. The average number of eggs laid varies from season to season between 5 and 6.3. There is also a variation in the number of infertile eggs and in " infant mortality ". In the last respect 1933 has been a very bad year, showing a loss of 20 per cent. of the young birds, all when half grown, whilst in some years hardly any of the young birds die in the nest. The number of infertile eggs varies also and 1933 has been bad in this respect too, whilst the number of nests was below the average of recent years and the number of eggs per nest was poor. The high mortality this year may have been due to unusual heat followed by cold nights ; but these conditions have not here been very excessive at the date concerned. Moreover, three Blue Tits' nests produced thirty young and one Coal Tit's ten young in adjoining boxes without the loss of one young bird, though it is probable that the Tits left the nest a few days earlier than the Pied Flycatchers. There seems no doubt that the supply of insects was short this year, and it may well be that the local food supply governs the number of nests, the fertility of the birds, and the health of the young broods.

It is difficult to say whether the birds begin to sit as soon as the full clutch is laid ; but from a number of observations I find that from the date of the laying of the first egg to the date when the young birds leave the nest is about 34 to 36 days. All the broods will have left the nest in 42 to 45 days, so that the late nests appear to rear their broods a little more rapidly than the early ones, due it would seem to the fact that the late clutches are always small in number.

I have never found the cock bird incubating the eggs ; once only have I seen a cock in the box (after the eggs were hatched)

but he did not appear to be attempting to brood the chicks. The cock shares the feeding of the young with the hen and is, I think, quite as active as she. At first the feeding is very intensive, but as the young birds grow the parents' visits become less and less frequent. On the other hand the ration increases in size as the number of visits is reduced and in the later stages may include quite large caterpillars.

The young birds seem to grow together at exactly the same rate and all are ready to leave the nest at the same time. This apparently almost always takes place in the early morning; very rarely have I found some of the young flown from the nest and some still left in it, and only once have I been able to witness this first flight. On that occasion three of the birds had already left and I found three in the nest. A few minutes later I saw one come straight out of the box and fly about fifteen yards away into some long grass. The cock bird continued to feed the remaining two but the hen was not to be seen. Presently another young one flew out about the same distance. I put it back into the box but without hesitation it flew again, and an hour later the last one went off in the same manner. All three went in different directions, but soon made another short flight. I could see no effort on the part of the old birds to collect them; but the marked absence of the hen bird and the feeding of those remaining in the nest by the cock only, suggests that the hen was attending to the three which had flown first. I have never been able to detect any young Pied Flycatcher returning to the nest after it has once left it.

Once the birds have left the nest I have never been able to detect their presence again—neither old nor young; but there is much heavy wood and thick cover within a few hundred yards where they may easily remain undetected during the moult. Moreover, the rearing of a number of broods would at least have taken the cream off the food supply in the garden and its near vicinity. At all events after the end of June we see nothing more of the Pied Flycatcher till the following spring.

Nothing very definite can be deduced from the table above as to the preference of these birds for any kind of tree or, indeed, of the aspect of a box. The box ought certainly to be placed firmly on a tree large enough to resist motion caused by wind and without lower branches, so that passage to and from the nest is open. Trees near the edge of a wood seem to be most favoured and an aspect with enough light. Direct sunlight is by no means essential and I am inclined to think that birds avoid boxes which get direct evening sun—

that is the Pied Flycatchers ; for Blue Tits at all events do not mind the heat of even a wall facing west.

In the table a distinct tendency to use the same box is evident in the case of the Tits and Nuthatch, which have, it must be remembered, the first choice—but no light is thrown upon this question as regards the Flycatchers.

No "ringing" has been attempted to prove the return of the same birds ; but readers of *British Birds* may remember the case recorded in the issue for August, 1932 (Vol. XXVI., p. 95), where the return of a bird was shown to be probable by the nature of its abnormal eggs. I am now able to add that the same thing took place again, for the third consecutive season, in 1933 ; there is no doubt in the mind of those who saw these eggs that they were laid by the same bird in each of these three years. It did not lay in the same box, though not more than thirty yards separates the three boxes it has used. The box that it occupied in 1931 was vacant in 1932 and 1933 ; but the one that it used in 1932 was probably taken first in 1933 by another Pied Flycatcher. However, it might have used the original box for both of the last two years ; the fact that it did not goes to show that the Pied Flycatchers, whilst returning to the same place, do not necessarily adopt the same nesting spot. In 1931 and 1932 the eggs (obviously infertile) were taken from this bird and it was allowed to rear substituted eggs taken from other nests, which it did quite successfully. This year it laid three similar eggs and they were left to see what would happen, but the bird deserted them after sitting for a short time and did not, so far as could be discovered, attempt to lay again.

**BREEDING-HABITS AND NUMBERS OF  
KINGFISHERS IN RENFREWSHIRE.**

BY

ROBERT L. BROWN.

THE breeding area of the Kingfisher (*Alcedo a. ispida*) on the White Cart, begins at Waterfoot and ends just before entering the town of Paisley, a distance of fourteen miles. Two miles pass through the south suburbs of Glasgow and are unsuitable for breeding birds. In 1933 twenty-one nests were situated on or near this waterway, and 120 young were reared. From Waterfoot to Cathcart is a distance of five miles as the crow flies, due north. At Cathcart the river turns at right angles and flows due west another five miles to Paisley, therefore all the nests were located in an approximate area of twenty-five square miles.

The White Cart, as its name implies, is particularly suited to the Kingfisher, having retained its cleanliness in spite of some filth going into it now and again. Its frequent and heavy spates in autumn and spring, and its ability to rise and fall very quickly, keep it perfectly clean.

Minnows, sticklebacks, stone-loaches, shrimps and crustaceans such as the Kingfisher feeds on are all there in their thousands.

Regarding the nesting-sites, one flooded nest-hole was barely two feet above water-level, and the highest about 120 feet. The great majority, however, were from four to five feet above water-level. Most of the nest-holes were dug in various types of sand-bank, some soft and others hard, and one at least in solid clay, while two pairs of very industrious Kingfishers made homes for themselves in places where one would least expect to find them. One was in a very stony clay bank, and the other nesting-hole was hacked through earth, clay and rocks. These rocky nesting-holes were very short ones, one being only six inches in to the nesting-chamber, and the other about one foot. On the contrary three nesting-holes were excavated to the distance of four feet and more, two of these being in fairly hard sand, and one through solid clay. The average distance, however, was arm's length or about two feet.

I have known only one nest destroyed by flooding in this area. In two cases second broods have been reared from the same nest-holes the same year. Six in the first brood and seven in the second flew from one nest and six in the first and four in the second from the other, and a period of about forty and fifty days respectively elapsed between the first and second broods. These second broods left the nest on

August 30th and September 15th respectively. In previous years, young found by me during August were not second broods, but rather a third attempt at nesting.

During the past twelve years I have found about sixty nests, and none with more than seven eggs.

From an examination of a number of nests with a flash lamp I find the incubation-period is from twenty to twenty-one days and the fledging-period from twenty-three to twenty-six days. The following is an instance: March 31st, first egg; April 6th, seventh egg deposited; April 7th, bird sitting, but leaves the nest frequently and flies off with her mate. April 8th, incubation seriously begins, cock carrying fish to his sitting mate. April 27th, eggs hatching; April 28th, find hatched egg-shells beneath nesting-hole. May 18th, ringed young; May 22nd, young still in the nest; May 23rd, young fly. Period fifty-four days from the laying of the first egg to the flight of the young; fledging-period twenty-five days.

Another instance is as follows: May 22nd, incubation commenced. June 10th at mid-day I flashed a light on the nesting-chamber and found the female partly surrounded with hatched egg-shells. Immediately I withdrew, the cock appeared with a fish and entered the nesting-hole and came out carrying an egg-shell or possibly two, one within the other, and trailing another out with his feet. The female sat very tightly. June 11th, morning, there were no more traces of egg-shell either in the nesting-hole or chamber and the half egg-shell previously ejected was the only one in the vicinity of the nest-hole. The female heaved considerably and to all appearances all the eggs were hatched. July 3rd, the young flew. Fledging-period twenty-three days. This brood flew before their time probably owing to my having handled and photographed and ringed them the previous day.

In my experience all cock Kingfishers are very energetic in feeding their sitting mates, more especially when incubation has just commenced, and when the young are newly hatched. I have also watched them change places with their mates at dusk and dawn, and sometimes during the day, but their interest in family affairs appears to lag after the young are a few days old and the young are fed almost entirely by the hen. There was one cock, however, an exception to the rule, and it is the only instance in which I observed both birds brooding the young together. This they continued to do for a period of ten days, when unfortunately the nest-hole was destroyed by boys and the birds deserted their young. They

re-nested in the same district and successfully reared four young, the cock remaining with the hen and assisting in feeding the young till they left the nest.

I have seen many young ones capable of looking after themselves, and have noticed that they disappear very rapidly after leaving the nest, as do the parents at least from their breeding territory. A bird ringed by me with No. L.8583 as a nestling on May 19th, 1932, at Crookston, was found breeding at the beginning of July, 1933, on the tributary of the Kittoch, near where that stream joins the White Cart, and approximately eight miles from where it was reared, and exactly thirteen months after leaving the nest.

The extraordinary loud purring made by this bird's seven young when expecting food was distinctly audible at a distance of fifty yards. At this nest, when the young had flown, I observed a fight between two cock Kingfishers. Their mates were also witnesses and three young birds from the nest. It was obvious that the parents resented the intrusion of the other pair when their young had just flown. The cocks were perched on some roots overhanging deep water. From their upright attitudes and the way they faced each other at a distance of a few feet they resembled a couple of well-drilled soldiers. Now and again one would fly at the other attempting to knock his opponent off his perch, and if one turned his back for a moment the other immediately repeated the act. Finally they got a good grip of each other's bill, pulling and tugging as Gannets do, and collapsed in a heap into the water. Retaining their grip, they splashed about the water for about a minute before breaking loose, and shortly after the intruders vanished.

The number of Kingfishers now breeding in this district seems to me remarkable. In my boyhood days I always saw about six pairs of Dippers to a single Kingfisher on the White Cart; now I see about six Kingfishers to one Dipper, and at Cathcart I counted it a red letter day if I saw a pair of the birds, while now during an evening's walk from there to Netherlee, I can count on seeing about half a dozen.

# NOTES

## STATUS OF CORN-BUNTING AND WILLOW-TIT IN ESSEX.

MR. W. E. GLEGG, in his *History of the Birds of Essex* (p. 34), states that the Corn-Bunting (*Emberiza c. calandra*) is mainly a littoral species but extends a short way up the estuaries and is scarce inland except in one area in the north-west of the county. I observed this bird breeding in several instances near Chelmsford, and in that area of the Chelmer between Chelmsford and Little Baddow the bird is as numerous as one can expect to find it anywhere in summer.

In May, 1933, I observed the Willow-Tit (*Parus a. kleinschmidti*) breeding at Woodhill and Writtle Park, Essex. I have also many winter and spring records of this bird from many places in central Essex, including Danbury Common, East Hanningfield, Sandon, Epping Forest and Galleywood. My own experience would have it that this species (which I have always identified by the distinctive grey wing-patch and "tchay-tchay-tchay" note) is thinly, but regularly, distributed throughout central Essex. W. K. RICHMOND.

## NOTES ON THE TREE-SPARROW, 1933.

THE following notes on the Tree-Sparrow (*Passer m. montanus*) were made near Great Budworth, Cheshire, and refer to the same small colony as the notes previously printed in *British Birds*, XXV., 278-285 and XXVI., 273-4.

Observations confirmed those of other years in many particulars.

*Return to nesting-trees.*—First seen in these trees on February 23rd, rather earlier than usual, though they were first seen on the same date in 1930. On March 3rd and 4th there was a noticeable increase round their nesting-sites.

*Size and number of broods.*—The breeding-season was unusually warm and dry, but despite this the average brood was no bigger than usual; in fact during the last six years it was slightly larger than this year in three separate seasons. But in one important point the birds were much more prolific than usual; almost all had or attempted to have three broods and in consequence the aggregate number of birds fledged was greater than in other years, though the actual broods were no larger.

*Size of Broods:—*

	No. of broods ringed.	Broods of						Average for each brood.	Total broods for year.	Average for the year.
		1	2	3	4	5	6			
1st brood	18	—	2	3	9	4	—	3.83	44	3.61
2nd „	16	—	4	4	6	2	—	3.37		
3rd „	10	1	—	3	4	2	—	3.6		
Total	44	1	6	10	19	8	—			

*Interval between broods.*—As in other years the time between broods varied considerably, but in several boxes the next lot of eggs was laid within a very few days of the flight of the first brood, though usually ten to fourteen days elapsed, and several weeks in one or two cases.

*Ringed birds.*—Five were recovered during the summer.

Number.	Date ringed.	Adult or juvenile.	Date recovered.		
H5789	28.7.29	juv.	23.4.33	Four years old; the oldest Tree-Sparrow yet recovered.	
{	K8928	4.6.31	nestling	19.6.33	Caught brooding young in Box 16—250 yards away across a meadow.
	K8929	4.6.31	nestling	17.7.33	
				These two were members of the same brood and were hatched in Box 2.	
L6392	30.5.32	nestling	13.5.33	Trapped about 300 yards from its original nest.	
L6424	8.6.32	adult	29.7.33	Ringed from a trap. Found dead in Box 6 with a brood of young, which were successfully reared by the other adult.	

*Insects.*—In a list of insects new to Lancashire and Cheshire, published by Mr. H. Britten in the *Nineteenth Report of the Lancashire and Cheshire Fauna Committee* for 1932, the following diptera were recorded, bred from Tree-Sparrows' nests I sent him: *Tephrochlamys tarsalis* Zett. and *Meoneura neottiophila* Coll.  
A. W. BOYD.

#### A LIME TREE RINGED BY WOODPECKERS.

THE accompanying photograph of a lime tree (*Tilia* sp.) in Leigh Woods, Somerset, was taken by Mr. H. Tetley, to show the peculiar rows or rings of regularly-spaced pits in the bark, which I first noticed in 1930. Such pits are highly characteristic of the American Sapsuckers (*Sphyrapicus*), and Dr. Charles Townsend, to whom I showed the photograph, was convinced that they must have been made by one of these



birds. The resemblance is, so far as one can see, perfect; and there is good reason to believe, as Dr. Townsend has recently shown (*Condor*, 34, 1932, pp. 61-65), that in America no other species of Woodpecker makes these distinctive patterns. This conclusion applies particularly to the Hairy



and Downy Woodpeckers (*Dryobates villosus* and *D. pubescens*), which have sometimes been accused, apparently in error, of "ringing" trees also. They are nearly related to the European Great and Lesser Spotted Woodpeckers (*D. major* and *D. minor*).

Through the kindness of the Rev. F. C. R. Jourdain my attention has been drawn to a case similar in every detail in

Silesia, E. Germany, described by Herr Juhnke (*Berichte des Vereins Schlesischer Ornithologen*, 18 Jahrg., 1933, pp. 42-44). Here six trees, also limes, were so marked; all were of the American species usually called "basswood" (*Tilia americana*), and native European lime trees close by were entirely free from ringing. Possibly the Leigh Woods tree is a basswood, also. Herr Juhnke was told by the forest rangers, who had had their trees under observation for eleven years, that the pits were worked chiefly in spring, and occasionally at other seasons, by the Great Spotted Woodpecker in particular, and to a smaller extent by the Middle Spotted, Green and Black Woodpeckers (*Dryobates medius*, *Picus viridis* and *Dryocopus martius*).

If this is correct, their habits agree exactly with those of the Sapsuckers, which not only drink sap when it flows in the spring, but also eat the cambium layer underlying the bark, which they sometimes seek also in autumn. Herr Juhnke of course found no sap-flow in July.

Great Spotted Woodpeckers nested in 1930 in the immediate vicinity of the tree in Leigh Woods; and Green Woodpeckers were plentiful, though I never saw the Lesser Spotted there. Trees marked in this way appear to be most uncommon, so that the habit is rarely indulged; and although the rings are undoubtedly due to Woodpeckers, one cannot yet say to which species. Once sap-flow is started, for example in America by Sapsuckers, many sorts of birds (including *Dryobates*) and other creatures are attracted to it, which might account for the varied observations of the Silesian foresters.

V. C. WYNNE-EDWARDS.

#### BEWICK'S SWAN IN SURREY.

ON Sunday, December 17th, 1933, on a frozen lake at Felbridge, on the Surrey side of the Surrey and Sussex border, I was shown a number of Mute Swans, and amongst them one of very different appearance. It was obviously a young bird, of a buff-grey colour, darker on the head and neck and with the upright carriage, as it stood on the ice, of a Whooper or Bewick's Swan. It had come in a few days before with a number of Mute Swans to join a few of the latter that were residents. The stranger was evidently very hungry and readily took grain thrown to it. I suggested that it might be possible to capture it, and this was done without difficulty by hand the next day, so tame had the bird become owing to the scarcity of food. It was sent to the Zoological Gardens where, now that it is well fed, its tameness has disappeared.

It is undoubtedly a Bewick's Swan (*Cygnus bewickii*). The measurement from tip of bill to end of tail is 46 inches.

The bill is flesh-colour, but the area which, in the adult is covered with yellow skin, is, in this bird, of a dull whitish



Head of immature Bewick's Swan, captured at Felbridge, Surrey, December 18th, 1933.

colour, covered with very short feather shafts which appear to be disappearing, and is of the shape characteristic of *C. bewickii* and not *C. cygnus*. D. SETH-SMITH,

#### LARGE NUMBERS OF COMMON SCOTERS IN MENAI STRAITS.

ON November 26th, 1933, at twelve noon, the Menai Straits were dotted with thousands of birds. They stretched from opposite Pen-y-Clip corner westwards as far as could be seen with the glass and northwards apparently right across the Straits. The three observers present were agreed that the numbers ran into several thousands. They appeared to be Common Scoters (*Oidemia nigra*) on migration. They were facing in all directions though several short individual flights took place, mostly in an easterly direction. None appeared to be diving though the height from which they were observed and the press of birds in the water made this uncertain.

M. MITCHELL.

#### NORTHERN GUILLEMOT IN INNER LONDON.

HAVING learnt that the police at City Road were asking about a supposed "penguin", I discovered, after enquiry, that the bird was found wandering in Bunhill Fields Burial Ground by

one of the gardeners on December 15th, 1933. After various delays I learnt that the bird had died and was buried, but at my request it was exhumed by the gardener and I found it to be a Guillemot.

In spite of the fact that it had been dead twelve days, and buried for eleven, the bird could be skinned. It was a female and was in a starved condition. Mr. Witherby, who has examined the specimen, informs me that it is of the Northern form (*Uria a. aalge*) and is half moulted to summer plumage.

I believe this to be the first record for this species in the inner London area.

E. MANN.

#### ARRIVAL OF PUFFINS IN ORKNEY.

I WAS very interested to read Mr. R. M. Lockley's article on Puffins (*antea*, p. 214). In this connexion it may be interesting to compare the dates of their arrival at Sule Skerry in Orkney with his dates at Skokholm, Pembrokeshire.

	<i>First Seen.</i>	<i>Landed.</i>		<i>First Seen.</i>	<i>Landed.</i>
1896 ...	April 15	April 20	1902 ...	April 9	April 18
1897 ...	„ 14	„ 22	1907 ...	„ 9	„ 16
1898 ...	„ 8	„ 22	1931 ...	„ 9	„ 16-18
1899 ...	„ 7	„ 16	1932 ...	„ 8	„ 16-18
1900 ...	„ 12	„ 18	1933 ...	„ 8	„ 16
1901 ...	„ 10	„ 18			

The dates for 1896-1901 were given to me by the late Mr. James Tomison, the head lightkeeper there for several years, and a first-class field naturalist. The method of procedure there is very much the same as on Skokholm and as first related by Mr. Tomison—how they appear off the island some time before they land, coming close inshore during the day and drifting out to sea at night; how they land at last and stay only a few hours, to depart again for two or three days before landing for good. This year, 1933, between April 8th and 9th, there was a heavy gale from the N.E. It will be seen that the dates 37 years ago are not very different from those of the present year.

H. W. ROBINSON.

PIED WAGTAIL NESTING ON SONG-THRUSH'S NEST.—Mr. E. Cohen sends us a note on a pair of Pied Wagtails (*Motacilla a. yarrellii*) which built their second nest in 1933 on the top of a nest of Song-Thrush (*Turdus ph. clarkei*). Both species had already brought off one brood from ivy on a wall within a few yards of one another at Mobberley, Cheshire. The use of old nests of other species as a foundation is not uncommon in the case of the Pied Wagtail, and out of twenty-five records, twelve refer to the Song-Thrush, six to the Blackbird, three to the Robin, two to the Dipper and one each to Swallow and House-Sparrow (See *Br. B.*, X., p. 185, etc.).

EGGS OF RADDE'S BUSH-WARBLER.—In the *Bulletin Brit. Ool. Asso.*, IV., p. 24, the Rev. F. C. R. Jourdain describes a set of five eggs of Radde's Bush-Warbler (*Herbivocula schwarzi*) from Elho in Manchuria, taken 9.vi.1923. This is one of the few species on the British list whose eggs were unknown until two sets were collected by Smirnow. The average size of the eggs is 16.3 x 12.8 mm. and they somewhat resemble in appearance those of the Eastern Reed-Warbler (*Acr. bistrigiceps*) but are smaller, uniformly marked with small streaks and spots of brownish olive which almost conceal the greyish ground.

BLACK REDSTART IN ESSEX.—Mr. W. K. Richmond informs us that he saw a Black Redstart (*Phœnicurus o. gibraltariensis*) on November 4th, 1933, at Little Dunmow Priory. There appear to be few records of the species in the county.

COMMON BUZZARD IN KENT.—Messrs. Hubert E. Pounds and W. E. Busbridge inform us that on December 10th, 1933, they watched through glasses in a wooded valley near Canterbury, Kent, a Common Buzzard (*Buteo b. buteo*) gliding slowly along at a fair height above the trees. It travelled thus for a considerable distance, following the course of the valley, but ultimately disappeared from view. About two hours later the observers again saw the bird, in almost the same place where they first noticed it, this time being vigorously attacked by a Sparrow-Hawk (*Accipiter n. nisus*) which succeeded in driving it down into cover. The day was fine and cold with a moderate north-east wind.

BREEDING OF GADWALL AND WIGEON IN IRELAND.—At the meeting of the British Ool. Association on September 22nd, 1933, Mr. C. V. Stoney announced that two new species had been found breeding in Ireland in 1933. A leading Irish ornithologist found a nest of the Gadwall (*Anas strepera*) with ten eggs, and one of the Wigeon (*Anas penelope*) with seven eggs. The eggs and down have been critically examined by Mr. G. H. Lings, who confirms the identification, but no further particulars can be given at present. It is extraordinary that the Gadwall has not previously been observed in Ireland later than April, and has always been regarded as a winter migrant to the country (*Bull. B.O.A.*, IV., pp. 31-2).

SLAVONIAN GREBE IN ESSEX.—Mr. P. A. D. Hollom informs us that he saw a Slavonian Grebe (*Podiceps auritus*) on December 10th, 1933, from the end of Tollesbury Pier, on the Blackwater Estuary. The light was perfect and the bird came very close to him so that he was able to see the

black on the head coming down to the eye, with white on each side of it, and the absence of an uptilt in the bill, very clearly.

GANNET SEEN IN THE EASTERN MEDITERRANEAN.—Mrs. H. Cornish informs us that in January, or early February, 1933, she watched a Gannet (*Sula bassana*) flying and diving in the Mediterranean, near Alexandria, Egypt. The bird was carefully examined through field-glasses, and it was undoubtedly an adult. This is very far east for the appearance of this species.

GREY PHALAROPES ON COAST OF FRANCE.—Mr. G. R. Mountfort writes us that he is informed by several French ornithologists that the Grey Phalarope (*Phalaropus fulicarius*) was observed in considerable numbers on the coasts of Brittany and Finistère during the autumn of 1933, especially in the month of October.

PORTRAIT OF DR. E. HARTERT.—We regret to have omitted to state in the last Number, that the portrait of Dr. E. Hartert, reproduced on p. 224, is the copyright of Messrs. Elliott & Fry, and was reproduced by their permission.

## LETTERS.

### TERRITORY IN BIRD LIFE.

*To the Editors of BRITISH BIRDS.*

SIRS,—At the end of their interesting paper on "Territory Reviewed" (*antea*, p. 197), Messrs. Lack quote a reference to territory in bird life made by Gilbert White in one of his letters to Barrington. There is another old reference to this subject in *An History of the Earth and Animated Nature* (1774), by Oliver Goldsmith, the poet. He says: "The fact is, all these small birds mark out a territory to themselves, which they will permit none of their own species to remain in; they guard their dominions with the most watchful resentment: and we seldom find two male tenants in the same hedge together" (Vol. V., p. 301). It would be interesting to know from what source Goldsmith obtained this information. It is highly improbable that it was derived from his own observations, for he knew so little of Natural History that his friend Johnson, hearing that he was writing a book on the subject, said—"If he can distinguish a cow from a horse, that, I believe, may be the extent of his knowledge of natural history". Goldsmith surmounted this obstacle by taking nearly all his matter from Buffon's *Histoire Naturelle*. I have, however, searched through this great work in vain for any passage corresponding to that in Goldsmith's book. On the other hand, there does not appear to be any evidence that Barrington communicated to Goldsmith the contents of White's letter, which was dated February 8th, 1772, but was not published till 1789.

A. HOLTE MACPHERSON.

### "TERRITORY REVIEWED."

*To the Editors of BRITISH BIRDS.*

SIRS,—We have read with interest the letters on this subject which appear in your January number and are pleased to find that so far our views have met with little serious criticism. We would ask your

indulgence to reply briefly to one letter, that of Mr. C. B. Moffat, drawing attention to his paper in the *Irish Naturalist* for 1903. This important communication should be read by all ornithologists. Moffat anticipated Eliot Howard's theory, and actually used the word "territory". It is amazing that this paper should have attracted so little attention at the time and that it has apparently been overlooked by Howard himself and by all subsequent writers on territory. In excuse of our own ignorance of its existence we can only plead that territory seemed so firmly linked with Howard's name that we did not consider searching the literature prior to the latter's first publication on the subject.

Moffat must be given the credit for being the pioneer of the territory theory, although he did not support it with the wealth of field observations subsequently adduced by Howard. His claims for territory are more limited than those of Howard, and in his letter he disclaims that it has any food value, which was the part of Howard's theory which we mainly combated. Moffat's most interesting claim is that inability to secure a territory condemns large numbers of adult birds in full breeding condition to unreproductiveness. The data which he gives are most stimulating, but we think far more detailed evidence must be produced before this view can be considered at all proved. Does this large reservoir of non-breeding adults exist, and if so where are they to be found? If, in a territorial species like the Chaffinch, all the land is parcelled out, do the non-breeding birds live in the territory of other pairs, and if not where can they go? Here is a most profitable field for future observation.

DAVID LACK.  
LAMBERT LACK.

#### WINTER TERRITORY OF ROBINS.

*To the Editors of BRITISH BIRDS.*

SIRS,—For the last four years I have been trapping and ringing birds for four weeks in December and January at seven different sites in a large garden. The sites are approximately in a straight line, with from 40 to 60 yards between each, the total distance from site "A" to site "G" being rather more than 300 yards. During this period I have marked 60 Robins (*Erithacus rubecula*) and 34 of these have been recovered once or more, the total number of recoveries of the species being about 120.

The average number of different Robins caught at each site is four or five. The largest number for any one site is eleven, and the smallest two; and I have frequently found four Robins in the trap at once. I have sometimes seen two Robins hopping round the trap together without making any serious effort to drive each other away.

So far my data seem to confirm the opinion of Dr. and Mr. Lack that there is no strict territorial system, at any rate in winter. But on the other hand the records of individual Robins seem to show that they are much more strictly "local" than other species, even though they do not drive other birds off their own "territory". Of the birds recovered the same winter as they were marked, thirteen were only caught at the site at which they were ringed; twelve were caught only at two consecutive sites, and five were recovered at three consecutive sites. One bird was recovered at sites "D," "E" and "G," and another at "B," "C," "D" and "E" (*i.e.*, both over a total distance of 150 yards), but the second bird had been moved a quarter of a mile for a homing experiment. These facts do seem to show that Robins are very much more limited in their movements than, for instance, Blue Tits (*Parus c. obscurus*), which are frequently recovered at sites "A"



and "G" on the same day. Of the nine Robins which have been recovered from previous years, five were caught only at the site at which they were ringed, and the other four at one adjoining it.

Mr. Price's suggestion that Robins are drawn into gardens from the surrounding country in winter seems to me very probable, and is confirmed by the fact that one of my winter-ringed birds was reported nesting the following spring in an isolated garden surrounded by woods about three-quarters of a mile away.

ARNSIDE, WESTMORLAND.

J. A. G. BARNES.

#### NATURAL DEATHS IN BIRDS.

*To the Editors of BRITISH BIRDS.*

SIRS,—During the recent cold weather a friend brought me the body of a Kingfisher (*Alcedo a. ispida*) which she had found floating on the stream which runs through her garden. At her request I performed a *post-mortem* on the bird, which had not long been dead.

Its condition was quite good although the stomach was empty, and it did not appear to have been drowned or even to have been long in the water. There was no sign of a wound or of a contusion on the head or elsewhere. But the intestine bore every sign of acute inflammation; its vessels and those round the pyloric region of the stomach were greatly congested, and its lumen contained a quantity of what appeared to be extravasated blood. There seemed to be no obstruction to account for this condition, and the usual parasites that were present (a few Nematodes) were confined to the liver. In view of our almost complete ignorance of the causes, other than accidents, of the death of wild birds, possibly this case is worth putting on record.

MAUD D. BRINDLEY.

#### "SWALLOW-STONES."

*To the Editors of BRITISH BIRDS.*

SIRS,—The last paragraph of Mr. J. F. Thomas's note on "Species of Flies brought by Swallows to Nestlings" (*antea*, p. 232) reminds me of the superstition that the Swallow has the power of finding a stone endued with wondrous properties: such as the restoration of sight to the blind. This superstition forms the subject of investigation by the Rev. Charles Swainson (*Provincial Names and Folk Lore of British Birds*, 1885, pp. 51-2), and is too lengthy to quote here in full.

He states that Beurard (in his *German-French Dictionary of Mining Terms*, Paris, 1819) describes these "swallow-stones" as "sortes de petites pierres siliceuses, de forme sphérique ou arrondie, . . . qui ne sont autre chose que des grains de quartz pyromaque ou de quartz agate roulés par les eaux, ce qui leur a fait prendre la forme ovoïde".

It is to be noted, however, that Dr. Lebour handled "swallow-stones" in Brittany—similar to those mentioned by Mr. Thomas—and that he "found them to be the hard polished calcareous opercula of some species of *Turbo* . . . belonging to no European *Turbo*". He adds: "The presence of these opercula in swallows' nests is very curious, and leads one to suppose that they must have been brought there from some distant shore in the swallow's stomach". (*Zoologist*, 1866, p. 523).

Would it not be of interest to obtain a scientific report on the nature of the "swallow-stones" reported by Mr. Thomas?

HUGH S. GLADSTONE.



