

BRISTOL ORNITHOLOGY



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BRISTOL ORNITHOLOGY

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Line drawings by Robin J. Prytherch, D.E. Ladhams & B.E. Slade

PREFACE

Bristol Ornithology 3 follows the pattern of its predecessors by presenting both a record of the activities of the Club during the year and a selection of papers, notes and illustrations by members which reflect the depth and range of their interests. A.J.F. Holley's paper on *Larus* gulls represents the first fruits of a meticulous and painstaking study of the colony of Herring, Lesser and Great Black-backed Gulls on Stert Island and is of especial interest in that all the observations were made from outside the study area and not, as is more usually the case with such investigations, from within. K.D. Smith, in addition to undertaking once again the arduous task of scrutinising the monthly sheets of *Bird News* to compile the Review of 1969, has also drawn on his extensive knowledge of Africa to produce a fascinating paper. To these two writers and to all other members who have contributed to this edition we owe a warm debt of gratitude. But the provision of "copy" only takes one half way towards the production of a journal such as this: our sincere thanks are also due to Ray Poulding who, together with the Editorial Committee, has translated the raw material into the finished article, and to Robin Prytherch who has ensured that it is presented to its readers in what we hope will be considered an attractive and acceptable form.

Derek Lucas, *Chairman*.

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A REVIEW OF 1969

by K.D. Smith

This review follows the lines and conditions of those of the two previous years, and on behalf of the committee I wish to thank those members who have submitted such a wealth of data to *Bird News*. One matter causing slight concern is that some observers send a few local records to the Somerset A. and N.H.S., but apparently omit them from their monthly lists for *Bird News*. This is unfortunate, as it is obviously desirable that *Bristol Ornithology* and the annual report of the ornithological section of the Somerset A. and N.H.S. should concur as closely as possible. The Bristol area has often been accused, with some justification, of having too many ornithological societies, and conformity is preferable to chaos for the benefit of future historians of local ornithology.

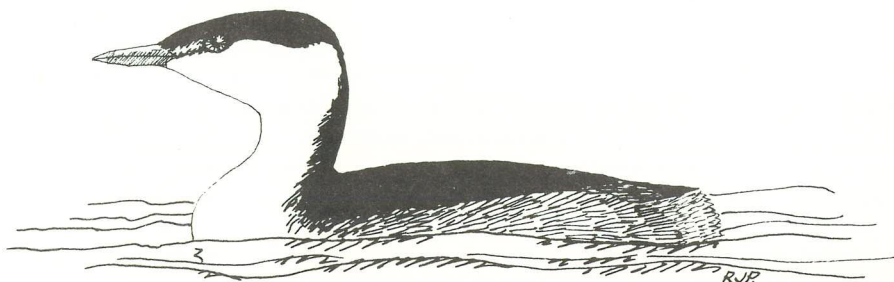
224 species were recorded in 1969 (three more than in 1968) in the monthly bulletins (*Bird News*) of the Bristol Ornithological Club, within a radius of about thirty miles of Bristol (in Somerset and Gloucestershire). In this report I give approximate maximum and minimum figures (indicated) when computing the totals for the season of some migrant species. The maximum figure is arrived at by adding up all the figures for the period except where it seems obvious that the same birds are involved, and the minimum by adding up the highest monthly figures in each locality except where a high figure at the end of one month and the beginning of the next month appears to refer to the same birds. The imperfections of this system need no explanation, and the true figure probably lies somewhat between the two, but it seems better to attempt some sort of an analysis than none at all.

Reservoirs, often referred to collectively, means those at Barrow Gurney, Blagdon, Cheddar, Chew Valley Lake (C.V.L.) and Durleigh; W.T. signifies the Wildfowl Trust at Slimbridge, and the New Grounds refer to the adjacent river bank and estuary.

January to March

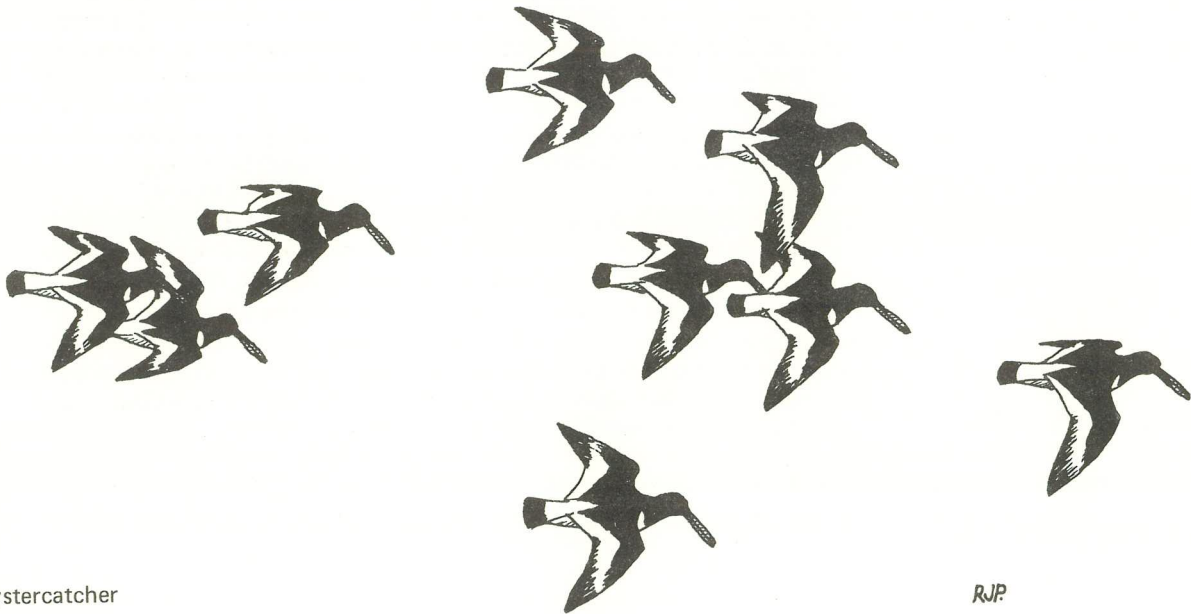
January was mild, but cold weather set in early in February and continued through March with hard frosts but little snow locally. But the cold spells were intermittent, thus preventing any noticeable mortality amongst birds.

One to two Great Northern Divers were recorded at Cheddar (last seen on 12 February); a Slavonian Grebe visited Durleigh on 9 March, whilst the maximum count of Great Crested Grebes at C.V.L. for the period was 232 on 19 January (230 in 1968). Up to three Bitterns were seen at C.V.L. with the last record on 23 March. 6800 White-fronted Geese at the New Grounds in late January topped last year's maximum of 6500, and many skeins were reported inland and along the coast, including 90 at Steart in February, and 3000 were still at the New Grounds in early March, but most of these left in the first week, as in 1968, and all had gone by 22 March. Other geese at the New Grounds included a Red-breasted Goose in January, up to three Lesser Whitefronts in February, six Barnacle Geese and two Pinkfeet; Brent Geese included four off Sand Point and one at New Passage in January, and one at



Slavonian Grebe

C.V.L. in March. Three Greylags were seen occasionally at Steart between late January and late March, with another in Sand Bay up to 27 April; 11 Pinkfeet, rare in Somerset, stayed at Steart from 18 January to 9 February; five Canada Geese were seen at Durlough on 3 April. Whooper Swans, all at Slimbridge, were in larger numbers than usual, with a maximum of 13 in late January, and six remained until 1 April. About 300 Bewick's Swans were present at Slimbridge in February (season's total of 439 according to the Daily Press), and smaller herds were reported in the usual Somerset localities.



Oystercatcher

RJP

Details of the commoner duck (Mallard, Teal, Wigeon, Shoveler, Pochard and Tufted Duck) which winter in the area are omitted, as the data in *Bird News* is often incomplete, and accurate monthly totals are more properly the concern of the Wildfowl Trust, but the figures do not suggest any abnormalities. Of the less common species recorded between January and March there were 75 Gadwall at the W.T. in January, but no more than 30 in all other localities, 350 Pintail at the W.T. in January but no more than 20 elsewhere, up to four Scaup in any one month on the reservoirs, an Eider at Sand Point on 25 March, a Ferruginous Duck at C.V.L. and Orchardleigh until 13 February (from December 1968), and a Long-tailed Duck at Durlough which remained until 1 May. Goldeneyes (max. 87 in March) stayed on the reservoirs until late in April (15 on 24th), with single birds until 25 May. Only one Smew was recorded (Chilton Trinity), and two Mergansers (C.V.L.), but Goosanders were present in some quantity, with a maximum of 24 at C.V.L. in January. Wintering Peregrines and Merlins were reported along the coast and inland, usually single birds but with two of the former at the New Grounds in February. Wintering Lapwings were numerous, as usual, and heavy movements were noted throughout February, mainly between south and west in the first half, and north and east in the second. An attempt was made on 26 January to census waders wintering on the coast between Lydney (Glos.) and Dunster Beach (Som.). Minimum figures for some species were 17,000 (but probably nearer 25,000) Dunlin, 54 Knot, 500 Redshank, 194 Oystercatchers, 40 Grey Plover, 43 Ringed Plover, 160 Bar-tailed Godwits, 173 Turnstones and 2300 Curlew. But as all high-tide roosts were not checked, some species, especially Turnstones and Curlews, were almost certainly underestimated. Scarcer wintering species reported between January and March included a Purple Sandpiper at Brea in February, less than 30 Sanderling (always scarce in the Bristol Channel in winter), five Green Sandpipers in January and four in February, a Common Sandpiper on the R. Avon in February (two on 12 March), only two Black-tailed Godwits at Steart in January and two at Oldbury in February (none in same months 1968), but 14 at Steart by 30 March, three Spotted Redshanks in March, one Green-shank in January, again good numbers of Ruffs (66 in January 1968) with 79 reported on different days in February, including 30 at Saul Worth and 44 at the New Grounds (? but same birds), and 52 at the New Grounds on 14 March, one to two Avocets at Steart (and throughout the year), and a maximum of five Jack Snipe in January but only six Woodcock, always a scarce or under-reported species in our area.

The only auk recorded was a Little Auk (found dead) at Portbury on 1 February. Scarcer wintering gulls included a Mediterranean Gull at Clevedon on 13 January and a Glaucous Gull at C.V.L. (standing on the ice) on 16 February, whilst a westerly gale blew 20 Kittiwakes to the mouth of the R. Parrett on 18 January. 120 Collared Doves were counted at the W.T. in January. Short-eared Owls at Steart increased from two in December 1968 to four in March 1969, and one Long-eared Owl was heard regularly in February in a south Gloucestershire locality. Passerines reported included a Richard's Pipit on the Kenn Estuary in mid-January (perhaps one of those seen there in late autumn 1968), up to seven Water Pipits on the reservoirs with the last seen on 10 April (as in 1968), with one at Steart on 18 February which was the second coastal winter record for Somerset (Palmer & Ballance 1968, *Birds of Somerset*), up to five Blackcaps and five Chiffchaffs in January and February, a Firecrest at Brent Knoll on 8 January, three coastal Black Redstarts, four Bearded Tits at Frampton on 9 February, two Willow Tits at Redlynch Park, Bristol, on 21 March, and a count of Blue Tits on Clifton Downs gave a total of 150 wintering birds, as in January 1968.

Fieldfares and Redwings were abundant throughout the winter, and a large flock of the former, estimated at 2-3000, was seen at Stretcholt (nr. Pawlett) in January, whilst 800 were still present on Somerton Moor in mid-April. Huge numbers of Redwings were seen at Berrow in late February and early March, and out of some 16,000 thrushes there on 27 February, 80% were estimated to be Redwings, whilst up to 30,000 dropped into the buckthorn roost at dusk on 2 March, but elsewhere Fieldfares generally outnumbered Redwings. Snow Buntings were commonest in February, with some 25 being in the area, mostly on the Dumbles (last seen on 30 March). Four Crossbills were seen in Ashton Hill Plantation on 9 March. The usual common winter finch flocks were reported—Chaffinches ("immense" flock at Steart in mid-February), Bramblings were scarce in January but widespread during the cold weather in February and early March (max. 100 at Steart, last on 8 April), Greenfinches (max. 200 at Steart in January), Siskins were well scattered in flocks up to 70, but Redpolls were fewer and in smaller parties. Four Serins were seen at Clevedon on 16 February.

Spring migration

With chilly and wet weather continuing late into May it was a somewhat indifferent migration season for observers. Most species arrived in quantity rather later than usual, and some, especially Yellow Wagtails and Whitethroats, were markedly scarce locally and nationally (see *Brit. Birds* 62(1969) : 294-296), which was reflected later in below-average numbers in the breeding season, and again on autumn passage. Southern vagrants were rather few in our area compared with other parts of the country (*Brit. Birds, loc.cit.*).

A Red-throated Diver was seen at the New Grounds on 19 May, and single Black-necked and Slavonian Grebes were detected on the reservoirs in March and April. A Spoonbill at C.V.L. on 13 April enlivened a rather drab season for rarities. The first Garganeys were seen at C.V.L. on 4 March, with up to seven in April, and other duck included an Eider at Frampton on 28 April, 17 Scoters off Berrow on 11 May, and single Long-tailed Ducks at Durlough and C.V.L. (last seen on 1 June). Uncommon raptors were an Osprey at C.V.L. on 23 May, and a Red-footed Falcon at Brea on 8 June, whilst Hobbies were reported from 20 April onwards. Some passage waders were in good quantity, especially Ringed Plovers with about 370 in the first week of May, and 800 in the third, and Sanderlings, mainly in May with a maximum of 350 on the coast in the third week (also one at C.V.L.). Some 64 Common Sandpipers were seen in many localities in the last week of April, Black-tailed Godwits at Steart peaked at 50 for the spring on 5 April, and Bar-tailed Godwits at 100 on 18 April. The usual marked spring Whimbrel passage (first on 14 April) took place, with some 800 recorded on the coasts and inland on the Somerset moors in the last week of April and the first two weeks of May. Less common waders in April and May included three Little Stints in May, at least seven Purple Sandpipers, mostly in April, at Brea and Chitterning, three Green Sandpipers, four Spotted Redshanks, five Greenshanks, only four Ruffs (compared with the much larger numbers in winter), unusual numbers of Avocets with five in Sand Bay on 8 April, and 15 at the New Grounds on 31 May, and three Jack Snipe at Berrow on 13 April.

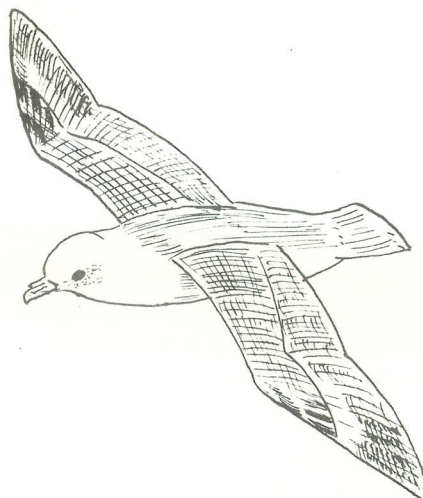
Impressive numbers of Kittiwakes were recorded for the second spring in succession along the coast, with 270 at the New Grounds and 40 at Brea on 31 March, whilst at least ten Little Gulls were seen in several places between 22 April and 1 June (5 or 6 in spring 1967, none in spring 1968). Tern passage was poor, with only four Black Terns between 20 April and 11 May (an indication of the bad weather), three Sandwich Terns (first on 12

April), and some 60 Common/Arctic Terns (first on 22 April, but mostly in May). Single Arctic Terns were identified at C.V.L. on 18 May and 6 June. Four Razorbills (uninjured) were seen at Brean on 20 April.

Early migrants were a Cuckoo on 4 April (five were seen together flying across Sand Bay on 11 May), Redstart and Whinchat on 6 April, and Garden Warbler on 10 April, but passerine migrants in general, apart from a few (Blackcaps, Willow Warblers, Grasshopper and Sedge Warblers) were below normal numbers for most of April. Scarcer species included a Hoopoe at Bath on 11 May, a Blue-headed Wagtail on 3 May and a male variant resembling a Syke's Wagtail (see *Brit. Birds* 52(1959) : 281-295) on 27 April, both at C.V.L., a singing Marsh Warbler at Steart on 27 May, and five Ring Ousels in late March. Pied Flycatchers, with only two in late April, were much scarcer than in spring 1968 (about 23 recorded). A Willow Tit at C.V.L. on 7 April was only the second to be ringed there, and a late party of 20 Siskins was seen at Ashton Hill Plantation on 4 May.

Breeding species (selected)

The long, hot summer, in contrast to the cold spring, will long be remembered. Breeding Great Crested Grebes were reported from five localities (C.V.L., Blagdon Lake, Emborough Pond, Orchardleigh and Highbridge Pits). Duck breeding at C.V.L. included Shelduck (one pair with five young, also four pairs at Durleigh), Mallard, Garganey (brood of seven in July), Gadwall (70 juveniles in July), Shoveler, Pochard and Tufted Duck, whilst Teal were suspected of breeding at Shapwick. A census (amended) of breeding sea-birds ('Operation Seafarer') on Steep Holm between 3-11 May gave estimated totals (pairs) of 5070 Herring Gulls, 630 Lesser Black-backed Gulls, 41 Great Black-backed Gulls and 39 Cormorants. Other species on or near the island were a Fulmar, 12 Shelducks,



Fulmar

B.E.S.

four Mallard, a pair of nesting Kestrels, 70 Kittiwakes between Brean and Steep Holm, and nesting Stock Doves (six birds present). 500 Starlings were still there, and the winter roost was seen to have caused widespread damage to the vegetation. Sparrow Hawks can now be classed as fairly common in north Somerset, if not as yet in south Gloucestershire, but Hobbies seemed scarcer in 1969 than in the two previous summers. Two pairs of Buzzards bred successfully near C.V.L.