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ASSISTED BY

REV. F. C. R. JOURDAIN, M.A., M.B.O.U., H.F.A.O.U., F.Z.S., AND  
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## A NATURAL EXPERIMENT ON THE TERRITORIAL INSTINCT.

BY

JULIAN S. HUXLEY.

IN view of the recent critique of the territory theory by D. and L. Lack (*antea*, p. 179) the following observations, made while I was staying with Mr. Eliot Howard, may be of interest.

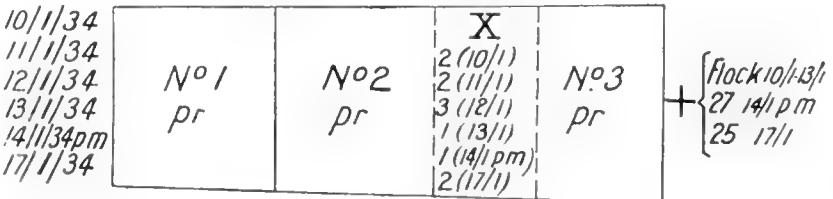
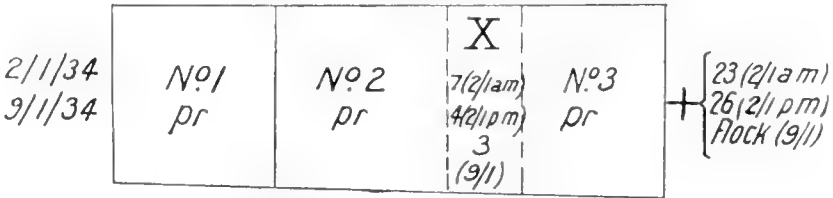
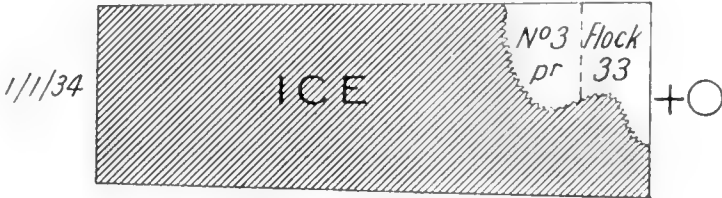
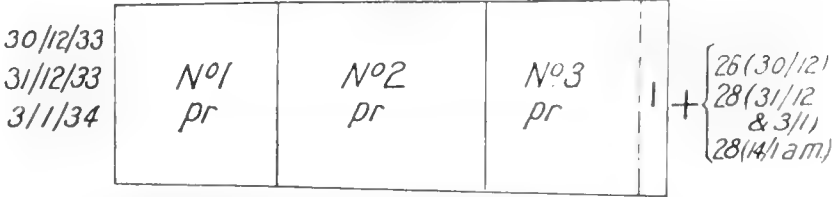
Mr. Howard has been studying the behaviour of Coots (*Fulica a. atra*) on two small artificial ponds, separated by a dam, near Hartlebury, Worcestershire. On the lower pond there was, in late January, 1933, a flock of sixteen birds, which finally split up, leaving only four pairs. These divided up the pool into a series of four well-marked territorial stretches. No flock was ever seen on the upper pool, but later in the season there were two or three breeding pairs on it.

The first observation he made this season was on the day of my arrival, December 30th, 1933. There were then thirty-three Coots—twenty-six birds in a flock on the upper pond, and seven birds on the lower, arranged in three pairs occupying territorial stretches, and an unmated bird near the upper end of the water.

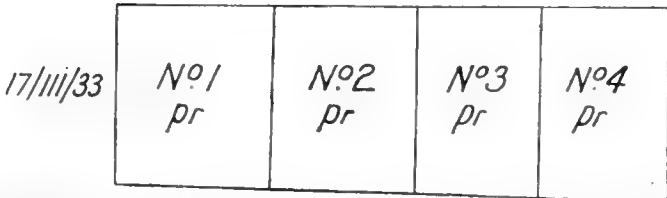
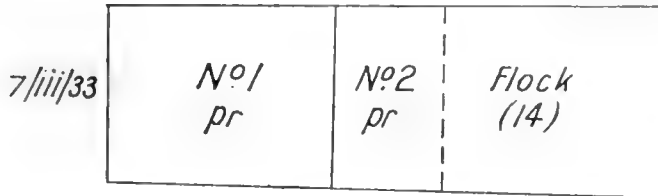
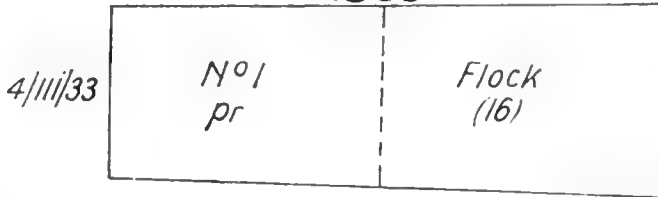
On December 31st we both visited the place. The number of Coots had increased to thirty-five. The flock on the upper pool now numbered twenty-eight; on the lower pool conditions were as before. The stretch of water available to the unmated bird was much less than that of any of the three territories; when it ventured more than about ten yards from the shore, it was chased back. The other territories were each about sixty yards long, and extended across the whole width of the pool. I will call them 1, 2 and 3 in order from the lower to the upper end.

On January 1st I visited the spot alone. There had been a sharp frost, and the whole of the upper pool and all the lower pool except a part of its upper end, considerably less than the area of a single one of the territories of the previous day, were frozen over. The whole of the Coot population of the two pools—thirty-five—was in this open space on the lower pool. What was most interesting was the fact that one pair of birds only was still behaving in what I may call the territorial manner. It occupied more than half of the open water, and the presumed male (and rarely its mate) spent much of its time chasing intruders out of this region. If they mounted the ice, even within the territorial area, its hostility ceased.

1934



1933



Diagrams showing approximate sizes of Coots' territories in the lower pool described in the text, on different dates in 1933 and 1934. Scale 90 yards to the inch; distances were determined by pacing. The boundaries are of course only approximate. On the left is given the date, or dates; on the right, the number of birds on the second (upper) pool, when noted.

When it was engaged in feeding it allowed a much nearer approach of other birds. Among the other birds no such deliberate hostility was observed ; there was occasional sparring, but this was always over in an instant. The typical territorial aggressive attitude, with lowered head and somewhat arched wings, was never seen among the others, but repeatedly in the male and occasionally in the female of the pugnacious pair. The same state of affairs was seen in the afternoon, save that the open water was slightly larger, and the ice no longer bore the birds' weight.

It is natural to suppose that this pair was the same as had occupied the uppermost (No. 3) of the three territories seen on the two previous days. If so, it patrolled up to the previous upper margin of its territory, but only had about one-third of its previous area of water available. In any case it appears certain that two of the three territory-occupying birds had been forced to leave their territories by reason of the ice, and that on so doing they had lost their "territorial" instinct of combativeness. This agrees with Howard's previous observations on the loss of combative instinct by Lapwings in possession of territory when on their visits to neutral ground occupied by the flock, and by Buntings and Finches in possession of territory when on their visits to neutral feeding grounds ; here, however, we have the additional point of interest that the presence on the neutral ground of birds previously in possession of territory was not voluntary, but mechanically enforced by the presence of ice. Mr. Howard informs me that, so far as he is aware, this is the first case on record of such *mechanically enforced abandonment of territory*. That low temperature was not the cause is shown by the fact that the one pair which was left by the ice in possession of part of its original open-water territory continued to show territorial activities. Territorial activity in Coots must thus be determined partly by internal state, and partly by the external fact of being actually in a staked-out territory.

Mr. Howard has kindly sent me notes on some following days, which are of great interest. By the morning of January 2nd no ice was left. The total number of Coots had increased by one to thirty-six, of which a flock of twenty-three were back on the upper pool ; among these, two brief skirmishes were noted, but no territory behaviour or prolonged pugnacity. On the lower pool three pairs of birds were again in possession of territory, and evincing territorial aggressiveness. Between the uppermost (No. 3) and the central (No. 2) territories, a



flock of seven birds was feeding in a narrow zone, less than half the width of a territory. I shall call this area X. They were virtually imprisoned here, the territory-owning males on either side continually rounding them up "like sheep-dogs keeping a flock of sheep in a pen". One bird in particular kept on trying to break away towards the upper bank, but was always prevented by the male of the uppermost territory. In the afternoon the situation on the lower pool was the same, except that only four birds were left in the "pen".

On the morning of January 3rd the total was down to thirty-five, and the situation had returned to that of December 31st, for twenty-eight were in a flock (in which no fighting was observed) on the upper pool, and on the lower pool were three pairs in possession of territory, and showing territorial behaviour, plus an unmated bird at the extreme upper edge of the pool, which was never allowed to venture far out without being attacked. It is possible that this was the bird which had repeatedly tried to reach the bank on the previous day. The narrow zone (X), where the small flock had been feeding on January 2nd, was now shared between the upper (No. 3) and the central (No. 2) pair. The territory of No. 2 was somewhat larger than either of the other two.

The fact that three pairs were again occupying territory and showing territorial aggressiveness directly the ice disappeared strongly supports my previous conclusion, that territorial behaviour depends on two separate factors—an internal physiological state, and also an external "field of reference" in the shape of actual presence in the bird's own territory. It may, of course, perfectly well be that in other species the aggressive impulse is stronger and manifests itself, partially or fully, even outside the territory. Something like this appears to hold for the Ruff, in which the males are known to fight while on their spring migration, and not merely when on their "hills".

The imprisonment of the remnant of the flock between two territorial pairs was presumably the result of the presence of an aggressive pair on the lower side of the upper pair, which forced that pair further up the pool; but the situation was clearly uncomfortable for the flock, and one of unstable equilibrium, as shown by the steady passing of birds from here to the upper pool. The unmated bird appears to have had some territory behaviour developed, but, presumably owing to its being unmated, its aggressiveness was absent or very slight, and it contented itself with tenaciously clinging to a particular region.

No further observations could be made until the 9th, when three birds were seen in area X, between the territories of No. 2 and No. 3 pairs where the flock had been penned on January 2nd. On this day it was still narrow, as on the 3rd—about 25 yards in width. One of these was constantly being attacked by the males of the two adjoining territories.

By the 10th only two birds were in this territory (X) but it had been enlarged to a width of 40 yards, mainly at the expense of the middle territory (No. 2) which had previously been the largest.

On the 11th the situation was similar. On the 12th there was in addition an extra bird which was at first under the top bank, but was later driven out by No. 3 into area X; here the male in possession made a hostile gesture, but did not actually attack. On the 13th only one bird, apparently a male, was in area X, and by the morning of the 14th the area was empty and had been reabsorbed by pairs 2 and 3. The flock on the upper pool numbered twenty-eight, making a total of thirty-four. However, by the afternoon, it was again occupied by a single bird, and pairs 2 and 3 did not encroach upon the area. The number on the upper pool had decreased to twenty-seven, leaving the total the same as yesterday. By the 17th a pair, but with territorial aggressiveness only poorly developed, was again in area X.

All this looks as if the territorial impulse in the male of area X was poorly developed, as shown by his leaving the territory (and presumably joining the flock) on the morning of the 13th. It is perhaps to be presumed, though there is no proof, that he was the original odd bird previously seen under the top bank. It is of great interest to find that the neighbour males tolerate his presence in area X in spite of his lack of aggressiveness. This looks as if their previous area had been considerably above the normal area, which is intensely defended, and were therefore highly compressible (see below). Mr. Howard's notes for the previous season confirm this idea.

At the beginning of March, 1933, No. 1 area was territorially occupied by a pair, and this extended half-way up the pool. The rest of the pool was occupied by a flock of sixteen birds. On March 5th a second pair began showing territorial behaviour, claiming a territory adjacent to that of No. 1 at the upper end. From the outset this extended further into the flock area than the original limits of No. 1. At the lower end No. 2 pair at first only succeeded in occupying a small part of No. 1's territory, and constant fighting took place.

However, No. 1 fought rather half-heartedly, and was gradually driven back until its territory had shrunk by 25-30 yards, after which it vigorously resisted further encroachment. This state was reached on or before March 17th, when No. 1 territory was of about the same size as this season. Meanwhile two other pairs had begun to show territorial activity on March 8th, and on or before March 16th the pool was parcelled out into the four definitive territories which it supported during the breeding-season. The compressibility of the early territories as successive pairs showed the onset of territorial behaviour is well seen. Mr. Howard noted at the time: "There seems to be a minimum size of territory. If a bird owns more than the minimum he yields readily to encroachment; if he has not the minimum he is a more persistent fighter".

The behaviour of the Mute Swans (*Cygnus olor*) on this water was also of considerable interest. On the morning of Dec. 31st, 1933, there were eight birds on the lower pool—one family of two adults and four well-grown cygnets showing some brown in their plumage, and another adult pair. All eight were close together on our arrival. Shortly afterwards there was a commotion, and one of the pair was driven up on to the bank by the paterfamilias, and viciously pecked. Later, while out of sight on the upper pond, we again heard a commotion, and, on returning, found that the single pair had left the pool for a spot 50-100 yards away, in a meadow below the dam holding up the lower pool. They were still here in the afternoon of the same day.

On January 1st one only of this pair was in the meadow, standing just below the dam and looking towards the pool (which was out of sight over the dam). Its mate had disappeared. The family were in the open water at the upper end of the lower pool, but soon got out on to the dam between the two pools, from which my approach drove them down to the upper pool, where their weight broke the thin ice. On my returning to the lower pool, the solitary Swan had crossed the dam and was in broken ice close to the lower end. It was still there in the afternoon.

On revisiting the upper pool I found both the adult Swans, notably the male, repeatedly attacking their cygnets by biting their necks.

In the afternoon the open water had increased; the male Swan, with arched wings, occasionally pursued his offspring, but was not able to get near enough to bite them.

On January 2nd the situation was the same, except that the unmated bird left the neighbourhood for some hours in the middle of the day. It was still the same at 9 a.m. on January 3rd, but at 9.25 the family flew back to the lower pool, and the male immediately attacked the solitary bird, driving it right on to the shore. In the afternoon the family were still on the lower pool, but there was no trace of the solitary bird.

Until the 11th inclusive the family remained on the upper pool. On the 12th the adult pair reverted to the lower pool. One of the young joined them there on the 13th, but was viciously pursued by its father; by the afternoon it had rejoined the rest of the young on the upper pool. The attitude of the male on this occasion was much more violent than on any previous day towards any of his offspring (presumably due to increasing physiological change).

In their paper the Lacks state that "there is no real evidence" that "the pugnacity of the male sets a definite limit to the number of pairs in a given area". In the case of these Swans it would certainly appear that it was doing so. The pugnacity of the male (and to a lesser extent of the female) is clearly seeing to it that one pair of Swans shall grow where two pairs grew before. The pugnacity was mainly directed towards other adults, but in some degree towards the pair's own offspring. Apparently the hostility to the young was elicited by the closer propinquity consequent upon the whole family being driven down into the very small patch of water which they broke in the ice of the upper pool.

Perhaps, however, the real point of the Lacks' statement is in the word *definite*. If so, I think everyone, including Mr. Howard himself, would agree with them. Into the determination of the density of breeding pairs in a territorial species a number of factors enter, including innate strength of territorial instinct, external conditions (temperature, etc.) affecting the strength of the instinct, availability of suitable areas, and number of competing pairs. In the instance of Reed-Buntings, quoted from Howard by the Lacks, a 3-territory area was converted into a 4-territory one by the invasion, late in the season, of a pugnacious new pair. Why not? We might easily imagine that a fifth and even a sixth pair might have succeeded in gaining entrance, but eventually a limit must have come.

The carving out by fresh pairs of territory in an already fully occupied region must continually happen early in the season, as fresh birds become subject to the internal change of

state which prompts the acquisition of territory. The Coots here described provide an excellent example.

There is, indeed, a good deal of evidence that the territorial instinct is, to use a physical metaphor, compressible. If there are no neighbouring pairs close to a male in possession of territory, the instinct dies out gradually towards a certain radius from the centre. If other birds arrive the marginal zone is readily given up; but as the edge of the territory is pushed nearer the centre, the violence of the impulse to defend it increases. As previously noted, there appears to be a minimum size of territory, any encroachment on which is bitterly resisted. Above this size, resistance to encroachment is less whole-hearted, and compressibility therefore greater. The rapid increase of territorial pugnacity as the minimum size is approached is interesting, apparently amounting almost to a discontinuity in type of behaviour.

Territories are thus partially compressible, but their compressibility is not complete. They are like elastic discs, of which there is a lower as well as a higher number which can be placed together to cover a given area. If this view is correct, territorial instinct (*i.e.*, male pugnacity while in possession of a territory) *will* be one of the more important of the factors determining the population of breeding pairs in a given area. Whether it is ever a *final limiting* factor is a theoretical question which it is impossible at the moment to answer. What seems quite clear is that it does, in conjunction with other factors, play a part in determining the actual density of breeding population in those species in which it is manifested.

Mr. Howard, I am glad to say, proposes to continue daily observation on the Coots and Swans of the two pools, so that a full account of their very interesting behaviour will be published in due course.

## THE "BRITISH BIRDS MARKING SCHEME."\*

PROGRESS FOR 1933.

BY

H. F. WITHERBY.

## NUMBER OF BIRDS RINGED.

			<i>Trapped.</i>	<i>Nestlings.</i>	<i>Total.</i>	
In 1933	...	...	10,466	27,975	38,441	
„ 1932	...	...	7,643	22,950	30,593	
„ 1931	...	...	7,041	22,513	29,554	
<hr/>						
In 1909	...	2,171		In 1920	...	5,276
„ 1910	...	7,910		„ 1921	...	8,997
„ 1911	...	10,416		„ 1922	...	9,289
„ 1912	...	11,483		„ 1923	...	12,866
„ 1913	...	14,843		„ 1924	...	18,189
„ 1914	...	13,024		„ 1925	...	18,233
„ 1915	...	7,767		„ 1926	...	23,432
„ 1916	...	7,107		„ 1927	...	21,625
„ 1917	...	6,926		„ 1928	...	24,479
„ 1918	...	5,937		„ 1929	...	25,243
„ 1919	...	3,578		„ 1930	...	28,610
Grand Total	...	...	...	385,989		

As will be seen from the above totals there is a surprisingly big jump in the number of birds ringed in 1933. There is an increase of 2,823 in trapped birds, which now account for 27 per cent. of the total. Although the increase in the non-Passerines ringed is some 1,900 the total of these birds is proportionately less than last year. In other words a rather

\* For previous Reports see Vol. III., pp. 179-182, for 1909; Vol. IV., pp. 204-207, for 1910; Vol. V., pp. 158-162, for 1911; Vol. VI., pp. 177-183, for 1912; Vol. VII., pp. 190-195, for 1913; Vol. VIII., pp. 161-168, for 1914; Vol. IX., pp. 222-229, for 1915; Vol. X., pp. 150-156, for 1916; Vol. XI., pp. 271-276, for 1917; Vol. XII., pp. 96-100, for 1918; Vol. XIII., pp. 237-240, for 1919; Vol. XIV., pp. 203-207, for 1920; Vol. XV., pp. 232-238, for 1921; Vol. XVI., pp. 277-281, for 1922; Vol. XVII., pp. 231-235, for 1923; Vol. XVIII., pp. 260-265, for 1924; Vol. XIX., pp. 275-280, for 1925; Vol. XX., pp. 236-241, for 1926; Vol. XXI., pp. 212-219, for 1927; Vol. XXII., pp. 253-258, for 1928; Vol. XXIII., pp. 258-263, for 1929; Vol. XXIV., pp. 234-244, for 1930; Vol. XXV., pp. 286-291, for 1931; Vol. XXVI., pp. 295-300, for 1932.

large proportion of Passeres has been ringed, but this is accounted for by the greater number trapped.

In the list of ringers it will be noted that Dr. Moon's total is enormous and more than double that of anyone else, large as some of them are. Another remarkable feature of the totals this year is that besides Dr. Moon five other ringers have ringed over two thousand each, and five others over one thousand, so that eleven ringers (or groups) have ringed over one thousand birds each.

Last year there were only two above two thousand and five others above one thousand. Notwithstanding so many having reached four figures there are more this year between one hundred and one thousand than last year.

In Dr. Moon's remarkable total the main figures are: Lapwing (1,076), Starling (836), Song-Thrush (963), Black-bird (723), while Swallow (187), Pied Wagtail (215) and Curlew (73) must be noted.

In Lord Scone's list we note Mallard (189), Lapwing (170), Woodcock (155) and Land-Rail (39), as well as a number of Passeres of over one hundred each, in which about half have been trapped and half ringed as nestlings.

The Oxford Ornithological Society have ringed a great number of species, but the large figures apart from Terns and Lapwings are in the common Passeres, of which in total they have trapped over 50 per cent. more than they have ringed as nestlings.

Except for eighteen Cuckoos Mr. Mayall's list is made up of Passeres, of which Nightingale (244) is the most conspicuous, though this number is exceeded by Swallow (287), while Linnet (178) may be mentioned.

Mr. Boyd's list is conspicuous for the large proportion of trapped birds, of which Starling (355) is the highest number. Of birds ringed as nestlings, Swallow (461) and Tree-Sparrow (164) are outstanding.

Mr. Robinson's main totals are Common Tern (624), Sandwich Tern (555), Lesser Black-backed Gull (573) and Woodcock (51).

Bootham School has ringed large numbers of the commoner Passeres among which I note a useful total of Swallows (173).

Mr. Morshead has trapped more birds than anyone else for the year. Amongst these the chief totals are Starling (233), Greenfinch (395) and the following unusually large numbers for the species concerned: Meadow-Pipit (76), Pied Wagtail (74) and Whitethroat (32).

Mr. Wontner-Smith has trapped about as many as he has ringed as nestlings of the smaller Passeres, and besides these the following may be noted: Rook (35), Buzzard (12) and Stock-Dove (31).

Mr. Lockley's list includes old and young Gannets (171), Manx Shearwaters (94), Razorbills (286), and Storm-Petrel (44), and young of other sea-birds.

Mr. Cohen has ringed 232 Sandwich Terns, 59 Lapwings, in addition to a larger number of Passeres partly trapped and partly as nestlings.

From other lists I may briefly note the following items: Mr. Garnett, Sandwich Tern (380), London Natural History Society, Swallow (95), Mrs. Hodgkin, Kittiwake (74), Dr. N. F. Ticehurst, Swallow (121), Mr. Bartholomew, Kingfisher (102), Messrs. Oakes and Battersby, Lesser Redpoll (48), St. Edmunds School, Jackdaw (65), Mr. Thomas, Swallow (217), Mrs. Wilson, Short-eared Owl (18), Miss Higginbotham, Pied Flycatcher (126), Mr. Clarke, Heron (24), Messrs. W. and A. Duncan, Woodcock (30), Mr. Vincent, Mallard (129), Mr. Kirkwood, Gannet (39), Messrs. G. St. Clair Thompson and W. Harrison, Kestrel (38), Mr. P. Chance, Swift (31), Mr. S. Boardman, Mallard (50).

The recoveries have kept up in average and interest. A considerable number of particularly interesting records will be found in the last published list. It will be noted that percentages have risen sharply in a number of species which are largely trapped. This is especially noticeable in the Great and Blue Tits, and in this connexion I would draw my readers' attention again to the remarks made in my last report (Vol. XXVI., p. 297).

The percentage of recovered birds of the total number ringed is three.

It becomes more and more evident that certain small migrants, unless they could be caught in future years at the place of ringing, are not likely to yield results of importance. No recoveries, for instance, have been recorded in this year's table for Tree-Pipit, Spotted Flycatcher, Chiffchaff, Willow-Wren, Garden-Warbler or Whitethroat.

Once again I desire to record my gratitude to Miss E. P. Leach for the immense amount of work she has done for the scheme during the year. With the great increase in the rings used and consequently in recoveries, and especially in retrapping, the task of collating and checking the records has been one of great magnitude and has required constant attention, great care and much time, all of which Miss Leach has given most generously.



## VOL. XXVII.] "BRITISH BIRDS" MARKING SCHEME. 281

## NUMBER OF BIRDS "RINGED."

	<i>Trapped.</i>	<i>Nest- ling.</i>	<i>Total.</i>		<i>Trapped.</i>	<i>Nest- ling.</i>	<i>Total.</i>
H. J. Moon ...	308	5,014	5,322	M. Phillips Price	34	103	137
Lord Scone ...	669	1,619	2,288	J. Vincent ...	130	—	130
Oxford Orn. Soc.	1,007	1,214	2,221	M. M. Goodbody	9	119	128
A. Mayall ...	240	1,811	2,051	E. Peake ...	119	4	123
A. W. Boyd ...	966	1,077	2,043	T. Kirkwood ...	27	95	122
H. W. Robinson	10	1,995	2,005	G. Brown ...	31	89	120
Bootham School	210	1,378	1,588	F. A. Craine ...	26	93	119
P. Morshead	1,237	282	1,519	A. Mayo ...	117	—	117
C. Wontner-Smith	541	616	1,157	G. Marples ...	95	17	112
R. M. Lockley ...	411	638	1,049	E. U. Savage ...	1	106	107
E. Cohen ...	234	771	1,005	M. Williams ...	28	79	107
R. M. Garnett ...	56	901	957	H. V. Bamford...	3	98	101
London N.H.Soc.	278	521	799	H. Whistler ...	92	8	100
Mrs. Hodgkin ...	8	493	501	R. H. Brown ...	—	95	95
N. F. Ticehurst...	27	474	501	D. J. Robertson	—	95	95
Perths. N. H.Soc.	—	468	468	A. Johnstone ...	51	43	94
Cheltenham Coll.	158	304	462	Oundle School ...	86	—	86
Rugby School ...	62	361	423	Mrs. Greenlees ...	6	77	83
J. Cunningham...	29	383	412	Leighton Park S.	42	39	81
J. F. Wynne ...	397	6	403	Mrs. Morley ...	—	78	78
J. Bartholomew	—	386	386	G. St. Clair			
C. Oakes and				Thompson and			
E. Battersby	55	329	384	W. Harrisson	—	70	70
R. Martinson ...	163	202	365	P. Chance ...	11	56	67
H. Pease ...	344	15	359	A. Morrison ...	67	—	67
St. Edmund's S.	9	327	336	R. Fitter ...	43	20	63
W. E. Kenrick ...	308	23	331	F. K. Staunton...	10	52	62
Miss Ferrier ...	63	257	320	Clifton Coll. ...	1	60	61
Barnard Castle S.		315	315	H. Tully ...	3	57	60
J. F. Thomas ...	47	262	309	A. M. Wilson ...	60	—	60
Mrs. Wilson ...	4	285	289	Marlborough Coll.	—	57	57
Sutton Valence S.	53	220	273	R. Noel-Hill ...	—	57	57
Miss Sharp ...	32	226	258	D. Waterhouse...	45	8	53
R. G. Williams ...	80	160	240	J. Ellis ...	—	51	51
Miss Higgin-				Miss Bickersteth	50	—	50
botham	5	234	239	S. Boardman ...	50	—	50
Midlothian Orn.				P. Hollom ...	48	1	49
Club	69	162	231	S. Baron ...	11	34	45
G. Charteris ...	6	198	204	H. F. Witherby	12	31	43
W. A. Cadman ...	60	132	192	Mrs. Mackenzie...	8	34	42
A. J. Harthan ...	68	114	182	H. Kirkwood ...	—	41	41
D. K. Bryson ...	12	169	181	K. Newall ...	—	41	41
A. H. Eggeling ...	21	158	179	F. Offen... ..	2	39	41
M. Portal ...	67	110	177	H. Davis ...	27	13	40
J. Barnes ...	81	93	174	E. Blezard ...	1	37	38
Sanctuary Club,				Sir S. Bilsland ...	—	35	35
Cambs.	141	23	164	R. Blyth ...	—	35	35
F. J. Ramsay ...	100	52	152	Miss Leach ...	1	34	35
C. S. Clarke ...	—	151	151	J. McKillop ...	34	—	34
F. Mitchell ...	46	104	150	A. J. Davidson...	31	—	31
A. G. Haworth ...	117	32	149	T. Perrin ...	14	17	31
H. G. Alexander	147	—	147	G. Wheeler and			
W. & A. Duncan	—	144	144	P. Hand ...	9	21	30

	NUMBERS OF EACH SPECIES "RINGED."				Grand Total.	RECOVERED.	
	'09-'32	1933 Trapped.	1933 Nest- lings.	Total.		of those ringed 1909-32.	Per- centage
Raven ...	79	—	15	15	94	7	8.0
*Crow, Carrion ...	543	1	94	95	638	37	6.8
Rook ...	2360	115	246	361	2721	78	3.3
Jackdaw ...	1492	49	228	277	1769	61	4.0
*Magpie ...	392	3	57	60	452	15	3.8
Jay ...	281	3	28	31	312	13	4.6
Starling ...	24520	1793	1696	3489	28009	1055	4.3
Greenfinch ...	12091	1463	804	2267	14358	664	5.4
*Goldfinch ...	207	40	32	72	279	5	2.4
Redpoll, Lesser...	357	48	5	53	410	3	0.8
Linnet ...	6242	7	445	452	6694	45	0.7
Bullfinch ...	890	11	85	96	986	13	1.4
Chaffinch ...	12693	921	607	1528	14221	364	2.8
Brambling ...	74	14	—	14	88	1	1.3
Sparrow, Tree ...	1244	14	190	204	1448	42	3.3
Bunting, Yellow	2884	93	188	281	3165	168	5.8
Bunting, Reed ...	1155	31	77	108	1263	43	3.7
Lark, Sky ...	2871	50	30	80	2951	29	1.0
Pipit, Tree ...	1355	4	57	61	1416	4	0.2
Pipit, Meadow ...	2846	138	120	258	3104	35	1.2
Wagtail, Yellow	623	19	74	93	716	2	0.3
Wagtail, Grey ...	527	1	50	51	578	1	0.1
→ Wagtail, Pied ...	3523	87	337	424	3947	56	1.5
Tit, Great ...	1729	453	35	488	2217	201	11.6
Tit, Blue ...	2061	705	53	758	2819	337	16.3
Shrike, R.-backed	652	2	21	23	675	2	0.3
Flycatcher, S. ...	2864	15	58	73	2937	7	0.2
*Flycatcher, Pied	671	2	189	191	862	2	0.2
Chiffchaff ...	594	22	24	46	640	2	0.3
Warbler, Willow	8054	97	92	189	8243	34	0.4
Warbler, Wood...	889	—	12	12	901	2	0.2
Warbler, Reed ...	770	—	31	31	801	4	0.5
Warbler, Sedge...	892	6	4	10	902	1	0.1
Warbler, Garden	824	10	111	121	945	1	0.1
Blackcap ...	567	4	61	65	632	—	—
Whitethroat ...	2917	77	54	131	3048	13	0.4
Thrush, Mistle ...	2625	33	264	297	2922	41	1.5
Thrush, Song ...	40690	311	3670	3981	44671	621	1.5
Redwing ...	75	4	—	4	79	—	—
Ouzel, Ring ...	386	1	18	19	405	3	0.7
Blackbird ...	30579	878	2629	3507	34086	1060	3.4
Wheatear ...	1261	10	58	68	1329	24	1.9
Whinchat ...	1360	2	50	52	1412	8	0.5
Stonechat ...	578	5	44	49	627	4	0.6
Redstart ...	1315	6	166	172	1487	5	0.3
Nightingale ...	647	—	283	283	930	4	0.6
Redbreast ...	12696	720	684	1404	14100	931	7.3
Sparrow, Hedge	8203	625	462	1087	9290	529	6.4
Wren ...	3236	33	27	60	3296	10	0.3
Dipper ...	744	—	45	45	789	6	0.8
Swallow ...	25171	116	2451	<del>2555</del>	27726	218	0.8
Martin ...	8862	69	399	468	9330	52	0.5
Martin, Sand. ...	3944	23	3	26	3970	9	0.2

\* Of species so marked no record was kept of the number ringed from 1913 to 1920.