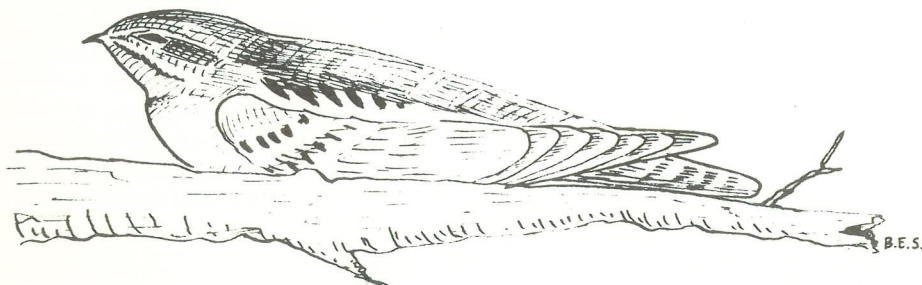
Partridges, reported from 19 localities throughout the year, seem widespread but nowhere very common, whilst Red-legged Partridges remain local in only six or seven areas (13 at Wembdon on 7 February). Four Quail were

calling on Somerton Moor on 6 July, but breeding was not proved. Redshank bred at Huntspill and Tealham Moor, and probably elsewhere, but apart from Lapwing and Curlew no reports of other nesting waders were received. Barn Owls now seem more widely distributed, although nowhere common, but places where reported fell from 25 in 1968 to 17 in 1969. Lesser Spotted Woodpeckers, detected in 20 localities, show no increase or decline. Dippers were reported from seven localities between March and May, but without any indication of breeding results. Three more variant Yellow Wagtails (one male resembling *M. f. flava*) at C.V.L. in early and late July suggest they may have been of local origin (see above). Singing Nightingales were recorded in 13 localities in May, and a pair of Redstarts may have bred at Steart, an area not mentioned by Palmer & Ballance (1968). Fourteen male Whinchats were singing on Somerton Moor in late April. Corn Buntings were reported from ten localities in north and central Somerset, and from one in south Gloucestershire, between April and May. Three Hawfinches were seen in Leigh Woods in late April, and two pairs at Rainbow Wood, Bath, in May. Four pairs of Ravens were reported in April, and a pair with three juveniles at Brean in May.

Other mid-summer observations

50 Manx Shearwaters were seen off Steart on 31 May, 15 off Hinckley Point on 6 July, and 30 off Sand Point on 20 July. It would be interesting to know the origin of the shearwaters which appear in summer along the Somerset coast, but so far there do not seem to be any ringing recoveries (none given by Palmer & Ballance, 1968). Other sea-birds seen off the Somerset coast were eight Fulmars and a Gannet in June, whilst duck at C.V.L. included five Pintails on 23 June, and seven Wigeon (first of the autumn) on 30 July, 50 Pochards flying down the R. Parrett on 2 August, and up to four Scoters offshore between June and August. A Goshawk, thought to be wearing jesses, was seen at Butcombe in July. Falconers appear to loose Goshawks with such regularity that it is to be wondered whether any pairs now breed in the Bristol district, otherwise it is difficult to account for the annual records, as it seems improbable that all are wild birds.

Presumed summering waders included a total of about 120 Ringed Plovers at the New Grounds and at Berrow in the first half of June, at least three Little Ringed Plovers at Cheddar in the second week of July, two Green Sandpipers in June, 95 Black-tailed Godwits at Steart on 21 June, and only one Spotted Redshank at the New Grounds on 16 June but an increase to 19 by 30 June (? early passage). Quite a number of the scarcer Laridae were reported, with 138 Kittiwakes off Weston-s-Mare on 1 June, movement in the morning being up-channel, and the reverse in the afternoon, whilst two Little Gulls were seen on the Severn in June. Terns included two Black Terns at C.V.L. in June, two Sandwich Terns in early June and eight in early July at Berrow, and small numbers of Common/Arctic Terns in June (max. 13 at C.V.L. on 7th). There was an Arctic Tern at C.V.L. on 6 June, and three at Cheddar on 11 July, whilst single Little Terns were noted at the New Grounds on 17 June, and at Steart on 20 July. Skuas

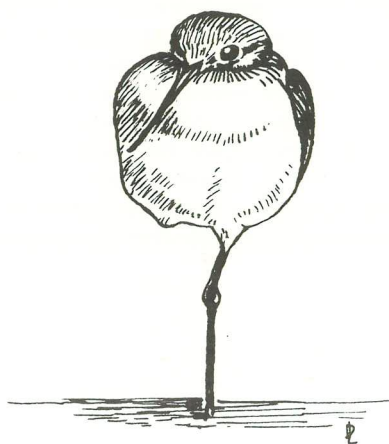


Nightjar

began to appear in the Bristol Channel in July, with one Great Skua off Sand Point on 27th, and two Arctic Skuas off Berrow on 12th.

Autumn migration

The fine summer was followed by similar anti-cyclonic conditions throughout most of the autumn. The reservoirs sunk to a very low level, exposing large acreages of mud seemingly ideal for aquatic migrants, especially waders, but the expected bonus in the shape of increased numbers of off-passage birds did not materialise, and no especial difference was apparent between the autumn of 1969 and those of the previous two years, apart from above-average numbers of Curlew Sandpipers along the coast, part of a national influx, whilst Nearctic waders were fewer and less varied than in 1967 and 1968.



Greenshank

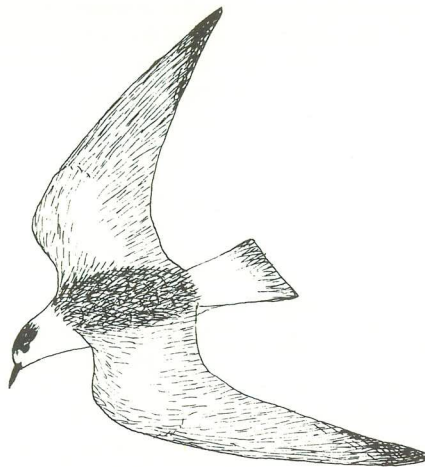
At Cheddar there was a Black-throated Diver in late October, and a Red-necked Grebe between 25 September and 3 October, but as neither stayed they were presumably on passage. Great Crested Grebes built up to 500 at C.V.L. in October, and reached a total of 660 in early November, thus exceeding the maximum of 510 in late November 1968. Eleven more Manx Shearwaters were seen off Sand Point on 21 September, and nine Gannets off Brean on 6 September. A few Fulmars were noted off the Somerset coast between July and November, with one reaching Aust (Gloucestershire), but the only petrel reported was a Storm Petrel offshore on 3 August. Garganey, with 20 at C.V.L. on 5 August, and 11 on 7 September, were recorded up to 21 September; 18 Pintails were seen at C.V.L. on 5 October; the maximum count of the year for Pochards on the reservoirs, 2701, was made in the second week of October; up to six Scoters were seen at Steart, with a few off Weston, in October, and a Velvet Scoter was recorded at Sand Point on 27 October. Raptors included single Ospreys on the River Axe on 1 September and at Blagdon Lake on 19 September, a Goshawk at Frampton on 27 September, reports of four single Peregrines along the coast between August and October, Hobbies up to 21 September, Merlins in seven localities in October, a Montagu's Harrier at Nether Stowey on 30 August, and a Marsh Harrier at the New Grounds on 21 August. A Spotted Crake was seen at Berrow on 26 October.

Large numbers of Ringed Plovers were recorded, mainly along the coast and up the Severn, between mid-August and the first week of September, with some 3700 in the last week of August (nearly double the numbers recorded in 1967 and 1968). Turnstones at Chittingen peaked at 500 in late August, but the largest flock of Knot was only 150 at Steart in late August. Sanderlings were far fewer than in spring with a maximum of 73 at Steart on 31 July. Black-tailed Godwits at Steart increased from 95 in June to 600 by 31 July, and 1200 by 13 September,

but declined to 220 in October. At Chittening 100 were present for most of October, whilst up to 19 were recorded at the New Grounds in July and August, but surprisingly few were seen on the reservoirs, a mere ten between August and October. Bar-tailed Godwits, mostly in September, were rather few, as usual, the largest flocks being 85 flying south at Sand Point on 28th, and 60 at Steart on 27th. Redshanks were numerous along the coast and up the Severn, with a total of about 1250 in the first week of August, and 850 in the last week, whilst 850 were counted at Steart in late September. Curlews peaked at 1200 at Steart in early August, whilst 20-30 were seen inland on the reservoirs, mostly at C.V.L., between mid-July and October. 300 Snipe were counted on Blackford Moor on 12 August, and the first Jack Snipe was recorded at C.V.L. on the more normal date of 23 September (25 August in 1968).

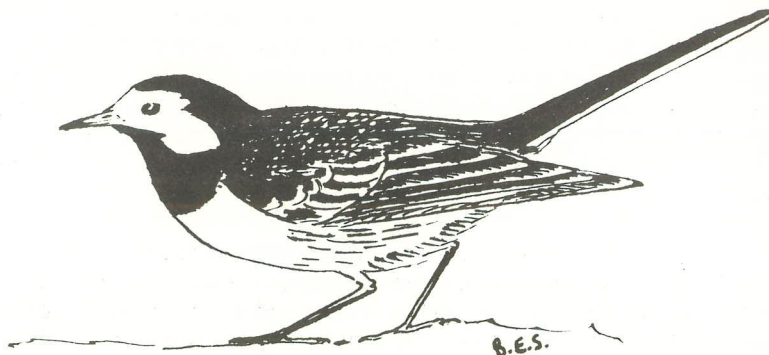
Turning to the regular but scarcer passage-migrants from mid-July on, Little Stints (max. 56, min. 30, to 22 October) were rather few; Curlew Sandpipers (max. 386, min. 251, to 12 October) were briefly common with almost all occurring in the last week of August and the first week of September, mostly at the New Grounds and at Steart; of Wood Sandpipers (max. 16, min. 6) only one occurred in July and the rest in August; Green Sandpipers (max. 63, min. 48), and Spotted Redshanks (max. 217, min. 141, to end of October) passed through mainly in August and September, with the largest numbers of the latter at the New Grounds; Greenshanks (max. 147, min. 90, to end of October) were most numerous in August; and Ruffs (max. 148, min. 124, to end of October) showed no peaks but the majority passed in September and October. Thus, apart from Curlew Sandpipers (only ten in 1968), the numbers of other species were not above-average, considering the low level of the reservoirs, and compare well with those of the two previous autumns, although most figures were difficult to estimate. Rare waders were few, and disappointing, but some six Little Ringed Plovers were observed at Cheddar and C.V.L. in August and September, with singles at Frampton in late July, and at Eastington (Glos.) on 3 October, and a Grey Phalarope was seen at North Wootton on 1 October. The only Nearctic waders were single Pectoral Sandpipers at C.V.L. and Cheddar between 25-29 September, and single Dowitchers *Limnodromus* sp. at the New Grounds on 16 September and 24 October.

Few autumn Kittiwakes were seen, but Little Gulls (max. 37, min. 21, to end of October) were in evidence, mostly in August, and a Mediterranean Gull was identified at Combwich on 23 October. Black Tern passage was spectacular (max. 485, min. 254, to 18 October), with a marked peak between 11-13 August, whilst most Common/Arctic Terns (max. 125, min. 113, to 28 October) passed in August, but Sandwich Terns (six in August and September) and Little Terns (six in August) were scarce. Rarities included a Roseate Tern at Cheddar on 5 October, White-winged Black Tern at Barrow Gurney on 7 September, and a Whiskered Tern at C.V.L. from 16-19 August. The fine weather brought few autumn skuas, only an Arctic off Weston on 2 October, and surprisingly, a Great Skua at C.V.L. on 14 September, being reported. Other records of non-passerines included three Guillemots, all dead or injured, in August and September, a maximum count for the year of 500 Collared Doves at the W.T. on 31 October, an unusually large flock (for Somerset) of 61 Turtle Doves at Saltford on 17 August, one, perhaps two, Alpine Swifts



RJP

White-winged Black Tern



Pied Wagtail

near Weston between 17-20 September, and Wrynecks at Redland, Bristol, on 31 August, and at Sand Point on 8 and 16 September.

Most of the commoner passerine passage-migrants were reported in small to moderate numbers, except for a scarcity of Sand Martins and Whitethroats. A party visiting Steep Holm between 4-12 October recorded 25 Pied/White Wagtails, a probable Northern Chiffchaff, a Grasshopper Warbler, 19 Goldcrests, two Firecrests, Redstart, several Bramblings and Siskins, and 150 Chaffinches, which is an indication of what must be missed on this undermanned island. Other records included a Woodlark at Sand Point on 23 September, and two there on 5 October, two Tawny Pipits on the Dumbles on 17 September, Red-backed Shrike at C.V.L. in the last week of August, Blue-headed Wagtail at C.V.L. on 28 August, Aquatic Warblers at Steart on 14 August and at Blagdon on 24 August, Great Reed Warbler near Bridgwater on 25 August, and Bluethroats at C.V.L. and Steart on 14 and 25 September. Two Pied Flycatchers and three Ring Ousels were reported in September, also six Black Redstarts inland and on the coast between 19 October and 22 November, and Lapland Buntings at or near Steart on 27 September and 23 October.

The usual reports of a few late migrants were received: Turtle Dove at Chittington on 21 October, and a Swift there on 2 October, Tree Pipit on 19 October, odd Yellow Wagtails up to 11 November, Sand Martins to 22 October, Swallows to 1 November, Redstarts to 18 October (and one injured bird at Clevedon to 28 December), and Wheatears to 9 November. Visual late autumn passage of thrushes, finches, etc. down the coast was less spectacular than in most years, but migration-watches in October were hampered by poor weather. Fieldfares were reported from 13 October, and Redwings from 11 October, but large numbers were not noted until November. Blackbirds were seasonally numerous at Brean and Brent Knoll in late October and early November. Bramblings in small flocks were recorded from 12 October, and Siskins and Redpolls from 20 September. Chaffinch passage was heavy in the last two weeks of October, with 2200 moving W.S.W. at Sand Point on 27th., whilst Meadow Pipit movements were strong throughout October, with 363 moving east in three hours at Brean on 4th.

November-December

The period was mostly mild up to the last ten days of the year, when it became cold with hard frosts, but little snow locally. A small influx of divers at Cheddar in late December included two Great Northern, a Black-throated and a Red-throated Diver. Great Crested Grebe numbers at C.V.L. remained high, with a December maximum of 325, a Black-necked Grebe was seen at Blagdon on 15 November, and three Slavonian Grebes at Cheddar and C.V.L. between 28 November and 7 December. Cormorants remain fairly common visitors to the reservoirs, in spite of persecution, 29 being reported from Cheddar and C.V.L. in December, but the only Shag of the year was recorded near Clevedon on 16 November. The first Bittern of the winter was noted at C.V.L. on 20 December.

White-fronted Geese arrived at the New Grounds on 20 October (27 October in 1968, which was three weeks earlier than in 1967), and the number there reached 2,670 by 18 December, whilst many skeins were reported inland and along the coast in December. The only other geese noted were four single Brent Geese in coastal areas and two at Cheddar, and five Pinkfeet at the New Grounds, all in December. The first Bewick's Swans arrived in Somerset (Cheddar) on 31 October (20 October in 1968), and numbers at the W.T. built up to 450 by mid-December. Several herds were seen elsewhere (max. 24 at Blagdon in December), and two Whooper Swans were noted at C.V.L. on 4 and 15 December. No above-average numbers of common wintering duck were reported, but scarcer species included 9-10 Scaup on the reservoirs, a Long-tailed Duck at Cheddar in late December, some 78 Goldeneye (first on 26 October) on the reservoirs by late December, two Smew (first on 16 November) at C.V.L. in December, six Mergansers in three localities, and again moderate numbers of Goosanders (first on 27 November) with up to 28 reported on the reservoirs in December.

A very late Osprey (the fourth in our area for the year) appeared at C.V.L. on 20 November, and the usual few wintering Peregrines (two at the New Grounds) and Merlins were reported, whilst a Hen Harrier was seen at Steart in late November, with two there, and another in Sand Bay, in December. The years highest count of Coot, 3,216 was made on the reservoirs in mid-December. Large numbers of Lapwings came in during the cold weather in late December, including 7,000 on Tealham Moor on 21st. An unusual feature of the early winter was that the reservoirs remained abnormally low, thus providing waders with feeding grounds usually denied to them at this season. Species recorded inland during the period included at least three Grey Plover (Cheddar and C.V.L.); Little Stints (one at Durleigh on 1 November, five at C.V.L. on 8 November); two, probably three, Purple Sandpipers at Cheddar and C.V.L. (Palmer & Ballance, 1968, give no previous inland records for Somerset). Dunlins (Cheddar, C.V.L., and Blagdon, max. 170 at C.V.L. in late December); up to nine Black-tailed Godwits at Durleigh in November; a Spotted Redshank at Cheddar in November and two at C.V.L. in December, and two Curlews at C.V.L. in November, and four in December. In addition there were single records of Oystercatcher (C.V.L., 30 November), Curlew Sandpiper (Cheddar, 16-25 November), Knot (C.V.L., 13 December), Sanderling (Cheddar, 18-24 December), Bar-tailed Godwit (C.V.L., 15 November), Redshank (Cheddar, 13 November), Greenshank (C.V.L., 23 November), and an Avocet at Cheddar on 18 December (in addition to the normal two at Steart).

Of waders recorded in more conventional wintering areas the following need mention—a Little Stint in Sand Bay on 13 December, and two there on 16 December; further single Purple Sandpipers at Sand Point and Chittening (making a total of at least 15 for the year between Chittening and Brean, and on the reservoirs, which is well above the usual annual total); three more Curlew Sandpipers at Clevedon on 16 November (which coincided with the Cheddar record and suggested late passage); a count of some 1000 Knot on the Axe/Brean coast on 26 December; four Green Sandpipers and 3-4 Common Sandpipers in December; Black-tailed Godwits in some quantity with 450 at Brean in mid-November, and up to 155 there in December as well as smaller coastal flocks elsewhere; and 3-4 additional Spotted Redshanks in November, but only one (apart from C.V.L.) in December. Greenshanks were not seen after 12 November, except at C.V.L., but Ruffs were reported for six areas (max. six in any one) up to mid-November, with smaller numbers, mainly on the reservoirs, in December. Four Woodcock were recorded in November, but only one in December.

No rare gulls were seen late in the year, but at C.V.L. Little Gulls persisted throughout November (max. six in mid-month), with one or two up to 28 December. Short-eared Owls appeared in small numbers (four in November, three in December) along the coast from 4 November, and three Barn Owls were seen together at Thornbury in December. A Shorelark arrived at Cheddar on 17 October and remained there the rest of the year, and another was seen at Steart on 25 November. Water Pipits, first seen on 23 October (last week of October in last three years), totalled 12 on the reservoirs in December. Four Blackcaps and three Chiffchaffs were noted during the period, also a further three Black Redstarts in December. Snow Bunting passage was poor compared with the two previous years, with only 20 being recorded between 1 November and 9 December. A Crossbill was seen at Blagdon on 23 December, but immigrant finches in general, although widespread in November but diminishing in December, were in rather small numbers, and this applies to Bramblings, Siskins (max. 28 in Vassals Park on 30 December), and Redpolls. A rarely recorded winter visitor was a Hooded Crow at St. George's Wharf, Portishead, on 14 December.

SOME ASPECTS OF REARING THE YOUNG IN *LARUS* GULLS AT STERT ISLAND— AN INTERIM REPORT

by A.J.F. Holley

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Introduction

For two years, 1968-9 the mixed colony of *Larus* gulls on Stert Island, Bridgwater Bay, Somerset, has been studied, and in particular the inter and intra specific behavioural aspects of the three species which breed there—Herring Gull *L. argentatus*, Lesser Black-backed Gull *L. fuscus* and Great-backed Gull *L. marinus*,—have received special attention. Although the study is on a long term basis the results so far obtained are considered to justify this interim analysis.

The Study Area

Stert Island, an important part of the Bridgwater Bay National Nature Reserve and National Wildfowl Refuge, lies approximately half a mile to the west and seaward of the mouth of the River Brue at Burnham-on-Sea (Fig.1). The island was formed during the last decade of the 18th Century when the sea cut across what had been a narrow peninsula running northwards from the present Stert Point (Kidson 1963). Today the island, which lies in two sections, is composed basically of shingle and sand with some vegetation on the top. This composition is the detritus from the original island which occupied at one time almost exactly the gap now between the sections. Most of the external faces consist of shingle banks which show some plasticity to the combined actions of wind and tide. Erosion is taking place and the total area available for an expanding colony of gulls decreases annually.

The study area is a shingle bank approximately 200 yards in length on the eastern side of the south section of the island (Fig.1 & 2). It has a vertical height of some seven or eight feet and a declivity which varies from place to place but averages about one foot in six. The shingle is relatively uniform in consistency and free from large rocks and boulders. There is no vegetation on the slope of the bank and the only items breaking at all the evenness of the terrain are bits and pieces of tidal debris. In the normal breeding season, in the absence of unusual weather and tides, the upper five vertical feet or about thirty actual feet of the bank are available for effective nesting. Many pairs do, however, nest below that level only to have their nests subsequently washed away by the tide. The effective nesting portion of the study area henceforth referred to as 'the bank' is populated in the breeding season by approximately 200 pairs of Herring Gulls and up to 30 pairs of Lesser Black-backed Gulls at an average density of one pair to every 10 square yards. A large number of the male Herring Gulls on the bank hold their territories

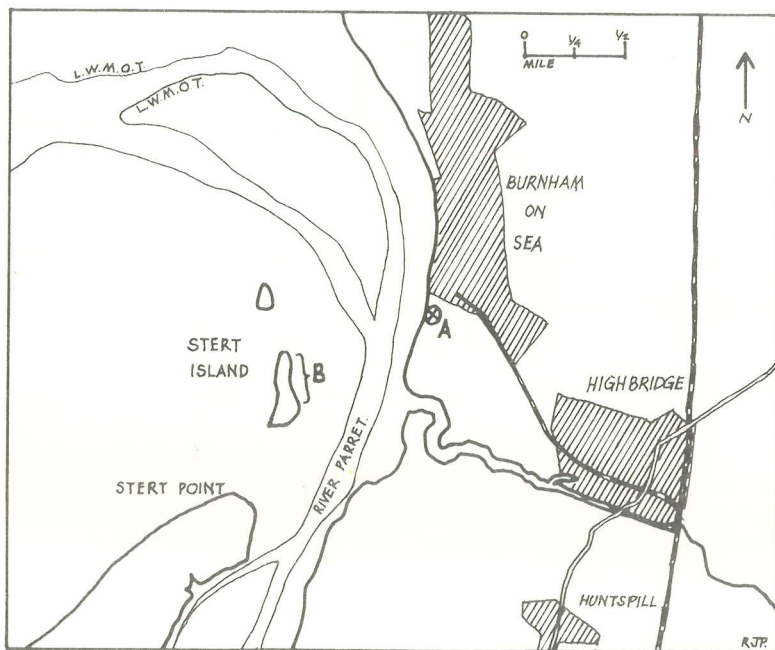


Fig. 1. Map of Bridgwater Bay area indicating position of observation point (A) and study area (B).

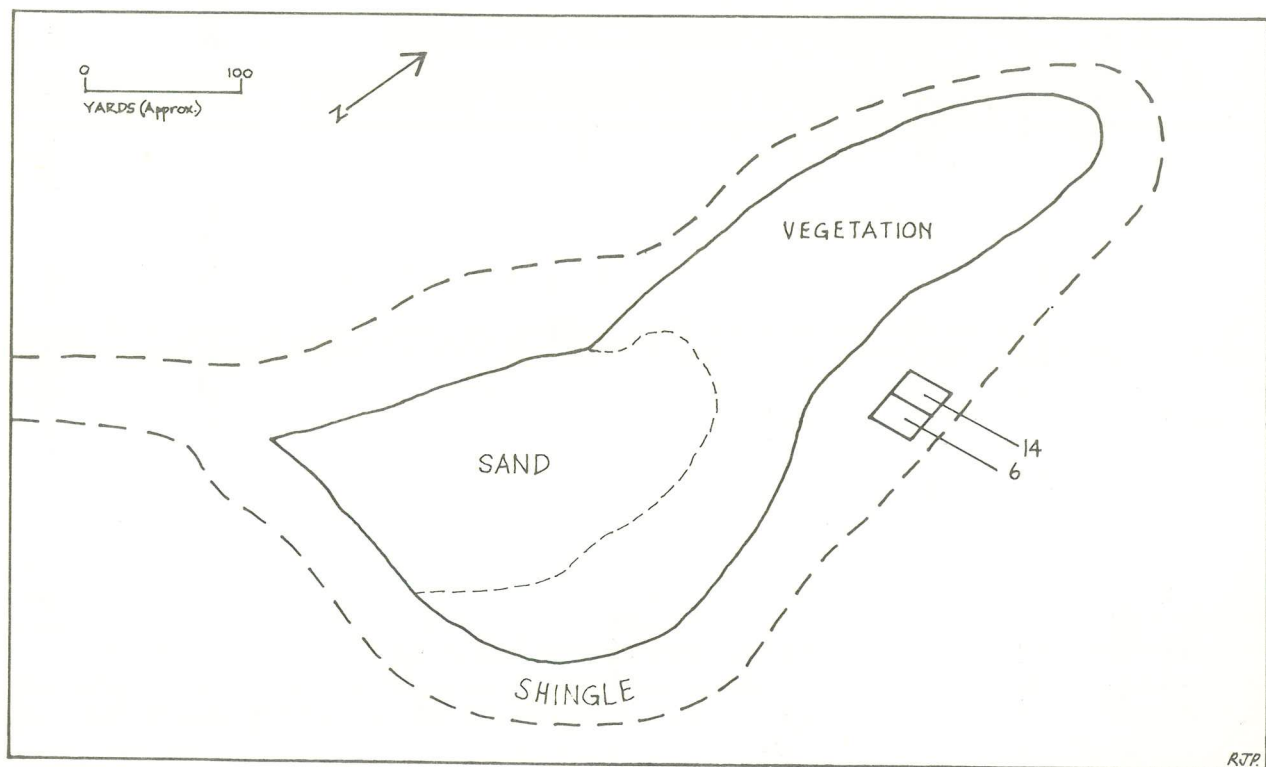


Fig. 2. Diagram of study area (the southern 'part' of Stert Island) showing the position of plots 6 and 14.

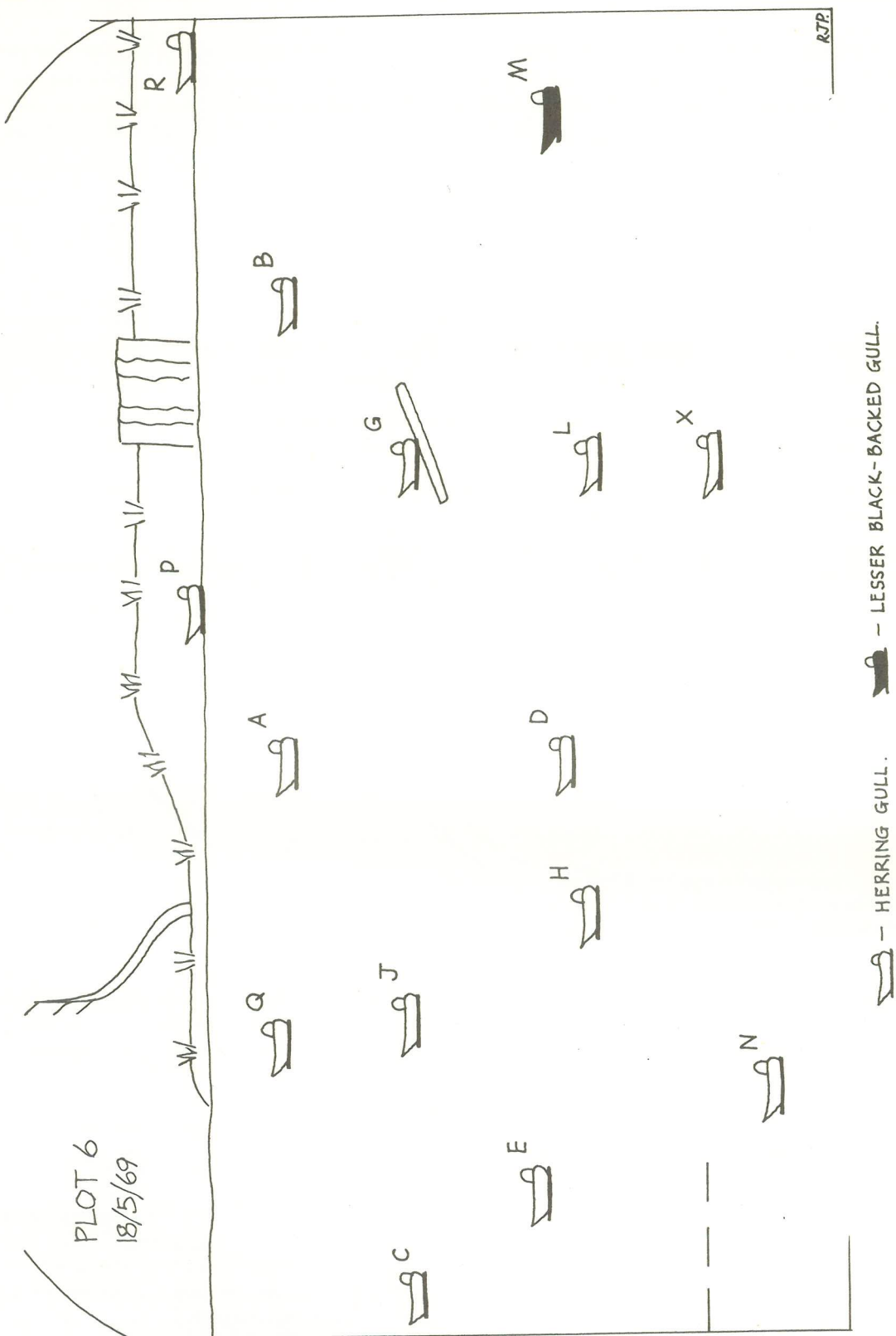


Fig. 3. One of the plots as charted on 18 May 1969. Nests 6/N and 6/X were subsequently removed by the tide.

throughout the year and from year to year. This feature although somewhat unusual has been noted elsewhere (Drost *et al.* 1961). By reason of the very strong site tenacity on the part of the Herring Gulls, the Lesser Black-backs on their arrival—which can be very early (the first territory in 1969 being taken up on 4 January) are able to do no better than secure nest sites at the base of the bank where they are particularly vulnerable to the tide. In consequence their breeding success is very low in some years.

Methods

The study area lies just over two-thirds of a mile away to the south-west of the observation point which is the author's house overlooking Bridgwater Bay (Fig. 1). A three inch diameter high powered telescope is installed on the first floor of the house with the power normally used of approximately 100x magnification giving a field of view over the study area of 30 feet (Plate 5a). The power is sufficient to follow in detail the activities of the bank's inhabitants. Haze and heat shimmer affect the quality of the viewing but it is very seldom that conditions prevent observation altogether.

Various plots were selected along the bank, and measured approximately 30 feet square to correspond with the field of the telescope. Topographical features on top of the bank enable each plot to be separately and reliably identified. As soon as the nests are constructed, those on the plots are charted on a graph paper representation of the plot as seen through the telescope (Fig. 3). Each nest is allocated an individual letter which is applied also to the pair in question—6/A being pair A on plot No. 6.

As will appear it is possible to follow individual pairs and their offspring for very much longer than the period during which the nest structure remains. Whilst with the telescope the number of eggs in the nests cannot be counted nor the moment of hatching be seen as most are hidden from view, the chicks can normally be distinguished and counted at the most within five or six days of hatching. Thus a tolerably realistic estimate of the hatching date can be made.

During the 1969 breeding season the Reserve Staff of the Nature Conservancy trapped two Herring Gulls and one Lesser Black-back from amongst those nesting on the Bank. All three birds transpired to be female. Each was wing-tagged—black with white numbers on the Herring Gulls and white with black numbers on the Lesser Black-back (Plate 5b). One of the Herring Gulls was colour marked yellow on the throat and tail, and experiments were also conducted with white leg rings. The range between the birds and the observer in this study is probably as great, if not greater, than any in which the individual marking of birds has previously been involved. It may therefore be of interest to record that the colour marking was a complete success showing up the individual, whether sitting, standing or in flight on almost all occasions—the only exception being at times of intense mid-day sunlight with accompanying heat glare and shimmer. However, the colouring is quite lost on account of moult by the first week in August which is far too early where questions of parent/young relationship are concerned.

Whilst it is not possible to read the numbers on wing tags at so great a range it is of no great consequence where only a few individuals are concerned as these are nesting at some distance from each other. The white tags on the Lesser Black-back showed up well in all conditions. The black tags on the Herring Gulls were visible more often than not but sometimes required long periods of wasteful concentration to be sure of them. In the 1970 breeding season it is intended to try white tags on the Herring Gulls also in the hope that this will make for easier observation.* All three gulls tagged in 1969 are still carrying their tags eleven months after marking. White leg rings were visible on the Lesser Black-back on about 30% and on the Herring Gulls on less than 10% of the sightings. These again require much concentration and it is not proposed to extend their use.

That there are some disadvantages in studying species at long range cannot be denied—one, of course, is the absence of sound, the various calls given having to be identified by the display associated with them. On the credit side, however, is the complete lack of observer disturbance, a difficulty which besets so many field workers. Furthermore at the range at which the writer has been working overlooking a bare unobscured shingle bank it is possible to follow the local movements of an individual bird be it adult or chick, almost without limitation.

* The white tags have been successful in the 1970 breeding season.

On average some fifteen hours per week are devoted to observation of the gulls throughout the year, but with the highest intensity from April to September inclusive. Owing to professional circumstances the usual times for week day observations are up to 10.00 h, around 14.00 h and after 19.00 h, but there is more continuous viewing at week ends. Notes are dictated onto a tape recorder when using the telescope so that viewing is not interrupted.

The Herring Gull has received most attention to date and except where otherwise stated the sections following will be referring to that species.