	NUMBERS OF EACH SPECIES "RINGED."				RECOVERED.		
	'09-'32	1933 Trapped.	1933 Nest-lings.	Total.	Grand Total.	of those ringed 1909-32.	Per-centage
*Swift ...	610	39	52	91	701	40	6.5
Nightjar...	151	—	14	14	165	2	1.3
Kingfisher ...	183	1	111	112	295	9	4.9
Wryneck ...	339	—	2	2	341	6	1.7
Cuckoo ...	428	4	45	49	477	15	3.5
*Owl, Little ...	322	6	28	34	356	29	9.0
Owl, Long-eared	140	—	34	34	174	6	4.2
Owl, Barn ...	295	12	57	69	364	22	7.4
Owl, Tawny ...	539	4	47	51	590	34	6.3
Peregrine Falcon	46	—	7	7	53	7	15.2
*Merlin ...	153	—	—	—	153	36	23.5
Kestrel ...	527	—	102	102	629	60	11.3
*Buzzard ...	163	—	15	15	178	8	4.9
Hawk, Sparrow...	299	1	42	43	342	47	15.7
Heron, Common	1237	—	68	68	1305	112	9.0
Sheld-Duck ...	231	2	47	49	280	12	5.1
Mallard ...	4443	231	240	471	4914	650	14.6
Teal ...	882	81	7	88	970	104	11.7
Wigeon ...	177	—	6	6	183	18	10.1
Duck, Tufted ...	78	2	—	2	80	9	11.5
Eider ...	323	40	111	151	474	9	2.7
Cormorant ...	1029	—	26	26	1055	184	17.8
Shag ...	1337	9	56	65	1402	134	10.0
Gannet ...	1388	76	174	250	1638	40	2.8
Shearwater, Manx	669	136	11	147	816	24	3.5
Wood-Pigeon ...	1810	4	196	200	2010	75	4.1
Dove, Stock ...	302	9	56	65	367	7	2.3
Dove, Turtle ...	452	5	20	25	477	45	9.9
Stone-Curlew ...	109	—	20	20	129	4	3.6
Oyster-Catcher...	713	—	69	69	782	28	3.9
Plover, Ringed ...	747	—	100	100	847	11	1.4
Plover, Golden ...	145	5	35	40	185	3	2.0
Lapwing ...	20766	14	2526	2540	23306	463	2.2
Sandpiper, C. ...	607	—	34	34	641	2	0.3
Redshank ...	1282	5	134	139	1421	52	4.0
Curlew, Common	1593	6	152	158	1751	71	4.4
Snipe, Common...	981	1	84	85	1066	60	6.1
Woodcock ...	2746	7	300	307	3053	202	7.3
Tern, Sandwich...	7210	—	1720	1720	8930	88	1.2
Tern, Common ...	10343	—	1306	1306	11649	200	1.9
Tern, Arctic ...	814	—	93	93	907	2	0.2
Tern, Little ...	340	—	68	68	408	3	0.8
Gull, B.-headed...	12290	21	20	41	12331	538	4.3
Gull, Common ...	1097	2	61	63	1160	29	2.6
Gull, Herring ...	2635	2	513	515	3150	40	1.1
Gull, L. Blk.-bkd.	7152	—	663	663	7815	241	3.3
Gull, G. Blk.-bkd.	261	—	22	22	283	6	2.3
Kittiwake ...	633	—	120	120	753	6	0.9
Razorbill ...	873	50	270	320	1193	18	2.0
*Guillemot ...	1092	2	88	90	1182	17	1.5
Puffin ...	2472	37	139	176	2648	13	0.5
Rail, Land ...	233	2	39	41	274	4	1.7
Moor-Hen ...	1069	48	53	101	1170	18	1.6
Coot ...	100	—	12	12	112	7	7.0

## THE HELIGOLAND BIRD OBSERVATORY.

BY

W. B. ALEXANDER, M.A., M.B.O.U.

HELIGOLAND is chiefly known to English ornithologists through the remarkable book by Heinrich Gätke, of which an English edition was published in 1895 with the title: *Heligoland as an Ornithological Observatory*. So far as I am aware the only account in English of the activities of the existing Bird Observatory on Heligoland is that published by Mr. Salim Ali in *The Journal of the Bombay Natural History Society*, November 15th, 1930, pp. 743-751, which few readers of *British Birds* are likely to have seen.

With the object of getting first-hand information as to the methods employed there, and also in hopes of seeing some of the rare migrants for which Heligoland is famed, I visited the island in September, 1933, in company with Mr. and Mrs. B. W. Tucker, Miss M. Barclay, Mr. H. F. Witherby and Mr. H. J. R. Pease. The party was most cordially received by Prof. R. Drost, the director of the Bird Observatory, and Dr. H. Schildmacher, the assistant director, and was given full use of all the resources of the establishment and every opportunity to see the methods employed in catching and studying migrants. I am also indebted to Dr. Drost for many of the facts mentioned in this article and the photographs which illustrate it.

The Heligoland Bird Observatory (Vogelwarte) is a section of the State Biological Institute (Staatliches Biologisches Anstalt), which includes also sections of Marine Zoology, Marine Botany and Fisheries. These sections are housed in a fine building near the shore, which also contains an aquarium open to the public, but the Bird Observatory occupies a separate building on the cliff. The Institute is financed by the Prussian Ministry of Education and provides biological courses for students as well as facilities for research workers. Students pay a fee of 10 marks for the first week and 5 marks for each succeeding week, but they are exempt from the municipal tax levied on ordinary visitors to the island and can also get reduced fares to and from the island by arrangement with the steamship companies.

The Bird Observatory building contains accommodation for the director and his family, offices, a small ornithological library, a reference collection of skins, the workshop of the taxidermist and a work room for students. In the garden

are some small aviaries in which birds can be kept if occasion arises. A few hundred yards away is the garden containing traps (Fanggarten) in which birds are captured for ringing. This garden, which was formerly a small botanic garden and contains a variety of trees, shrubs and plants, such as sycamore, elder, hawthorn and briar, is about 100 yards long and 30 yards broad. Its centre is considerably lower than the surrounding country, and in this hollow there is a small water-lily pond surrounded by willow-bushes. As this is the only surface water on the island it is naturally an attraction

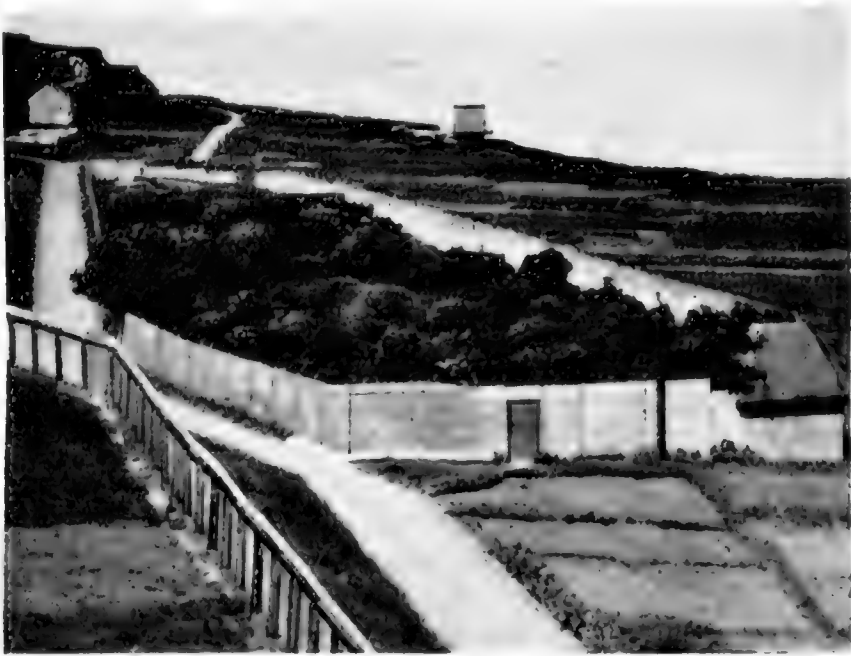


FIG. 1. The 'catching garden' on Heligoland.  
*Photographed by Prof. R. Drost.*

to many birds. The garden is surrounded by a wall about nine feet high, surmounted by barbed wire to keep out human or feline marauders. Since the island swarms with cats which destroy quantities of small birds, this enclosure is thus an important sanctuary. The protecting walls also give shelter from the wind to the trees and shrubs in the garden; the only other trees and shrubs on the island are those in gardens in the town where they are sheltered by the houses. The catching garden, however, as will be seen in figure 1, is outside the town among allotment gardens.

The garden contains three traps, all on the same principle though differing in details of construction, arranged in

sequence one behind the other. Each consists of an enclosure of small-mesh wire-netting painted green, wide open in front but becoming narrower at the back, the last part of the passage being at an angle, with its floor sloping upwards. The middle of the enclosure is planted with bushes which reach to the roof, whilst the netting at the side is largely covered with creepers of various species. Several parallel paths lead among the bushes from the door of the garden to the entrance of the first trap so that people advancing along them tend to drive any birds that may be in the bushes into the mouth of the trap. The drivers then run forward, beating the bushes,

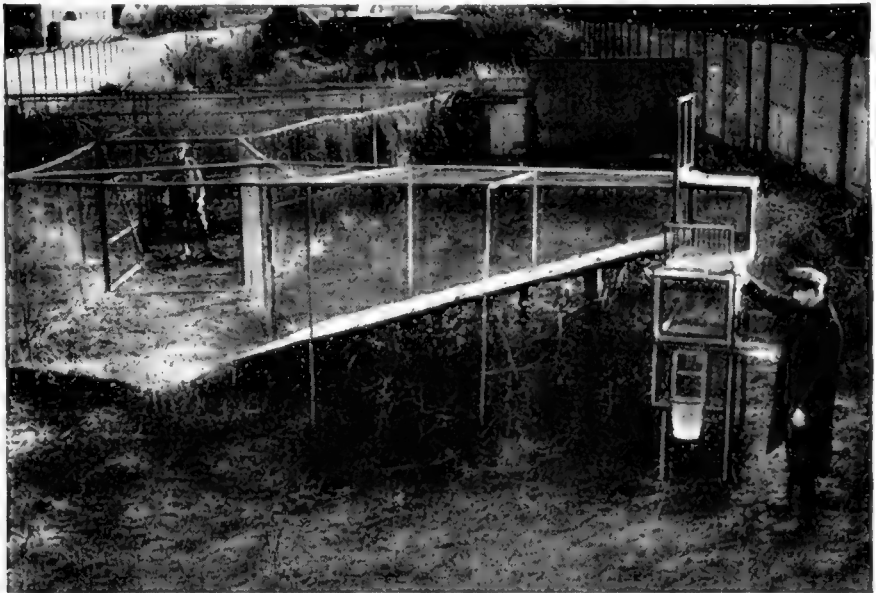


FIG. 2. The third trap in the 'catching garden'.  
*Photographed by Prof. R. Drost.*

and frighten the birds into the narrower part of the enclosure where they are shut in by closing a swing door at the point where the passage bends. At the narrow end of the passage is another small door which leads into the actual trap, in the opposite wall of which there is a window. The birds fly to this window, the door is dropped behind them and they can then easily be removed by hand.

Some birds usually fly over the first enclosure and take refuge in the bushes in front of the second trap, into which they may then be driven. If they fly over again they will almost certainly fly into the mouth of the third trap, the wings of which extend the whole width of the garden and the top of which is at a considerably higher level than the tops of

the others as the trap itself is on higher ground. A view of this trap taken from the far end (figure 2) may help to make this account clearer.\*

In these traps several thousand birds are caught annually. The record catch for one day was made on May 14th, 1933, when 500 birds were caught and ringed, including 97 Blue-throats. The birds to be ringed are taken into a small room in one corner of the garden, where rings of all sizes in numerical order are conveniently arranged on curved wires just above a table, on which are kept books in which the details can be entered. As soon as a bird has been ringed it is liberated through a trap-door.

In addition to the birds caught in the garden, by arrangement with the coastguard service, the director and not more than three assistants are allowed to catch birds on the gallery of the lighthouse on nights when birds are attracted to the light. Unfortunately during our visit the nights were all clear so we did not have the opportunity of witnessing the extraordinary scenes which occur on dark nights when the atmosphere is humid. Occasionally as many as 1,000 birds have been caught at the light in a single night, and ringed and liberated in the morning.

Occasionally also when waders are numerous on the adjacent small Dune island an expedition is made there and birds are captured in clap-nets set on the beach.

The greatest number of birds ringed in a year at Heligoland up to the present was 7,346 individuals of 93 species in 1930. The total number ringed on the island to the end of 1932 was 45,659 birds of 143 species. It may be mentioned that 421 species and sub-species have been identified at Heligoland, the only non-migratory resident being the House-Sparrow, all the rest being migrants.

In addition to the birds ringed on Heligoland itself there are eight branch ringing stations (*Zweigberingungstellen*) in Germany where Heligoland rings are used by members of

\* If any reader wishes to construct a trap of this type I shall be glad to give further information on the subject. The exact form of the enclosure must depend on the area of land available, the amount of cover and other features of the locality. The traps used on Heligoland are designed to cope with large numbers of birds in migration rushes and are unnecessarily elaborate for situations where scores of birds are unlikely to be caught at a time. Herr Schifferli, of the Swiss Bird Observatory at Sempach, has devised a simpler form of trap on the Heligoland principle which has been used fairly successfully at Oxford. Mr. Lockley has constructed a trap of the Heligoland type on Skokholm and caught numerous birds in it.—W.B.A.

local ornithological or natural history societies. Heligoland rings are also supplied to many individual ringers, mostly in Germany, but including some in other countries, so that the finding of a bird with a Heligoland ring is no evidence that it was ringed on Heligoland. Those who report ringed birds to the Bird Observatory are supplied with a small map showing the positions of ringing and of recovery in cases where these are at a distance from one another. Up to the end of 1932 the total number of birds ringed with Heligoland rings was 344,304 and the number of recoveries reported 7,651, or 2.25 per cent.

The Heligoland Biological Station has published an important Atlas of Bird Migration (*cf. antea*, Vol. XXV., p. 339), and lists of the more interesting recoveries of ringed birds since reported have appeared from time to time in *Der Vogelzug*, a quarterly magazine edited jointly by the directors of the Heligoland and Rossitten Bird Observatories.

The large numbers of living individuals of numerous species captured for ringing obviously afford opportunities for study of various kinds. Before they are liberated many of the birds are weighed. For this purpose the bird is slid head-first into a transparent celluloid tube, open at each end, just large enough to hold it comfortably but to prevent it from struggling. A scale and a graded set of these tubes, each with its weight marked on it, are kept in the ringing room.

As far as possible the sex and age of every bird ringed is also recorded. In the case of those species in which it is commonly said that the young resemble the female or that the sexes are similar, very careful study has shown that in many cases among Passerine birds the young differ from the adults in the shape of the tail-feathers or in the colouring of the wing-coverts. Dr. Drost has published in *Der Vogelzug* three papers dealing with the methods of distinguishing the sexes and ages of the commoner migrants met with on Heligoland.

In addition to the birds captured, of which of course complete records are kept, the whole island is surveyed every day and estimates are made of the numbers of each species present on the island itself and the surrounding sea. Surveys of this kind were begun by Gätke in 1847 and carried on by him more or less intermittently until 1887. From the date of the establishment of the Bird Observatory by Dr. Weigold in 1909 surveys have been carried out much more regularly. In 1930 the Heligoland Biological Station published a remarkable work by Dr. Weigold entitled *Der*



*Vogelzug auf Helgoland graphisch dargestellt*, containing a very large number of diagrams showing for each species the dates when it has been observed on the island, the actual numbers recorded on each date in years when the records are fairly complete and the average number for each date based on all available records up to 1925. The total number of records utilized in preparing this work was about 67,000.

Another important publication by Dr. Weigold issued by the Station in 1926 is entitled *Masse, Gewichte und Zug nach Alter und Geschlecht bei Helgoländer Zugvögeln*. This work contains a complete record of the weights of all birds weighed on Heligoland up to 1925, with many other published records of the weights of the birds included. It is thus by far the most important publication that has appeared on this subject. In addition it shows for each species the dates on which males and females have been recorded on Heligoland in spring and the dates on which young birds and adults have been recorded in autumn. As is well known, Gätke concluded from his observations that in the spring males preceded females, and in the autumn young birds preceded adults in all species except the Cuckoo. Dr. Weigold finds that even Gätke's own records fail to bear out this theory in the case of many species, but having adopted it Gätke came to regard early females in the spring or adults in autumn as exceptional. In a large proportion of the species, however, the exceptions are so numerous as to invalidate the rule.

In this account of some of the field work accomplished on Heligoland I have had to deal almost entirely with what has already been published, but important observations of many kinds are still in progress, notably the study of the physiological state of migrants which is being carried on by Dr. Schildmacher with the aid of a special grant from the Prussian Ministry of Agriculture.

**PROBLEMS OF COLONIZATION AND INCREASE OF SEA-BIRDS ON GREAT SALTEE ISLAND.**

BY

R. S. POLLARD.

IN the interesting account of the Grassholm Gannets (*antea*, pp. 142-152) reference is made to the occurrence of the Gannet (*Sula bassana*) on Great Saltee Island, co. Wexford.

This occurrence presents an interesting problem. In May, 1929, we found two pairs of these birds nesting together in a rather precipitous and open bay. Whether this was their first year on the island we could not discover; but as none of the local fishermen had observed them, and we can trace no record of the site in previous literature, it seems very likely. Both eggs disappeared during the week and as there were numbers of Herring-Gulls and Jackdaws nesting in the bay this was scarcely surprising.

In 1930 the nest was empty, but two birds were frequently seen, and one was observed standing for long periods on the nest. There was no egg, however, when we left on June 15th.

In 1932 there were again two pairs, each with an egg, and again both eggs and one pair of birds disappeared during our stay.

In 1933 there was one pair, and an egg was being brooded when we left.

Whether they have ever succeeded in bringing off a young one we do not know, but it seems highly improbable, particularly as visitors are frequently taken to see the birds which are now locally famous, and on occasion the sitting bird is frightened off for the pleasure of seeing its wingspread at close quarters.

This is obviously not a colonization in the ordinary sense. Where such have occurred, as for example on some of the rock stacks at Hermaness, Shetland, the site has been remote from egg thieves and human visitors and safety has been ensured by a larger nucleus of breeders. How can this persistent occupation of an unsuitable, lonely and probably unsuccessful site be explained? The birds can scarcely be regarded as exiles from a large colony (Grassholm is 60 miles away) as there were originally two pairs.

On the higher cliffs further west a true and typical colonization is taking place. A few Fulmar Petrels (*Fulmarus g. glacialis*) were noticed in 1930 and eventually a pair was discovered with an egg and photographed; the first record,

we believe, of this species breeding in S.E. Ireland. Five birds were seen off-shore in 1932 but a violent south-westerly gale made close investigation of the cliffs too perilous. In 1933, however, we located four pairs sitting on eggs, and had no doubt there were several others. This slow but steady increase, we think, is typical of much recent colonization by this species.

Another interesting problem is presented by the Great Black-backed Gulls (*Larus marinus*) alluded to by Mr. C. Oldham (*antea*, p. 38). In 1929 we made a rough estimate of the numbers in the gull colonies on the island. There were then about 40 pairs of Great Black-backed, 150 pairs of Lesser Black-backed (*Larus f. graellsii*) and 500-600 pairs of Herring-Gulls (*Larus a. argentatus*). The numbers for 1930 were 60, 150 and 650-750. But when we returned to the island two years later there were at least 200 pairs of Great Black-backed while the Lessers were still at 150 pairs and the Herring-Gulls had shown the same steady increase. If the figures are compared, the differences are sufficiently striking.

<i>Pairs of</i>	1929	1930	1932	1933
Great Black-backed Gull ...	40	60	200	250
Lesser Black-backed Gull ...	150	150	150	150
Herring-Gull... ..	500	650-750	850	1,000

There are several points of interest in these figures, but the most difficult of explanation is the sudden increase in 1931 or 1932 of the Great Black-backed Gulls.

If each pair rear two young each year, and if there are no casualties among the older birds, and if all the young reared reach maturity in the fourth year; if the sexes are produced in equal numbers, and if all the island-bred birds return to the island to breed, the figures would be as follows, starting with thirty-six established pairs:—

<i>Pairs</i>	1929	1930	1931	1932	1933
Theoretical... ..	36	50	69	95	131
Actual ... ..	40	60	—	200	250

These increases are ideal and could probably be halved so that in 1931 or 1932 there was an influx of 100-120 pairs of breeding birds. There is no large colony nearer than the Scilly Isles and we understand that the species there is increasing. Whence can these birds have come, and why?

It seems to us that some effective method should be devised of ringing young gulls and catching them up later in wholesale fashion so that we could get some definite information on this and various kindred problems.

To what extent do the young return to breed in the locality where they were born? Where do they spend the breeding-seasons before they reach maturity? (We have only once recorded an immature Great Black-backed Gull during the nesting period on Saltee.)

Are the sexes produced normally in roughly equal numbers and does the balance depend to any extent on weather and food supply? Does winter flocking determine to any extent the breeding distribution?

These are all questions to which no answer is at present possible.

Another problem arises with regard to the Lesser Black-backed Gulls. Their numbers have remained stationary, while their near relatives, the Herring-Gulls, have been increasing, and this in spite of the fact that the latter are being forced into most unsuitable and unusual nesting-sites, while there is ample and highly suitable space for an extension of the former.

## NOTES FROM RESERVOIRS AND SEWAGE FARMS.

### ALTRINCHAM SEWAGE FARM.

FOR some years the late Mr. T. A. Coward supplied notes on the birds observed on the Altrincham U.D.C. Sewage Farm, Cheshire, and he gave an adequate description of the area in *British Birds*, XXVI., p. 246.

It has been decided to try and continue his systematic observations there, and a regular series of visits has been made by several observers throughout the last eleven months: Mr. Roy Storey, in particular, has visited the farm frequently, and Messrs. A. G. Haworth, I. Whittaker and G. H. Clegg on a good number of occasions. They have all very kindly given me their notes which I have incorporated with my own. Many of the birds recorded have been seen by each of us in turn, so that it is impracticable to indicate the exact observer for more than one or two isolated records, but none are included that were not thoroughly authenticated.

Waders, as usual, have provided the majority of these records and twenty-one species have been observed.

As we have noticed in Cheshire in other years the May migration is a well-marked one and brought such species as Turnstone, Sanderling, Knot, Curlew-Sandpiper and Bar-tailed Godwit. The return migration set in about mid-July with a remarkable invasion of Common Snipe and reached its height at the end of August and in September; it continued throughout October and more birds than usual were seen during that month. The presence of Spotted Redshanks for more than two months has been the most unexpected and noteworthy record of the year.

At all times of the year there were frequent changes in the bird-population of the farm.

HOODED CROW (*Corvus c. cornix*).—One seen on November 4th (R.S.); an uncommon visitor to Cheshire.

GREENFINCH (*Chloris ch. chloris*).—A big flock occupied the weed-covered parts of the farm in October, feeding on the seed-heads of some species of *persicaria* which covered acres of ground. There were hundreds together on October 7th, and on October 22nd and 27th the flock numbered thousands, rising and falling like a cloud of smoke; the flock dispersed and smaller lots were seen in November and many again on December 2nd.

The Linnet (*Carduelis c. cannabina*), Chaffinch (*Fringilla c. cælebs*), Brambling (*Fringilla montifringilla*), House-Sparrow (*Passer d. domesticus*), Tree-Sparrow (*Passer m. montanus*), Reed-Bunting (*Emberiza s. schœnielus*), Sky-Lark (*Alauda a. arvensis*) and Yellow Wagtail (*Motacilla flava rayi*) all occurred in flocks of varying numbers during the autumn or early winter.

CORN-BUNTING (*Emberiza c. calandra*).—On March 4th there were two or three in a thorn hedge, one of which sang. It is a bird of remarkably local distribution in this district.

MEADOW-PIPIT (*Anthus pratensis*).—A few in February and on the spring and autumn migrations; most plentiful in the second week of September. Locally known only as a spring and autumn bird of passage, except for a small number that winters.

WHEATEAR (*Enanthe æ. ænanthe*).—One passing on September 22nd.

SAND-MARTIN (*Riparia v. riparia*).—Occurred in the greatest profusion over the farm from mid-August to September 13th, when there were still large numbers—long after all but odd birds had disappeared from their usual haunts over the local meres.

Duck visit the farm to feed at night, mainly Mallard (*Anas p. platyrhyncha*) from the neighbouring meres, and other duck are occasionally seen.

SHELD-DUCK (*Tadorna tadorna*).—Four young birds on July 27th, and on August 3rd.

TEAL (*Anas c. crecca*).—A few in July and August; one October 29th.

WIGEON (*Anas penelope*).—A duck on April 27th.

SHOVELER (*Spatula clypeata*).—Regularly throughout April, May, June and July. On June 5th one was seen with seven little youngsters which had evidently been hatched there (R.S.). On July 12th there were twelve flying about.

POCHARD (*Nyroca f. ferina*).—Two drakes on September 8th.

RINGED PLOVER (*Charadrius h. hiaticula*).—Two on March 4th; small numbers present on practically every visit from April 2nd to June 8th, the greatest number being twelve from May 20th to 25th; one on July 1st; seen on seventeen days between July 27th to September 17th in numbers fluctuating between one and twenty; one on October 26th.

GOLDEN PLOVER (*Charadrius apricarius*).—Usually only a few visit the farm, though large flocks gather in meadows within a few miles. Several times in April—a large flock on April 15th; and again from August 28th to November 28th, from two to fifty or sixty in a flock.

LAPWING (*Vanellus vanellus*).—An increase on June 4th. A large flock of hundreds on July 19th. In greatly varying numbers at other times. On September 30th I watched two going through an unusual performance, chasing one another continually but making no real attempt to attack and dropping into shallow water or on to the mud with widely extended wings.

TURNSTONE (*Arenaria i. interpres*).—One on May 3rd, four on May 4th, and one on May 17th.

RUFF (*Philomachus pugnax*).—First seen on April 5th and a pair on April 27th. From July 19th to October 27th Ruffs were seen on thirty-one different days, usually just one or two, but occasionally three or four, and on October 4th and 5th five. They were not the same birds making a protracted visit, for they showed great variation in plumage. On December 24th a Ruff and Reeve were seen (R.S.).

SANDERLING (*Crocethia alba*).—Two on May 15th—about the average date of their appearance inland on the Cheshire meres.

DUNLIN (*Tringa alpina*).—Present throughout the year in numbers that changed from day to day. In the winter months—February, November and December—only in small numbers, but by March 4th there were over fifty and these, and all seen in March, still retained their winter plumage; on April 5th the first birds in summer plumage were seen; on April 27th among thirty-seven birds were four that were still white-bellied, but on May 3rd among fifty-four birds, all were in full plumage except a cripple and one that had not quite completed the change; numbers then fell to seventeen on May 10th; in the second half of May and in June from one to six were present; a movement began

with July—on July 1st eleven were seen and twenty-eight on July 19th—and an increase began in mid-August, which reached its peak on August 27th, when 110 were counted; from then numbers fell rapidly, though the passage lasted throughout September, from ten to twenty often being seen, and into October and November; one on December 2nd.

**KNOT** (*Calidris c. canutus*).—One on May 3rd and one on May 8th.

**LITTLE STINT** (*Calidris minuta*).—Single birds seen from October 3rd to 8th; on October 18th and from October 26th to 29th. From its appearance I judged that the one last seen was a different individual bird from the first.

**CURLEW-SANDPIPER** (*Calidris testacea*).—Seen in May and October, but nothing like the number in autumn a few years ago. On May 10th there were four, and of two seen closely neither was in red plumage, but one was much mottled with dark on the back; one on May 12th and 20th; one on October 1st, 3rd, 5th and 6th.

**COMMON SANDPIPER** (*Tringa hypoleucos*).—First seen on April 17th and regularly in small numbers throughout the summer till August 19th. There was an increase at the beginning of July; ten or more on July 2nd and double that number at least on July 10th and 12th—on the former date there was one flock of fifteen flying together; eighteen were counted on July 16th; one on September 16th.

**WOOD-SANDPIPER** (*Tringa glareola*).—Possibly one on September 29th and 30th; one seen and heard satisfactorily on October 6th, 7th and 8th (I.W. & G.H.C.).

**GREEN SANDPIPER** (*Tringa ochropus*).—Seen twice in March—on the 4th and 18th; one on July 12th; four on July 19th; rather more in August—ten together on August 22nd and 23rd; on six days in September—from one to five; in October on the 1st, 4th and 8th—one to two birds.

**COMMON REDSHANK** (*Tringa t. totanus*).—The most abundant wader; always present and often in large numbers. Fully 100 on February 18th; in greatly fluctuating numbers (usually several score) through March and April; slightly fewer, but still in flocks up to fifty in number, through May, June and July; an increase in August and most plentiful in September and October—often 100 and more; two or three score in November, and fifteen to twenty on December 2nd.

**SPOTTED REDSHANK** (*Tringa erythropus*).—More plentiful than ever before. Seen on at least thirty-two days between August 22nd and October 26th. There is some evidence that one was seen several times in the third week of June, but it is not quite conclusive. First seen by R.S. on August 22nd; two seen on August 23rd were still in their dark summer plumage; of five seen on August 30th three were pale and two darker birds, but none so dark as the two first seen; the largest number seen was seven together on September 22nd and 29th, and six on October 6th and 8th, and these were all in the pale grey plumage, as in other years.

They gave their typical "chuet" call almost invariably in flight and at times when they were on the ground. A gruff call was heard occasionally during flight in September.

**GREENSHANK** (*Tringa nebularia*).—Six times between August 30th and October 4th—only single birds.

**BAR-TAILED GODWIT** (*Limosa l. lapponica*).—One on May 12th (R.S.).

**BLACK-TAILED GODWIT** (*Limosa l. limosa*).—The late Mr. T. A. Coward saw one on December 14th, 1932, and on several other occasions in the 1932-33 winter. One seen on August 31st and on September 3rd (G.H.C. & A.G.H.).

CURLEW (*Numenius a. arquata*).—Surprisingly seldom seen; single birds on March 4th, 15th, 26th, April 2nd and August 6th and 30th; four flying over on August 16th.

COMMON SNIPE (*Capella gallinago*).—Early in March there was an increase and several score were seen, but from mid-April to the first week of July only few were seen—up to half a dozen. On July 10th there was a sudden and marked invasion and these large numbers persisted throughout July, August and September, several hundreds often being present. I.W. computed that there were 500 on September 14th. They were still present in swarms on September 30th and October 1st and though numbers then fell off they were again abundant on October 18th. Much fewer in November and on December 2nd.