Table 1. Number of nests of *Larus* gulls counted or estimated on Stert Island, Bridgwater Bay 1957-1969

Year	Herring Gull	Lesser Black-backed Gull *	Great Black-backed Gull
1957	802	100	3
1958	676	118	3
1959	659	76	9
1960	924	107	12
1961	1091	133	8
1962	1288	146	12
1963	1425	96	9
1964	1694	194	6
1965	1870	224	5
1966	NC	NC	NC
1967	1982	88	14
1968	2423	240	15
1969	3121	171	17

* estimated

NC no count or estimate

Site Tenacity in the Breeding Season

The nests built by the Herring Gull and the Lesser Black-backs on the shingle (the former normally slightly more bulky and substantial) quite quickly disintegrate after the hatching of the chicks. Certainly after the first two weeks there is normally no sign of the nests except for a slightly darker coloured patch than the immediate surroundings on the shingle, leaving the area bare. Early in the study it became very evident that the chicks of the Herring Gull are possessed of a very high degree of site tenacity. Whilst the nest structure remains they are normally to be found on or in it and afterwards they frequent the exact spot where it stood. In the absence of any cover it is to the nest or the site of it showing as this dark spot on the bank that they speed and then freeze when danger threatens. This very rigid tenacity to the site persists through all phases of the dependence of the young up to and well beyond the ability to fly. This behaviour is all the more remarkable when there are so few physical features by which one territory can be distinguished from another especially when such features are liable to be changed dramatically by the action of wind and tide. It is this characteristic which has enabled the writer to follow with relative ease the fortunes of so many families on the bank. For example, of the total number of such families studied there has only been one where it was suspected that there might have been some movement away from the territory before the chicks flew.

Such tenacity to the site on the part of the Herring Gull is perhaps not so surprising in the light of the fact that a substantial proportion of the gulls continue to hold their territories throughout the winter and from one season to another. There is, however, a period of minimum attachment which extends from late August to early October. During this period the presence of the gulls on the territory will only be noted very late in the evening when they return to the colony for during the rest of the day they are quite absent. Furthermore, some evenings—about one in three—the males do not stay on the territories but fly out and join the roost. Prof. N. Tinbergen

(*pers.comm.*) suggests that this return to the bank in the late evening may be related to the fact that the island is also a safe roosting site. Normally, both in summer and winter, the roosts are situated below and in front of the breeding banks but, again, during the short autumn period they tend to be more out on the open sand between the two sections of the island. It is suspected that there may well be factors connecting these features with the end of the breeding season.

The general picture in relation to the Lesser Black-backs is somewhat different. They do not hold their territories throughout the winter months and the establishment of these territories in the spring is normally secured by pushing upwards from the base of the bank. Thus the ties to an individual territory may not be as great as with the Herring Gulls, and this led to difficulties in following the families of Lesser Black-backs during the period after hatching. It was discovered that quite suddenly and at any age of the chicks over eight days the families would move from the nesting territories possibly driven off by the Herring Gulls. The only place they can go is the intertidal zone below the bank and it was there that they were to be found. Unfortunately the actual move has not been observed in any case. It was difficult to connect with certainty the families on the foreshore with those that had been on the bank. Nevertheless once they had moved watch and records were kept of the foreshore families and it was found that these maintained their particular piece of the foreshore as a territory and did not again move from it. Even post-fledging the juveniles and adults kept to it. Less than 20% Lesser Black-backs with chicks remained on the nest territories up to the fledging period.

Pre-fledging Care

In 1969 a watch as intensive as possible was kept upon a pair of Herring Gulls of which the female had been wing-tagged No.2 and colour marked (see Plate 5b). A brief history of the family during the relevant period is as follows.

15.30 h,	21.5.69	Female trapped tagged and colour marked. Two eggs in the nest which is also marked.
15.30 h,	26.5.69	Two eggs of which one is chipping
	28.5.69	One chick, one chipping egg and one new egg.
	29.5.69	Two chicks and no egg.
14.20 h,	29.5.69	First observation of two chicks through telescope.
21.30 h,	5.6.69	Three chicks in the family (such additions are not so unusual, see under Additions to the Brood, below.)
12.00 h,	8.6.69	Last occasion on which three chicks are seen to be present.
09.15 h,	10.6.69	Only one chick.
20.30 h,	8.7.69	Chick still on territory exercising and almost ready to fly.
09.30 h,	9.7.69	Female on territory but chick absent. She remains in the area for several days but the chick does not return and is presumed lost. See under Post-fledging Care, p110 as to losses at fledging.

During the 43 days from 27.5.69 to 8.7.69, when daily observations were made of this territory on a total of 120 separate occasions, much additional information was collected. Some of the items of interest emerging from this study included:

- (1) The nest was more bulky than average and lying in something of a depression in the shingle. Hence it lasted longer than most and was still there at the end of the study. The chicks were largely kept within the nest structure and brooded there until at least 10 June—14 or 15 days after hatching.
- (2) At 09.30 h on 3 June the adult male was observed making several trips around the territory methodically collecting material and adding to it to the nest. This behaviour appeared to be quite deliberate and not to be representative of the type of nest building displacement activity described for the incubating Black-Headed Gull *Larus ridibundus* by Moynihan (1953). It is of particular interest because undoubtedly the nest structure itself provides a measure of protection to the brood on the open terrain of the bank where aerial piracy is one of the main causes of early chick loss.

- (3) Out of the 120 separate observations on only one occasion was the territory left unguarded by the adults and that was on the 8 July the day before the chick is presumed to have flown.
- (4) Whenever possible a note was made as to which partner of the adult pair was feeding the brood. The result is set out in Table 2 and shows what appears to be a remarkably even distribution of the responsibility.

Table 2. Observed sex of parent feeding Herring Gull Chicks
(hatched 28.5.69)

Date	Time	Sex of parent
30.5.69	20.30 h	male & female
10.6.69	20.30 h	male
12.6.69	21.30 h	female
21.6.69	21.40 h	female
25.6.69	21.30 h	male
26.6.69	09.30 h	male
26.6.69	10.00 h	female
26.6.69	21.30 h	male
29.6.69	21.15 h	male
1.7.69	21.00 h	male
5.7.69	19.50 h	female
7.7.69	06.15 h	female
7.7.69	08.10 h	female
7.7.69	21.30 h	male
8.7.69	20.30 h	female

NB There was more viewing in the late evening than at other times.

Additions to the Brood

During the 1969 breeding season the case histories of 69 pairs of Herring Gulls on eight standard plots (roughly 10 yards square) on the bank were followed from incubation until well after the young had fledged. Of the 69 pairs there were four whose own broods were added to by the arrival of a strange chick. For reasons which will become apparent it is considered that the expression 'adoption' should be avoided in this context. Table 3 gives relevant data. Of possible significance are the facts —

- (1) That in all cases the additions were to existing broods of two—Table 4 shows the proportion of such broods to others at various ages—and
- (2) That there were large tide-deposited objects affording a degree of shelter on three out of the four territories, and the fourth territory had a particularly bulky nest structure. Of the 69 territories there were 10 upon which were present such 'large objects'—defined as objects estimated as standing higher than 2½" above the level of the shingle.

As will appear under Breeding Success there was a strikingly higher rearing success ratio from those 10 pairs. Both factors (1) and (2) above probably played a part in causing the additions but the latter is considered to be more important. On occasions of gross disturbance of the colony confusion temporarily reigns. The adults are in the air wheeling and screaming and the unfledged chicks are dashing about headlong on the shingle: it is noticeable however, that the chicks are very often making for any large object that happens to lie in the vicinity. Furthermore, when the alarm is over and the adults are back on the bank there will always be a few chicks either lost or having a hard time to get back to their territories, the victims of jabbing bills as they continually trespass. For these chicks, unless quickly home, their only object becomes to escape the constant attacks and they will rush to the nearest object for

Table 3. Details of cases of additions to existing broods by strange chicks (one in each case)

Pair	Salient features of nest site	No. in brood	Age of brood (days)	Minimum duration of stay by strange chicks (days)
17/C	very bulky nest in slight depression	2	10	4
14/C	timber baulk partially sunk in the shingle	3	24	23
11/E	timber—measuring approx. 3 ft. long by 4 ins. square	2	32	15
17/E	flotsam bush c.2ft. in diameter	2	30	7

NB All additions were of comparable age to the host brood.

Table 4. Distribution of chicks between 69 pairs of Herring Gulls at Stert Island in 1969

Number of chicks per pair	Number of days after hatching (estimated)			
	15	25	35	45
0	26	30	31	36
1	22	22	23	22
2	15	13	9	8
3	6	4	6*	3*

* includes families with additions to the brood. Only one pair had three chicks of their own at 45 days.

shelter. If driven away from that object they will as often as not return to it when faced with attacks from all quarters outside. Circumstances such as these are believed to cause the additions to broods which have been noted. All four additions in 1969 appeared to be within the same age group as the original brood and it would appear that this gave them the chance of being at least partially tolerated by the adults.

Tinbergen (1953), referring to the experimental introduction of strange chicks over five days old, states that usually they were not wholeheartedly accepted. This very aptly describes the relationship with the families to which they had come of three out of the four additions noted in this study—the other addition being of too short duration to note reactions. The state of 'not wholehearted acceptance' can be manifested in various ways. For example, in three of the cases it was noted that the chicks of the original brood tended to stay together and the addition would be at a distance from them. Occasional jabbing at the addition by one of the adults would be seen in some cases. Certainly the fact that the chick obtains food from the adults is no evidence that they have taken it as their own. An extreme instance of this was in the pair 17/E. The addition during its relatively short stay was seen to be jabbed at quite frequently and it would spend most of its time sheltering in the flotsam bush at the centre of the territory. When one of the adults arrived it would rush out with the two chicks of the brood food-begging with them but would usually be chased back by the adults. Since the additional chick was driven away when food begging normally with the other chicks the adults can recognise a stranger by stimuli in addition to those derived from its 'apprehensive' behaviour. However, just as the adult was regurgitating the chick would rush out again and normally be able to secure a portion of the meal. In another pair—11/E—it was noticed that the effective food-begging was done by the two chicks of the brood with the addition trailing behind but getting a share when the

food was produced. It would not be correct to speak of the adults as feeding the additions in the circumstances. However, in the case of at least one of the pairs the adults could not be seen in their behaviour to draw any distinction between their own brood and the stranger.

Breeding Success

The whole basis of this study being direct observation of individual territories a few words of explanation are required when introducing the subject of breeding success. First it must again be stated that exact hatching dates are not known but the estimated dates used in this study are considered to be accurate to plus or minus two or three days. Secondly the criterion used for successful fledging is the observed presence of the chick in question on the territory and capable of flight on or after 45 days from hatching. The necessary corollary to this is the assumption that a chick which does not return to the territory after its first flights is doomed. Table 5 shows the results of both years study in terms of breeding success.

Table 5. Breeding success of Herring Gulls on Stert Island

Year	Number of pairs under study	Number of chicks reared to fledging stage	Average number of fledglings per pair
1968	115	59	0.5
1969	69	47	0.7

In 1968 more than two-thirds of the pairs on the plots lost their nests and eggs to an exceptionally high tide on 13 May caused by storm conditions. A surprisingly high proportion of these pairs successfully re-nested, and re-laid—the success being perhaps in part at least due to the synchrony of the event and the resultant fresh round of courtship behaviour for all (Brown, 1967). The somewhat lower success ratio in 1968 may well be connected with the tidal loss and subsequent re-nesting. Patterson (1965) showed for the Black-headed Gull and Brown (1967) for the Herring Gull and the Lesser Black-back that late layers are less successful than those laying at the peak of the season. Combining the results for the years 1968 and 1969 there is an average success in terms of fledged chicks of 0.6 per pair under study. Table 6 compares this result with those obtained elsewhere and in differing nesting habitats by other recent workers.

Table 6. Comparison of breeding success of Herring Gull at Stert Island with other colonies

Location	Habitat	Duration of study (years)	Average number of fledglings per pair	Source
Wilhelmshaven, West Germany	The debris of a blown up harbour mole	8	0.7	Drost, Focke and Freytag, 1961
Skomer Island, Pembs.	Cliffs	1	0.6	Harris, 1964
Walney Island, Lancs.	Short turf with clumps of marram and some bracken	4	1.0*	Brown, 1967
Stert Island, Som.	Shingle bank	2	0.6	This study

* Brown (1967) suggests that his pre-fledging mortality estimate is probably too low.

Observation during the 1969 season was of a smaller number of pairs and also on a more systematic basis. Table 7 shows the number of chicks surviving on the territories at intervals of five days commencing at age 15 days (the minimum age at which I could be sure of the number of surviving chicks in each brood). There have been a number of very detailed analyses of mortality during the first 10 days but because of difficulties inherent in the habitat or the method of study these lack the same precision of the later pre-fledging period.

Table 7. Herring Gull chick survival from 15-50 days after hatching (based on the progeny of 69 pairs in 1969)

Age in days (estimated)	15	20	25	30	35	40	45	50
Number of chicks on the territories	70	61	61	58	59	57	47	45

NB During this period there were three cases of additions of strange chicks to broods. Hence such minor fluctuations as, for example, the increase at 35 days.

As to the causes of mortality, human disturbance can be eliminated as a factor during the years in question. No information is available as to the effects of extremes of weather, e.g. heavy rainfall or prolonged high temperatures, upon eggs and young chicks on the bank. No significant losses from starvation or disease have been noted or reported. Possible predators are Brown Rats *Rattus norvegicus* of which there is a colony on the island (Morley, *pers.comm.*), Foxes *Vulpes vulpes* which are known to cross at low water from the mainland from time to time, and Crows *Corvus corone* which are continually present, but it is not expected that any of these play a significant part as a cause of chick mortality. Interestingly, a Grey Squirrel *Sciurus carolinensis* was observed some years ago crossing the mud from the mainland (half a mile or more) and then to take a gull's egg while on the island (Morley, *pers.comm.*). Direct observations have been obtained of cannibalism and also predation by Great Black-backed Gulls. Undoubtedly, both these factors play a major part in mortality rates but it is intended to investigate the subject in greater depth in future seasons.

Cannibalism has been observed in the form of the taking of eggs and chicks. The latter have been seen snatched from the ground by gulls on the wing and this seems to be the most effective and frequently adopted method. On the bank there is no possibility of concealment—nests, eggs, chicks, parents and pirates all stand out plain to see although the cryptic colouration of the young chicks makes them somewhat less obvious. With eggs and young chicks never unattended it will only be a lightning attack which will have much chance of success.

Great Black-backs have been observed habitually and methodically removing for their own purposes materials from Herring Gull's nests constructed or under construction near their own, and also taking eggs and chicks. The loss of nest material delays the start of laying and can affect the ultimate breeding success of individual pairs particularly when further setbacks occur such as the loss of the first clutch. Late in the season Great Black-backs can be seen attacking and harrying fledged chicks but it is anticipated that whilst they themselves are rearing unfledged young predation will be mainly restricted to chicks of an age which will permit the swallowing of their entire carcasses for transportation. The oldest chick actually seen to be taken was one 15 days old, and the body after much battering was swallowed whole.

Few nesting habitats could be more exposed than a bare shingle bank. The question arises as to why the breeding success is comparable to those from apparently more favoured habitats. For the moment there are a few indications of possible answers. Brown (1967) analysed the comparative success of pairs of Lesser Black-backs nesting in cover and without cover. As he points out the assessment of the amount of cover is inevitably rather arbitrary. For the purposes of his work 'cover' nests were those in or beside clumps of marram or bracken whereas the 'no cover' ones were on bare turf. His findings show a substantially lower degree of egg and chick loss from the 'cover' nests. His analysis is on the assumption that concealed eggs and chicks will be harder for a predator to find and no doubt

that is the case. There can be no question of concealing the nests, eggs or chicks on the shingle bank. However, a large tide-deposited object, as previously defined, somewhere on the territory—and in practice almost invariably immediately adjoining the nest—does afford some protection against the strafing type of aerial robbery and also a means of defence 'with one's back to the wall'. These factors as well as concealment may have assisted Brown's Lesser Black-backs also.

In 1969 the nests in this study were classified as follows—'with protection' nests were those with a large object on the territory and 'no protection' were the remainder upon, to all intents and purposes, territories of bare shingle. Table 8 shows a very much higher fledging success from the 'with protection' nests but the analysis will be repeated during further seasons. It is believed, however, that the nests themselves afford a measure of protection during the first week or ten days of the chick's life on 'no protection' territories. This may possibly explain why the Herring Gull male alluded to earlier added material to the nest seven days after the hatching of the chicks.

Table 8. Comparison of fledging success from nests with and without 'protection' on the bank at Stert Island, 1969

Type of nest*	Number of pairs	Number of pairs with chicks at 15 days	Number of chicks to fledge successfully	Average per pair
Nests 'with protection'	10	10	17+	1.7
Nests 'without protection'	59	33	28	0.5
Combined total of nests	69	43	45	0.7

* as defined in text

NB + this number excludes two additions of strange chicks to the brood.

A deliberate means of defence observed by adults with young chicks is the action of springing up into the air sometimes as much as seven or eight feet at other gulls flying low over the nest. On the other hand the defence adopted against a Great Black-back raiding the territory takes the form of the well known aerial stooping dives. The effectiveness of both these forms of defence is multiplied by however many birds are adopting it against the raider in question at any one given time. This raises the question of nest density and its value as a corporate means of defence. One would expect close grouping to be more effective than spacing out against most of the dangers on the bank. The actual density of one nest to every 10 square yards (allowing for the few Lesser Black-backs nesting at the lower end of each plot) is believed to be considerably higher than average. In the 1970 season it is proposed to check the density in other habitat zones on the island including the vegetated area.