JACK SNIPE (*Lymnocyptes minimus*).—Seen only four times; single birds on September 17th, October 8th and 29th, and November 4th.

BLACK TERN (*Chlidonias n. niger*).—Single birds only seen; one on May 9th by Mr. E. Plant, on May 20th by Mr. S. V. Wild and others, on May 25th, on August 30th, and six times between September 11th and 21st.

COMMON OF ARCTIC TERN (*Sterna h. hirundo* vel *Sterna macrura*).—A bird of one of these species on August 23rd.

BLACK-HEADED GULL (*Larus r. ridibundus*).—At times very abundant. In spring not so plentiful, though about 100 were present May 20th-22nd. There was an increase about July 10th, and there were hundreds on July 24th; this movement reached its peak about August 1st. In much smaller numbers in November and December.

COMMON GULL (*Larus c. canus*).—Not plentiful; seen in February, March, April, September and November, but never more than about fifteen. Is often plentiful in the district.

HERRING-GULL (*Larus a. argentatus*).—Sometimes in considerable numbers. I have notes of them in February, March, June, July, October, November and December. Hundreds appeared with the next species on June 15th and some fifty on July 1st; on December 2nd there were more than 150.

LESSER BLACK-BACKED GULL (*Larus fuscus*).—Single birds (of sub-species unknown) on March 18th and 27th; others on several days in April; on May 10th there were more than 100, but only fifteen on May 15th; many appeared on June 11th and 13th and hundreds (with Herring-Gulls) on June 15th, and a couple of score on July 1st. Few seen subsequently.

GREAT BLACK-BACKED GULL (*Larus marinus*).—An adult on September 22nd.

ARCTIC SKUA (*Stercorarius parasiticus*).—Twice seen—on September 21st and October 5th (R.S.). The latter flew round the farm-yard beside the sewage-farm and excited remark among the labourers.

A. W. BOYD.

### STAFFORDSHIRE RESERVOIRS.

As in previous years, I give a few notes of birds seen on the large reservoirs in south Staffordshire during the twelve months ending September, 1933. The notes refer to the most westerly of these reservoirs, and a few from Gailey Pool are added. I was unable to pay so many visits as usual. Owing to the prolonged drought the water-level was very low in the autumn, but the waders seen were disappointingly



few in comparison with other years. Mr. H. G. Alexander has kindly sent me notes made on two visits.

MALLARD (*Anas p. platyrhyncha*).—At their maximum about the end of 1932; by February 19th reduced to one-third in number; a breeder in plenty, so that there was a big increase at the beginning of July.

TEAL (*Anas c. crecca*).—Always present in varying numbers, most, of course, in winter, but an increase at the end of July and a further increase in August and September.

WIGEON (*Anas penelope*).—Like the Mallard at their maximum—between 600 and 800—at the end of the year; on March 29th only 30 to 35, far fewer than a year ago at this time; five on April 17th.

SHOVELER (*Spatula clypeata*).—Not so many as last year; 30 to 40 on February 19th was the largest number seen.

POCHARD (*Nyroca f. ferina*).—Always present on one or other of the reservoirs whenever I visited them, but never many more than 100. An increase at the end of July.

TUFTED DUCK (*Nyroca fuligula*).—As before a definite decrease in August and September. Very few remaining on September 17th, though plenty bred in June and July. This movement seems to be a regular one.

GOLDENEYE (*Bucephala c. clangula*).—Fewer than usual; never more than a dozen.

SCOTER (*Oidemia n. nigra*).—Two, a duck and a drake, on April 17th.

GOOSANDER (*Mergus m. merganser*).—Fewer than usual; seen on both reservoirs in December and February, but not more than six on either.

SMEW (*Mergus albellus*).—Two pairs on February 19th, which were seen by Messrs. H. G. and W. B. Alexander also.

BLACK-NECKED GREBE (*Podiceps n. nigricollis*).—Two on July 30th, one of which looked as if it were a bird of the year; one on August 20th—a bird with a dusky face. One in winter plumage on September 21st (H.G.A.).

RINGED PLOVER (*Charadrius h. hiaticula*).—July 30th two; August 20th seven.

LAPWING (*Vanellus vanellus*).—A flock of 300 on July 2nd, probably an accumulation of local broods; far fewer on August 20th.

RUFF (*Philomachus pugnax*).—One on September 21st (H.G.A.).

DUNLIN (*Calidris alpina*).—July 30th five; August 20th eleven; September 17th seven or more; September 25th, about twenty-five (H.G.A.).

COMMON SANDPIPER (*Tringa hypoleucos*).—On August 20th seven; odd birds at Gailey Pool on August 20th and September 17th.

GREEN SANDPIPER (*Tringa ochropus*).—One on August 20th.

REDSHANK (*Tringa t. totanus*).—Much commoner a few years ago. Single birds only on March 29th and July 2nd; and one on September 21st (H.G.A.).

CURLEW (*Numenius a. arquata*).—One on the bank on July 2nd. They seem to occur here seldom and rarely to settle.

WHIMBREL (*Numenius ph. phaeopus*).—Two calling loudly flew over Gailey Pool on August 20th, going W.S.W.

COOT (*Fulica a. atra*).—Great fluctuations in numbers. On December 24th, 1932, there was a flock of 346 on one of the Gailey Pools and many more on the next pool, which is divided from it by a narrow bank; on March 29th there were 30 on the same pool; on September 17th about 130. On the more westerly reservoir I counted about 200 on

February 19th and on March 29th not more than 80; on August 20th more than 200.

A. W. BOYD.

### NORTH WORCESTERSHIRE RESERVOIRS, 1933.

FREQUENT visits have been paid to the Bittell reservoirs during 1933, principally by Miss C. James, Mr. E. St. G. Betts, and the writer. Messrs. C. W. K. Wallis, F. R. Barlow and J. D. Wood have furnished some additional information.

By contrast with 1932, when an exceptionally large number of Terns of several species were seen, this year gave only three records for that family: one on June 11th, one on August 21st and 22nd, and one on October 14th. None were identified positively, but all three were either Common or Arctic.

In spite of the large expanse of mud round both reservoirs during the autumn, waders were not recorded in large numbers. In the middle of August several species occurred, but most of September was blank. It is difficult to believe that this was only due to the numerous bathers; for where twenty Herons are content to stand without being frightened off, a few diminutive waders would surely not take alarm.

The chief excitement of the year was a visit of Bewick's Swans in the middle of February. I know of no previous record of the species from these pools. The following are the chief records that seem to deserve publication.

WATER-PIPIT (*Anthus s. spinoletta*).—For the first time since 1928 this species was noted during the autumn. Miss James observed a large, dark Pipit at the water's edge on October 17th; the following day, without knowing of this, I heard the characteristic call from a bird flying overhead. Later I saw it fly across the water, when its dull colour and large size were noticeable. The same bird (presumably) flew over me again on October 28th.

WHITE WAGTAIL (*Motacilla a. alba*).—One, September 7th (J.D.W.).

DIPPER (*Cinclus cinclus*).—Miss James and Miss Tangye saw a Dipper between the two reservoirs, by a small stream, on November 6th. The nearest breeding-places of the Dipper are some twenty miles away, so far as I know, and there seems to be only one previous record from Bittell.

HERON (*Ardea cinerea*).—Mr. Betts saw at least twenty at the Upper Bittell reservoir on September 9th. From late July to early September they usually congregate there in larger numbers than at any other time of year, but this seems to be an exceptional number.

BEWICK'S SWAN (*Cygnus bewickii*).—Fourteen Bewick's Swans were observed on the Upper Bittell by Miss James on February 14th. They had almost certainly arrived that day. Several observers watched them on the 15th. They were remarkably tame, swimming or standing in the shallows to preen themselves, and only floating out a short way on to the water when approached. In the afternoon Mr. Barlow saw them fly round in the air, trumpeting. They were still present on the 16th, but departed a few minutes after noon, and were watched by Mr. Betts flying away to the east. They seemed so completely at home on the 15th that one had supposed they might stay for weeks.

No Garganey or Pintail have been observed this year and SHOVELER (*Spatula clypeata*) only on the spring and autumn migrations (April, May and September). POCHARD (*Nyroca ferina*) have also been unusually scarce; so far this winter not more than six have been observed at one time. GOLDENEYE (*Bucephala clangula*) were noted in small numbers from time to time in February, March, November and December. At the new Bartley reservoir, only three or four miles away, they are much more regular.

GOOSANDER (*Mergus merganser*).—A single drake was seen on various dates from January 13th to February 24th. Three birds (female or immature) were seen on December 15th and 18th (C.J.) and one on December 30th (E. St. G.B.).

SMEW (*Mergus albellus*).—One or two (female or immature) were seen from February 10th to March 4th, on various dates; also three on December 9th and one on December 15th. No Smew had been recorded from these reservoirs since 1927.

GREAT CRESTED GREBE (*Podiceps cristatus*).—As usual, none of the Great Crested Grebes on the Upper Bittell reservoir attempted to nest, and throughout the season they were readily driven off by boats to the Lower Bittell. At the Lower Bittell three pairs at least attempted to breed. One pair were seen with a nest almost complete as early as March 10th. This nest was swamped. Two later attempts of this pair came to grief, and disaster somehow overtook the others also. One day a bird would be seen sitting on eggs. A few days later the deserted nest was being trampled down by Coots and Moorhens. About twenty Great Crested Grebes spent the summer on the two pools; not one young bird was hatched. Nor is this altogether exceptional.

RINGED PLOVER (*Charadrius hiaticula*).—One or more on various dates between August 5th and September 6th (six on August 26th, E. St. G.B.), (one on October 11th, H.G.A.).

GOLDEN PLOVER (*C. apricarius*).—One seen on November 4th is the only record for the year. During the late autumn hundreds of Lapwings were usually on the mud by the Upper Bittell, but Golden Plovers very rarely occur amongst them in this district.

RUFF (*Philomachus pugnax*).—One, Lower Bittell, September 6th and 7th; apparently a Reeve (J.D.W.).

SANDERLING (*Crocethia alba*).—Three satisfactorily identified by the Lower Bittell reservoir, August 19th (C.W.K.W.). Several waders apparently came in that evening.

DUNLIN (*Calidris alpina*).—Three times observed in April. From July 12th onwards single birds, or twos and threes, occurred throughout the autumn, except for a large gap in most of September and October. Three were present again on November 1st, four on the 8th, and others were noted during November, and a couple as late as December 18th (C.J.).

COMMON SANDPIPER (*Tringa hypoleucos*).—Unusually abundant during the spring passage, and several in the autumn, but none breeding this year.

GREEN SANDPIPER (*T. ochropus*).—One or two between August 5th and 24th; then no more till the end of October. On the 21st one was observed, and at the beginning of November four were present for a few days; three were seen as late as November 23rd (C.J.).

REDSHANK (*T. totanus*).—Single birds on passage in spring between March 10th and June 10th; recorded four times in August. Two noted on November 28th (C.J.), and December 2nd (E. St. G.B.). These two birds were subsequently seen at Bartley reservoir.

GREENSHANK (*T. nebularia*).—One bird (perhaps the same) on various dates from August 19th to September 2nd; two on August 24th. One on September 16th.

CURLEW (*Numenius arquata*).—Twice noted in April, once in August.

WHIMBREL (*N. phaeopus*).—One, August 24th (C.J.).

JACK SNIPE (*Limnocyptes minimus*).—One, October 28th (H.G.A.).

Apart from Black-headed Gulls, which have occurred in various months—an immature bird remained for five or six weeks by the Upper Bittell in the spring, and became quite tame, being fed by the keeper—hardly any Gulls have been recorded during the year. Mr. Betts saw a large Gull in immature plumage on July 29th. At the end of the year several COMMON GULLS (*Larus canus*) appeared in the Midlands, where they are normally only birds of passage. This invasion may be recorded in more detail next year. A single immature bird of this species was also seen on August 12th.

H. G. ALEXANDER.

### KING GEORGE'S RESERVOIR, LEA VALLEY, ESSEX.

ON p. 137 (*antea*) I reported certain observations at King George's Reservoir, Chingford, Essex, made during the latter part of August on several of the more common species of wader.

The water-level has since fallen steadily, revealing on each successive visit new mudflats and an increasing number of islands. Such then were the conditions when migration through this area was at its height and most of the following notes were made during a period of about six weeks.

SHELD-DUCK (*Tadorna tadorna*).—One on September 22nd.

GOLDENEYE (*Bucephala c. clangula*).—A party of five on December 24th, 1933, and January 7th, 1934.

BLACK-NECKED GREBE (*Podiceps n. nigricollis*).—One on September 16th.

OYSTER-CATCHER (*Hæmatopus ostralegus*).—A solitary bird on December 24th, feeding on a mud-bank in company with Black-headed Gulls.

RINGED PLOVER (*Charadrius hiaticula*).—One on August 20th. Later, small parties of five or so until September 26th.

TURNSTONE (*Arenaria interpres*).—Five on August 20th stayed for two days.

RUFF (*Philomachus pugnax*).—Two on September 13th (with one possible Reeve, but identification was hindered by failing light). On September 16th there were six, which usually kept together in flight and when feeding. Several later. Two last recorded September 26th.

SANDERLING (*Crocethia alba*).—Two with a party of Dunlin on September 16th. The only record.

KNOT (*C. canutus*).—A solitary bird on the evening of September 15th, which later joined three Ruffs and appeared to enjoy their company in flight and on the mud.

DUNLIN (*Calidris alpina*).—Two on August 20th. Large flocks on September 2nd, after which date a gradual decrease. Stragglers until September 15th.

CURLEW-SANDPIPER (*C. testacea*).—On September 16th a single bird standing with four Ringed Plover.

COMMON SANDPIPER (*Tringa hypoleucos*).—Several small parties first seen August 20th, 1933, gradually increasing in size until flocks of twenty or so were present until September 15th, after which date there was a noticeable decrease. Last recorded September 23rd.

GREEN SANDPIPER (*T. ochropus*).—On August 26th four identified. Single birds seen on later visits. Last recorded September 16th.

REDSHANK (*T. totanus*).—Surprisingly few. Two on September 9th and no other record until October 7th when a party of five was seen.

GREENSHANK (*T. nebularia*).—Three on September 10th. On September 14th their numbers had grown to six, while two days later ten were seen, and their distinctive call came from all sides.

GREY PHALAROPE (*Phalaropus fulicarius*).—First seen early morning September 22nd swimming, and paddling in the liquid ooze. On the following day it was still near the same pool and I was able to approach to within some four yards without its showing signs of alarm. It was also seen by Mr. W. E. Glegg on the 23rd.

COMMON SNIPE (*Capella gallinago*).—Numerous large flocks of about twenty or thirty birds on September 9th and 12th—a very noticeable increase in the numbers composing the small parties seen on previous and later occasions.

BLACK TERN (*Chlidonias niger*).—Two on August 25th.

COMMON TERN (*Sterna hirundo*).—Three on September 13th.

LITTLE TERN (*S. albifrons*).—Single birds on September 12th and 23rd.

K. R. ASHBY.

#### CHELMSFORD SEWAGE FARM, ESSEX.

RINGED PLOVER (*Charadrius h. hiaticula*).—Three on September 8th and 10th.

GOLDEN PLOVER (*Ch. apricarius*).—Small flock on September 8th and onwards.

LAPWING (*Vanellus vanellus*).—A very large passage noted in early October.

RUFF (*Philomachus pugnax*).—Two Ruffs and one Reeve on September 15th, a party of seven on the 26th, and a party of ten on the 27th. From this last date a decrease was noted.

DUNLIN (*Calidris alpina*).—Present throughout, chiefly single birds.

LITTLE STINT (*C. minuta*).—A party of three from September 26th to 30th. This is apparently the only inland record for Essex since 1839.

COMMON SANDPIPER (*Tringa hypoleucos*).—Present throughout September and October in small numbers.

WOOD-SANDPIPER (*T. glareola*).—One on September 27th.

GREEN SANDPIPER (*T. ochropus*).—Present throughout, commonest in mid-September. Two or three winter here.

SPOTTED REDSHANK (*T. erythropus*).—One on September 19th.

GREENSHANK (*T. nebularia*).—Two young birds on September 19th. None after the end of September.

BLACK-TAILED GODWIT (*Limosa limosa*).—A party of four from September 15th to 30th.

GREY PHALAROPE (*Phalaropus fulicarius*).—Two visited the farm on October 23rd. One of these was in winter plumage, the other still in a transitional state showing pinkish tinges on the breast. The latter bird was gone on the 24th, the other bird staying a day longer.

COMMON TERN (*Sterna hirundo*).—It is interesting to note that throughout June and July numbers of Common Terns follow the course of the Blackwater and Chelmer Rivers daily and can frequently be seen flying over the town of Chelmsford, and fishing in the river there.

BLACK TERN (*Chlidonias niger*).—A party of four, feeding, on September 26th.

BLACK-NECKED GREBE (*Podiceps n. nigricollis*).—One on September 28th.

W. K. RICHMOND.

### KINGSBURY RESERVOIR, MIDDLESEX.

I HAVE a note of seeing a Little Stint (*Caladris minuta*) at the Welsh Harp, Hendon, on September 4th, 1897. This sheet of water, better known now as the Kingsbury Reservoir, was made famous by J. E. Harting, who recorded several very rare visitors as having been obtained there. When I came to live in London in September, 1932, I thought I would visit it again. There are very few records of birds having been seen there for some years, but I soon discovered that some migrants visited the south shore, and that they could be watched through some palings around a public playing field. The following birds I have seen have interest, as most of them have seldom been recorded from Middlesex. From April to June, 1933, I was unable to get there, and I have very seldom been more than once a week.

SNOW-BUNTING (*Plectrophenax nivalis*).—Four on November 5th, 1933. I watched them for some time by the side of the water, and when they flew away, two being adult, showed very distinctly the white on their wings.

GRASSHOPPER-WARBLER (*Locustella n. naevia*).—One on September 5th, 1933. It flew close by me, so that I could see quite plainly all its markings; it went to a bush near by, and in its characteristic way dived into it, showing its typically shaped tail.

SCAUP (*Nyroca m. marila*).—One on October 16th, 1932.

GREAT CRESTED GREBE (*Podiceps c. cristatus*).—On July 22nd, 1933, I just missed seeing two young come out of their eggs, and in another part of the water I saw a pair of old birds with their young. This is the first record of their having nested on the water. I have evidence that a nest was deserted in 1932, and that in 1931 an old bird was seen carrying its young on its back.

GREEN SANDPIPER (*Tringa ochropus*).—One on September 9th, 1933.

GREENSHANK (*T. nebularia*).—One on September 5th and 9th, 1933.

COMMON TERN (*Sterna h. hirundo*).—Three on September 13th, 1933.

LITTLE GULL (*Larus minutus*).—One on December 16th, 1933. I have always seen this Gull at Reading sewage-farm continually dropping into the water, but this one was flying over the playing field, and there was no other Gull close to it with which to compare it in size. I fortunately, however, noticed that the tips of the wings were blunter than in any other Gull I know. On examining skins at the Natural History Museum I found that in the Little Gull the first two outer primaries are of equal length, and the third not much shorter than the second. In the Black-headed Gull (*L. r. ridibundus*) the second is shorter than the first, and the third shorter in proportion to the second. I could distinguish it from this Gull also by the fact that it did not show the characteristic broad white margin to the front edge of the primaries.

GREAT BLACK-BACKED GULL (*L. m. marinus*).—One on September 18th, 1933. It was standing at the side of the water close to Black-headed Gulls, so that I could compare it in size with these. N. H. JOY.

# NOTES

## ROCK-THRUSH SEEN IN KENT.

FOR a number of years past one of the R.S.P.B. bird-watchers at Dungeness, Mr. J. R. Tart, has made daily notes of the birds he has seen, and I have been privileged to see these notes at the end of each year. His knowledge of British birds, though not exhaustive, is extensive; and I have reason to know, after many days spent watching birds in his company, that he is a careful and accurate observer. Therefore, although I have hesitated in the past to publish any of his records, I think the following observation of a Rock-Thrush (*Monticola saxatilis*) is sufficiently thorough and exact to deserve publicity.

On July 3rd, 1933, Mr. Tart wrote to me: "I saw on Friday, June 23rd, between my house and the old targets, a real male Rock-Thrush. I had a good view of it for an hour, it was so very tame. Its head, throat and neck were bluish-grey; upper back bluish-black, lower back white patch, tail rich chestnut; white patch and tail very conspicuous in flight . . . I have never seen one before, but of course nobody with me to confirm it". In his diary for the day he wrote: "Saw on my way to Dengemarsh one Rock-Thrush, chestnut tail-feathers being very conspicuous in flight. I had a good view of this bird as it flitted from bush to bush". Then follows the description of the colours, as above.

In response to a request for further details, Mr. Tart has sent the following additional notes. Other colours he noted were: "Wings dark brown, under-plumage bright chestnut; Bill, legs and feet brown". He also adds that it "was very tame, in my opinion quite tired out as though it had travelled a good distance. It just flitted from bush to bush resting on the leeward side; it did not go into the bushes nor settle on the bushes. It did not attempt to feed but just really wanted rest. I had good views of it from all quarters, back, front and sideways. I got within thirty yards and spent about an hour watching this beautiful creature. In my opinion it was not quite so large as our common Song-Thrush, but more sturdy and plump".

It does not seem possible that the bird could have been anything but a Rock-Thrush.

H. G. ALEXANDER.



### BLACK REDSTART APPARENTLY BREEDING IN SOUTH ENGLAND.

ON July 7th, 1932, my brother and I watched for a considerable time about a certain maritime cliff in the south of England, a male Black Redstart (*Phœnicurus o. gibraltariensis*) almost certainly breeding close by. It sang frequently, and constantly attacked and drove off a male Pied Wagtail, which also had a nest near, no doubt. It seemed mainly interested about the middle of the cliff (which is about 200-250 feet high), but also hunted for insects at the foot, and within a short distance of us. On our return, an hour later, it was observed again.

I have known the species in the same neighbourhood in very late August or September, in more than one year previously.

H. G. ATTLEE.

### INSECTS BROUGHT BY SWALLOWS TO NESTLINGS.

THE list of insects fed to young Swallows (*Hirundo r. rustica*) given (*antea*, p. 231), reminds me that on June 26th, 1931, I watched a Swallow feeding its young with the destructive green oak moths (*Tortrix viridana* Linn.) at Antrobus, near Great Budworth, Cheshire.

The farmer told me that he had watched the birds bringing very many of these "moppets" to the nest, and one of them arrived with another moth while I was standing at the nest.

A. W. BOYD.

### KINGFISHER ROBBING DIPPER OF FOOD.

ON January 28th, 1934, the following incident was observed by Mr. Stuart Smith, my wife and myself in Upper Nidderdale.

A Kingfisher (*Alcedo a. ispida*) which had been seen successfully fishing from a height of about fifteen feet above the stream, took up a perching place about three feet over a pool. In the water below a Dipper (*Cinclus c. gularis*) was obtaining food and brought a beakful to the tiny shore just under the Kingfisher's perch. It appeared about to eat its catch when the Kingfisher dropped on to the "shore" and there was a momentary scuffle. The Dipper departed and the Kingfisher ate the Dipper's food. The performance was repeated once and possibly twice again, but on the last occasion the scuffle took place a little further away from us, some tree roots partly concealing the operations. The



Dipper evidently had had enough of it by this time and went elsewhere. Shortly afterwards we saw the Kingfisher fishing a little lower down the stream.

WILLIAM R. GRIST.

### SCANDINAVIAN LESSER BLACK-BACKED GULL IN LONDON.

ON November 4th, 1933, I had good views of an adult Scandinavian Lesser Black-backed Gull (*Larus f. fuscus*) on the muds off Millbank. It was for long opposite me and at one time passed, and then stood within three or four yards of, an adult British Lesser Black-back (*L. f. graellsii*), affording capital opportunity for comparison. There were some half-dozen of the British form there, besides about as many Herring-Gulls (*L. argentatus*), and one adult and one immature Great Black-backed Gull (*L. marinus*). The mantle of *L. f. fuscus* seemed fully as dark (at least) as that of *L. marinus*.

H. G. ATTLEE.

### EASTERN LITTLE BUSTARD IN LINCOLNSHIRE.

ON December 5th, 1933, I received from Mr. A. Smith, of the Lincoln Museum, a beautiful specimen of the Little Bustard. He informed me that it had been shot at Black House Farm, Addlethorpe, by Mr. W. J. Cook, of Skegness, on November 22nd, and kept in cold storage till sent to the Museum. The bird proved to be a female and I took the following measurements: Length 17 inches, wing  $9\frac{3}{4}$  inches, tarsus  $2\frac{1}{2}$  inches, spread of wing 34 inches.

I subsequently submitted it to Mr. H. F. Witherby, who identified it as belonging to the eastern form (*Otis tetrax orientalis*). It has been preserved by Gunn, of Norwich, for the Lincoln Museum.

G. H. CATON HAIGH.

[Besides the specimens mentioned in the *Practical Handbook* the following have since been examined and all have been *orientalis*: Kincardineshire, 1912, by Dr. Hartert; two Norfolk specimens, 1835 and before 1847, in the Norwich Museum, by myself; three Suffolk specimens, one Norfolk and one Cambridgeshire by Dr. C. B. Ticehurst (*Hist. Birds of Suffolk*). No British specimen of *O. t. tetrax* has yet been identified, but there are many more Little Bustards which have not been critically examined.—H.F.W.]

HOODED CROW AND GREENSHANK IN SURREY.—Mr. H. G. Attlee informs us that he saw a Hooded Crow (*Corvus c. cornix*) on October 18th, 1933, near the Pen Pond, Richmond Park.

Also, at the same place, Mr. Attlee saw a Greenshank (*Tringa nebularia*).

Both birds are rather scarce visitors to Surrey.

GREAT GREY SHRIKE IN BERKSHIRE.—Mr. E. Giles informs us that he watched for about half an hour a Great Grey Shrike (*Lanius excubitor*) on January 13th, 1934, on Cookham Dean Common, Berkshire. By the next day the bird had apparently moved on, but was seen again at the same place on the 20th.

EGGS OF RADDE'S BUSH-WARBLER.—*Correction*.—In the note under this heading (*antea*, p. 265) in the fourth line, the locality given as Elho should read Eho.

BLACK REDSTART INLAND IN KENT.—Mr. Edward Crankshaw informs us that on January 20th, 1934, he saw an immature Black Redstart (*Phœnicurus o. gibraltariensis*) on the North Downs above Brasted (Kent and Surrey border), and watched it for three or four minutes as it flitted about the ground over a large rabbit warren in the hillside.

PINK-FOOTED GEESE IN WEXFORD.—It will be remembered that Mr. H. W. Robinson recorded two examples of the Pink-footed Goose (*Anser brachyrhynchus*) as having been received by Mr. Williams, one from near Drogheda, January 6th, 1932, and another from the Wexford Slob, December 7th, 1931 (*antea*, Vol. XXVI., p. 55), and, further, a bird ringed in Iceland has been recorded as having been also obtained on the Wexford Slob on November 12th, 1932 (*t.c.*, p. 356). Mr. J. L. Nunn of Wexford informs us that in addition to these two birds he has handled a Pink-footed Goose from the same locality shot on November 1st, 1927, and another shot on February 19th, 1929. It may be noted that one of these three examples from Wexford has been examined by Mr. Stanley Duncan, and Mr. Nunn's identification has been confirmed. Mr. Nunn also informs us that a great number of Grey Lag-Geese, many White-fronted, and occasionally Bean and Barnacle-Geese, are shot in this locality by himself and his friends, and that all the specimens mentioned have passed through his hands, so that he knows these birds well.



# LETTERS

" TERRITORY REVIEWED."

To the Editors of BRITISH BIRDS.

SIRS,—The Messrs. Lack are not justified in supposing that ignorance of Mr. C. B. Moffat's paper on bird-territory has been universal. Like many naturalists interested in Irish ornithology I have been perfectly familiar with it since its publication, and in my paper in *The Zoologist*, 1915, pp. 297-302, "Notes on the Tree-Sparrow in Donegal," I made a fairly extended reference to it.

J. M. McWILLIAM.

To the Editors of BRITISH BIRDS.

SIRS,—In the last issue (p. 267) the credit of having been the pioneer of the territory theory has been given to Mr. C. B. Moffat on account of a paper in the *Irish Naturalist* for 1903. It may interest British ornithologists that the territorial habit of birds has long since been discussed in Germany and that Dr. Bernard Altum, one of the former presidents of the Deutsche Ornithologische Gesellschaft, has devoted much space to it in his very remarkable book *Der Vogel und sein Leben*, the first edition of which dates as far back as 1868. This book, though written half a century before E. M. Nicholson's *How Birds Live*, has in many respects a striking resemblance to the latter.

ZOOLOGISCHES MUSEUM DER  
UNIVERSITÄT, BERLIN.

ERWIN STRESEMANN.

To the Editors of BRITISH BIRDS.

SIRS,—In answer to the question very kindly and naturally put by Messrs. Lack as to what becomes of the many non-breeding birds that have failed in the spring competition for land, I have to admit that this question is certainly one of great difficulty, and I have still no stronger reason for believing that such a reserve of non-breeders exists than the one I gave in my original paper—the strange facility with which lost mates of either sex are replaced, time after time, sometimes so often as thirty-five times in the course of one breeding-season. The new mates "called in" must have been somewhere, though to put one's finger on the spot is not easy.

I should say, however, that the difficulty is not so stupendously great as Messrs. Lack suggest when they ask "do the non-breeding birds live in the territory of other pairs, and if not where can they go?" For this implies that where all the land suitable for breeding purposes has been parcelled out there is no other land left where the beaten birds can find plenty of food and shelter, though not adapted for nesting. Such a parcelling out as this would, I think, be hardly possible. The Chaffinch so frequently fights to the death that perhaps the reserve of non-breeders in that species may not be very large. The existence of considerable numbers of non-breeding Dunlins in Ireland in the summer months was mentioned by the late Mr. David Campbell, of Londonderry, in the *Irish Naturalist* for February, 1904, as a point more or less in favour of my contention in a previous number. In a rookery the non-breeding birds (perhaps all immature) frequently outnumber the breeders, though a casual observer would not detect the fact; and I have found the same to be the case in a colony of House-Martins (*Irish Naturalists' Journal*, November, 1925.)

C. B. MOFFAT.

*To the Editors of BRITISH BIRDS.*

SIRS,—If priority for authorship of the territory theory in bird life be of any importance, it may be pointed out that the idea was a well recognized fact by our ancestors at least three hundred years ago, in the case of, at any rate one species, the Mute Swan. Section 21 of "The Orders Lawes and Ancient Customes of Swanns", printed by order of John Witherings in 1632, but based on others at least fifty years older still, reads:—

"And yet neither the Master of the Game, nor any Gamster may take away any swanne which is in broode with any other mans, or which is coupled, *and hath a walke*, without the other's consent, for breaking the broode".

The italics are mine.