Post-fledging Care

(a) On the territories

As the literature on the period subsequent to fledging is scanty in the extreme it is worth quoting what little information is available. For example, Tinbergen (1953) states:

"How the family actually breaks up, I do not know. The young seem to leave the colony of their own accord, and to begin earning their own living very soon after this. Although food-begging by the juveniles may be seen occasionally during late summer and even at the beginning of winter, I believe that the adult gulls very rarely



Plate 5. Above, photograph taken through the telescope of part of the study area Stert Island, May 1969. Only the upper portion of the bank was available for nesting (*photo: C.R. Cridland*). Right, a marked adult female Herring Gull, *Larus argentatus* from the study area showing the prominent numbered wing-tags (*photo: J. V. Morley, Nature Conservancy*). See p. 100.



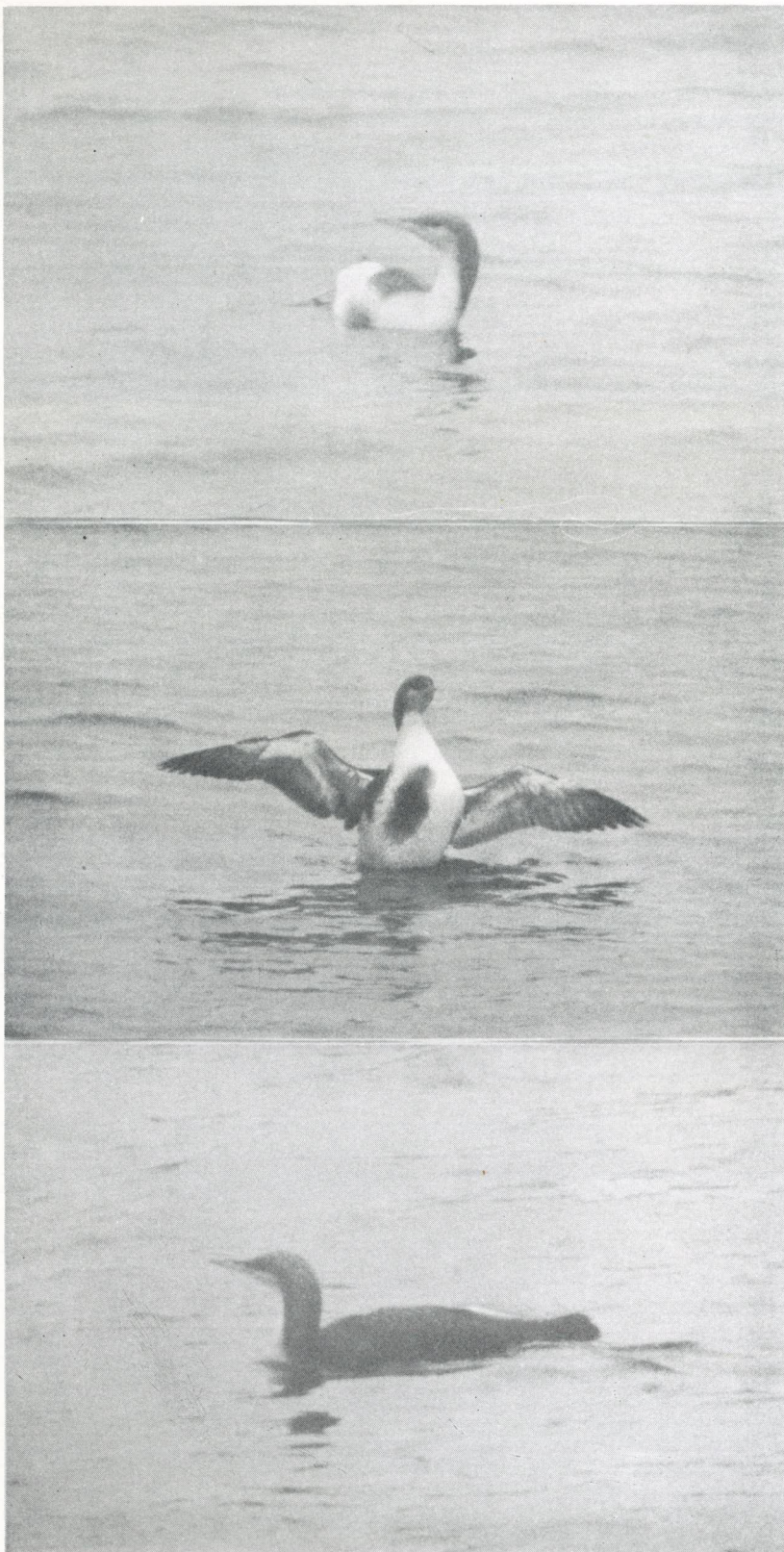


Plate 6. Black-throated Diver *Gavia arctica*, at Cheddar Reservoir, Somerset, 21st December 1969. There were also a Red-throated *G. stellata* and two Great Northern Divers *G. immer* at Cheddar at the end of December (see p.98) and photographic evidence such as this is highly desirable. Several identification features—smallish straight bill, rounded crown and uniform blackish back show well. Note the large patch of oil on its right underside. The photographs were taken with the aid of a 500 mm. telephoto lens at 50 to 100 yards range (photos: P. Curry and C.R. Bagshaw)



Plate 7. Wren *Troglodytes troglodytes*, Cirencester, Gloucestershire, July 1968, with food for its second brood in this nest; hence the enlarged entrance. Photographed from a hide on an eight foot high platform which was built over a period of seven days. Hasselblad camera and 250 mm. lens at a range of seven feet with twin electronic flash using Kodak TRI-X film. (Photo: M.R. Tibbles)



Plate 8. Reed Warbler *Acrocephalus scirpaceus*, Chew Valley Lake, Somerset, May 1968. Photographed with a Hasselblad and 250 mm. lens at a range of seven feet using Kodak TRI-X film. (Photo: M.R. Tibbles)

if ever feed young after they have left the breeding colony, but I must admit that my observations on the first weeks are very fragmentary indeed."

Also Fisher and Lockley (1954) state:

"It is doubtful if juvenile gulls remain attached to the adults for long in the autumn. They do, however, frequently follow adults, calling querulously for food, and an adult which happens to have its crop full of food may respond to the persistent begging of a juvenile, not necessarily its own child."

No subsequent references of significance can be traced. Current opinion is believed to hold that very shortly, if not immediately, after fledging the juveniles have to 'go it alone'.

What has already emerged from the present study is that at least on Stert Island the newly fledged juveniles of all three species are far from deserted by the adults. They continue to frequent the territories from which they fledged and, of course, they indulge in exercising and exploratory flights around the colony. Any disturbance will soon send them off but in general they spend as much of the daytime on the territories as elsewhere. This feature is perhaps best observed by the method used in this study, i.e. from without rather than within the colony. Of the 69 pairs of Herring-gulls watched in 1969, 33 had fledged young. Depending upon the time of day and the length of the period post-fledging one might see juveniles on perhaps every fourth or fifth territory and an adult on perhaps one in every 12. Whilst this is the general situation, it is only by watching individual territories and chicks for many hours that an accurate appraisal can be made. Various passages in the literature show this presence on the territories post-fledging to be a not uncommon feature. For example, Paludan (1951):

"In the last half of June the first chicks become fledged, but 3 or 4 weeks elapse before the first young begin to appear on the harbour between Frederiksø and Christiansø or on the skerries. In the last half of July a few young may leave Ertholmene, as indicated by two recoveries from more distant places. A more large scale emigration from the colony probably does not occur until August (25 recoveries). About the 15th July an estimate can be formed of the number of fully fledged chicks which gives an idea of the number of young which will be able to leave the gullery. If the weather is calm this can be done by disturbing the chicks so that they all leave the island and counting them as they sit on the sea round it."

The frequency of their presence on the territories enabled the final two columns of Table 7 to be prepared showing the number of Herring Gull juveniles surviving in 1969 at ages 45 and 50 days. The columns show a very large drop from 57 to 45 young in the 10 days from the 40th day. It is probable that this marked drop represents the actual mortality at the fledgling period, i.e. when the chick is almost fully fledged and is making the initial exploratory flights. Clearly this period is a critical one for the fully fledged young for not only has it to develop the ability of sustained flight, it also has to obtain food in sufficient quantities to replenish depleting body food reserves. Up to the very time of fledging its food, has been brought to it in a concentrated and even partly digested form. Is that supply abruptly terminated? It is true that the young of some species, as in the Puffin (Lockley 1953), are left by the adult before fledging but they are in an environment surrounded by their natural food and with sufficient bodily reserve to sustain them during the development of their own feeding skill. It is suggested that there is a relatively high order of loss at the fledgling period in the Herring Gull, due to the freshly fledged juveniles for various reasons losing essential contact with their parents. This might well account for the congregations of starved and feeble fledged juveniles within or near the gull colonies reported by various workers, e.g. Lockley (1947) and Beer (1968).

At the end of July 1969 an exceptionally high tide disturbed various markers on six out of the eight plots under study sufficiently to bring some uncertainty into the identification of individual juveniles. Accordingly observation was concentrated from this time upon Plots 6 and 14 which immediately adjoined one another and which together held 18 pairs of Herring Gulls with a total of nine fledged chicks omitting altogether pair 14/C mentioned in Table 3 where there was an addition to the brood. Table 9 shows the survival figures for all the offspring on Plots 6 and 14 over the period from 15 days to 10 weeks old obtained entirely by the recorded presence of the young on the respective territories. At 10 weeks therefore eight out of the nine fledged chicks were still regularly frequenting the territory.

A food-dependency relationship between juvenile and adult on the territory normally persists for almost as long as the juvenile continues to resort to that territory. The test applied in determining the existence of this

Table 9. Survival figures for the period 15-70 days after hatching for the progeny of 18 pairs of Herring Gulls at Stert Island, 1969

Code number of pairs with chicks	Estimated age (days)											
	15	20	25	30	35	40	45	50	55	60	65	70
6/A	1	1	1	1	1	1	—	—	—	—	—	—
6/B	1	1	1	1	1	1	1	1	1	1	1	1
6/C	1	1	1	1	1	1	1	1	1	1	1	1
6/G	2	2	2	2	2	2	1	1	1	1	1	1
6/L	1	1	1	1	1	1	1	1	1	1	1	1
6/P	2	2	2	1	1	1	1	1	1	1	1	1
6/R	2	1	1	1	1	1	1	1	1	1	1	1
14/E	1	1	—	—	—	—	—	—	—	—	—	—
14/F	1	1	1	1	1	1	1	1	1	1	1	1
14/G	1	1	1	1	1	1	1	1	1	1	1	1
14/1	1	1	1	1	1	1	1	1	1	*	—	—
Combined totals												
11 pairs	14	13	12	11	11	11	9	9	9	8	8	8

* uncertain after this stage as no food-begging behaviour observed.

relationship is observed food-begging by the juvenile from the adult. It is noteworthy that none of these juveniles were ever observed to beg from any adults other than their own parents. It will be appreciated that it is far easier to note food-begging behaviour than an actual feed because the begging sometimes persists for a considerable period both before and after a feed and on occasions without a feed at all. Table 10 shows the observed length of that relationship, as so defined, between the juveniles and adults listed in Table 9.

The combined width of plots 6 and 14 was 60 feet and thus twice the field of view of the telescope. It was not possible therefore to watch all the territories simultaneously at times, particularly on the evening return of the adults to the colony, when most of the juveniles were present. As Table 11 shows it is quite commonplace in the evening for several juveniles to be food-begging simultaneously. Finally therefore concentration was focused upon a

Table 10. Last observed food begging behaviour and length of stay in territory of the nine juvenile Herring Gulls surviving to more than 55 days after hatching.

Code number of pair rearing juvenile	Estimated hatching date	Age in days when		
		First seen	Last observed food-begging	Last observed on the territory
6/B	1.6	3	82	82
6/C	4.6	5	80	80
6/G	29.5	2	96	96
6/L	5.6	3	77	77
6/P	28.5	6	79	79
6/R	27.5	3	80	86
14/F	2.6	5	78	78
14/G	6.6	6	80	80
14/1	2.6	5	56	—

Table 11. Extract from notes showing entries from 19.00 h-21.30 h during period 1-14 August 1969 in respect of the five juvenile Herring Gulls listed in Table 12.

Date	Code number of pair and estimated age 1.8.69				
	6/B 62 days	6/G 65 days	6/L 57 days	6/R 67 days	14/F 61 days
1.8.69		FB (20.45 h)		FB (20.15 h)	FB (20.15 h)
2.8.69	FB (21.15 h)		FB (21.15 h)		
3.8.69			F (19.30 h)		FB (20.30 h)
4.8.69			FB (21.00 h)		F (20.50 h)
5.8.69	F (19.30 h)				
6.8.69	F (20.00 h)		FB (20.20 h)	FB (19.45 h)	
7.8.69	F (19.15 h)	FB (19.15 h)			
8.8.69	F (19.10 h)	F (19.25 h)	F (20.00 h)	F (20.00 h)	
9.8.69		NO OBSERVATION			
10.8.69	F (20.30 h)	FB (19.25 h)	F (19.50 h)	FB (20.05 h)	F (19.25 h)
11.8.69	F (20.20 h)	FB (20.10 h)	FB (20.55 h)		FB (20.40 h)
12.8.69		NO OBSERVATION			
13.8.69			FB (19.30 h)		F (20.40 h)
14.8.69	F (19.45 h)	F (20.05 h)	F (20.05 h)	FB (20.55 h)	

FB — food begging
F — actual feed

group of five of the juveniles on territories all within an area of 10 yards square. Nevertheless, intermittent observation was still kept upon the remaining juveniles on the two plots. It is believed that by concentrating in this way on a small group it has been possible to obtain tolerably precise details as to the length of the relationship on the territories between the adults and their individual offspring. When concentrating on so few one comes to know the extent of their territories and also the individual birds quite intimately. Table 12 shows the detailed results of observing closely the five juveniles and also gives details of the more obvious individual characteristics aiding identification. Of the four juveniles on the combined plots outside the area of concentrated observation, it appears that three enjoyed a relationship with the adults comparable with the five under close study but the other was not seen with certainty after its 56th day. From experience of watching the colony as a whole it is clear that on Stert Island parent/juvenile relationships on the territories of the order of those shown in Table 12 are the norm rather than the exception.

Table 12. Duration of juvenile/adult relationship on the territories

Code number of pair rearing juvenile	Identification feature	Last observed diurnal feed		Last observed evening feed	
		age in days of juvenile	time	age in days of juvenile	time
6/B	—	75	09.20 h	79	19.50 h
6/G	Unusual mottling on juvenile	77	14.10 h	96	18.30 h
6/L	—	62	09.45 h	77	20.00 h
6/R	Adult female wing tagged	79	09.05 h	73	20.00 h
14/F	Juv. lame	72	09.30 h	78	19.55 h

NB Diurnal feed up to 18.00 h.

As already stated during the immediate post-fledging period the juvenile spends a considerable part of the day on the territory. Later on the period per day on the territory reduces but if an adult arrives the juvenile very soon appears. One time of day when the juveniles are always on the territory is in the evening. Normally they arrive before the adults—occasionally after—but parent and offspring have not been seen to arrive together. Table 11 is derived from the author's field notes from 19.00-21.30 h during the period 1-14 August 1969 and records the food begging/feeding behaviour of the five juveniles. Whilst observation was not continuous and would have been better started at 18.00 h the inference from those records must be that a regular evening feed of the juveniles takes place. Normally feeding at that time of day continues for longer than at any other time. Nevertheless, feeds at other times of the day do continue until a relatively late stage post-fledging period. On the 14 August 1969 an intensive but not continuous watch of the five territories was maintained throughout most of the day. During the day two of the juveniles, all of which were then at least 10 weeks old, were each seen to be fed twice with intervals of several hours in between feeds; two more of them were seen to be fed once.

In 1969 attention was given to the question of the parts played by the individual members of the adult pair during the late stages of the parent/juvenile relationship. The results are set out in Table 13. It is apparent that further investigation is needed to determine the role of the individual sexes in this late relationship with the juveniles.

Table 13. Analysis of participation by the individual adults in the relationships detailed in Table 12 during the period from 60 days post-hatching.

Code number of pair	Participation by the sexes
6/B	by male and female—the latter more responsive to the juvenile and made the last observed feed.
6/G	by male alone: female absent.
6/L	by male alone: female absent.
6/R	by male and female. Latter more responsive to juvenile. The last observed feed by male at 20.00 h, 8.8.69 (juvenile 73 days old) and by female 09.05 h, 14.8.69 (juvenile 79 days old)
14/F	not established.

NB Sex determined by behaviour

Whilst there is as yet no quantitative data available for the Lesser Black-back, individual families were observed in both 1968 and 1969 and there was no detectable difference between the two species concerning parent/juvenile relationships. Over a four day period at the end of August and early September in 1968 one family of Lesser Black-backs with two surviving juveniles was watched intensively. The actual feeding of one or both juveniles by an adult was observed at the following times:

31.8.68 (watch commenced 14.15 h)	15.45 h and 18.30 h — both juveniles.
1.9.68 (watch commenced 10.30 h)	15.00 h and 18.10 h — both juveniles.
2.9.68 (watch commenced 06.15 h)	07.30 h — both juveniles; 12.15 h and 16.55 h — one juvenile; 19.15 h — both juveniles.
3.9.68 (watch commenced 07.00 h)	At 08.00 h both juveniles follow adult away from territory and in all probability remain with that adult all day.

It does appear that these 10 week old Lesser Black-back juveniles were largely, and probably still entirely dependant on adult feeding for food.

Similarly there is no quantitative data available for the Great Black-back. However in 1969 watch was maintained on the territory of the pair mentioned earlier in this paper. Of the three chicks two fledged. The last time

the two juveniles were seen together on the territory was at 19.30 h on the 17 August—85 days after hatching— when they were busy food-begging from both adults. The last time when one of them was seen to be fed was 19.15 h on the 2 September 1969—101 days after hatching.

(b) Atypical prolongation of the relationship.

In late September 1968 it was realised that something unusual was happening within family No 4 (the 1968 pairs were numbered in contrast to the 1969 pairs which were lettered) on Plot 6. The pair concerned was amongst those which had to re-nest following the exceptional tide of the 13 May. On the 3 July they were observed to have one small chick believed to have hatched about 25 June. The chick survived to fledge on 4 or 5 August on which later date at 14.15 h it was noted to be absent from the territory. The juvenile was seen frequently upon the territory during the period which followed and there was the usual post-fledging relationship between it and the adults. No other juvenile was seen to be fed within the colony after the 22 September 1968. Careful watch on the 6/4 juvenile was kept from the end of September onwards when it became apparent that the evening feed was being prolonged. Table 14 shows the regularity with which actual feeding of the juvenile (as distinct from food-begging behaviour by it) was observed and it can be taken that the behaviour was part of a continuing daily pattern. Watch was maintained at all times of the day but the juvenile was never fed at any time other than the evening. Food-begging and feeding were always conducted from the territory and only one of the adult pair was involved, almost certainly the female, but the other was usually present and seemed to tolerate the position. The juvenile did not remain on the territory but moved down to the roost before nightfall. It received the evening feed for a total period of seven months—four months longer than any other known recorded case. Similar prolongations have been looked for in the two seasons amongst at least 500 pairs with juveniles but none have been found. Analysis of this unusual behaviour in the light of future findings may help to establish the manner and causes of the final break of the links between parents and offspring.

Table 14. Dates and times at which a juvenile was observed to be fed by an adult Herring Gull on the territory during an unusual prolongation of the relationship.

Date	Time	Date	Time
22.9.68	18.45 h	20.12.68	14.45 h
12.10.68	18.40 h	27.12.68	17.15 h
20.10.68	17.45 h	4.1.69	17.00 h
10.11.68	16.45 h	19.1.69	17.30 h
16.11.68	17.10 h	25.1.69	17.35 h
17.11.68	16.40 h		
23.11.68	16.35 h	Juvenile last seen on the	
9.12.68	15.30 h	territory 17.45 h, 9.2.69	

NB Juvenile originally hatched on the territory c. 25.6.68

(c) 'Calling Away'

A behavioural feature has been noted to which no reference can be found in the literature. It can best be described by quoting from contemporary notes of an incident occurring at 20.05 h on the 10 August 1969 and involving the juvenile, then 75 days old, and an adult, believed to be the male, of family 6/R. Reference to Table 13 will show that the last occasion when the male of this family was observed to feed the juvenile was at 20.00 h on the 8 August, two days previously; this may be significant. The notes read —

"Juvenile food-begging vigorously from believed male. A moment or two later the adult takes off and I watch it doing two circuits of that area of the bank. I can see it calling continuously, head stretched right out. Then the juvenile takes off and joins it. They head straight for the Brue Estuary region, the adult still calling continuously."

The direction in which they headed was that normally taken by birds leaving the colony for one of the main feeding grounds—a local authority rubbish tip 3½ miles away. Table 15 sets out all the instances when this behaviour has been noted in families under study. There would probably have been more but, as so often happens, the significance of the event was not immediately appreciated. In all the observed cases the flight of the adult accompanied by the juvenile(s) was followed for at least half a mile before they were lost to view. The impression obtained was that it was the long call which was being uttered by the adult but at that distance it could not of course be heard. It is evident that the machinery is there for leading island or otherwise remotely hatched juveniles directly to the feeding grounds.

Table 15. Observed instances of adult *Larus* gulls 'calling away' juveniles from the territory

Date	Time	Number of juveniles and estimated age in days		Species
2.9.68	07.30 h	2	70	<i>fuscus</i>
3.9.68	08.00 h	2	71	<i>fuscus</i>
6.9.68	09.00 h	1	71	<i>argentatus</i>
10.8.69	20.05 h	1	75	<i>argentatus</i>
11.8.69	20.10 h	1	74	<i>argentatus</i>

NB *fuscus* records refer to the same family on both occasions.

(d) Discussion

It is suggested that the data presented in relation to the post-fledging stage points in the normal case to a period of total food dependence on the adults whilst the juvenile develops the power of flight and familiarises itself with the immediate neighbourhood of the colony. This is followed by a period during which it learns to search for food on the feeding grounds once the behavioural machinery for taking it has been successful, and receives supplementary feeding at least on the territory in the evening. Having observed what appears to be identical behaviour in all three species one seriously doubts that such behaviour is either unusual or localised to the Stert Island population.

Future Studies

This communication was offered and accepted as a progress report and no more. Some aspects of the subject are barely touched upon and others are not mentioned—for example, juvenile/begging from adults away from the colony. Perhaps the most important problem to solve is the reason for the final break between juvenile and adult and the manner in which such a break comes about. Some information and some clues have been gathered already but much remains to be done. In subsequent breeding seasons the study will concentrate on determining:—

- (1) The number of hours per day spent on the territory by juveniles at various stages post-fledging.
- (2) The number of feeds per day by the adults on the territories at those stages as related to the number of feeds per day during the period immediately before fledging.
- (3) All the circumstances surrounding the 'calling away' behaviour.
- (4) Adult/juvenile relationships away from the territories on the feeding grounds and the roosts.
- (5) The circumstances and causes of the final break in that relationship.

Any information relating to the problem covered particularly with regard to adult/juvenile relationships away from the breeding colony would be welcomed by the author.

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- (1) the data in Table 1.
- (2) the marking of individual gulls
- (3) the laying out of plots
- (4) direct observations obtained on the island
- (5) the interest shown in and encouragement given to the work by the Chief Warden for Somerset, Mr. J.V. Morley, and the Warden for the Bridgwater Bay National Nature Reserve, Mr. R.S. Cook.

Plate 5b was taken by Mr. Morley and I am grateful to him and the Nature Conservancy for permission to publish it.

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References

- Beer, J.V. 1968. Observations on the dispersal of gulls marked on Steep Holm and the Denny. *Steep Holm Gull Research Station Report 2*: 4-10.
- Brown, R.G.B. 1967. Breeding success and population growth in a colony of Herring and Lesser Black-backed Gulls. *Larus argentatus* and *L. fuscus*. *Ibis* 109: 502-515.
- Brown, R.G.B. 1967. Courtship behaviour in the Lesser Black-backed Gull *Larus fuscus*. *Behaviour* 29: 122-153.
- Fisher, J. and Lockley, R.M. 1954. *Sea-birds*. London: Collins
- Drost, R., Focke, E. and Freytag, G. 1961. Entwicklung und aufbau einer population der Silbermöwe. *J. Orn.* 102: 404-429,
- Harris, M.P. 1964. Aspects of the breeding biology of the gulls *Larus argentatus*, *L. fuscus* and *L. marinus*. *Ibis* 106: 432-456.
- Kidson, C. 1963. The growth of sand and shingle spits across estuaries. *Zeitschrift für Geo morphdogie* N.F. Bd.7, Heft 1: 1-22.
- Lockley, R.M. 1947. *Letters from Stockholm*. London: Dent.
- Lockley, R.M. 1953. *Puffins*. London: Dent.
- Moynihan, M. 1953. Some displacement activities of the Black-headed Gull. *Behaviour* 5: 58-80.
- Paludan, K. 1951. Contributions to the breeding biology of *Larus argentatus* and *Larus fuscus*. *Vidensk. Medd. fra Dansk. naturh. Foren.* 114: 1-128.
- Patterson, I.J. 1965. Timing and spacing of broods in the Black-headed Gull *Larus ridibundus*. *Ibis* 107: 433-459.
- Tinbergen, N. 1953. *The Herring Gull's World*. London: Collins.

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SOME AFRICAN ENIGMAS

by K.D. Smith

It is common knowledge that many migratory species winter in Africa south of the Sahara, and data built up over the years has enabled avifaunal geographers to plot the winter quarters of some of them with a certain degree of accuracy. In earlier years collecting was a necessity, but this has now largely been supplemented by more skilled field identification, and latterly by trapping. Ringing has so far proved a failure in respect of birds ringed in Europe, apart from sea-birds and hirundines, for of the vast number of migrants ringed there only a mere handful have been recovered in tropical Africa on dates indicative of wintering where they were recaptured. But impressive data are now being accumulated by ringing migrants in their winter quarters in Africa, for it has been found that many return to the place of ringing in subsequent winters (*Ortstreue*, Moreau 1969b), although this in turn suffers from the disadvantage that the place of origin of the birds is not known.

The varying pronouncements in the literature, often contradictory and confusing, on the distribution of the migrants have been analysed by the late Mr. R.E. Moreau for his forthcoming book on the ecology of Palearctic migrants in winter in Africa, but a considerable number of unresolved problems remain, some of which are summarised in this paper. Many other species with imperfectly known ranges in winter could be included, but to me the problems relating to those selected are of more than average interest. Equally absorbing uncertainty surrounds some species which breed, or may breed in north-west Africa, but which do not cross the Sahara, and a few are mentioned here.

My thanks are due to Mr. R.E. Moreau for reading and commenting on these summaries, and for calling my attention to certain references which I had missed.

WALDRAPP (or HERMIT IBIS) *Geronticus eremita*. Known to breed only in two widely separated areas in the western Palearctic Region, in Morocco and Algeria (now rare), and at Birecik on the Upper Euphrates in southern Turkey. They have for long been suspected of breeding in the countries bordering the Red Sea, especially in Ethiopia and the Yemen, and perhaps in the Red Sea Hills of the Sudan, but no proof of this exists to date. In winter the Moroccan population leaves, and presumably winters somewhere in, or on the fringe of, the vastness of the western Sahara; no-one has discovered where but a likely area would be on the northern edge of the Niger Inundation Zone in Mali, where the ibises could presumably find food in a region which is otherwise dry in winter. They are well known in winter in Eritrea, Ethiopia and the Sudan, but whether these are the Birecik birds or local residents is not known. I believe these are trans-Saharan migrants but Moreau (pers. comm.) still considers they may be of more local origin, perhaps from the Yemen. If so then where do the Birecik populations spend the winter? The problem is dealt with in greater detail by Smith (1970).

LEVANT SPARROW HAWK *Accipiter brevipes*. Breeds from south-eastern Europe east to 52°E in Asia (Vaurie 1965), thus its range covers some 1700 miles of longitude. Whilst some have been recorded in winter between Persia and Egypt (Brown & Amadon 1968), heavy autumn movements take place through the Bosphorus (Nisbet & Smout 1957) and the Lebanon (Cameron *et al.* 1967), and in spring through Israel (Safriel 1968), and the inference must be that these birds are travelling to, or returning from winter quarters in tropical Africa. But so far they have gone almost wholly undetected on the continent, except for single records in the Sudan and Tanzania. Field identification is complicated by the presence throughout much of tropical Africa of the very similar resident African Shikra *A. badius* (regarded by some authorities as conspecific (Meinertzhagen 1954), but not by Brown & Amadon 1968), thus only collecting, or better, trapping will eventually solve the problem of where *A. brevipes* winters.

LAPPET-FACED VULTURE *Torgos tracheliotus*. This, the largest of the tropical African vultures, is a widespread resident over much of the drier parts of Africa south of the Sahara. But it has also bred in southern Tunisia and northern Mauritania, has been seen occasionally in the Middle Atlas in Morocco (and more often in Lower Egypt),

and has even wandered to southern France and the Pyrenees (Brown & Amadon 1968). The origin of these remnant populations is obscure, but may be comparable to that of those now typically Ethiopian species which crossed the western Sahara some 5000 years ago when conditions there were less severe than nowadays, but which became stranded in the Maghreb (Morocco, Algeria and Tunisia) when aridity spread in again from the east (Moreau 1966). It is thought that the birds breeding in north-west Africa (if any do nowadays) are migratory, otherwise such tiny populations would presumably have become extinct long ago, but they are rarely reported and anyone visiting north-west Africa should watch for them, especially in the Middle Atlas.

EUROPEAN BLACK VULTURE *Aegypius monachus*. Around the turn of the century Vaucher reported a "colony" breeding on cliffs some 45 miles south-east of Tangier in Morocco (Heim de Balsac & Mayaud 1962). Since then no-one has set eyes on a Black Vulture in north-west Africa, and elsewhere on the continent it is known only as a vagrant to Egypt with one record from the northern Sudan. Vaucher's statement is generally accepted, with reservations, but some of his comments on other species are questionable, and it can be asked whether he confused them with Griffons *Gyps fulvus*, especially as *Aegypius* is normally regarded as a solitary, and not a colonial breeder, which nests only rarely in cliffs when trees are not available (Brown & Amadon 1968). Even nowadays it would be well worth while searching high up in the great crags at the western end of the Rif Mountains, for it is possible that this species has been overlooked there since Vaucher's time.



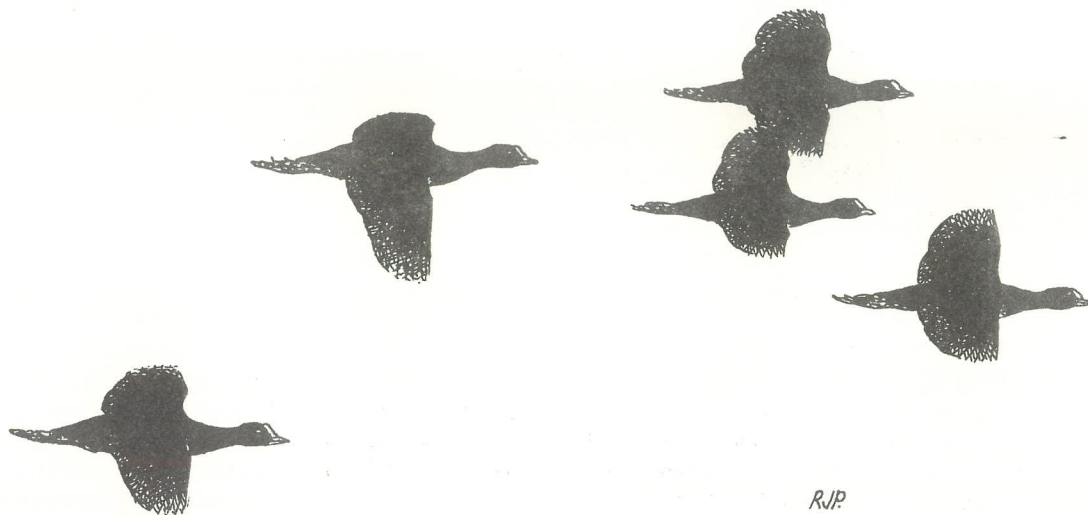
ELEONORA'S FALCON *Falco eleonora*. Breeds in the Canary Islands, on Mogador Island off the west coast of Morocco, and on islands throughout the Mediterranean. It shares with the Sooty Falcon *F. concolor* (N.E. Africa to the Persian Gulf, Moreau 1969a) the distinction of breeding late in the summer and autumn in order that the young may be fed on southbound Palearctic migrants. The only known wintering area is in Madagascar, and it is thought that those breeding in the eastern Mediterranean probably migrate there via the Red Sea, but identification here is complicated by the presence of the very similar resident Sooty Falcon, which also winters in Madagascar as well as in East and South Africa. But no-one has a notion how those birds breeding in Morocco, and the Canary and Balearic Islands, get to and from Madagascar, if indeed they go there? Do the birds breeding on Mogador and the Canaries fly northeast in autumn, then east through the Mediterranean, or do they migrate south-east across Africa to Madagascar, a distance of some 5,000 miles, with a similar reverse journey in spring? Comparatively few birds would be involved in this trans-African crossing, so it is not surprising that none have been detected en route,

especially as they may cross Africa in unbroken flight, or at most, with only one stop. Such a migration would be unique, but so far there is no evidence of it, and the situation is further confused by recent records of two seen flying west in October 1965 and 1966 in Tripolitania (Bundy & Morgan 1969).

DEMOISELLE CRANE *Anthropoides virgo*. Nowadays confined in the breeding season to Asia, except for very small populations which hang on in the Maghreb (Etchécopar & Hüe 1967). Hardly anything is known about their breeding there, and nothing of where these birds winter. Do they migrate south-east in autumn and join up with Asiatic breeders wintering in north-east Africa, or are they the birds reported from Lake Chad (Elgood *et al.* 1966), or do they winter in some undiscovered locality on the southern fringe of the Sahara such as the Niger Inundation Zone? It is fascinating to speculate on how these fragmentary populations arose in the first place, and the answer must again surely be linked with the very different conditions which prevailed in the western Sahara in the past (Moreau 1966).