N. F. TICEHURST.

#### WINTER TERRITORY OF ROBINS.

*To the Editors of BRITISH BIRDS.*

SIRS,—Mr. Barnes (*antea*, p. 267) and Mr. Price (*antea*, p. 236) as well as, perhaps, Messrs. Lack (*antea*, p. 179), seem to hasten far too quickly towards a conclusion that there is with Robins "no strict territorial system, at any rate in winter". Mr. Barnes uses these words as the opinion of Messrs. Lack. The Lacks may suggest this, but what they said was that they doubted whether the territories have food value. Too much is I think made by all of them about a number of Robins being trapped at a spot. I will give reasons. The trap food is probably very attractive and plenty of it and it is easily got. Such food laid in winter will of course induce Robins from all round to cross frontiers of territory, I should say up to 150 yards depending on visibility. Birds very quickly spot others feeding; and the impulse for food need not be emphasized. I could easily catch 4 or 5 pairs at my own window board. But such crossing of frontiers does not mean there are no frontiers. Nor need it mean that for natural food similar crossing would occur. The owner can't be always on the watch nor has he (?) continually the same expulsive feeling, depending partly on whether he has had a good feed first, and he has to combat the hunger strength of the intruder, or of several intruders.

Again, my experience was that around the New Year females begin to leave their territories and wander about, and the males are generally not offensive to them. So that for making conclusions we certainly ought to know the sex and the date. (June to September, roughly, is another time of readjustment of territory.)

After watching 100 marked birds, winter territory still continues to be so obvious to me by the attitude to intruders that I am amazed at others finding different experience. There are exceptions to most of our rules for nature, but it would take a tremendous number of exceptions to weaken my faith in this rule.

Without more proof I cannot put any faith in Mr. Price's theory, quoted by Mr. Barnes, that Robins are drawn in winter into gardens from the surrounding country; in other words that they leave their country territories and become gregarious in gardens. Gardens naturally permit a denser territorial system, and where is the country site even in dead of winter, with any cover at all, that has not its Robin if you have patience to find it? It reminds me of the old idea that there were special summer retreats for parent moulters. But we all live and learn.

J. P. BURKITT.

ENNISKILLEN, IRELAND.

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APRIL 2,  
1934.

Vol. XXVII.  
No. 11.



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# BRITISH BIRDS

WITH WHICH WAS INCORPORATED IN JANUARY, 1917, "THE ZOOLOGIST."

EDITED BY

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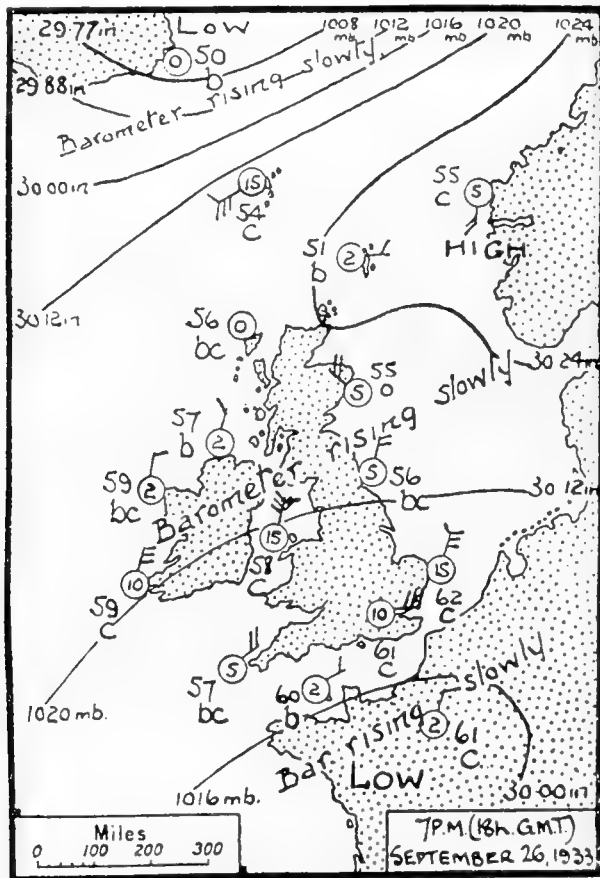
## ORNITHOLOGICAL REPORT FOR NORFOLK FOR 1933.

BY

B. B. RIVIERE, F.R.C.S., F.Z.S., M.B.O.U.

### WEATHER.

THE year 1933 will long be remembered for its fine long summer, and consequent severe drought. January and February were cold, with a spell of hard frost and frequent snow between February 14th and 20th, but in March began the fine warm weather which, with the exception of a dull and rainy period in early May, lasted almost uninterruptedly until October. In the last week of the latter month there was



a rapid fall in temperature with falls of snow and a N.W. gale. This early advance-guard of winter proved, however, only temporary, for open weather again prevailed throughout November. Wintry conditions returned in December and during the first half of this month there was much frost.

This proved a wonderful year for wild Pheasants, and on the whole a good one for Partridges, which was badly needed

after the disastrous season, through disease and bad hatching, of 1932. Swallows and House-Martins seemed to be unusually abundant and I had double the number of nests of both species at Woodbastwick that I had the year before, namely : ten House-Martins' (against five in 1932), and five Swallows' (against two in 1932).

Blackbirds and Song-Thrushes undoubtedly suffered from a shortage of food owing to the hard ground, and there was a noticeable scarcity of both in gardens during the late summer. Whether the unusual abundance of field-voles, and, in consequence, of Short-eared Owls—referred to later—had any connexion with the drought, I do not know.

### MIGRATION.

The importance of observations of the movements of migratory birds made at sea justifies, I think, my again quoting the notes I receive from North Sea light-ships almost in full. My valued correspondent, Mr. S. G. Sharman, formerly stationed on the E. Dudgeon, has now removed to the Corton light-vessel which lies three miles from the coast between Yarmouth and Lowestoft, and his notes for the latter part of the year refer to this station. I have been fortunate in enlisting the help of another keen observer of birds in Mr. W. S. Parish, of the Outer Dowsing, which is situated some thirty miles E. of the Lincolnshire coast. As this vessel is the furthest from the coast of all the North Sea light-ships, his notes should prove of exceptional interest.

#### OUTER DOWSING LIGHT-VESSEL (W. S. PARISH).

*February 28th.*—Wind S.E. Very many Larks.

*March 1st-4th.*—Wind between S. and S.S.E. On all these days Larks, Redwings and Thrushes flying W.

*March 13th.*—Wind S.W. Blue Tit. Wagtails flying W.

*March 17th.*—Wind W.S.W. Thrushes, Blackbirds, Redwings, Starlings and Peewits.

*March 21st.*—Wind W.S.W. Blackbirds, Starlings and Waders very numerous, flying W.

*April 5th.*—Wind W.N.W. Blackcaps and "Flycatchers" to W.

*April 12th.*—Calm. Blackcaps and "Flycatchers" to W.

*May 13th.*—Wind N.W. Wheatears and other "Flycatchers".

*May 17th.*—Wind N.N.W. Wheatears and "Flycatchers", also Dotterel and Curlews.

*May 19th.*—Wind S. "Flycatchers" and Turtle-Dove.

*August 15th.*—Wind S.W. Martin flying E. to W.

*August 22nd.*—Wind W.N.W. Pipits and Wheatears flying E. to W.

*August 25th.*—Wind S.W. Waders, Wheatears and Pipits E. to W.

*August 27th.*—Wind S. Waders and Wheatears flying E. to W.

*August 29th.*—Wind N.W., Fog. Waders and Wheatears.

- August 30th.*—Wind N. “Flycatchers” flying W.  
*August 31st.*—Wind N.W. Waders and Wheatears to W.  
*September 7th.*—Wind E. Wheatears flying W.  
*September 12th.*—Wind N.N.E. Waders and Titlarks flying W.  
*September 15th.*—Wind W.S.W. Snipe flying E. to W.  
*September 17th.*—Wind S. Waders, Wheatears and Redstarts E. to W.  
*September 19th.*—Wind S.E. Titlarks and Brambling E. to W.  
*September 24th.*—Wind S.E. Waders, Titlarks and Wheatears E. to W.  
*September 27th.*—Wind E.N.E.4. Hawks, Titlarks, Wheatears, Robins, Wrens, Redwings and “Flycatchers” E. to W.  
*September 28th.*—Wind E.N.E.2, Fog. Same birds passing as on 27th.  
*September 29th.*—Wind N.E. Redwings, Titlarks, Robins, Wrens, Wheatears, Snipe and some Herons (seven or eight) flying E. to W.  
*November 13th.*—Wind E.N.E. Plover, Snipe and Fieldfares. Arrived from E. and some settled.  
*November 18th.*—Wind E. Plover, Snipe and Fieldfares. Arrived from S.E., flew around, and departed to W.  
*November 21st.*—Wind N.E. Plover, Knot, Robins, Titlarks and Fieldfares. Came from E. and departed W.S.W.  
*November 22nd.*—Wind N. Plover, Snipe, Larks and Buntings. Hovered, and some settled, and left to W.  
*December 8th.*—Wind N.N.E. Curlews, Snipe and Plover. A Greenfinch came on board and died.  
*December 17th.*—Wind W. Waders, Starlings and Greenfinches. Came from E. and departed W. Some settled.  
*December 19th.*—Wind W.N.W. Snipe, Waders and Starlings travelling W.  
*December 23rd.*—Wind W.S.W. Thrushes, Starlings and Wood-Pigeons from E. to W.

Wings sent to me from the Outer Dowsing by Mr. Parish were the following: *April*, Blackcap and Meadow-Pipit. *May*, Common Wheatear, Lesser Whitethroat, Sedge-Warbler, Willow-Warbler and Dotterel. *September*, Greenland Wheatear, Garden-Warbler, Lesser Whitethroat and Redstart. *November*, Fieldfare.

E. DUDGEON LIGHT-VESSEL (S. G. SHARMAN).

- February 22nd.*—Wind N.E. Continuous flocks of Starlings passing from N.E. to S.W.  
*February 27th.*—Wind S.E. Larks around lantern at night.  
*March 1st.*—Wind S.S.E. Larks travelling W. and W.N.W.  
*March 2nd.*—Wind S.E. Larks and Thrushes travelling W.  
*March 3rd.*—Wind S. Numbers of Larks killed at night. Proceeded W. in morning.  
*March 7th.*—Wind W.S.W. Herd of Swans, about fifty, proceeded E.N.E. Rooks and Larks to W. and W.N.W.  
*March 9th.*—Wind S. Flocks of Starlings and Lapwings proceeding W.  
*March 12th.*—Wind S.E. Flocks of Chaffinches of from three to ten travelling W.  
*March 16th.*—Wind W. Many Waders at night.

*March 17th.*—Wind S.W. Starlings and Thrushes travelling W.

*March 18th.*—Wind W. Starlings travelling W.

*March 20th.*—Wind S.W. Waders passing over at night and number of Starlings killed.

*March 24th.*—Wind W.N.W. Rooks flying W. Small flocks.

*March 26th–29th.*—Wind between S.E. and E. General migration of Starlings, Larks, Chaffinches and Titlarks during these four days, all travelling W. and W.S.W.

*April 7th, 8th and 9th.*—Wind various. Chaffinches, Titlarks and Starlings to W. and W.S.W. each day.

*May 14th.*—Wind N. Wheatears. Proceeded W.

*May 17th.*—Wind S. Warblers around lantern at night.

*May 22nd.*—Wind E. Warblers. Only recognized Willow-Wrens. Proceeded W.

*May 23rd.*—Wind E. One Willow-Wren and four Spotted Flycatchers.

*May 24th.*—Wind N.E. Willow-Wrens (three) and Whitethroat (one).

*June.*—Nearly every day throughout the month Swallows and Martins flying W.

*July 8th, 9th and 10th.*—Swifts travelling W. on these three days. These always appeared one or two hours after sunrise in flocks of fifteen to twenty.

*August 23rd.*—Wind N.W. Kestrel travelling W.

*September 1st.*—Wind S.E. Wheatears and Titlarks to W.S.W.

*September 2nd.*—Wind S.S.E. Wheatears and Titlarks to W.S.W.

*September 3rd.*—Wind S. Wheatears and Lapwings to W.S.W.

*September 4th.*—Wind S.E. Wheatears and Lapwings to W.S.W.

*September 5th.*—Wind E.S.E. Four Redstarts, Lapwings to W.S.W.

*September 6th.*—Wind E. Redstarts and Titlarks to W.S.W.

*September 7th.*—Wind E.N.E. Redstarts, Titlarks, Grey Wagtails (three), and Lapwings.

*September 8th.*—Wind E.N.E. Redstarts, Titlarks and Wheatears to W.S.W.

*September 9th.*—Wind E.N.E. Ten Lapwings flying W.S.W.

#### CORTON LIGHT-VESSEL (S. G. SHARMAN).

*September 18th.*—Wind N.W. Small flocks of Finches to W.S.W.

*September 21st.*—Wind S.W. Finches to W.S.W.

*September 22nd.*—Wind S. Finches, Thrushes and Blackbirds flying W.

*September 24th.*—Wind S. Small lots of Swallows and Martins flying S.

*September 27th.*—Wind N.E., fog. Thrushes, Chaffinches, Willow-Wrens, Chiffchaffs, Robins and Wheatears (small numbers of each) apparently lost. Dense fog.

*September 28th.*—Wind N.E., fog. Same species in same quantities.

*September 29th.*—Wind N.E., fog. Birds very numerous and same species as above.

*September 30th.*—Wind N.E., clear. Goldcrests and Chaffinches to W.S.W.

*October 3rd.*—Wind N.E. Larks and Finches to W.S.W.

*October 6th.*—Calm. Willow-Wrens and other small Warblers, Chaffinches to W.S.W.

*October 7th and 8th.*—Larks and Starlings travelling W.N.W.

Wings sent to me from the Corton Light-vessel were those of Meadow-Pipit, Goldfinch, Garden-Warbler and Merlin.

The outstanding feature of the autumn migration as observed on the coast was the extraordinary immigration of Robins which took place on September 27th. The weather conditions were favourable both for the occurrence of such a migration and for bringing it within view, these being: an anticyclone covering Scandinavia and the eastern shores of the North Sea, a N.E. wind, and a thick mist covering the whole Norfolk coast (*vide* weather chart, p. 310).

It so happened that it was possible to time the arrival of these immigrants to within a couple of hours, for when Col. Madoc, who had spent the morning on the "Little Eye" at Salthouse, left at mid-day he had seen nothing, whilst when he, Mr. Garnett and I returned to the same spot soon after 2 p.m. it was alive with small birds. The vast majority of these were Robins, which were literally everywhere, but with them were a considerable number of Redstarts and Willow-Warblers, and smaller numbers of Chiff-Chaffs, Wheatears, Goldcrests, Song-Thrushes and Sedge-Warblers. Amongst this host, later in the day, Col. Madoc and Mr. Garnett were fortunate enough to get a close view of a Red-breasted Flycatcher sitting on a wire fence, and also of a Bluethroat.

This wave of Robins appears to have hit the whole Norfolk coast-line, fresh arrivals probably taking place on September 28th and 29th. At Paston on 28th the coastal lanes were noticed to be full of Robins (R. C. Bell). At Scolt Head Mr. D. Carruthers wrote that "there was a Robin in every tussock", while Col. W. A. Payn estimated their number during these three days over a frontage of about two miles on Blakeney Point at 3,000 (*antea*, p. 230).

It will be seen from the reports quoted above that Robins were recorded on September 27th, 28th and 29th, both from the Corton Light-vessel between Yarmouth and Lowestoft, and from the Outer Dowsing Light-vessel off the Lincolnshire coast, and Mr. G. Caton-Haigh wrote me that during these three days many hundreds were to be seen in the coastal hedges at North Cotes, Lincolnshire. On the Norfolk coast almost all had moved on by October 1st.

Several were sent to me from different parts of the coast and these were all of the typical form *Erithacus v. rubecula*.

It is perhaps worth noting that Miss M. Barclay, who was on Heligoland at the time, tells me that few Robins passed

through the island until September 29th and 30th and that the biggest "rush" was observed there on October 3rd.

## CLASSIFIED NOTES.

RAVEN (*Corvus corax*).—The first Raven to be reported in Norfolk for very many years—seen by Mr. H. E. S. Upcher at Sheringham on December 27th—was recorded in my notes for 1931 (*antea*, Vol. XXV., p. 345). This year I am able to record two more, one of which, curiously enough, was seen by the same observer in the same place as the 1931 bird.

On January 13th, during a spell of very hard weather, one was seen being mobbed by Hooded Crows over the sea at Morston, by Major P. Hammond. On March 8th and 9th one was seen at Sheringham by Mr. Upcher, and on March 10th one, probably the same bird, was seen by Miss M. Barclay at Salthouse being chased by Gulls and Hooded Crows. It is, of course, possible that all these three records refer to the same bird, but it is at least highly improbable that a Raven could remain on the Norfolk coast from January 13th to March 8th unobserved.

ORTOLAN BUNTING (*Emberiza hortulana*).—One was identified at Cley during September (E. C. Bird).

LITTLE BUNTING (*Emberiza pusilla*).—Col. Madoc tells me that he identified one at close range at Salthouse on September 20th.

FIRE-CRESTED WREN (*Regulus i. ignicapillus*).—As already reported (*antea*, Vol. XXVI., p. 305) a Firecrest was seen by Miss Ferrier at Hemsby on January 23rd. On March 17th another, a male in perfect condition, which had been picked up under an electric pylon at Yarmouth, was sent to me by Mr. A. H. Patterson. A third was identified by Mrs. Ivor Hood, at Sidestrand, on October 29th (M. Barclay).

WAXWING (*Bombycilla garrulus*).—The only Waxwings reported to me were one during the first week of April at Harleston (F. Mardinent), and one "about Christmas time" at Horsey (A. Buxton).

RED-BREASTED FLYCATCHER (*Muscicapa parva*).—On September 27th, at Salthouse, during a migratory "rush" of Robins and other small birds, Mr. R. M. Garnett and Col. Madoc had a close view of a female or immature male Red-breasted Flycatcher. Mr. Garnett noticed that when perched upon a wire fence it frequently flicked its tail, thus rendering the black and white colouring of this very conspicuous.

BRITISH ROBIN (*Erithacus r. melophilus*).—After reading Messrs. D. and L. Lacks' paper on "Territory" (*antea*, Vol. XXVII., p. 79) I paid particular attention to the number and distribution of the Robins about my house. Throughout the month of December four, apparently on good terms with each other, lived in the stable yard, where they had an abundant supply of food. Three regularly frequented the bird table at the front of the house, and two the back door, where also they were fed. All these were separate individuals and their numbers appeared never to vary. On the other hand, in the roadside hedges and in the coverts, all the Robins met with appeared to be solitary.

HOOPOE (*Upupa e. epops*).—One was seen at Billingford on March 17th (S. W. H. Aldwell).

SHORT-EARED OWL (*Asio f. flammeus*).—The plague of short-tailed field-mice with which Norfolk was visited in 1933 resulted in an unprecedented number of Short-eared Owls nesting in the county. Whereas in 1932 only one nest was reported, this year nine pairs bred on Major A. Buxton's marshes at Horsey, and nine more on the adjoining Hickling estate (J. Vincent), making eighteen pairs within this area of Broadland alone. In addition, two pairs, at least, bred in Breckland, on the Norfolk side of the boundary (D. Lack).

This connexion between the Short-eared Owl and the vole is an interesting one. Where did these Owls come from, and how did they know the voles were here? The most natural explanation would seem to be that equally large numbers of Short-eared Owls pass through the county annually—numbers are generally to be met with in autumn, but not as a rule during the winter, or in spring—and that finding the voles abundant they remain to breed.

On November 23rd I saw twenty or more put up out of the bracken by beaters at Bayfield near Holt, but whether these were home-bred or autumn immigrants one cannot say.

HOBBY (*Falco s. subbuteo*).—It is pleasant to be able to report that a pair of Hobbies successfully reared a brood in the county this year. So far as I know this is the first authentic nesting record for Norfolk since the eighties and nineties of the last century. For information which, on June 28th, led me to the discovery of this nest—an old Crow's in an isolated clump of trees—I have to thank Mr. D. Lack. One fully-fledged young one was seen sitting on the edge of the nest on August 12th and on the 23rd two were flying about the tree clump.



COMMON BUZZARD (*Buteo b. buteo*).—Two were seen on May 20th, 21st and 22nd at Alethorpe near Fakenham (R. N. Hill). I saw one at Woodbastwick on December 26th.

MARSH-HARRIER (*Circus æ. æruginosus*).

MONTAGU'S HARRIER (*Circus pygargus*).—Both species of Harrier had a successful nesting season. Of two pairs of Marsh-Harriers which bred on one property, one had a clutch of six eggs from which four young were reared, and one a clutch of seven from which three were reared. The male of the latter pair disappeared about the time the eggs were hatching, and the three young ones were reared by the female alone (A. Buxton).

OSPREY (*Pandion h. haliaëtus*).—More Ospreys than usual appear to have visited Norfolk in the spring. During the last week in April one was seen at Hingham Sea Mere (S. H. Long). From May 6th to 9th one was constantly seen at Barningham (M. Barclay). From June 4th to 10th one frequented Barton Broad (V. M. Boswell), while one stayed at Gunton, where Miss Barclay watched it fishing in the lake almost daily, from June 30th to July 19th.

SPOONBILL (*Platalea l. leucorodia*).—One was seen at Salt-house on May 27th and 28th, and one at Cley on June 18th and 19th (M. Barclay and R. M. Garnett). Another spent some weeks during the summer at Horsey (A. Buxton).

SNOW-GOOSE (*Anser h. hyperboreus*).—There can be little doubt that the Snow-Goose recorded as having been shot at Salthouse on September 8th (*antea*, p. 166) was one of the birds which disappeared from Woburn at the end of August (*ibid*, p. 212).

GREAT CRESTED GREBE (*Podiceps c. cristatus*).—Although the pair of Grebes which annually nest on my small broad generally hatch all of their four eggs, this was the first year in which I have known them to succeed in rearing all four young ones. The first egg was laid this year on March 25th—eleven days earlier than in 1932—and the fourth youngster was hatched on April 22nd. Both parents and all four young remained on the broad until June 5th, when the female—as last year—left with one of the young ones, the male staying on the broad and feeding the remaining three. When I returned from a holiday early in July both old birds were again on the broad, together with one fully-grown young one. This they chased away whenever it came near them, and by about the middle of the month it had disappeared. The pair were together on the broad until August 10th when

one again left. The absent bird returned on October 27th, but on 30th there was again only one, and this was last seen on November 22nd.

**DOTTEREL** (*Charadrius morinellus*).—One frequented Cromer golf links between August 16th and 20th (M. Barclay).

**RUFF** (*Philomachus pugnax*).—A large number of Ruffs and Reeves passed through during the autumn migration. On October 1st Col. Madoc and I saw parties of three, four and seven, and two single birds, sixteen in all, near Yarmouth. The last seen were two at Salthouse by Mr. Garnett on November 5th—a late date.

**LITTLE STINT** (*Calidris minuta*).—1933 was distinctly a Little Stint year. It is not often that they are met with in Norfolk during the spring migration, but this year four were seen by Miss Barclay and Mr. Garnett at Salthouse on June 6th. As usual they were with Curlew-Sandpipers. Unusual numbers were reported by Col. Madoc at Salthouse during September. I saw six at Cantley on October 1st, and the last seen were three at Salthouse on October 21st (R. M. Garnett).

**BROAD-BILLED SANDPIPER** (*Limicola f. falcinellus*).—As already reported (*antea*, p. 52) one was identified by Miss Barclay, Mr. Garnett and others at Salthouse on June 7th.

**GREY PHALAROPE** (*Phalaropus fulicarius*).—Norfolk shared in the autumn influx of Grey Phalaropes which was reported from other districts (*antea*, pp. 171, 206-7, 233, 264, 301). One was shot on the coast on October 7th and another on Breydon on November 4th. One frequented Salthouse marshes between October 16th and 19th, and another was seen in the same locality between November 4th and 6th (R. M. Garnett).

**RED-NECKED PHALAROPE** (*Phalaropus lobatus*).—On September 24th two arrived at Salthouse, where, on 25th, they were joined by a third (R. M. Garnett). On September 27th I saw all three swimming and wading in a pool amongst a lot of Dunlins. They were last seen by Col. Madoc on October 1st.

**BLACK-TAILED GODWIT** (*Limosa l. limosa*).—Black-tailed Godwits visited our coast in some numbers at both migration seasons. The earliest noted were two at Salthouse on March 12th (R. M. Garnett). The largest number seen together were ten on March 20th, and eight on August 18th and 19th at Salthouse (R. M. Garnett).

**GREAT SNIPE** (*Capella media*).—On September 27th one was shot and another seen at Wroxham (S. Trafford).

WOODCOCK (*Scolopax r. rusticola*).—On April 9th Sir Hugh Beevor showed me a Woodcock sitting on her nest at Hargham. This hatched off successfully. Another nest found in May at Weybourne was unfortunately destroyed by vermin (R. M. Garnett).

Woodcock were plentiful in the last two months of the year. The best bags I heard of were fifty-eight shot at Holkham on December 12th (G. R. Colman), this being, I believe, a record for this shoot, and twenty-four at Sprowston on December 26th (M. Falcon).

WHISKERED TERN (*Chlidonias l. leucopareius*).—On July 7th at Hickling a Whiskered Tern was identified by Mr. J. Vincent.

SANDWICH TERN (*Sterna s. sandvicensis*).—Thirty-eight pairs nested at Scolt Head, and over 700 pairs at Salthouse (R. M. Garnett). None bred this year at Blakeney Point.

ROSEATE TERN (*Sterna d. dougallii*).—One pair nested and both young ones were reared.

LITTLE GULL (*Larus minutus*).—Single adult birds were seen by Mr. Garnett at Salthouse on March 10th and April 12th.

BLACK-HEADED GULL (*Larus r. ridibundus*).—A Black-headed Gull bearing a Göteborg Museum ring (No. 11741C) was caught at Salthouse, with an injured wing, on April 6th, and died a few days later. I learn from Prof. Jägerskiöld that it was ringed as a nestling on the Island of Mäklappen, Scania, Sweden, on July 1st, 1929.

GLAUCOUS GULL (*Larus hyperboreus*).—On April 1st I watched an immature Glaucous Gull both on the wing and resting on a flooded marsh near Yarmouth.

ICELAND GULL (*Larus leucopterus*).—One was seen by Mr. Garnett on several occasions between October 29th and November 3rd at Salthouse.

SKUAS.—Rather more Skuas than usual appear to have visited our coast during the autumn. The majority were Arctic (*S. parasiticus*), but a number of Great Skuas (*S. skua*) were also seen. A Pomatorhine (*S. pomarinus*) was found dead on the beach at Cley on October 25th (M. Barclay), and an immature Long-tailed Skua (*S. longicaudus*) was killed on Breydon on October 8th (E. C. Saunders).

LITTLE AUK (*Alle a. alle*).—A few Little Auks were met with on the coast in January and again in November.

QUAIL (*Coturnix c. coturnix*).—One was heard calling in a field of young corn at Salthouse on June 3rd (R. M. Garnett).

## THE WILLOW-TIT'S METHOD OF BORING ITS NESTING-HOLE.

BY

H. F. WITHERBY.

IN the spring of 1933 I watched a Willow-Tit (*Parus a. kleinschmidti*) boring its nesting-hole, and as this operation has not been described so far as I know in this country, I give here a detailed summary of my observations, which were made over a period of eight days. Mr. P. A. D. Hollom took several turns at watching and he has kindly allowed me to incorporate his notes.

The nesting-hole was in a very rotten birch trunk in a swampy part of Gracious Pond—my bird reserve at Chobham. Unfortunately the hole was twenty feet from the ground, and owing to the tree being small and very shaky we thought it advisable not to try to examine the hole for fear of the tree collapsing. It was also unfortunate that the birds deserted after eight days' watching, but as the hole was only just begun when I began to watch and was almost finished when the birds deserted, the period nearly covered the boring operations, but no nest was built.

Mr. N. Tracy has recently fully described the boring methods of British Woodpeckers (*antea*, pp. 117-132) and a point of great interest is the very different method (described below) which was employed by the Willow-Tits in dealing with the chips brought out of the cavity.

I first saw the bird pecking at a small hole on April 7th. It could then get only its head and neck into the hole, which had a ragged, roughly oval-shaped entrance. The bird was clinging to the trunk and thrusting its head in and out of the hole very rapidly and bringing out minute pieces of wood (almost dust), and throwing them back over its shoulder. During the whole time it worked, which was only for five minutes, it was constantly calling "tchay". I saw only the one bird.

The next day at noon it could get into the hole, turn round and come out head first, but when working inside about half its tail protruded, and often this was pointed up at an angle, from which it was evident that the bird had now begun to work downwards. It still often clung to the entrance and threw minute fragments over its shoulder as on the previous day. But it also on this day frequently got out larger chips, and these it invariably took to branches of neighbouring trees from five to fifteen feet away, and broke up in its bill, letting

the pieces fall almost in the form of dust, sometimes giving a flick with its head as it let a piece fall. It also frequently put pieces on the bough, often between its feet, but not under them, and pecked at them. Sometimes these chips did not fall until they were jerked off the bough by the bird flying up to the hole again.

Most of the time the bird was working it was calling "*tchay*", and usually when outside the hole it shivered its wings. Although the pair was seen at a little distance from the nesting-hole, only one bird worked at each "session", but whether each took a spell it was impossible to say. The spells of work varied, but they were always much shorter than the intervals of absence from the vicinity of the nesting-hole.

On the third day (9th) the procedure was slightly different. The bird worked silently for several spells. It was generally altogether out of sight now when it entered the hole. Twice while we were watching it threw small chips out from the entrance, but on every other occasion carried them out one by one and crumbled them as already described. The chips were often rather larger than on the previous day, and were sometimes carried somewhat further (fifteen to twenty feet) from the nest.

For the next three days the bird continued to work in much the same way. In this period I watched it during many spells of work and only once saw it throw a chip out of the hole, but this was a largish piece. All the rest were carried away to various boughs at different distances, usually within twenty feet, but on a few occasions as much as twenty yards away, and crumbled up.

On the 13th the bird worked more frequently and for longer periods and was taking out larger pieces than usual, but of the same very rotten wood which was easily crumbled to powder.

I may here give the best description I can of the notes I heard during the days I was watching the birds.

The deep-toned "*tchay*" constantly repeated and sometimes sounding more like "*churr*" was the most usual note. This was fairly regularly uttered by the bird, accompanied with much shivering of wings, when it was outside the hole during its spells of work. Once I heard it utter the note when actually inside the hole.

A high-pitched, long-drawn and plaintive-toned "*chir*" repeated was the next most usual note. Once I heard a rapid trill, low-toned and very soft, but this would have been inaudible to me had I not been quite near the bird.