MOORHEN *Gallinula chloropus*. The Palaearctic *G.c.chloropus* is not well known in winter south of the Sahara, having been recorded only in the northern Sudan (White 1965), and more commonly in Senegal (Morel & Roux 1966). But quite large and fluctuating numbers were observed at Daiat (Lake) Tchiour, in north-west Algeria, in spring 1966 (Smith 1968), which suggests trans-Saharan passage. A likely wintering area would again be the Niger Inundation Zone, about 1000 miles S.S.E. of Daiat Tchiour, but far too little is known about this vast watery waste at any time of the year. Sight records south of the Sahara do not help, owing to the presence of the resident *G.c.meridionalis*.

COOT *Fulica atra*. Again hardly known in winter south of the western Sahara (once in Senegal, Morel & Roux 1966), although further east they penetrate deep into the Sudan up the Nile (Cave & Macdonald 1955), and Dr. J.S. Ash (*in litt.*) has recently discovered them wintering on the Ethiopian plateau. In Morocco in 1962-63 there were enormous concentrations in autumn on the Atlantic coast, but far fewer in winter (Smith 1965), which suggests that there must be a southerly shift in autumn to winter quarters somewhere in West Africa, so far undetected, although Ash also informs me that there are recent winter records for Lake Chad. But this is not altogether so surprising considering that Spotted Redshanks *Tringa erythropus* have only recently been discovered wintering in quantity in Ghana (Grimes 1969), when it was obvious that the considerable numbers which pass through Morocco in autumn were not accounted for by the paucity of records of this species in West Africa as a whole. Ash considers that in Ethiopia *F.atra* has been overlooked in the past amongst the common resident Crested Coot *F.cristata*.



SLENDER-BILLED CURLEW *Numenius tenuirostris*. According to Dementiev & Gladkov (1951), and Vaurie (1965), this species is now rare in its breeding quarters in western Asia. It has for long been known that some winter in the Mediterranean basin, with a few reaching as far west as Morocco, but the Blondels' (1964) recent remarkable discovery of some 600-900 wintering on the west coast of Morocco shows that they must have been largely overlooked

here since Savile Reid found them common in flocks from 20 to 100 in the Larache Valley in the winter of 1884/1885 (Hartert & Jourdain 1923), and also suggests that they may not be as rare in Siberia as is thought. In any event those birds which winter in Morocco must fly 4000 miles only slightly north of east to reach their breeding quarters in Kazakhstan, a migration probably without parallel in the western Palearctic.

TURTLE DOVE *Streptopelia turtur*. The Turtle Dove, in its various races, has an enormous range extending throughout Europe and Asia, and from Morocco to Egypt, and the total population must run into millions. It was assumed that the vast majority wintered in Africa, but until quite recently one of the great enigmas was where, for apart from scattered records south to the Congo no large numbers had been encountered anywhere. Then Morel & Roux (1966) discovered huge numbers wintering in the belt of sahel Sahara in Senegal, and other large concentrations have been detected in northern Nigeria, therefore it seems certain that Moreau's (1961) prediction that they winter right across Africa in the dry savanna just south of the Sahara will be correct.

HOUSE MARTIN *Delichon urbica*. The nominate race breeds all across the western Palearctic to the Yenesei and western Mongolia, and from Morocco to Cyrenaica, and winters in Africa south of the Sahara and in India (Vaurie 1965). It is often remarkably elusive on migration, probably because it tends to fly high (Moreau 1961), and whilst flocks are often seen in winter in many African countries south to Cape Province, nowhere has it been reported in numbers compatible with the millions which must pour into Africa each autumn. Various theories have been advanced, that many winter over the canopy of the west African forests, where detection would be difficult, or that they spend much of the day high in the air feeding on insects carried up by warm air-currents. I believe that great numbers were once seen descending at dusk into mangroves on the east African coast, which lends support to the second idea, but I cannot recall the reference or the source of these theories. At any rate much remains to be learnt of their mode of life and distribution in winter quarters in Africa.

LESSER SHORT-TOED LARK *Calandrella rufescens*. This species has a vast range throughout the entire Palearctic Region, but whilst some eastern races are migratory no evidence of this had been found for the western mainland races (*apetzii* of southern Spain, *minor* of North Africa), which seemed surprising as larks must be better adapted than most species for crossing deserts. However Meinertzhagen (1940) recorded what appeared to be migratory movements south in autumn in Morocco, whilst I suspected their presence amongst passage flocks of Short-toed Larks *Calandrella brachydactyla* moving south-west down the west coast of Morocco in autumn 1962, and also thought that they were more numerous there in autumn than in winter (Smith 1965). Lathbury (1970) considers that some migrate across the Straits of Gibraltar. Now there is evidence that this species does cross the Sahara, for Elgood *et al.* (1966) report several (one trapped) in winter in northern Nigeria, and it may well be that these trans-Saharan movements have been overlooked in the past along the little-known arid southern fringe of the desert.

CETTI'S WARBLER *Cettia cetti*. Whilst the Asiatic *C.c. albiventris* is migratory the nominate race of Europe and North Africa has for long been regarded as mainly sedentary with some wandering south in autumn to oases in the north Sahara (Etchécopar & Hüe 1967). Several were trapped or heard in the springs of 1963-66 in south-east Morocco (Smith 1968). But Elgood *et al.* (1966) have recorded that two were trapped in northern Nigeria in April 1964, which alters the whole picture, and suggests that this species is, to some extent, a trans-Saharan migrant that has been overlooked in some of the swamps on the southern edge of the desert.

SAVI'S WARBLER *Locustella luscinioides*. In two races the breeding range of this warbler spans Europe and north-west Africa to central Asia, but hardly anything is known of where they winter, which must be in tropical Africa. Lynes (1925) reported the nominate race in moderate numbers (in moult) in October and November in swamps in Darfur (Sudan), and both this and the eastern *L.l. fusca* have been obtained on autumn passage in Eritrea, where a few *fusca* also remain in winter in rank grass and crops (Smith 1953). Morel & Roux (1966) record four wintering *luscinioides* in Senegal, and there are a few recent spring records from Lake Chad ('Ibis' 109 : 478-486; III : 449-452) and one October record from Tchad (Salvan 1967-69), but the main wintering grounds remain unknown.

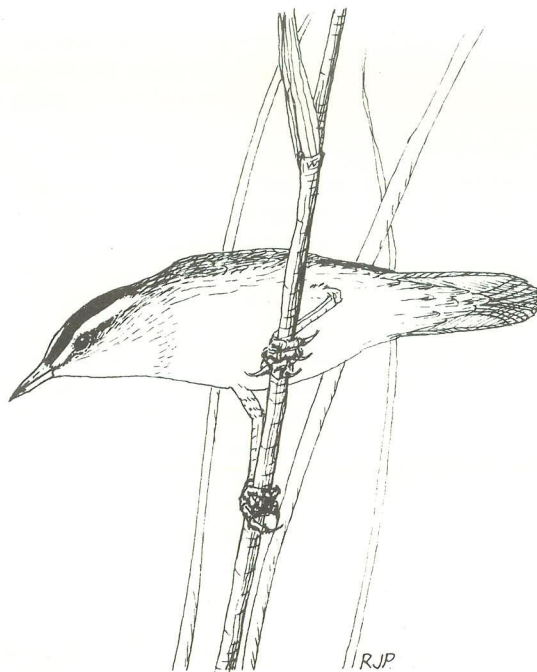
RIVER WARBLER *Locustella fluviatilis*. This elusive species, breeding from central Europe to western Asia, has also largely escaped detection on passage and in winter. Formerly it was known in spring only in Palestine and Arabia, and once in Algeria, with one autumn record in Sinai (Meinertzhagen 1954, Etchécopar & Hüe

1967), but recent trapping in Morocco and Algeria (Smith 1968) has revealed a small fall-out in spring along the north Saharan fringe, whilst single birds have been recorded at Aden in May (Clarke 1967), and in Egypt in September (Hubbard & Seymour 1968). But along the southern edge of the Sahara it has not been detected at all. It is known to winter from Kenya south to the Transvaal (White 1960; about a dozen have been taken, Moreau *in litt.*), and the latest records (Tree 1963, Benson & Irwin 1965) suggest that the main winter-quarters must lie somewhere in central southern Africa, but even today, in a region where collectors have been active for the past twenty years, little is known of this species in winter.

GRASSHOPPER WARBLER *Locustella naevia*. The nominate race, breeding throughout Europe, has for long been supposed to winter in the Mediterranean basin, but this seems improbable (Moreau 1961, Etchécopar & Hüe 1967). Most evidence of presumed trans-Saharan passage rests on spring and autumn records from Morocco and Mauritania (Heim de Balsac 1951; Smith 1965, 1968, who saw none in winter), and Vaughan (1960), who found seven killed by Eleonora's Falcons on Mogador Island, whilst further east Walter (1968) found many remains, also taken by these falcons, on islands in the eastern Mediterranean. Valverde (1957) found them not rare in spring in the Sahara Español. From these records it must be inferred that the winter quarters lie south of the Sahara, and not around the Mediterranean, but where? The sole records for tropical Africa are one *L.n.naevia* obtained in October in Senegal (Morel & Roux 1966), and one of the eastern *L.n.straminea* taken in spring in eastern Ethiopia (Thesiger & Meynell 1935).

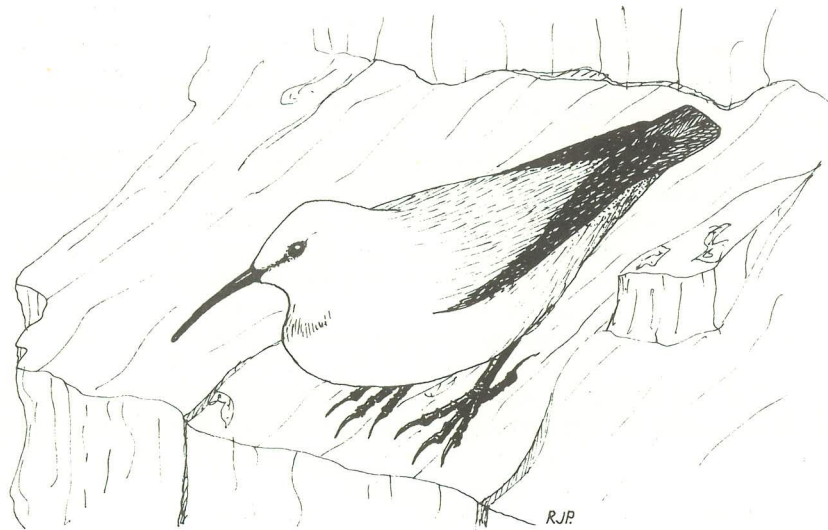
MOUSTACHED WARBLER *Acrocephalus (Luscinola) melanopogon*. Although the nominate race breeding in Europe is regarded as mainly sedentary with only a slight movement south in autumn there is one record from Lake Chad (White 1960), which raises the question of whether, like Cetti's Warbler, this species may cross the Sahara more often than is suspected, especially as the eastern *A.m.mimica* is migratory. It would hardly be surprising if its presence in winter in some of the swamplands on the southern fringe of the desert had been overlooked.

AQUATIC WARBLER *Acrocephalus paludicola*. Breeding only in central and eastern Europe, the total population is perhaps not very large, but it is not rare in Morocco on both passages (Etchécopar & Hüe 1967), and has been recorded once in Egypt in autumn (Moreau 1961). But to date the only winter record is of one obtained by Malzy (1962) in tall swamp in the Niger Inundation Zone, in Mali.



The combined total populations of the three *Locustella* spp. (excluding extra-limital races), plus the Aquatic Warblers, which all presumably winter in tropical Africa, must be impressive, which makes it the more remarkable that so few have been detected, but it seems highly likely that mist-netting will throw much light on these problems.

SONG THRUSH *Turdus philomelos*. This species, which breeds from western Europe to central Siberia, is a common winter visitor to the northern edge of the Sahara and Arabian Desert, and has straggled to Senegal, Sudan and south-western Arabia (Meinertzhagen 1954, Browne 1950). But there was a most unusual situation in Eritrea between 1950-1954 (Smith 1955). In most winters a few were seen, but in the winter of 1952/53 an invasion took place, and hundreds were seen scattered widely over the country, and probably thousands were present. By applying "Moreau's Rule" of N.E.-S.W. passage in autumn, and the reverse in spring (with exceptions), for birds crossing the Mediterranean and the Sahara (Moreau 1961), and extending it east to include Arabia, the area of origin of these thrushes may have been around the Caspian or eastern Russia. But why they flew a thousand miles south of their normal winter range, crossing the Arabian Desert and the Red Sea, or how they survived the desert crossing, for which they must be ill-adapted, are enigmas? Even if they originated from further west they would still have crossed the Sahara or else flown down the western shore of the Red Sea, a journey which is as inhospitable to land-birds as any part of the inland desert, as Moreau (1966) has pointed out in contradiction of a long-held myth. It seems more likely that they crossed Arabia and the Red Sea, perhaps in unbroken flight, but the study of migration across this zone has received little attention, and what data there are need analysing. Did they put on pre-migratory fat prior to the journey, and if so why when they would presumably not do so normally? And the reverse applies in spring. The same, of course, is relevant to other species which only cross the Sahara irregularly.



WALL CREEPER *Tichodroma muraria*. This species has been detected twice in North Africa, once in the Rif near Tetuan in Morocco by Vaucher in 1892, and once in December at Constantine, in Algeria, by Hollom (1944). According to Bannerman (1953) Vaucher reported that it bred in the Rif, but recent French authors do not endorse this. Confirmation of breeding, together with the possibility of rediscovering the Black Vulture, would be worthy objectives for anyone visiting Morocco, and a likely area might be the great walls of rock in the Western Rif lying east of a line from Tetuan to Xauen (Chauen).

References

- Bannerman, D.A. 1953. *Birds of the British Isles*, Vol.2. London : Oliver & Boyd.
 Benson, C.W. & Irwin, M.P.S. 1965. *Locustella fluviatilis* obtained in Barotseland. *Bull.Br.Orn.Club* 85 : 116.

- Blondel, J. & Blondel, C. 1964. Remarques sur l'hivernage des limicoles et autres oiseaux aquatiques au Maroc. *Alauda* 32 : 250-279.
- Brown, L. & Amadon, D. 1968. *Eagles, Hawks and Falcons of the World*. London.
- Browne, P.W.P. 1950. Notes on birds observed in South Arabia. *Ibis* 92 : 52-65.
- Bundy, G & Morgan, J.H. 1969. Notes on Tripolitanian Birds. *Bull.Br.Orn.Club* 89 : 139-144.
- Cameron, R.A.D. *et al.* 1967. The migration of raptors and storks through the Near East in autumn. *Ibis* 109 : 489-501.
- Cave, F.O. & MacDonald, J.D. 1955. *Birds of the Sudan*. London : Oliver & Boyd.
- Clarke, G. 1967. Bird notes from Aden Colony. *Ibis* 109 : 516-520.
- Dementiev, G.P. & Gladkov, N.A. 1951. *Birds of the Soviet Union*, Vol.3.
- Elgood, J.H., Sharland, R.E. & Ward, P. 1966. Palaearctic migrants in Nigeria. *Ibis* 108 : 84-116.
- Etchécopar, R.D. & Hüe, F. 1967. *Birds of North Africa*. London : Witherby.
- Grimes, L. 1969. The Spotted Redshank *Tringa erythropus* in Ghana. *Ibis* 111 : 246-251.
- Hartert, E. & Jourdain, F.C.R. 1923. The hitherto known birds of Morocco. *Nov. Zool.* 30 : 91-146.
- Heim de Balsac, H. & Heim de Balsac, T. 1949-51. Les migrations des oiseaux dans l'ouest du continent africain. *Alauda* 17/18.
- Heim de Balsac, H. & Mayaud, N. 1962. *Les oiseaux du nord-ouest de l'Afrique*. Paris : Lechevalier.
- Hollom, P.A.D. 1944. A Wall Creeper in Algeria. *Ibis* 86 : 549.
- Hubbard, J.P. & Seymour, C. 1968. Some notable bird records from Egypt. *Ibis* 110 : 575-578.
- Lathbury, Sir G. 1970. A review of the birds of Gibraltar and its surrounding waters. *Ibis* 112 : 25-43.
- Lynes, H. 1925. Birds of North and Central Darfur. *Ibis* (12)1 : 71-131.
- Malzy, P. 1962. La faune avienne du Mali (Bassin du Niger). *Oiseau* 32.
- Meinertzhagen, R. 1940. Autumn in central Morocco. *Ibis* (14)4 : 106-136, 187-234.
- Meinertzhagen, R. 1954. *Birds of Arabia*. London : Oliver & Boyd.
- Moreau, R.E. 1961. Problems of Mediterranean-Saharan migration. *Ibis* 103a : 373-427, 580-623.
- Moreau, R.E. 1966. *The Bird Faunas of Africa and its Islands*. London : Academic Press.
- Moreau, R.E. 1969a. The Sooty Falcon *Falco concolor* Temminck. *Bull.Br.Orn.Club* 89 : 62-67.
- Moreau, R.E. 1969b. The recurrence in winter quarters (*Ortstreue*) of trans-Saharan migrants. *Bird Study* 16 : 108-110.
- Morel, G. & Roux, F. 1966. Les Migrateurs Palearctiques au Sénégal. *La Terre et la Vie* 1 : 19-72; 2 : 143-176.
- Nisbet, I.C.T. & Smout, T.C. 1957. Autumn observations on the Bosphorus and Dardanelles. *Ibis* 99 : 483-500.
- Safriel, U. 1968. Bird migration at Elat, Israel. *Ibis* 110 : 283-320.
- Salvan, J. 1967-69. Contribution à l'étude des oiseaux du Tchad. *Oiseau* 37 : 249-273.
- Smith, K.D. 1953. *Locustella luscinioides* in Eritrea. *Ibis* 95 : 698-699.
- Smith, K.D. 1955. Recent records from Eritrea. *Ibis* 97 : 65-80.
- Smith, K.D. 1965. On the birds of Morocco. *Ibis* 107 : 493-526.
- Smith, K.D. 1968. Spring migration through south-east Morocco. *Ibis* 110 : 452-492.
- Smith, K.D. 1970. The Waldrapp *Geronticus eremita* (L.). *Bull.Br.Orn.Club* 90 : 18-24.
- Thesiger, W. & Meynell, M. 1935. On a collection of birds from Danakil, Abyssinia. *Ibis* (13)5 : 774-807.
- Tree, A.J. 1963. Two unusual Palaearctic passerines in Northern Rhodesia. *Ostrich* 34 : 178.
- Valverde, J.A. 1957. *Aves de Sahara Español*. Madrid.
- Vaughan, R. 1960. Notes on autumn migrants in Morocco. *Ibis* 102 : 330-332.
- Vaurie, C. 1959-65. *The Birds of the Palearctic Fauna*. London : Witherby.
- White, C.M.N. 1960. A Check List of the Ethiopian Muscicapidae (Sylviinae). Part 1. *Occ.Papers Nat.Mus. Southern Rhodesia* 3 : 24B.
- White, C.M.N. 1965. *A revised Check List of African non-passerine birds*. Zambia : Govt.Printer,Lusaka.
- Walter, H. 1968. Zur Abhängigkeit des Eleonorenfalken (*Falco eleonora*) vom mediterranen Vogelzug. *J. Orn.*, Lpz.109 : 323-365.