When another bird came into a bush near the nesting-hole while the Willow-Tit was working, its mate always appeared as if by magic, work was stopped, and both would flit round the intruder, shivering their wings and uttering the high-pitched, plaintive "*chir*". A cock Willow-Wren making its round of singing perches frequently came, and was actively chased. A Great Tit fairly often appeared, and the Willow-Tits would hop round it anxiously, but not attempt to attack. Quite a tussle occurred between the pair of Willow-Tits and a pair of Long-tailed Tits, but although they flew at each other they never touched, and it was some time before the Long-tails gave way. Once when the single bird was working at the hole a black-capped Tit came into a neighbouring tree and called "*petit chou*", the familiar note of the Marsh-Tit. For a moment my confidence in the distinction of the notes of the two species was shaken, but almost immediately the Willow-Tit stopped working and its real mate arrived. There was then a tussle between the three birds, and the third was certainly a Marsh-Tit which was nesting a short distance away, and occasionally came within range of the Willow-Tits. There was frequently a pair of Sparrow-Hawks in the vicinity, and when they came quite close the Willow-Tits retreated to low bushes and kept crying excitedly a whole string of notes. Some of them I wrote down as "*pitch-i-churr-churr-churr*", "*itch-i-churr-churr*", "*zi-it-zi-it-churr-churr*", the preliminary note varying, but always quick, sharp and high-pitched and repeated, the "*churr*" very low-toned.

Although the Willow-Tits when at work were very jealous of any bird approaching the nesting-tree, it is of interest to note that during the many hours in all that they were absent and I was waiting for their return, other birds often visited neighbouring trees, and the Willow-Tits never came to chase them away.

On April 14th, the eighth day of watching, both birds were working. This was the first time I had seen them together at work. They went in and out of the hole in turns, but one bird worked much more than the other. They continued for much longer periods than the one bird had worked on previous days, and were much less away from the nesting-hole. Both worked in precisely the same way and crumbled the chips here and there in nearby bushes and trees without using any one place in a regular way.

In the afternoon one of the birds working at the hole suddenly flew down with rapidly shivering wings, and calling

very softly and quickly "*chi-chi-chi*", it chased its mate and on catching it up copulation took place. The male then flew off low down for some twenty yards with long, slow, butterfly-like beats of the wings. The female flew up to the nesting-hole and back to work, and two minutes later the male took his turn. For several spells on this day they worked in silence, but always with the shiver of wings when they were out of the hole.

After this date I never saw the birds visit the nesting-hole, and though they were seen on a number of occasions not far off, neither I nor my friends were able to find a second nest, and as we never saw a brood I am inclined to think they did not nest again.

The periods of continuous work on the last day varied from ten to as much as fifty minutes, while previously I had never timed the single bird working for longer than twenty-four minutes at a stretch, and it was usually less than ten minutes. It was away from the nest between spells of work from ten minutes to an hour and sometimes longer.

I also took note on various occasions of the time occupied during active work by the single bird inside the hole, and in disposing of the chips outside and returning to the hole. The time in the hole varied from two seconds to thirty seconds, and once forty seconds, while outside it varied from ten seconds to as much as a minute on occasions. In one spell of working, which lasted in all twenty-three minutes, the single bird made thirty-four entries and exits, or an average of forty-one seconds for each chip, all of them being taken away and crumbled up. It must be remarked, however, that when I afterwards took the nesting cavity down and examined it, I found an egg-cup full of chips in it, so that the birds had chipped out much more than they had removed. There were considerably more chips than are usually found mixed with a nest, so had the birds continued it is probable that they would have removed many of these chips before building the nest.

I have already described and figured two other nesting cavities of the British Willow-Tit (see *Bull. Brit. Orn. Club*, Vol. LIII., pp. 26-33). The present one had its sides sloping inwards at the bottom but they were very little bulged, so that the cavity had not the marked soda-water-bottle shape of the others. This, I think, was because it was not finished, and it seems likely that the bird does this shaping last when it can stand at the bottom and work more easily. I have now opened and examined four nesting cavities of the Willow-Tit,

and it is usual to find that in one direction or more the bird gets through the wood and reaches the bark. In most cases the bark is tough and holds, but in the present case the bark was very rotten and had given way in two places where there were holes letting in daylight, and this perhaps was the reason for the desertion.

All four cavities vary considerably in dimensions, and it may be of interest to give the following details, measurements being in inches, but it must be remarked that the unfinished hole may not be its full width and depth.

<i>Tree.</i>	<i>Diameter of tree at entrance hole.</i>	<i>Entrance hole.</i>	<i>From threshold of entrance inwards to edge of downward boring.</i>	<i>From bottom to roof in perpendicular line.</i>	<i>Greatest diameter of cavity.</i>
Sallow.	4	Ragged, uneven oval, about $1\frac{1}{4}$ high.	$1\frac{1}{2}$	$6\frac{1}{2}$	$2\frac{7}{8}$
Birch.	$4\frac{3}{4}$	Slit-like, $1\frac{3}{4}$ wide $\frac{7}{8}$ high.	$1\frac{1}{2}$	$5\frac{3}{8}$	$3\frac{1}{4}$
Birch.	$4\frac{1}{2} \times 3\frac{1}{4}$ (oval-shaped).	Unevenly shaped, $1\frac{3}{8}$ wide, 1 high.	$1\frac{3}{8}$	$4\frac{1}{4}$	$2\frac{5}{8}$
Birch. (unfinished.)	$3\frac{1}{2}$	Very ragged and roughly oval, about $2\frac{1}{2}$ high and 2 wide.	1	4	$2\frac{3}{8}$



## THE STARLING ROOSTS IN THE EAST MIDLANDS.

BY

A. ROEBUCK.

THE massing of the flocks of Starlings (*Sturnus v. vulgaris*) just before dusk on an evening during winter is a truly impressive spectacle. Its grandeur is marred later by the almost unbearable stench from the ever-deepening layer of droppings under the bushes, and the general unsightliness of everything, especially evergreens.

In some of our Midland roosts flocks approach from all points of the compass, but others receive flocks from more limited distances and directions. Flocks using the roosts along the sea-coast approach only from the landward side, chiefly from the west and south.

Flocks which travel a long way to roost usually make the journey by a series of hops. Massed flocks resting near the roost, say a mile away, may, in the failing light, give a grass-field the semblance of newly-ploughed land, so densely massed on the ground are their dark bodies. When possible, the last stage of the approach is the alighting of the flock in nearby trees. So thick are the Starlings that the trees in the fading light appear to be in almost full leaf. From here, possibly after describing a circling flight, the flock dives into the low bushes. After a few moments all is quiet. The arrival of successive flocks may cause a host of birds to fly out and circle in the air, but they rapidly return to roost and quickly quieten down once in the bushes.

It is difficult to estimate the degree of attachment of an individual to a particular flock. It is also difficult to estimate the degree of attachment of one flock to other flocks which share the same roost.

The flock maintains considerable independence. In case of persecution in the roost some flocks are driven away sooner than others. One or two flocks often persistently return year after year, to try and occupy a site from which a large roost has been expelled, and from which they are eventually expelled. A new roost formed after the expulsion of the birds from a particular site is not necessarily composed of all the ejected flocks. It must be presumed, therefore, that some of the flocks have joined others at various roosts. In one case in Leicestershire two flocks were feeding side by side in adjacent fields. One of these joined others in a roost quite near

to the south, the other daily went sixteen miles north to roost with others from a wide area.

Through the kind co-operation of the Directors of Education for the seven administrative counties, and through them the village schoolmasters, a survey of the roosts in this area was made during the winter 1932-33. I wish to acknowledge

#### STARLING ROOSTS



- |              |                     |
|--------------|---------------------|
| A. Lindsey.  | E. Derbyshire.      |
| B. Kesteven. | F. Nottinghamshire. |
| C. Holland.  | G. Leicestershire.  |
| D. Rutland.  |                     |

my indebtedness for this willing help to the following Directors of Education: Messrs. W. A. Brockington (Leicestershire), P. G. Feek (Derbyshire), C. Stanley Johnson (Rutland), S. Maudson Grant (Lindsey), Alexander Russell (Kesteven), J. R. McKnight (Holland) and B. W. L. Bulkeley (Notting-

hamshire). To Mr. B. J. Marples of Manchester University I am indebted for a few other roosts which would otherwise have been overlooked.

#### COMPARATIVE SIZES OF THE ROOSTS.

Some attempt has been made to classify the roosts according to their sizes. Apart from the great difficulty of estimating their sizes, the problem is rendered more difficult by the fact that any particular roost varies considerably in size throughout the winter, often from night to night. Of the very large roosts more or less equal in size, such as Maltby Wood, Kirmington, Thonock or Gorse Hill in Lincolnshire; Woodthorpe or Lockington in Leicestershire; Shipley Hall or Foremarke in Derbyshire, one was chosen for more detailed study. Lockington was chosen, and various attempts were made to count the birds and trace the whole feeding-area of the roost. Fortunately on several occasions the various flocks alighted together on one or two grass-fields, and the birds were tolerably uniformly distributed over the ground. From these observations it was estimated that at the utmost, the birds could spread over ten acres on the basis of one bird to each square foot. This gives a total of 435,600 birds. Next the roost itself was studied during the day and at night. There were about two acres of large laurel bushes in the covert, but not more than one acre was occupied and probably three-quarters of an acre would have been sufficient, if the birds had been evenly packed. Assuming an acre were occupied, that would necessitate there being on an average ten birds to each square foot super, a very large number. If three-quarters of an acre only were occupied, it would mean about thirteen to the square foot. By flashlight, after dark, it was possible to see as many as six side by side on a foot length of branch, yet I was never able to satisfy myself that others slept directly below them. I personally feel that when the birds are at a different level, they are not directly under one another, so that somewhere about twelve to fifteen to the square foot would be the absolute maximum.

Wynne Edwards (*antea*, Vol. XXIII.), in Devonshire, estimated that on the feeding-area of a roost there would be two to three birds per acre, but Cramp (*North Western Naturalist*, Vol. VIII., No. 2) considered one bird per acre more nearly correct in Cheshire.

The feeding-area of this roost occupies roughly a rectangle 20 miles north to south and 10 miles east to west, an area of

about 200 square miles. If the roost were of 400,000 birds this would mean about three birds per acre. Although my figures showed the roost to have over 400,000 birds, I feel that it is an over-estimate and that so far as the whole area surveyed is concerned, the total will tend to approximate more nearly to one bird per acre.

In the following lists I have very loosely classified the roosts into small (*S*), medium (*M*) and large (*L*) roosts. Taking all the small roosts together the average size I have estimated at 5,000 birds, though these may be from 1,000 to about 9,000. The medium roosts on an average I have assumed to be about 25,000 birds, though there may be from 10,000 to 40,000 birds actually. The average for the large roosts I have assumed to be about 75,000. On this arbitrary classification, a small roost consists of many separate flocks and a medium roost may be a formidable gathering.

#### NOTTINGHAMSHIRE ROOSTS.

1. Stokes Gorse, near Wyverton, in the Vale of Belvoir. *L*.
2. In low bushes round a flooded quarry, south of Balderton, near Newark. *L*.
3. Blackthorn scrub on Gotham Hills, from February onwards. *L*.
4. At Kelham Hill, north-west of Newark. *M*.
5. On southern edge of Sherwood, eight miles north-east of Nottingham. *M*.
6. Plantation on Ladywood Farm, Weston. *L*.
7. Rampton Gorse, Rampton. *M*.
8. Eller's Gorse, near Willoughby-on-the-Wolds, on the Leicestershire border. *M*.
9. Near Thorney. *M*.
10. Near Ranby, exact site not located. *M*.

#### LEICESTERSHIRE ROOSTS.

1. Lockington, in a covert of laurels. *L*.
2. Broom Leys, near Coalville, rhododendrons, laurels, oaks and ivy. *S*.
3. Cowper Spinney, near Ratby. *S*.
4. Bunny's Wood, near Ratby. *M*.
5. The Burroughs, west of Ratby. *M*.
6. Bonnet's Wood, west of Ratby. *M*.
7. Choyce's Rough, north-west of Ratby. *S*.
8. Kilworth Sticks, about five miles east of Lutterworth. *L*.
9. Great Glen Gorse, about six miles south-east of Leicester. *M*.
10. Abbey Park, Leicester. *S*.
11. Spinney near Thurmaston Sewage Farm, four miles north of Leicester. *S*.
12. Scraftoft Wood, four miles east of Leicester. *L*.
13. Barkby Holt, four miles north-east of Leicester. *M*.
14. John O'Gaunt's Wood, ten miles north-east of Leicester. *M*.

15. Woodthorpe, in Beaumanor Park, about two miles south of Loughborough, in a young larch plantation. *L.*  
The flocks make efforts to settle here each autumn and are driven off to Lockington.
16. Newnan's Gorse, Waltham-on-the-Wolds. *M.*
17. Swallow Hole, Croxton Kerrial, seven miles south-west of Grant-ham. *M.*  
Eller's Gorse on the Nottinghamshire border has been already cited above.

## RUTLAND ROOSTS.

1. On reeds and low bushes at Burley Fish Ponds, near Oakham. *S.*
2. Larch plantation in Burley Wood. *S.*
3. Blackthorn covert between Cottesmore and Barrow. *M.*
4. Greetham Wood, near the Great North Road. *M.*
5. Mow Mires Spinney, in Normanton Park. *S.*
6. Pilton Fox Covert, near Wing. *S.*
7. The Old Wood, Empingham. *M.*
8. A covert of blackthorns on Cottesmore Lodge Farm, north of Exton Park. *M.*  
Many flocks feeding in the Welland valley appear to roost in Northamptonshire.

## DERBYSHIRE ROOSTS.

1. Abbey Grange Copse, near the Derwent Valley Reservoir. *M.*
2. In spruce trees in Deadman's Clough, adjoining Bradwell Reservoir. *L.*
3. Four small colonies around Flagg, seven miles south-east of Buxton, at an altitude of about 1,000 feet. Ivy House Farm, Hobson Farm, Highfield Farm and Nether Wheal Farm. *S.*
4. Uppertown, near Ashover. *S.*
5. Sydnope, Flash Dam, near Darley Dale. *M.*
6. Farley, near Darley Dale. *S.*
7. Hollies Farm, Wyaston, four miles south of Ashbourne. *S.*
8. Askew Hill, near Repton. *M.*
9. In a larch wood at Foremarke Hall, near Repton. *L.*
10. Needham's Quarry, north-west of Morley, near Derby. *S.*
11. A "bushed" hollow south of Morley. *S.*
12. Scouts Wood, a quarry at Milford. *S.*
13. Shipley Hall, north of Ilkeston. *L.*
14. North Wingfield. *M.*
15. Springwood, Temple Normanton. *S.*
16. Four miles north of Bolsover. *M.*
17. Markland Farm, Elmton. *S.*
18. Bullivant's Wood, Cresswell. *M.*
19. Elms Farm, Palterton, two miles south of Bolsover. *S.*
20. Wood of hawthorns along Shire Brook, Hackenthorpe, near Sheffield. *M.*

## LINDSEY ROOSTS.

1. Ross Farm, between Amcotts and Keadby. *S.*
2. Along the Trent side at Burton-upon-Stather. *M.*
3. Reeds and hawthorns on Humber side, opposite Reads Is. *S.*
4. Fox covert, South Ferriby. *S.*

- 5 & 6. Several colonies in the low trees and bushes along the Humber bank, between Ferriby Cliff and Barrow Haven, three miles further east. *M.M.*
7. A disused chalk pit near Barrow-on-Humber. *S.*
8. Camp covert, near Kirmington. *L.*
9. Brumpton Dale, near Grasby. *M.*
10. Mare Hill, Brocklesby Park. *M.*
11. Thrunscoe, in the bushes around the sewage plant along the seashore. *S.*
12. Fox covert, Wyham, near Ludborough. *S.*
13. Bushes at Wyham End Pit. *S.*
14. Lowfields, North Ormsby. *S.*
15. North Ormsby Wood. *S.*
16. In the low bushes on the banks of the Louth Navigation Canal, near Keddington. *L.*
17. America Farm, Legbourne. *S.*
18. Maltby Wood, south of Louth. *L.*
19. Mother Wood, Woodthorpe. *M.*
20. The brick pits at Farlesthorpe, near Alford. *S.*
21. The brick pits at Sutton-on-Sea. *S.*
22. In the elders and sea buckthorn between Huttoft and Anderby. *M.*
23. Along the dunes near Ingoldmells. *M.*  
Also there are summer flocks along these dunes, non-breeding birds gradually increased by young ones.
24. The brick pits at Stickney. *S.*
25. The brick pits at Hagnaby. *S.*
26. Welton Wood, Welton-le-Marsh. *L.*
27. Tree belt above Home Farm, Revesby. Two years ago the undergrowth was spoilt by the birds and was cut out. *L.*
28. Patchett Holes, near Miningsby. *M.*
29. West of Middlethorpe, near West Ashby. *M.*
30. Mareham-le-Fen. *S.*
31. Panton, near Wragby. *S.*
32. In the gorse between East Barkwith and East Torrington. *L.*
33. Dunholme Holt, a plantation about four miles north of Lincoln. *L.*
34. Spridlington Thorns, near Cold Hanworth. *M.*
35. Norton Place, Spital-in-the-Street. *M.*
36. In wild roses at the Rosary, Thonock Park, near Gainsborough. *L.*
37. Somerby Hall, near Gainsborough. *M.*
38. Parish Farm, Kexby. *S.*
39. A plantation of young ash trees, Ash Holt, Brampton, near Torksey. *M.*

#### KESTEVEN ROOSTS.

1. Potterhanworth Woods. *L.*
2. Norton Wood. *S.*
3. Blankney Barff. *S.*
4. Blankney Wood. *S.*
5. Martin Road, Blankney. *S.*  
Nos. 2-5 were new roosts, more or less experimental.
6. King's Cover, Timberland. *L.*
7. Plantation at Thorpe Tilney, near Walcot. *M.*
8. Green Man Wood, Blankney Heath. *S.*
9. Gorse Hill fox covert, one and a half miles south-east of Navenby.  
A very large roost in privets and small trees. *L.*

10. Near Leadenham. *M.*
11. Mount Pleasant Farm, Claypole. *S.*
12. Martin's Plantation, Dry Doddington. *L.*
13. Hough-on-the-Hill. A summer flock of non-breeding birds. *S.*
14. Northern Plantation, Swarby. *M.*
15. The Gorse, Swarby. *M.*
16. Heydour Thorns, between Oasby and Heydour. *L.*
17. A wood near Burton Coggles. *M.* They left before Christmas.
18. Witham Wood or Twyford Forest, between North Witham and Corby. *M.*  
In addition they attempt to roost near Denton Manor each year but are driven off. Well-known roosts such as Giles Gorse, Harmston Heath and others are not now occupied.

## HOLLAND ROOSTS.

1. On Gold Fen Dyke Bank, in old brick pits surrounded by low bushes, chiefly willows at Wrangle. *M.*
2. On Wyberton Fen, near Boston. *M.*
3. St. Lambert's Hall, Weston, near Spalding. *M.*
4. A plantation of one and a half acres of bushes of elder, ash, thorn and willow close to the sea bank, Leadenhall Farm, Holbeach St. Mark's. *L.*
5. Onslow House Farm, Gedney Drove End. *L.*
6. In bushes and trees at Foul Anchor on the River Nene, near Tydd St. Mary. *M.*  
There are comparatively few suitable sites in this county.

## FEEDING AREAS AND POSSIBLE POPULATION.

Of the 118 roosts named above, 115 are occupied at any one time. The areas of the counties, in square miles, are Nottinghamshire 843, Leicestershire 800, Rutland 152, Derbyshire 1,009, Lindsey 1,357, Kesteven 726, Holland 418, making a total area of 5,305 square miles. The average feeding-area per roost, excluding overlapping, is about 46 square miles.

The total acreage of the area is 3,511,119 acres. If the average figures given for small, medium and large roosts are used, the total population on the wide classification is 3,405,000 birds, or about one bird per acre. It is felt that this is decidedly an under-estimate, more in the nature of a minimum, with three birds per acre as an absolute maximum. There are fewer birds in Derbyshire and Nottinghamshire than there are in Leicestershire, Rutland and parts of Kesteven and Lindsey.

In the roosts low bushes are much preferred, but many are in woods of high trees, such as larches. In this case only the lower branches are occupied, say below ten feet high. It does not appear to be difficult to get rid of a roost. Disturbance of the birds, in such a way that they have to take to

flight for half an hour after dark for a few days, will make them desert the roost. Fires and smoke do not seem to be of any use, only some sudden noise causes them to take wing. Gamekeepers and others despise anything but a gun and for this black powder cartridges are the best, but by far the best method is the production of a more sustained noise. The writer has found most satisfactory a good-sized tin containing a few stones which can produce more of a rattle. One can walk with this straight through a roost, when all are compelled to rise. A shot into a dense flock may bring down even up to 60 birds, but it is a hopeless task to try and destroy the birds. At the best one can drive the birds to some other roost ; sheer weight of numbers prevents anything else.

There are many instances in this area of coverts being ruined by the birds, after which they appear to have voluntarily left them. In some cases the bushes are destroyed and a new and different vegetation appears. An instance of a change of this kind in progress is seen at Foremarke, near Repton. The roost is a larch wood, the trees being about twenty feet high. The lower branches are thickly caked with guano. Under the trees and along the paths immense numbers of seedling elders have appeared from seeds in the droppings.

It is interesting to see Thrushes, Blackbirds and smaller species mingling with Starlings in the roost. Whether these feel at all disturbed by the invading hosts is difficult to say, but, if so, they appear determined to uphold their own rights of occupation and persist in sharing the same bushes.



## Obituary.

### E. G. B. MEADE-WALDO.

EDMUND GUSTAVUS BLOOMFIELD MEADE-WALDO, who died on February 24th, 1934, at the age of 79, will be very greatly missed. One of the last remaining representatives of the old Victorian naturalists, he was a man of many parts, being an enthusiast in various branches of Natural History, especially Ornithology, Entomology, and Botany. He was also a keen sportsman in his day, and went in for shooting, stalking and hawking. But undoubtedly his prevailing interest was in the protection of birds, and in this matter he was indefatigable, especially with regard to the Kites in Wales, and the local nesting birds in the Shetland and Orkney Isles, which he visited and investigated regularly for many years. He worked hard on the Councils of such Societies as the Royal Society for the Protection of Birds, the Society for the Promotion of Nature Reserves, the National Trust, and the Society for the Protection of the Fauna of the Empire.

He was not too dogmatic about the preservation of predatory animals and birds. He could see both sides of the question, and he drastically reduced the grey squirrels and Jays on his own estate, but at the same time it would have pleased him much to have reintroduced wolves into Scotland. "Wolves", he used to say, "are much more interesting than sheep". His introduction of the Little Owl in Kent, which was one of the centres from which the bird spread, cannot be counted as an unmixed benefit.

He was Vice-President of the Zoological Society and of the British Ornithologists' Union. He was also greatly interested in Aviculture, and his observations on the habits of Sandgrouse, which he bred, were of very considerable interest.

Meade-Waldo was a charming companion, of a most imperturbable good temper, and full of Natural History information and anecdotes. It was a delight to stay with him at his beautiful home in Kent, and to wander about with him on the estate, investigating the nest boxes, scores of which he had all through his woods, and to see his magnificent collection of rhododendrons—among the finest in the Kingdom. Equally delightful was it to accompany him on some of his expeditions to Wales to investigate the status of the Kites, and to the Shetlands and Orkneys, where, on one expedition, with the additional companionship of the late W. R. Ogilvie-

Grant, the celebrated albino White-tailed Eagle was seen when visits were paid to its headquarters.

Meade-Waldo did very little collecting, being much more interested in preservation ; but some thirty years ago he made an important journey in the Great Atlas and collected birds, eggs and butterflies, and he also made collections in the Canary Islands. During his journey in Morocco he discovered and subsequently described as new, interesting forms of the White Wagtail, Coal-Tit and a Martin. In 1905 he was the guest of the late Lord Crawford, in a voyage in the latter's yacht " Valhalla ", and it was during this voyage, it will be remembered, that he and the late Michael Nicoll observed a sea monster off the coast of Brazil, which they afterwards described at a meeting of the Zoological Society.

Meade-Waldo will be remembered as a most kind and gentle man who never said an unkind word about anyone, was a most loyal friend, and had a most unremitting enthusiasm for Bird Protection.

G.E.L.

**BRITISH TRUST FOR ORNITHOLOGY.****REPORT ON PROGRESS.**

1. The appeal issued by the provisional Council last summer has brought in so far a total in subscriptions and promises of £1,100 spread over five years, and a capital sum of £1,400 received through the generosity of Mr. H. F. Witherby, Vice-Chairman of the Trust Council. The raising of funds is being energetically pursued, and further amounts are in view.

2. This total has been raised, with the exception named, in small sums, and the response from ornithologists and naturalists has been widespread. At the same time the Trust has so far fallen short of raising the amount originally asked for. After careful consideration the provisional Council have decided that they will best interpret the wishes of their supporters by proceeding immediately with a comprehensive, but economical, programme which will demonstrate the possibilities of organized effort, and lay the foundations for more ambitious work as soon as funds will permit.

3. The main subject chosen for immediate investigation is the status of the Woodcock in the British Isles, particularly its breeding distribution at the present time and in the past, its distribution at other seasons, its fluctuations in numbers, and its migrations or movements. A schedule is issued with this number. It is proposed to carry out the first stage of the inquiry in 1934, and to complete it, by a renewed campaign, in 1935. All correspondence on this subject should be addressed to W. B. Alexander, M.A., University Museum, Oxford, from whom further copies of the schedule may be obtained.

4. An inquiry is also being undertaken into the average size of broods of the Swallow in each month during the breeding-season, in different parts of the country; the relations of the Swallow to climate, to domestic animals, and to other species of birds; and its parasites. A number of observers have already promised to take part in this inquiry and more are wanted. Volunteers should write to A. W. Boyd, Frandley House, Northwich, Cheshire, who will supply schedules and full particulars.

5. A sample inquiry is in progress into the connexion between vole plagues and the breeding of Short-eared Owls. Those interested should communicate with C. S. Elton, M.A., at University Museum, Oxford.

6. A start is being made this season with an annual sample count of heronries in different parts of England and Wales. Arrangements have already been made for the greater part of the necessary number, but volunteers are needed who can undertake to cover heronries in (a) Wales, (b) the North of England, (c) East Anglia, or (d) Devon and Cornwall. Observers are not expected to undertake more than one colony each, but they should have a good prospect of being able to count it annually in future at some date between April 15th and May 10th. Those interested should communicate with W. B. Alexander, M.A., University Museum, Oxford.

7. The Trust is supporting the Fulmar Petrel Investigation (1934), conducted by George Waterston, of the Midlothian Ornithological Club. Schedules for this investigation are obtainable from George Waterston, 27, Inverleith Terrace, Edinburgh, to whom all correspondence should be addressed.

8. A bird population inquiry is being begun, with a view to ascertaining the connexion, if any, between territorial habits, food supply and bird population. Those interested should communicate with David Lack, The School, Dartington Hall, Devon, or (out of term) 31, Marlborough Place, London, N.W.8.

9. Other investigations are proposed, and a list of some of these will be circulated as soon as possible.

10. The Council would value any suggestions, criticisms or expressions of opinion from subscribers in connexion with the work. It is proposed to hold a general meeting at Oxford during the International Ornithological Congress, which falls in the first week of July this year. Details of this will be circulated later.

11. Except where otherwise specially mentioned all correspondence relating to the field work should be addressed to:—

W. B. Alexander, M.A., University Museum, Oxford;

all correspondence relating to finance to:—

B. W. Tucker, M.A., Hon. Treasurer,  
University Museum, Oxford ;

and all general correspondence relating to the Trust to:—

E. M. Nicholson, Hon. Secretary,  
61, Marsham Street, London, S.W.1.

# NOTES

## WOODCOCK INQUIRY 1934-35.

ON another page is published a Report on the Progress of the British Trust for Ornithology. It will be seen that the main subject chosen for immediate investigation is the Woodcock. The object of this inquiry is not to make a complete and exact census of breeding pairs, as in the case of the Heron and Great Crested Grebe, but to obtain material for an accurate map of the breeding range in each county of the British Isles at the present time, with the actual numbers reported for a large sample of the breeding areas. Further, it is intended to ascertain the winter range, also with as much information as possible on numbers present, in order to discover how far the winter distribution of Woodcock differs from the summer distribution. Questions are asked in order to throw as much light as possible on increases or decreases in the past, upon migrations or local movements and other points of interest not only to field ornithologists but to many sportsmen.

A schedule and postcard are enclosed with this issue of *British Birds*, and we hope that all readers who are in a position to do so will undertake to report on one or more areas and will immediately fill in the postcard and return it to Mr. Alexander, who is organizing the inquiry. In order to avoid duplication of effort and to cover as much of the country as possible it is obviously important that the organizer should have early information as to the areas which our readers can undertake.

There are three matters which could not be dealt with in the questionnaire itself. The first is ringing. Just over three thousand Woodcock have so far been ringed in the British Isles under the *British Birds* scheme, and just over 200 have been recovered. It would enormously strengthen the scientific value of the inquiry if all concerned would make a special effort this season and next to ring a greatly increased number of Woodcock, and would ask keepers, shooters and others to be sure to notify any ringed birds they meet to the address given on the ring. Distribution of rings is normally confined to readers of *British Birds*, but the British Trust for Ornithology has arranged to obtain a special supply of rings for Woodcock, which will be available for reliable observers not otherwise eligible, on application to Mr. W. B. Alexander.

The second matter to be mentioned is the appeal made by James Schenk of the Royal Hungarian Institute of Ornithology to British readers to collect direct observational evidence regarding the alleged Irish-English Woodcock migration route. (See *B.B.*, XIX., pp. 42, 43). It is hoped that those who have the opportunity will bear this appeal in mind, and will obtain what evidence they can from S. E. Ireland and S. W. England.

The third point is the supposed existence of two distinct races of Woodcock, which has been affirmed by several writers and sportsmen, though systematists have not been able to confirm this. There are not, however, available for examination any considerable number of skins in collections, which could definitely be said to be those of birds breeding in the locality where they were obtained. It is, therefore, very necessary to settle this question with a number of specimens of ringed birds, whose place of birth is of course known. It is hoped that in the course of this inquiry ringers and others will make an effort to have any Woodcock bearing a ring, whether our own or of a foreign station, sent for examination and comparison. It must be particularly noted that such specimens should not be sent to Oxford, but to the Editor of *British Birds* at 326, High Holborn, W.C.1.—THE EDITORS.

#### THE EIGHTH INTERNATIONAL ORNITHOLOGICAL CONGRESS.

THE last time the International Ornithological Congress met in England was in 1905 when Dr. R. Bowdler Sharpe was President and E. Hartert and J. L. Bonhote Secretaries. It was held in London from June 12th to 17th and was followed by excursions to Woburn, Cambridge and Bempton.

This year, after an interval of twenty-nine years, the Congress will again be held in England, but this time Oxford has been chosen as the place of meeting, which will take place from July 2nd to 7th, 1934. On the evening of the 2nd, after the Inaugural Meeting of the International Committee and the opening of the Congress, the Delegates and Members will be received by the Vice-Chancellor of the University.

The Sectional Meetings will be held daily from Tuesday to Friday inclusive, and on Tuesday afternoon an excursion will take place to Whipsnade, where the Zoological Society will entertain the Members to tea. On Wednesday evening there will be a reception organized by the Royal Society for the Protection of Birds. The dinner to the foreign guests will

take place on Thursday (or Friday) at Christ Church Hall, and excursions will also be arranged to Lilford Hall and Fox-warren to view the aviaries of Lord Lilford and Mr. Ezra.

On Saturday, after the close of the Congress, the long excursion, arranged by Mr. H. F. Witherby and Mr. R. M. Lockley, to the islands of the Pembrokeshire coast, will leave, returning on Monday morning. The authorities of the British Museum have also invited the Members to tea at the British Museum of Natural History on Tuesday, July 10th.

The British Ornithologists' Union and B. O. Club have both made generous contributions towards the costs of entertainment.

Dr. E. Stresemann, of the Berlin Museum, is the President ; the Rev. F. C. R. Jourdain is the General Secretary, while Mr. B. W. Tucker is the Secretary of the Oxford Reception Committee, and applications for rooms in the colleges, for men only, or for hotel accommodation for married couples and ladies, should be addressed to him at the University Museum, Oxford. Full particulars will shortly be circulated with approximate prices. It is also proposed to hold an exhibition of British Ornithological Art, which will be under the management of Mr. B. B. Osmaston of 116, Banbury Road, Oxford.

#### INCREASE OF TUFTED DUCK IN CO. ANTRIM.

DURING the last decade Tufted Duck (*Nyroca fuligula*) have increased greatly in Northern Ireland. As an instance of this the following facts may be recorded.

In June, 1921, on a certain flat rush-covered island, four acres in extent, in Lough Neagh, I found only one Tufted Duck's nest. In 1922 there were two or three nests, in 1928 about twelve nests, in 1932 about twenty-five nests.

In June, 1933, I worked the island systematically with some friends, and we found fifty-five nests with eggs—mostly full clutches—one nest containing twenty eggs.

J. A. BENINGTON.

#### NIGHTJAR CLOSING EYES WHEN ALARMED.

ON July 8th, 1930, a Nightjar (*Caprimulgus e. europæus*) which I flushed from her eggs, perched on some wires bordering a railway. I was able to approach her closely unobserved and on my sudden appearance she quickly shut her eyes to a narrow slit. This made me wonder if it was only when suspicious or alarmed when brooding that this attitude was

adopted. When, therefore, my friend, Dr. Clark Kennedy, was at Salthouse in 1933 taking photographs of these birds, I asked him to let me know whether his results showed that my surmise was confirmed. He was working with a shutter



actuated from a rough hide about twenty yards away, and now he has kindly sent me a print of one of his negatives which speaks for itself.

The bird does not appear to be even looking towards the camera and therefore we are agreed in thinking that she was entirely unsuspecting at the moment when the shutter was released.

R. M. GARNETT.

#### A TEMMINCK'S STINT OBTAINED IN HEREFORDSHIRE.

A TEMMINCK'S STINT (*Calidris temminckii*) was brought as a gift to the Museum of Hereford at the end of January, 1934. The donor shot it on the banks of the river Arrow in the parish of Eardisland, Herefordshire, about 1890. He cannot remember the exact year. As there has not been any record of this species in the county up to the present time this occurrence should be recorded.

F. C. MORGAN.



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ASSISTED BY

REV. F. C. R. JOURDAIN, M.A., M.B.O.U., H.F.A.O.U., F.Z.S., AND  
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## SOME HABITS OF THE GRASSHOPPER-WARBLER IN SUSSEX.

BY

JOHN WALPOLE-BOND.

ONLY a summer resident in this country, the Grasshopper-Warbler (*Locustella naevia naevia*) passes through Sussex in pronounced numbers both in spring and autumn. To observe this passage properly one must visit the coast, since, when inland, this is a species which soon scatters, and seeing that it does little in the way of advertisement, being in fact mainly a skulker, it is necessary to make laborious search for it.

If we omit what would seem to be a single record dated the 9th, *A Practical Handbook* (I., p. 332) gives only the third week of April for even the earliest arrivals, and merely "towards the end of the fourth week" for the advent of the main body. But here in Sussex we find the bird in force without fail during the period of April 15th to 22nd, whilst in some years marked invasions occur throughout the second week of the month; occasionally, indeed (as, e.g., was the case in 1920 and 1926), good "waves" are apparent so early as April 7th, but before then I have no knowledge of even a single arrival. Immigration does not cease until, roughly, the middle of May, and sometimes considerable numbers turn up during that month. Of this point, Booth, in Vol. II. of his *Rough Notes*, affords us a couple of capital illustrations, one at Rye in 1858, the other in the vicinity of Brighton a decade later. But Booth was palpably "at sea" in imagining that the bird never appeared in force until early in May. Arrivals after about April 27th are all, I assume, passage-migrants; at any rate, by then, our entire breeding stock seems to be settled in summer quarters. Sometimes travelling singly, though normally in little detachments, Grasshopper-Warblers, probably a good deal more often than is generally supposed, make our shores much massed, sometimes several hundreds being seen together. One of Booth's batches reached such magnitude, and since the birds were collected in, seemingly, an isolated patch of marine weeds not more than twenty acres in extent, and not very difficult to search, his computation is likely to have been tolerably correct.

The same can scarcely be said for my estimate of over six hundred birds seen near Newhaven on

April 21st, 1922. For to arrive at any sort of count entailed many hours of arduous work, forcing one's way through very thick, and often high, furze and peculiarly tenacious brambles, covering in all—for here and there were open spaces—not less than eighty acres. Doubtless, in a good many instances, the same bird was counted more than once, but on the other hand there must have been many unaccounted for. I have never beheld anything approaching the like before nor since, and results, even if not meticulously exact, made the toil very well worth the while.

Emigration certainly commences—but only, I judge, on the part of juveniles—early in August, and has not subsided until the beginning of October, though most have gone by about the middle of September. Evidently they sometimes leave in companies, since on several occasions I have found forty or fifty together in spots where ground conditions made for a fairly accurate count.

Coming now to the county's breeding stock, this, even in a good year, can only be described as very thin (more so on the whole from most accounts than heretofore) and equally scattered, mainly in solitary pairs. But there is one notable exception, namely, the Downs between Beachy Head and above Hove, and here the bird, if somewhat patchy, is, even in a lean season, always abundant and, in certain areas, comparatively speaking, packed. There is, indeed, within that expanse, about a square mile which sometimes harbours at least forty pairs and never less than twenty-five, and for numbers this paradise will, I imagine, ever remain unrivalled, so far as the British Isles are concerned. Incidentally, some of the birds here breed extremely close to houses.

Several well-defined types of terrain are used for nesting. First and foremost rank the "roughs" of gorse and bramble thickly grown with grasses and weeds, interspersed here and there with plots of rush and bracken, which form such a prominent feature of the South Downs especially.

Next, are withy-beds, and marshes thick with sedgy grass and *Juncaceæ*.

Then we get the outskirts and glades of woodlands (particularly sparsely-planted spinneys) which abound in rank varieties of grass and brambles.

Fourthly in favour come thickly-herbaged ditches aligning hedgerows, and even the hedges themselves, so long as their bases are covered with grass and weeds.

Fifthly must be considered lonely grass-grown lanes bordered by brambles; commons; and the open parts of our forests, especially Ashdown.

Lastly, according to Weaver, hay-fields.

The standard nest is from one inch to six inches from the ground, jammed down into a more or less cone-shaped tuft or tussock of nearly always coarse and invariably dead grass (twice only, indeed, have I seen fine grass in use) pushing up through, and partially covered with, bramble and often gorse as well. The site is an atom in a spacious setting of similar close-knit, stiff-growing vegetation. Not very often is a small, isolated patch selected by the birds, though to a large sheet of "islets", so long as they lie close together, they have no objection whatsoever.

A fair percentage of nests, however, are on, or actually sunk into, the soil beneath stuff as described, or amongst rushes, heath or (but very rarely) withered bracken, gorse alone, and even wild sage and convolvulus, whilst one example was simply dumped on earth utterly bereft of herbage under a huge, straggling blackberry-bush.

A scarce type rests wedged up among tall, rank, shrivelled grass (free from tufts), generally interlaced with a scrap of bramble. An example found by Smyth and me on May 20th, 1927 (I have heard of others somewhat similar), was about fifteen inches from the ground in an immense bramble. In withy-beds the nest is sometimes on a freely-foliaged stub.

I would here stress the fact that never by any chance is the nest actually in green grass or weeds, though these, of course, are often *very* close, and to this it should be added that ninety-nine times out of a hundred bramble is present. Should the birds on arrival find that their wonted haunts have become too tall and thick (though really this can only happen with gorse and bramble) they will be little used until a season or two after the stuff has been cut or burnt.

Most nests are cleverly hidden, some, indeed, diabolically so. One in particular I have in mind, since even after the owner had been flushed and watched back several times, it took over three hours to discover. It was on the ground, tucked away at the very base of a large dense furze-bush in the corner created by its sharply-sloping stem, the bush itself being linked up with a huge bramble, the entire position presenting a solid unbroken front and rendered the more forbidding by reason of profuse tangled grass. In the last, of course,



by rights the nest should have been—and it was from amongst this, too, that the bird got out every time. But as the nest was not there, more in desperation than anything else, and anyhow, as a last resort, I wrenched up the gorse-bush by means of a hooked stick-crowbar, a tool which sometimes forms part of my “birding” equipment with such an emergency in view; and not until then was the secret out. Some nests, however, are inadequately concealed, a few, indeed, downright badly, such as the rare example let into the ground, Meadow-Pipit fashion, at the extreme edge of a “scurry” of low gorse and bramble bordering an open space. One such nest, in fact, found by me on May 22nd, 1925, was partially visible from a distance of several yards, and before I looked into it (the bird was not on) I thought it was a Pipit’s.

In the sense that normally, when removed from its site, it not only expands, but (the foundations especially) partially disintegrates, the Grasshopper-Warbler’s nest is decidedly flimsy. But otherwise it is nearly always compact and of thoroughly solid construction, and, for the size of the bird, massive. An average specimen measures  $14\frac{1}{2}$  inches in circumference and between four inches and five inches in height, with walls half an inch thick and an external diameter of about five inches, the cup being some two inches across by one and a half inches deep, and thus, for the general dimensions of the structure, the receptacle for the eggs is obviously somewhat shallow. In practically every example dead leaves, nearly always those of the bramble, form a more or less marked sort of faintly funnel-shaped sub-structure, whilst in some nests these reach besides right up to the rim, creating thereby a complete “shell”. But the body of the nest is of coarse dried grasses, the lining being of less rough, but similar, material. To the latter in exceptional circumstances are added a few strands of horsehair; but the small feathers sometimes seen are clearly all of chance origin, i.e., rubbed off the owners accidentally. Externally, on equally rare occasions, moss occurs, as, too, in negligible quantities, dead thistle-heads, minute bits of other broken weeds, a white fleecy-looking plant, dead bracken and even wool and the silk and cocoons of spiders.

Building, the business of both sexes, is seldom, if ever, witnessed after about 8 a.m. (true time), and only very occasionally, it seems, are mock (semi-) nests constructed. Even where the species is thick, it is rare to find two nests

much less than, say, fifty yards apart. In one instance, however, only some fifteen feet separated two nests. This case was the more peculiar from the fact that one of them belonged to a couple of birds, which, having lost their original, in their own territory of course, wandered for their second venture into that of another pair hard by.

Out of well over 200 nests examined by me *in situ*, fully four-fifths have held sets of six eggs or young, and quite three-quarters of the remaining fifth, five. There have been only fourteen cases of four, three of three and two of seven. An "eight" found by Dr. Bryant, was, I feel positive, the product of two hens.

The eggs themselves, which are for a small species remarkably tough-shelled, may, for the sake of brevity, be described as of a minutely speckled pinkish uniformity, differently shaded (even sometimes to pale reddish-brown), with often an indefinite tinge of mauve, grey or purplish-grey. But now and then quite startling and really lovely variations occur. Thus, one is heavily capped with vivid rose-madder, another with dark claret-red and yet another with deep roseate pink, the rest of the shell showing few markings and these mainly ill-defined. Scarcer varieties will remind you of a peculiar phase of Swallow's egg, the pale red type of Tree-Pipit's, or again, an exaggerated Wood-Wren's; whilst a scarcer variety still (*very* rare) is blotched and blotted with red. Most specimens exhibit one or more hair-like lines of very dark brown—well-nigh black, in fact; and all the eggs of a clutch are practically alike, only that with capped varieties an occasional one sports this decoration at its small end. Addled eggs—which are very uncommon—are not ejected from the nest. Usually there is only one in a clutch, but one bird laid five infertile eggs twice running.

Both sexes sit, and it is instructive to observe them exchanging duties. The one off duty, perhaps as much as eighty yards from home, looking uneasy and guilty (and therefore well worth watching), generally first shows up on a bush or small tree of some description. After a short stay it moves from one to another of several similar "half-way-houses", maybe dropping into their recesses for a moment, until at length it reaches the nest into which it dives diagonally, quick as thought. Some thirty seconds later out of the tangle flickers its mate, which, with all despatch, flies to some stance, say, forty yards distant, where it proceeds to preen, especially

the plumage of breast and belly. Evidence that this is really a change over by the two birds is afforded by the fact that on many occasions I have noticed that, whereas the original bird's under-feathers were not disarranged and parted, those of the one coming away from the nest were. However, certain proof of the point was obtained from two birds, at different nests of course, each of which sported on one side at least two *white* outer rectrices—incidentally, the sole cases of anything approaching albinism in this species that I know of in the county. One of the birds is nearly invariably on, or by, the nest after two eggs have been laid, but incubation, which I believe lasts a fortnight, if not fifteen days, seldom properly starts until the clutch is complete.

Twice at least I have known a Grasshopper-Warbler finish laying by April 30th, if not a day sooner, and in early seasons a fair proportion of birds are sitting during the first third of May. But, taking one year with another, the date for fresh clutches lies between May 10th and 22nd, with the period embraced by the 14th to 19th inclusive by far the most profitable. There are, however, always a few rather later birds, though no new-laid first clutches are forthcoming after about June 1st. Genuine second nests—and, despite statements to the contrary, the species is invariably double-brooded—are prevalent from late in June to even early August, and because of this latter fact I believe, sometimes, that three families are reared in a year.

Unless, of course, the season is too far advanced, a Grasshopper-Warbler, after losing its eggs (no matter how much incubated) or nestlings, will nearly always have a new nest built and the first egg of the fresh clutch deposited five days later; incidentally, this applies to most small species. But, conversely, in cases where the young fly in safety, any further nest need not be expected for nearly three weeks, a habit also in accordance with that of most small birds that bring up more than one brood in a year.

Although Cuckoos occur in most Grasshopper-Warbler haunts, twice only have I known the bird victimized. The first record goes to Weaver at Harting prior to 1877; the second to me, near Newhaven on May 20th, 1930, and curiously enough the interloper's egg was pinkish.

Generally speaking, this Warbler is a very tenacious sitter, only relinquishing its nest under actual pressure, or in other words, shall I say, from the stroke of a stick, without which

to search for its nest is virtually to invite failure, unless, of course, you know of it beforehand. On being flushed, it either runs or flies. If the former, it often paces away unseen until you succeed in beating it up. Thereupon, it flies hurriedly and very low, generally but for a few yards (sometimes, indeed, one only)\*, though sometimes up to as much as fifty or sixty, and then plunges into the all-concealing cover. If one sees the bird before flushing it, the sole view nearly always is but the most cursory glimpse of a little, shadowy, mouse-like form slithering and scuttering through the matted vegetation with amazing speed. Only very occasionally, and then only very briefly, does a running bird show up in the open. But one bird, whose nest was in a tiny island surrounded by sparsely-covered ground, was in view for fully fifty yards, now running, now hopping, and actually, when pressed, accelerating by means of flapping its wings. If a bird flies straight from the nest it behaves in the same way as a runner when getting up, but just occasionally one will now at first fly with curious dancing actions, carrying itself almost end-on, instead of proceeding normally. I may add that about six times I have known a Grasshopper-Warbler on my approach, even up to seven paces ahead, fly straight out of its nest.

On the whole, this species evinces no ostensible concern for the welfare of its belongings, lurking wherever it may chance to fetch up after being flushed until the disturbance has died down. But one here and there (sometimes joined by its mate) returns, and, in full view, flops about from point to point as you examine its treasures, or else shuffles under the adjacent cover. Another bird may, for a few moments, practise the "broken-wing ruse", and yet another show off with audible flutterings, whilst two conspicuously audacious individuals, as I inspected their nests, were constantly visible within a foot or two of me and more than once within a few inches. One of them, indeed, I thought meant settling on my outstretched palm! In all the above cases vocal demonstration may find part, but the nature of this I prefer dealing with later on.

The non-sitting bird, which almost habitually gets up some paces in front of one, and very seldom underfoot, is rarely anywhere really near the nest, but it is sometimes, and then it may facilitate your quest by approaching with challenging

\*In this case the bird keeps within a few inches of the ground and actually gives the impression of trying to run through space!

flight ; or maybe creeping about mouse-fashion on some small open space, ever and anon whisking its wings up and down ; whilst one bird cast all discretion to the winds by literally grovelling within a bare yard of me.

In some cases the Grasshopper-Warbler, after being driven from its nest, runs back to it, sometimes from start to finish, even though that entails quite a long and what must be a very arduous journey ; but usually it flies the whole way much in the same manner as when changing guard, thus only running at the very conclusion or, perhaps, not at all. Once the coast is clear, though this usually only means that you can, if you like, stand within a few yards of the nest—no bird I know is quicker about returning to duty, generally, indeed, under five minutes (only two sometimes) sufficing for its absence. In fact, once only in this respect have I found the bird really shy.

It is well-nigh impossible to make this species desert. Even should all the surroundings be cut away, leaving just the grass-tuft, in which the nest reposes intact, still it will stick to its post, whilst even the removal of the nest itself, so long as it be replaced fairly quickly, will not cause desertion.

It is almost universally held that this Warbler's nest is, in the main, one of the most difficult to find that there is. In reality, however, provided you are the possessor of unlimited leisure, patience, method and unflagging energy and zeal, it is, all in all, one of the easiest, and to the truth of this assertion many of my friends can testify. To show just how easy it can be, I may relate that on May 22nd, 1929, single-handed, I found seven nests, and just as dusk was falling put an eighth bird off eggs, which came to hand in a few minutes next morning, though it should be added that the task took seven and a half hours of almost uninterrupted toil to accomplish. All the same, no matter how hard one works, this sort of bag in such a comparatively short time is most exceptional ; indeed, two or three people working together do not normally expect to find more than three or four nests in a whole day, with now and then, of course, entirely blank days.

The "reel" of the male Grasshopper-Warbler, usually somewhat severe and "clicky", but periodically (as when courting) almost soft and liquid sounding, is given intermittently from arrival in the nest haunt until, in extreme cases, early September. But really cheerless conditions—

cold rain and cutting wind—even at times when song should be at its best, have a most disheartening effect on the bird, which now seems only capable of producing a forced, feeble and unmaintained effort. During incubation and when feeding young, little song is heard *by day*, and hardly more in most cases whilst building and laying are in progress. But at other times the bird rattles away at intervals from dawn till eve and thence till dawn again, some of his spasms running into even fifteen minutes (Mayo) of unbroken and breathless-sounding duration. Just occasionally a bird will strike up from the depths of its impervious fastness and still more occasionally as it flies between two stations. But usually, of course, it skirls while clinging to some spike at or near the summit of a bush or small tree such as a hawthorn. A dingy enough morsel he is in all conscience; just a small, slim, olive-brown bird with a fan-shaped tail and pinkish-looking legs. As he “purls”, his head, which is tilted up and slightly backwards, the crown-feathers being elevated crest-wise (though body plumage is compressed) is moved slowly and continuously from side to side, and this no doubt accounts for the ventriloquism attributed by some observers to the species when its curious song is heard from afar; his throat swells and pulsates; and the mandibles are kept wide apart and in my opinion motionless; whilst, sometimes certainly, the wings are all a-quiver. After a while down he drops or creeps into the screen below. But stay still, and in a second or so up he comes again, perhaps to the self-same perch, where “reeling” rapturously, he may permit you an inspection at a few yards range. Presently, perchance, the female enters the picture, sneaking out of the base of a bush close by with mouse-like motions. The male, on a sudden, ceases song, and flies with wings well expanded and fluttering, tail spread and feathers fluffed, to seek his mate. Coition accomplished, he flies back to his pedestal and starts to sing again. Occasionally, however, the female refuses, and then may ensue a chase, often at a fair height, which may last several minutes. The singing-stances, here be it noted, of which several favourites exist, are usually from forty to sixty yards from the nest, or from where it is intended that it shall be.

Besides the “reel” there are several notes, but these are, on the whole, used very little. The stock cry, which functions as a call-note as well as one of irritation and alarm, is usually repeated (sometimes very fast), and may be syllabled as

“*tic*” or “*chick*”, but occasionally it sounds much more like “*whit*”. The two former renderings are a trifle hard and sometimes slightly metallic, and at times rather resemble a certain cry of the Starling’s, with a tang of the Corn-Bunting’s “*chip*” thrown in. But the “*whit*” is almost liquid and may almost be compared with the beginning of the Quail’s “*wet-me-lips*”. All three variations may be heard at any time and place, but mostly at or in the neighbourhood of the nest, and nearly always from a bird more or less stationary, i.e., very seldom from one flying. Another, but apparently much rarer, note, used so far as I know in the nest haunt alone, is a rapidly repeated “*tuck*” suggestive of the clucking of a hen bantam, but of course softer. Yet another, equally rare, and used only at the nest itself, sounds like the agonized squeal of a small animal; whilst once I heard from the bird that grovelled (*ut supra*) a regular squeak, high-pitched, penetrating and sustained.

Both sexes, often working in unison, provide for the needs of the nestlings, which stay in the nest for ten or eleven days. Some pairs, when so engaged, are very elusive, while others are correspondingly confiding. One couple, indeed, allowed Smyth and me to stand within six feet of them as they fed their young. Food is seldom gathered near the nest, but usually at a little distance and sometimes as far as a hundred yards; but except for this it is very abnormal for Grasshopper-Warblers in the nest haunt to fly more than, say, sixty yards on any one occasion without a break; and certainly the rather awkward and somewhat laboured flight looks hardly capable of taking them in safety through the dangers of migration.

# NOTES

## FULMAR PETREL INVESTIGATION (1934).

IN the Report on Progress of the British Trust for Ornithology which appeared in our last number it was announced that the Trust was supporting the Fulmar Petrel Investigation (1934), which is being organized by Mr. George Waterston of the Midlothian Ornithological Club.

The main object of this enquiry is to ascertain the present status of the bird as a breeding species in the British Islands.

Since Harvie-Brown's paper (giving a detailed account of the Fulmar's status with a map, which appeared in the *Scottish Naturalist*, in 1912) the bird has increased and spread enormously, and up to a point this has been carefully recorded and numerous notes on the subject have been published in various journals, including our own.

It is, however, quite certain that many extensions of its breeding range have not been recorded, especially in recent years, and the Midlothian Ornithological Club have already accumulated notes on a number of breeding localities, details of which have not appeared in print.

We therefore support most fully this enquiry, since the importance of observing and recording in detail the remarkable extensions made by the Fulmar is obvious.

With this number is issued a schedule and we hope that every reader of *British Birds*, who has visited a colony of Fulmar Petrels, or does so this year, will fill in the schedule and post it to Mr. Waterston at 27, Inverleith Terrace, Edinburgh. Mr. Waterston will be glad to supply extra copies of the schedule, and it would be a great assistance if readers would apply for schedules to send to any friends who have knowledge of any colony.

It is hoped that the results of the investigation will eventually be published in our pages.—EDITORS.

## SWALLOW ENQUIRY (1934).

MR. A. W. BOYD is conducting an enquiry, under the auspices of the British Trust for Ornithology, into the average size of broods of the Swallow (*Hirundo r. rustica*) in various localities. Mr. Boyd asks for volunteers, who would observe 15 to 20 nests each in south-west England, west England south of Cheshire, Northumbria, Yorkshire or the Midlands, as



well as in Scotland. All communications should be addressed direct to Mr. Boyd at Frandley House, near Northwich, Cheshire.—EDITORS.

#### BIRDS FEEDING ON FIR-CONES.

ON March 13th, 1932, a warm sunny day, I watched, at Bawsey near King's Lynn, a flock of nine Siskins (*Carduelis spinus*) and about an equal number of Lesser Redpolls (*Carduelis f. cabaret*) hanging on to the cones of a Scots pine and picking out the seeds. Owing to the warmth of the day the cones were splitting with a loud crack, and seeds were fluttering to the ground where a Wood-Lark (*Lullula arborea*) was busy picking them up.

Later I saw the same mixed flock feeding on the cones of an Austrian pine. With them were a pair of Crossbills (*Loxia c. curvirostra*) and several Greenfinches, Chaffinches, Blue Tits and Marsh-Tits, all hanging on the cones and extracting the seeds. If a Siskin dropped a seed it would fly down and retrieve it and return to the cone, describing a complete circle while so doing.

N. TRACY.

[For previous notes on this subject see Volumes III. and IV.—EDS.]

#### RED-BACKED SHRIKE SEEN IN FEBRUARY IN MIDDLESEX.

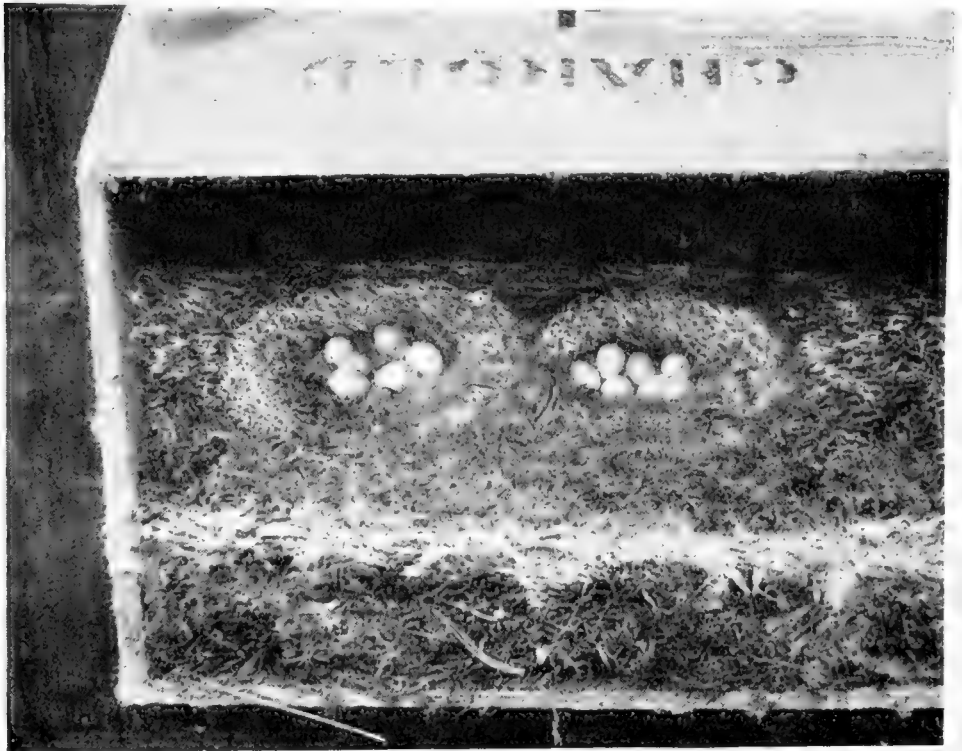
BETWEEN February 2nd and 5th, 1934, there was a male Red-backed Shrike (*Lanius c. collurio*) at Harrow-on-the-Hill. A friend and I had two views of it. The first was not much more than a glimpse in flight, but the next day, when it was perched on the top of a thorn bush, we could see all its distinctive markings—greyish head with black stripe through the eye, reddish back, grey rump and whitish-pink breast. On a third occasion it was seen by another observer.

M. H. C. WILLIAMS.

#### GREAT AND BLUE TITS BREEDING SIDE BY SIDE IN A BOX.

MR. G. HEARN, in a note contributed to *The Countryman*, describes a remarkable case in which a pair of Great Tits (*Parus m. newtoni*) nested side by side with a pair of Blue Tits (*P. c. obscurus*) in a box fitted up inside a bird-watching shed in a wood. The birds obtained access through a ventilation hole in the door of the shed. The Blue Tit had already begun operations by covering the floor of the box with a packing of moss when the Great Tit appeared on the scene.

It was noticed that when both birds arrived at the same time, the Blue Tit gave precedence to the larger species, but there was no evidence of any quarrelling between the two birds, and, as can be seen from the photograph (which is reproduced



from *The Countryman* by kind permission of the Editor), the two nests are almost touching one another. Both birds brought off their broods successfully. Mr. Hearn informs us that he searched the whole wood and failed to find a suitable hole for nesting Tits in any of the trees.—EDITORS.

#### EARLY ARRIVAL OF BLACKCAP.

MR. H. H. HUGHES, of Belmont, Shrewsbury, tells me that a male Blackcap (*Sylvia atricapilla*) appeared in his garden on March 10th, 1934, and was to be seen daily up to the 14th, feeding on berries of cotoneaster. About six days later the bird returned and remained a further four days, and was heard singing vigorously. The incident is remarkable not only for the early date but for such a woodland bird as the Blackcap resorting to a garden right in the centre of a town, where none had ever been seen before. Apparently it was attracted by the berries of the cotoneaster. The *Practical Handbook* gives March 10th and 12th as exceptionally early dates of arrival.

H. E. FORREST.

## SPOTTED EGGS OF HOUSE-MARTIN.

MR. ARTHUR C. JONES, of Rushmoor, Wellington, Salop, recently brought for my examination a clutch of five eggs of the House-Martin (*Delichon u. urbica*), all of which were spotted. The spots are of a lighter red than in eggs of the Swallow, and are scattered over the whole surface uniformly. The nest was one of a colony under the eaves of a farm-building at Allscot. On May 30th, 1933, Mr. Jones found the bird sitting on three spotted eggs, slightly incubated, which he took. In order to reach them he had to break away the lip of the nest. He watched the birds repairing the nest. On visiting it again on June 14th he found it contained the five spotted eggs which he showed me; these also were slightly incubated. The birds again repaired the nest, and on his third visit on June 26th it contained four white eggs (none of them spotted), which he left. These were quite fresh, and as, on a subsequent visit the Martin flew out of the nest, he thinks they probably hatched. H. E. FORREST.

[Genuinely spotted eggs of the species are rare, though eggs are frequently found patterned with dark markings from excrement of parasites, which wash off readily. W. E. Renaut has recorded a red spotted clutch from Berkshire (*Bull. Brit. Ool. Assoc.*, II., p. 123), and others have been met with in Herefordshire, etc.—F.C.R.J.]

## CUCKOO AND REDSTARTS.

ON July 17th, 1932, when examining my nesting boxes, I found an egg of a Cuckoo (*Cuculus c. canorus*) in a nest of a Redstart (*Phœnicurus ph. phœnicurus*). This particular box was one made by hollowing out a silver birch log, making a hole in the side, and putting a lid on the top. The diameter of the hole was two inches, and the inner rim of the nest two inches from the outside of the hole. The egg was placed right at the back of the nest.

Previous to this, on May 18th, before leaving for a holiday, I examined all my nesting boxes and found three Redstart's nests. The first contained three eggs, the second six eggs, and the third was finished, but empty. When I returned on June 5th the first nest was deserted and still contained three eggs, the second was empty and pulled up in the middle, and the lid had been knocked off the third, which was also empty. On the same date I found another nest about thirty yards from No. 1 containing six eggs. Three weeks later, when I examined this nest again, the eggs had gone and the nest was

pulled up in the middle. On June 6th a pair of Redstarts were building in the birch box. On June 27th this nest was empty, but on that day I found three more Redstarts' nests being built in boxes. When I examined these nests again on July 17th they were all empty and pulled up in the middle, with the exception of the one in the birch box. On the same date I found three more nests of Redstarts all treated in a similar manner.

From June 5th until the 28th I heard Cuckoos about the wood every day, and often heard the female give its bubbling note. There were about two dozen other nesting boxes occupied by Great Tits, Blue Tits, Marsh-Tits, Coal-Tits and Wrens, but not one of these was interfered with. I think this points to all the damage being done by the Cuckoos. During the previous ten years there had been in all about forty nests of Redstart in my wood, and not one of them had been interfered with. In 1932 not a single Redstart was hatched out in the boxes, but in 1933 five pairs returned and nested.

N. TRACY.

#### GLOSSY IBIS SEEN IN CO. ANTRIM.

I HAVE previously omitted to publish, but think it should have been put on record, that on February 28th, 1921, my brother and I were stalking wild duck in a bog at Lough Neagh when our attention was attracted by a large black bird which was feeding about 100 yards away. It was walking about on some marshy ground and looked rather like a big black Curlew.

We had binoculars with us at the time, and there is no doubt that it was a Glossy Ibis (*Plegadis f. falcinellus*).

J. A. BENINGTON.

#### GADWALL IN CHESHIRE.

ON March 11th, 1934, I watched a pair of Gadwalls (*Anas strepera*) swimming with a flock of some two dozen Mallard on a subsidence known as Witton Flashes, at Northwich, Cheshire.

This species seems to be almost the rarest of our Cheshire duck, and so far as I am aware has occurred only three times, the first in 1845 and the last in 1914, and all of them in the estuary of the River Dee.

It has, of course, been seen more often in the south of the neighbouring county, Staffordshire, where, in the summer of 1924, we suspected that a pair had bred (*British Birds*, XVIII., p. 241).

A. W. BOYD.

## BITTERN IN THE ORKNEYS.

A RATHER small male Bittern (*Botaurus s. stellaris*), shot in the Orkneys at the end of February, 1934, has been preserved by Mr. Cooke, taxidermist, Shrewsbury, where I examined it. From its size and rather pale buff plumage I judge it to be a rather young bird. Although the Bittern occurs in the Shetlands, this is said to be the first obtained in the Orkneys.

H. E. FORREST.

## YELLOWSHANK AT CAMBRIDGE.

ON March 29th, 1934, one of the writers (H.G.A.) saw a wader at the Cambridge Sewage Farm that puzzled him. When it flew towards him and settled it showed much white in the tail, and its wings appeared uniformly grey-brown. Some white was visible on the under-surface of the wings as the bird settled. At a distance of thirty yards, in a poor light, its legs looked yellowish, and its beak, rather short and slender, had a suggestion of a slight upward tilt. It seemed to be rather smaller than the Redshanks that were feeding near it. It flew up with them, and it was not seen at close quarters again that day. It made no sound in rising, and this, together with the very white tail and the lack of the strongly pied effect, seemed to show that it could not be a Green Sandpiper. So he concluded that it was probably a Wood-Sandpiper—a bird he had not seen at close quarters for several years—though its size, manner of flight and other points did not agree with his memory of that bird. It is also to be noted that at one moment he thought he heard a Greenshank among the Redshanks, but he could not see one.

On the 30th we both looked for this bird again. After putting it up once or twice in the same inconclusive manner, and being only certain that it could not be a Wood-Sandpiper (E.L.T.), nor a Green Sandpiper (H.G.A.), we finally found it settled by itself on another part of the sewage farm, where it allowed an approach to within ten or twelve yards, so that the colour of every feather on head, neck and wings could be seen. At one time two Redshanks settled near it, and it fluttered towards them, driving them off, and making a rather deep guttural chuckle; once or twice in flight it also uttered the Greenshank-like note—twice or three times repeated, a good deal less loud than a Greenshank.

When it was near the Redshanks, the comparison in plumage and build could easily be made. It was a shade smaller than the Redshanks, with a shorter, slenderer bill, longer, very angular legs, and more elegant build. The bill appeared

black, the eye black or dark ; the legs were bright yellow, almost orange. The wings, though appearing uniform at a distance, were actually thickly spotted with grey-brown. The top of the head also had dark grey-brown spots, the upper back and sides of neck, round on to the breast, were paler brown, the sides especially being only thinly spotted. In general the neck looked much whiter than a Redshank's, and the under-parts seemed to be almost pure white.

When the bird flew it gave the impression of pure white upper tail-coverts, which contrasted with a brown back, and the tail looked white apart from some pale brown colour on the central feathers. When on the alert, it several times bobbed its head and neck, almost as a Redshank does.

Having since seen the bird several times, we should describe it as the size of a Green Sandpiper and rather like it in flight, but not so dark, and with more white on the tail ; longer in the leg and shorter and slenderer in the bill than a Redshank, much more elegant than a Ruff or Reeve (there were several Ruffs on the sewage farm at the time, but it never consorted with them, and its very white tail, long legs, slender bill and grey-brown wings were some of the distinguishing points) ; larger, longer in the leg and much whiter on the tail than a Wood-Sandpiper.

On April 1st it was watched at very close quarters through telescopes by Messrs. W. B. Alexander and B. W. Tucker as well as other observers. All agreed that it was undoubtedly a Yellowshank (*Tringa flavipes*). Since then it has been seen by several members of the Cambridge Bird Club on various dates up to the time of going to press.

This seems to be the ninth record for this species in the British Islands ; all the earlier occurrences have been in autumn. It seems just possible that it had been driven across the Atlantic on its northward migration from South America by the severe storms recorded off south-west Europe in the middle of March.

E. L. TURNER.

H. G. ALEXANDER.

ICELAND REDSHANK IN MONMOUTHSHIRE.  
BARNACLE-GOOSE AND POSSIBLE ICELAND  
REDSHANKS IN GLAMORGAN.

ON December 16th, 1933, Mr. J. G. Williams, of Cardiff, shot a Redshank on the mud-flats off Peterstone Wentlloog, Monmouthshire. The bird was feeding by itself and was not one of a flock. Upon examination Mr. Williams saw that it was considerably darker than a typical Common Redshank

(*Tringa t. totanus*), being much more spotted on the upper wing-coverts, breast and flanks. It was shown to us and we agreed to the possibility of its being of the Iceland race (*Tringa totanus robusta*). Mr. Williams sent the bird to Colonel R. Meinertzhagen, who has now confirmed this identification.

This is the first definite record for South Wales, although probably a few occur every winter as we have suspected since March 19th, 1932, when we saw on the shores of Kenfig Pool, Glamorgan, three Redshanks, not together, but occurring singly at intervals of five or six hundred yards from each other. These birds looked particularly dark on the under-parts, and almost grey-black on the upper, and we mistook the first for a Spotted Redshank (*Tringa erythropus*) until it took flight and the white secondaries became visible.

Each behaved similarly when flushed and totally unlike a Common Redshank, rising quite silently and fluttering over the water or along the edge of the pool, and hesitating many times as though about to alight before actually doing so. They never flew any great distance and allowed a comparatively near approach.

The Common Redshanks, which are usually numerous about the pool, were absent, but we eventually discovered them in small parties in the shallow bottoms amongst the sand-dunes, engaged in courtship, chasing and displaying. They were obviously lighter in appearance than those we had just been watching. Miss C. M. Acland, who was with us, visited the pool the following day, but the three dark birds had disappeared.

Mr. H. T. H. Foley informs us that on December 9th, 1933, he had an excellent sight of a party of five Barnacle-Geese (*Branta leucopsis*) off Whiteford Burrows, Glamorgan, and at the same place on February 8th, 1934, he got close up to another. These are the first definite records for this species in Glamorgan and it appears to be uncommon in South Wales generally, the only other records being:—

Cardiganshire.—Obtained in the Dovey estuary in the winter of 1854-5, by Sir Pryce Pryce. (Professor J. H. Salter.)

Pembrokeshire.—Described by Mathew in his *Birds of Pembrokeshire*, 1894, as a winter visitor, but only three specimens are definitely recorded.

Brecknockshire.—One killed on the Usk, at Talybont, in 1882. (E. Cambridge Phillips, *Birds of Brecknockshire*, 1889.)

There are apparently no other records for South Wales.

GEOFFREY C. S. INGRAM.  
H. MORREY SALMON.



GREY PHALAROPE AND LITTLE STINT IN WINTER  
IN CARDIGANSHIRE.

As several notes have been published in *British Birds* recently on the appearance of the Grey Phalarope (*Phalaropus fulicarius*), it may be worth while recording that one appeared near Aberystwyth on February 3rd, 1934, and I was able to watch it for a considerable time, and found it next morning in the same spot, but about noon it disappeared. One is arrested at once by the sight of this beautiful little bird and its graceful movements. It was quite fearless and let me approach to within 10 or 15 yards, the distance at which it was from the water's edge.

Another rare visitor to this neighbourhood was a Little Stint (*Calidris minuta*) which I saw on February 12th, 1934. This little wader was feeding on the harbour mud flats at low tide in company with some Ringed Plovers and Redshanks, so that I was able to get a comparative idea of its size, but in any case it was most definitely smaller than any other wader with which I am acquainted. I watched the bird for half an hour and was able to get within 20 yards of it. The date of its appearance is certainly unusual. W. HASTINGS SMITH.

A NEW FRENCH ORNITHOLOGICAL SOCIETY.—We note with pleasure the foundation of yet another Ornithological Society, "La Société d'Etudes Ornithologiques", of which the quarterly journal *Alauda* will be the official organ. Meetings will be held monthly at the Laboratoire de Biologie expérimentale, La Sorbonne, 1 rue Victor-Cousin, Paris (5<sup>e</sup>) except from July to November. MM. H. Heim de Balsac and H. Jouard are the Secretaries, and Dr. E. Béraut, Treasurer.

CLUTCHES OF TWO EGGS IN BLACKBIRD.—Major W. M. Congreve informs us that he has had two nests of Blackbird (*Turdus m. merula*), both in small yew trees, under observation this spring (1934) in Denbighshire, and found that in each the first egg was laid on April 1st. A day or two later each nest contained two eggs and the birds were sitting closely. No further eggs had been added by April 6th, and Major Congreve considers that no interference could have occurred. Such cases, though unusual, are not unprecedented (see *Zoologist*, 1900, p. 431), also two clutches of two are recorded from south Devon in *Brit. Birds*, VII., p. 63, and the late E. B. Dunlop found a nest with one young bird and one egg.



COMMON BUZZARD IN KENT.—With reference to the note on p. 265, Mr. E. C. Herring writes that he saw a Buzzard near Canterbury in March, 1934. Capt. G. E. Took informs us that a male Buzzard (*Buteo b. buteo*) was unfortunately shot near Canterbury in April, 1933, and came to his hands. Capt. Took states that he had seen two of these birds in the same district in 1932.

UNUSUAL BIRDS IN WEST SCOTLAND.—Mr. C. Cairnie records (*Scot. Nat.*, 1933, p. 183) that he watched a party of Velvet-Scoters (*Oidemia fusca*) off the Troon shore, Ayrshire. (No date is given, probably autumn, 1933).

Mr. Nicol Hopkins noted a Black Tern (*Chlidonias niger*) at Balgray dam, Renfrewshire, on September 3rd, 1933 (*t.c.*, 1934, p. 27).

Mr. T. Thornton Mackeith writes (*t.c.*, 1933, p. 183) that a young bird, identified as a Short-eared Owl (*Asio f. flammeus*), was found on May 16th, 1933, on Duchal Moor, Renfrewshire. The keeper who reports this had seen Owls constantly hunting on the moor in 1931 and 1932, but had failed to find a nest. The bird had not, apparently, been previously recorded as breeding in the county.

WHIMBREL AT NORTH WORCESTERSHIRE RESERVOIR, 1932—*Correction.*—In Mr. H. G. Alexander's notes on "Birds at North Worcestershire Reservoirs, 1932", there is a record of a Whimbrel (*Numenius p. phaeopus*) as having been seen by Miss C. James on the exceptionally early date of March 6th (*antea*, Vol. XXVI., p. 252). A correspondent having drawn our attention to this record, we consulted Mr. H. G. Alexander, who informs us that he finds this was a misprint, unfortunately undetected, for *May 6th*.

## REVIEW.

*The Life of the Rook.* By G. K. Yeates. Illustrated. (Philip Allan). 10s. 6d. net.

MR. YEATES began by being attracted by the idea of conquering trees to get eggs. He then went on to the much more difficult task of photographing birds, and especially Rooks, in the tree-tops. While at this work he became so engrossed with what he saw the birds do from his hide up aloft that he almost forgot photography. This evolution has benefited ornithology, and we can only hope that Mr. Yeates will continue to specialize in tree-top observation, using the camera (and he can do this very expertly) as an aid.

A great deal of work has been done on the Rook in recent years especially with regard to its numbers and distribution, but there is a great deal more to be learnt, and the bird is a particularly interesting one to observe.

Mr. Yeates makes a good many interesting points, especially on the bird's breeding habits, and undoubtedly his method of observing from a hide close up to the nest is an excellent one, and has enabled him to see more exactly what happens than in a view from the ground. Mr. Yeates considers that the winter roost breaks up as a whole and is not gradually abandoned, but we think this is not invariable. He gives evidence of the same bird returning the following year to the same nest, but he has found, in a number of cases, that when no vestige of the previous year's nest remains the site is not reoccupied. He has much of interest to say about courtship and mating, and the mobbing of mating birds, which occurs, he considers, only when illicit mating is attempted. He considers that the female is entirely responsible for incubation. When she is off the eggs the male stands on guard, but does not cover the eggs. But the male is entirely responsible for feeding the sitting mate, and, later, her and the nestlings until they are some ten days old. Mr. Yeates considers that there is a two-fold territorial instinct, one communal leading to concerted attacks on intruders to the rookery, the other individual, and in this the Rook is an implacable defender of the immediate vicinity of the nest.

We have quoted enough of the results of Mr. Yeates' observations, some of them, as he points out, contrary to previous opinions, to give an idea of the very good work he has done. He has raised points of great interest which require further study, and there are others, such as the doings of the year-old birds, which he has not yet investigated, and we strongly advise him to continue these intimate observations.

Finally, the book is illustrated with some excellent photographic plates and is attractively produced. H.F.W.

## LETTERS.

### HOLLY TREE RINGED BY GREEN WOODPECKER.

*To the Editors of BRITISH BIRDS.*

SIRS,—With reference to Mr. Wynne-Edwards' note and photograph appearing on pages 260-261, I have to record that in a wood in east Suffolk there is a tall holly tree whose trunk is ringed by a Woodpecker in a manner essentially identical with that of the lime tree in Mr. Wynne-Edwards' photograph. The keeper informed me that the scars were the work of a Green Woodpecker (*Picus v. virescens*); chips being struck out and scattered at the foot of the tree. T. G. POWELL.

### GANNETS AND CHOUGHS ON GREAT SALTEE ISLAND.

*To the Editors of BRITISH BIRDS.*

SIRS,—In his interesting article in the March issue of *British Birds* on birds at the Saltee Islands, Mr. R. S. Pollard expresses a doubt that the Gannets hatched their young in 1933 (*antea*, p. 290). I visited the Great Saltee several times in 1933 and saw the young bird during the first few weeks after hatching. I have also seen films of the young Gannet at various ages up to almost full size, and I have been assured that the bird got away safely.

The Chough is another bird that seems to have come to the Saltees about the same time as the Gannet. At least it was not, so far as I know, recorded before 1929. Now several pairs nest annually.

P. G. KENNEDY.

PORTARLINGTON, IRELAND.

March 21st, 1934.

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NOTE.—The nomenclature followed in this volume is in accordance with the "Systematic List" printed at the end of the Volume II. of *A Practical Handbook of British Birds* and reprinted in *A Check-List of British Birds*, and the additions and alterations appearing on pages 101-2 of Volume XXII., pages 24 and 25 of Volume XXIV., pages 8 and 16 of Volume XXVI., and pages 2 and 3 of Volume XXVII. of *British Birds*.

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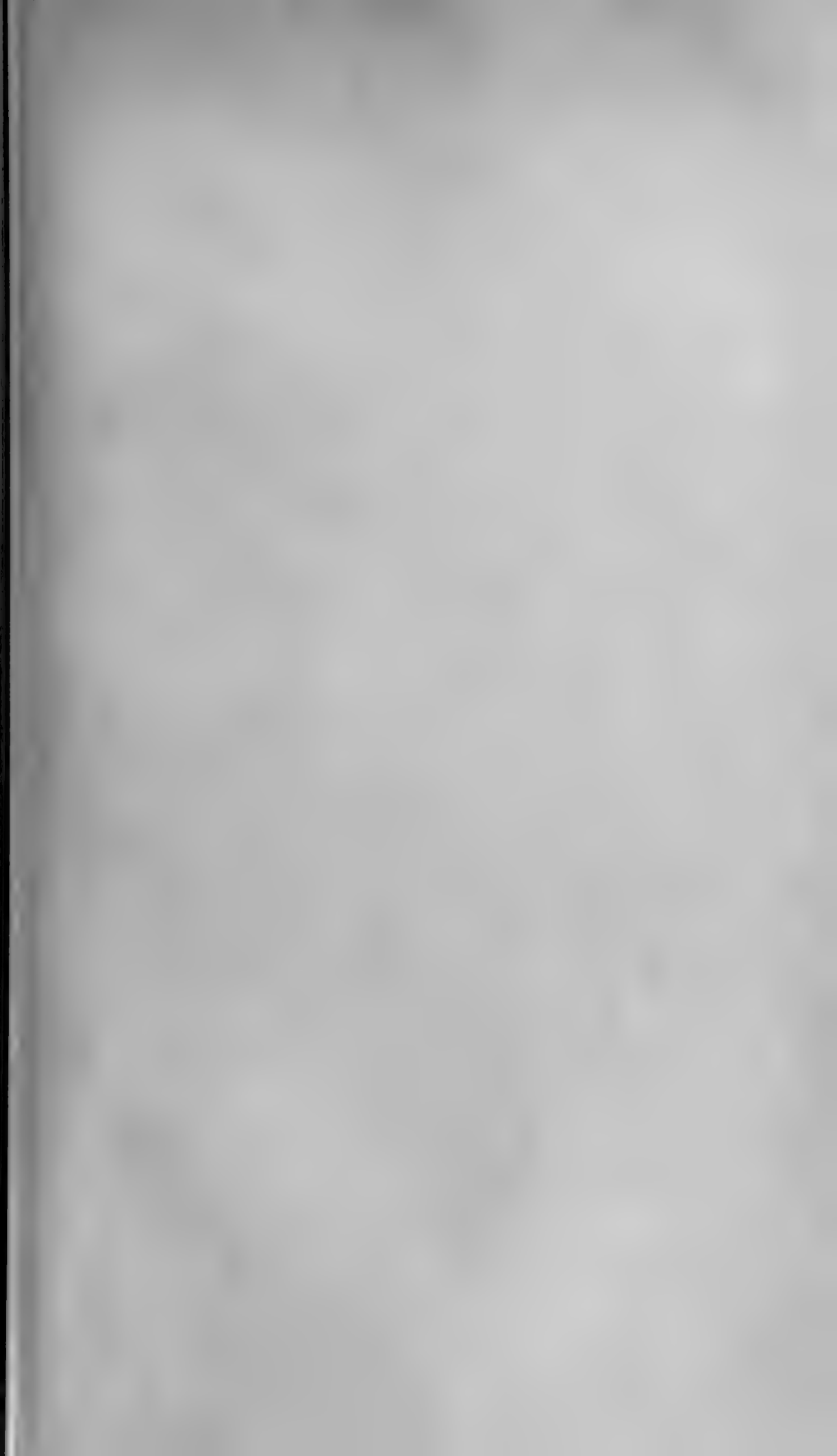
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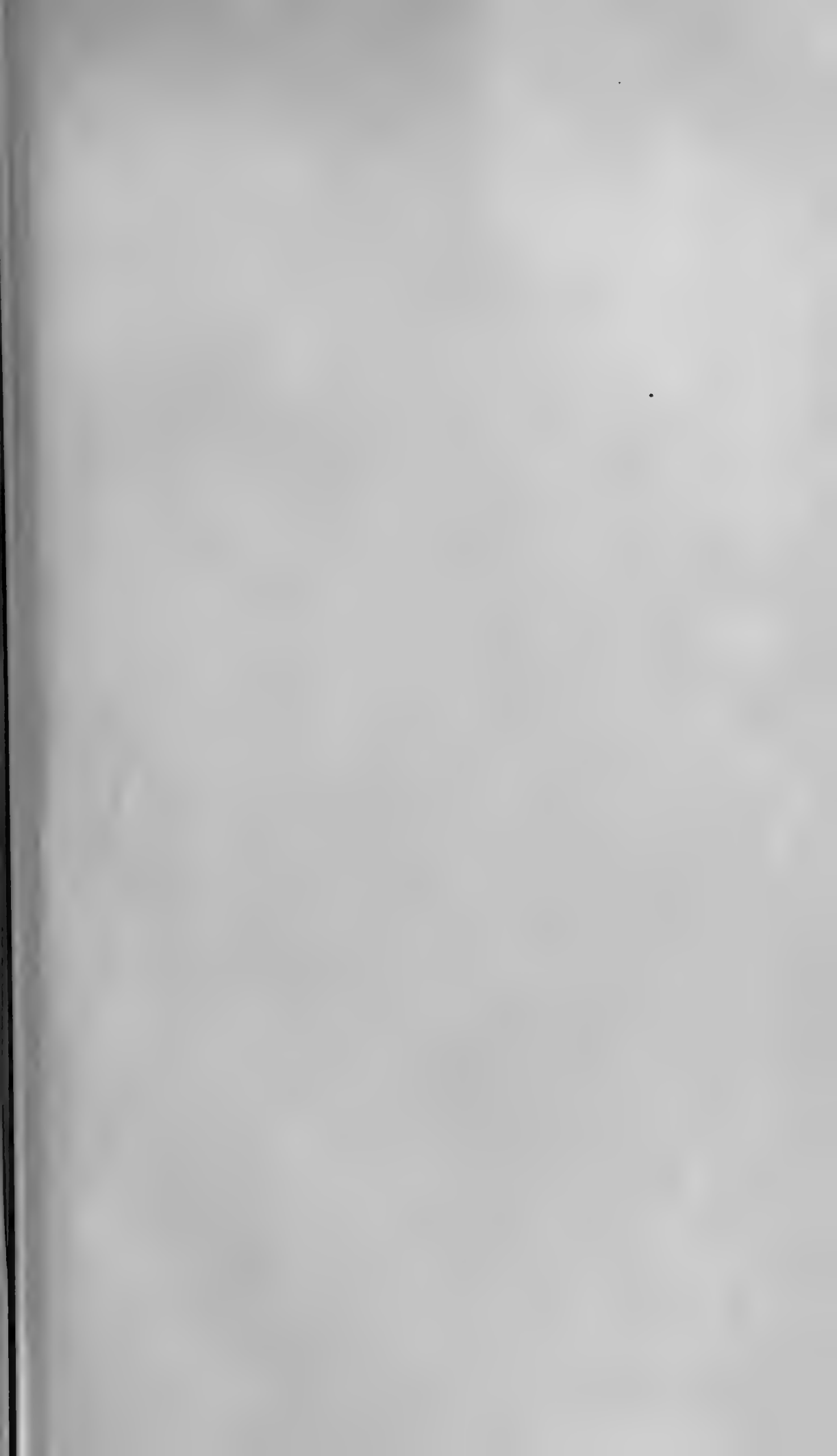
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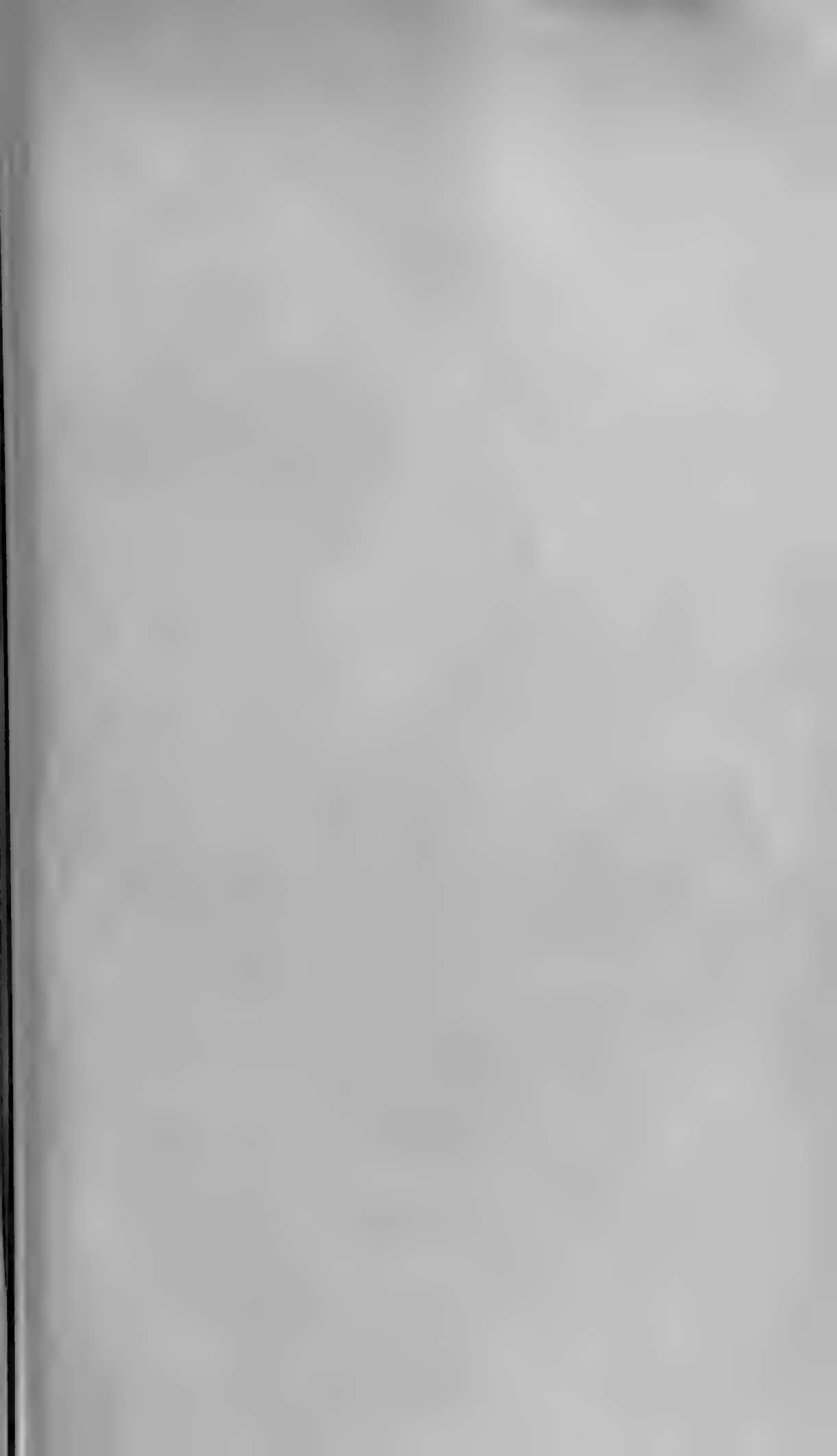
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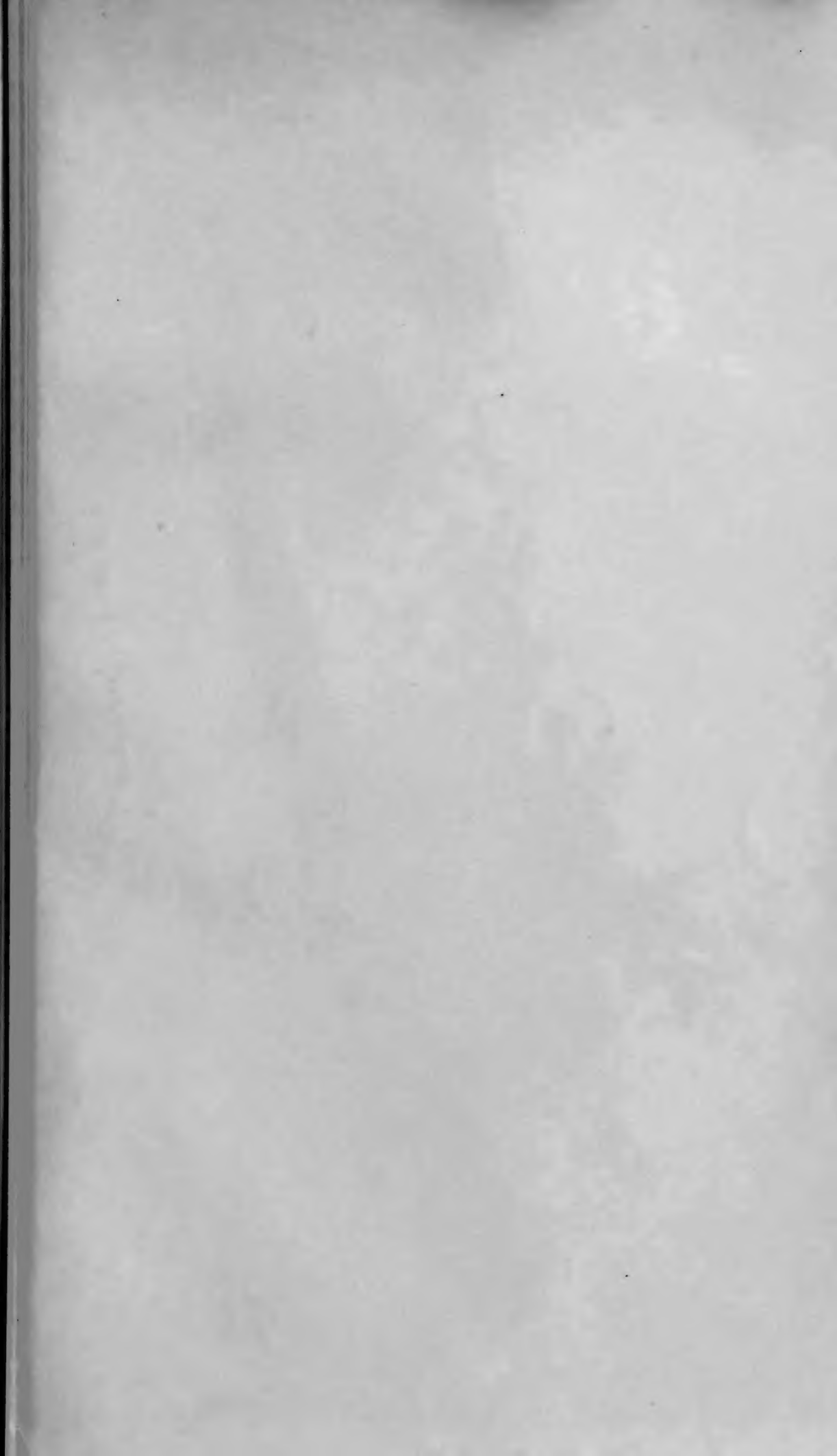














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