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THE PHOTOGRAPHY OF BIRDS

by Maurice R. Tibbles

It has been well said that wildlife photography is satisfying one of man's basic urges, to hunt. This may be true, but it is even more certain that through the art of photography a steadily increasing respect for our wildlife is enjoyed by the general public. Both still and ciné photographs, through television and book illustration, are taking rare and exciting moments of life in the wild into our homes.

The pioneers of bird photography, such as the Kearton brothers, followed by enthusiasts like Lodge, Yeates, Higham and Hosking, had little choice of equipment in those early days; indeed many designed and made up their own. Today the selection is endless, and there is a buyer's market. We can be sure however that the higher the price paid the better the quality of the end product. To begin to photograph birds one must have at least some understanding of how the camera works and what it can and cannot do; and I would suggest as the basic tool a 35 mm reflex. British and German cameras have a high reputation, but one should certainly consider the Japanese products too. For habitat shots a wide angle lens is most important, though sometimes overlooked. A good telephoto or long-focus lens of 300 mm is very useful, and can be hand held with a little practice; I suggest an extension ring so that this lens can focus closer on smaller birds. For shots from a hide into dark bushes or in poor light a small electronic flash is also useful.

My portable hide is an adapted toilet tent, obtainable from stores selling camping equipment, but to save the pocket a serviceable hide can be made from any dark material such as hessian. The toilet tent is the right size and has all the necessary fittings such as ventilation holes, fastners for the door and so on. For the camera slots I cut out a hole and sewed to the canvas a sleeve from an old dark green shirt, with elastic sewn in to grip the lens hood. In this way I can move the lens around freely, and yet prevent any vibration of the hide due to wind action being transmitted to the camera. Before experimenting in the open air, I suggest you carry out some trials at the house window, by setting up the equipment with a good view of the bird-table filling the screen, say ten feet away. The actual table, with food debris, can be rather unsightly, but I have found that very attractive pictures of Tit species can be obtained by fastening to the table a small branch on which some butter or fat has been smeared, on the side away from the camera.

Some reserves have very commodious fixed hides, excellent to work from, such as those at Slimbridge and more recently at Chew Valley Lake. Having to use a portable hide is not nearly so simple, for planning and much patience is required. The first step is to obtain permission from the farmer or landowner, and in my experience they invariably co-operate; in fact whilst filming the Lapwing on moors in Somerset the farmers jealously guarded the hide for me in my absence. The hide must *never* be erected straight up against the nest, for if this does not actually cause the bird to desert it will certainly show unnatural behaviour, especially on ciné film. For example, when I filmed Lapwing it was seven days before I could start actual shooting: I first set up the hide at the edge of the field, and stood well away to make sure the bird returned to brood again before I left. Three hours later I moved it twenty yards nearer the nest, and so on, but each time the distance moved was shortened, and the intervals of time lengthened, so that by the end of the third day I had moved to seventeen feet from the nest. I placed a bottle in the hide sleeve to simulate the camera lens, and left the Lapwing to get completely used to it. By the fifth day she walked onto her eggs from the side of the hide, with her back towards it; after seven days I was able to start filming in complete confidence, without the bird being distressed in any way. When the eggs hatched I filmed the hen bird removing the shells, the young taking their first walk and so on. In fact she did not remove her chicks away from the scrape for two days, although they could have left as soon as they were dry, showing that the hide had been completely accepted.

Birds, like humans, are very individual: another Lapwing may never accept the presence of a hide, however carefully the photographer behaves. In a case like that one should respect the bird's mentality, and leave the bird without getting a photograph. In my experience most water nesting birds are difficult, and, for instance, I have never found a 'happy' Oystercatcher, although some of my photographer friends have just the opposite

experience. Birds do not count beyond one or two, so one can take advantage of this fact when making use of the hide: the photographer should take a friend with him into the hide, and the bird will be quite at ease after seeing the friend leave it. To work single handed is inviting trouble, and the helper can always carry the equipment.

Some of the most striking pictures are those showing the bird in flight, and for this I recommend the Novoflex 300 mm follow-focus lens: it will solve this problem of movement in the air. Starting with cliff nesters such as Gannets, Fulmars or Kittiwakes, one my progress to wildfowl taking off or landing, at such places as Slimbridge. It is worthwhile taking large numbers of action pictures in order to find one good one, and the photographic material wasted is not too expensive, especially if in black and white. As George Bernard Shaw pointed out, the photographer is like the codfish which lays thousands of eggs just to hatch one. Personally I am not disappointed when I take too many pictures as long as I get results, and I recall the late Sir Winston Churchill's words when I asked him to pose for me as he walked to his car; "You must learn to take your pictures on the wing, my boy".

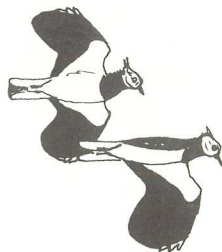
In the winter the "wait and see" method will produce interesting results by setting up a hide on the tide-line and waiting for the waders to come into view. As far as Carrion Crows, Magpies and even Buzzards are concerned, it is possible to use some carrion as bait, though it may take a week before a good shot is obtained. The public have an insatiable curiosity, and seem to be drawn to a hide set up in a field. Such visits usually occur at most unwelcome moments, but I have had some success by putting up a notice explaining what I was doing. This works for short periods, but it is difficult to avoid some unwitting disturbance of the birds over a week or so, unless the project is on a private estate or a constant vigil can be maintained. On a point of law, certain species are protected from disturbance, and photographing these during the breeding season, on or near the nest, is forbidden. So one may be in the surprising but understandable position of breaking the law if one photographed a Barn Owl nesting in one's own barn, without first obtaining a licence from the Natural Environment Research Council.

Considering that every species has been photographed many times already, the question sometimes arises as to why they should be photographed again and again. The answer lies in the progress and changes constantly being made in the techniques, such as the use of colour, work for television, and the demand for unusual illustrations. No one has yet for instance recorded in still photography the intimate behaviour studies made on films by Sielmann for Woodpeckers and the Eastmans for the Kingfisher. Wildlife photography still presents a challenge.

Further reading:	<i>The Art of Bird Photography</i>	Eric Hosking & Cyril Newberry
	<i>Bird Photography</i>	G.K. Yeates
	<i>The Technique of Wildlife Filming</i>	John Wareham
	<i>The Technique of Bird Photography</i>	John Wareham
	<i>My Year with the Woodpeckers</i>	Heinz Sielmann
	<i>The Kingfisher</i>	Rosemary Eastman
	<i>I went to the Woods</i>	Ronald Austing

Maurice R. Tibbles.

Vanellus Cottage, Sutton Wick, Bishop Sutton, Bristol BS18 4XR.



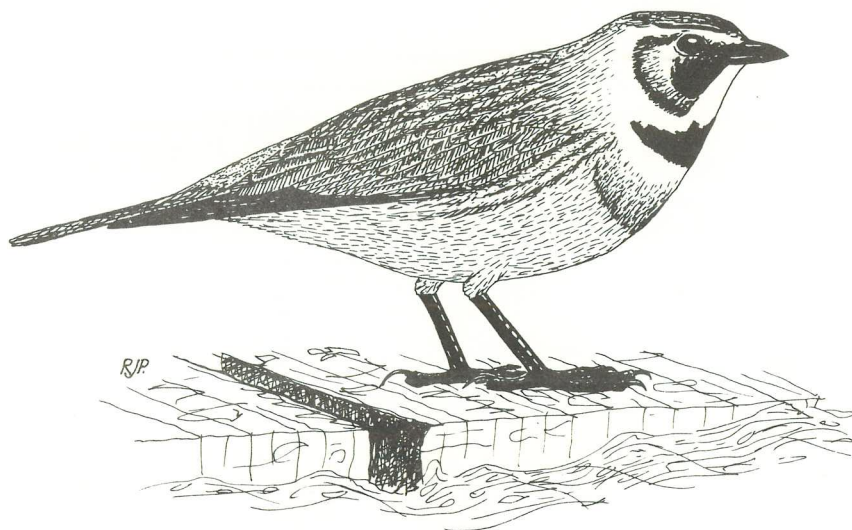
NOTES

The Feeding Behaviour of an inland wintering Shore Lark in Somerset

The Shore Lark *Eremophila alpestris* which breeds in northern Europe, Asia, North Africa and North America, is in winter thinly distributed in England in many of the eastern and southern coastal localities. It is, however, rare inland. Therefore when one was discovered by Brian Rabbitts at Cheddar Reservoir, Somerset in October 1969, and remained until late April 1970, it was thought worthwhile to record not only its feeding behaviour but also to collect and identify plant specimens from which seeds were obtained by this unusual visitor. These plants were identified as follows:—

Common Chickweed	<i>Stellaria media</i>
Common Mouse-ear	<i>Cerastium holosteoides</i> agg.
Groundsel	<i>Senecio vulgaris</i>
Annual Pearlwort	<i>Sagina apetala</i> agg.
Shepherd's Purse	<i>Capsella bursa-pastoris</i>
Hairy Bittercress	<i>Cardamine hirsuta</i>
Common Water Starwort	<i>Callitriche palustris</i>
Canadian Waterweed	<i>Elodea canadensis</i>

It soon became apparent that the Shore Lark, when undisturbed, obtained seeds from those plants growing in the silted crevices of the concrete parapet steps, and in the more sheltered west side of the reservoir. The seed stalks were vigorously tugged at to extract the seeds from the pods and then followed quick munching bill movements prior to the soft food being swallowed. On other occasions the bird would step on the base of the stems thus bending them to the ground when the seed could easily be obtained. Seeds which scattered from the withered plants onto the parapet also formed a source of food supply but these could not be identified.



The Cheddar Reservoir Shore Lark

Towards the end of February and March 1970, during the final period of the Shore Lark's long stay at Cheddar Reservoir B.K. found it supplementing its seed food by feeding on quantities of 'ground-loving' *Diptera* (sp). These two-winged insects become abundant during this time of the winter and were seen near rotting vegetation and putrifying sheep droppings. The Shore Lark avidly swallowed them with quick side-to-side and forward bill movements and thus the behaviour contrasted strikingly from the manner when feeding on plant food.

The extensive ornithological literature at our disposal gives little information on the feeding behaviour of the Shore Lark. However, the following extracts are of interest—under the heading Food in *The Handbook of British Birds* (Vol.1; 185-186) it states 'In summer, seeds, buds and insects, especially small *Diptera* and *Coleoptera* and their larvae. During the autumn and winter small *Mollusca* and *Crustacea* also eaten'. Then in *The Birds of the British Isles* (Vol.2; 2 : 48) Bannerman mentions 'Throughout the summer Shorelarks are largely, though not entirely, insectivorous'.

Bernard King and D.E. Ladhams.
Mayfield, 9 Uplands Road, Saltford, Bristol.

Albinism in Collared Dove

Bryan L. Sage in his paper 'Albinism and Melanism in Birds' (*Brit. Birds*, 55: 201-225) has listed the species in which albinism has been recorded in birds in the British Isles (Appendix A). In regard to doves the phenomenon has been recognised in the wild in Stock Dove *Columba cenas*; Rock Dove *C. livia*; Woodpigeon *C. palumbus* and Turtle Dove *Streptopelia turtur* but not for Collared Dove *S. deduca*. However, Sage in the text of his paper mentions that C.E. Keeler had an albinistic pair of the latter species. As there are no recent records of albinism in wild Collared Doves it may be of interest to record that during February, 1970, we frequently observed at close range a Collared Dove in our garden at Saltford which showed a large and conspicuously white patch extending over the scapulars, coverts and some secondary wing feathers. Occasionally it joined a resident pair of Collared Doves and thus could easily be recognised.

Bernard and Marjorie King
Mayfield, 9 Uplands Road, Saltford, Bristol.

Birds of Kenn Moor, North Somerset, 1969

Kenn Moor (Nat. Grid. Ref. ST 431685) approximately 10 miles WSW from the centre of Bristol is bounded on the east by the growing conurbation of Nailsea and Backwell and to the north by Clevedon and Nailsea Moors. It is a low lying area of marshy fields intersected by rhines and streams connected to the River Kenn which runs along its northern flank. Although most parts of the moor are accessible, the narrow road which bisects it from north to south is probably the most convenient place from which to observe birds. The moor was at one time regularly flooded in winter, attracting large numbers of waterfowl but since the completion of the new drainage scheme flooding is infrequent with a marked drop in the numbers of waders and ducks. The records listed below are a few of the more interesting species seen in 1969. If any members have unpublished records from this area I would like to receive them to add to the information I have collected about the birds of this interesting moor.

Teal	Parties of 12 and 25 in September.
Wigeon	Party of 30 on 13 January.
Partridge	One, occasionally two, seen in August and September.
Water Rail	One on 13 December.
Lapwing	Recorded in all months but chiefly in autumn and winter.
Grey Plover	Small parties of up to five February-March and again in November.
Redshank	Single bird on 13 January.
Curlew	12 flying north on 8 February.
Snipe	Single birds in September and October.

Barn Owl	One hunting at dusk on 26 April.
Stonechat	Pair seen on 28 December.
Fieldfare Redwing	Large numbers feeding on pasture near the village of Kenn during the winter months.
Corn Bunting	Six heard or seen in July.

R.C. Pople.

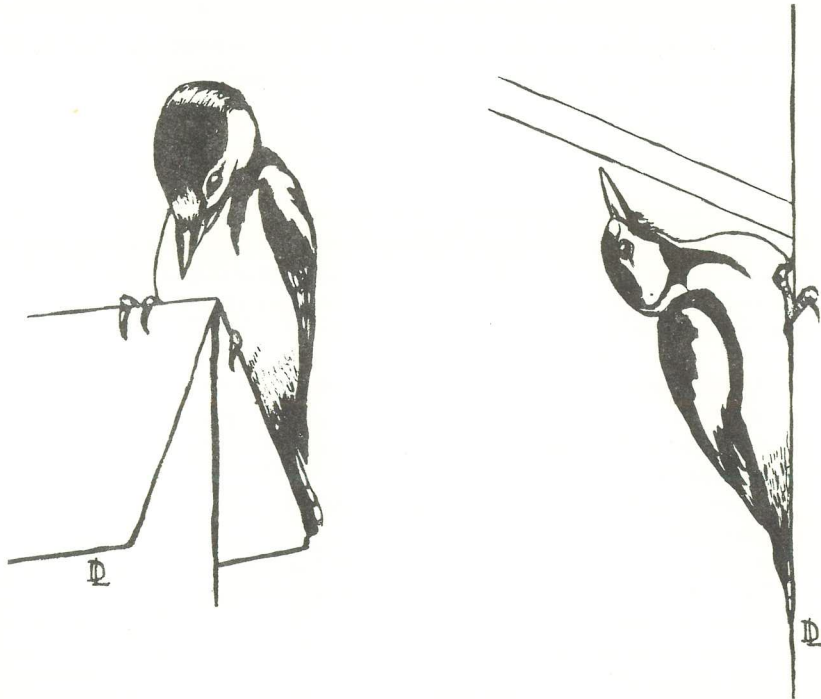
3 Beachgrove Road, Fishponds, Bristol, BS16 AAU.

Drumming by Woodpeckers

All three of the common British species of woodpecker will sometimes display by drumming rapidly on a dead branch. This song or signal is produced mainly in the Spring by either sex or both simultaneously, and that of the Great Spotted Woodpecker *Dendrocopus major* is the most frequently heard. The Lesser Spotted Woodpecker *D. minor* is much less abundant, but I believe drums just as often.

The drumming signals are produced as follows: a bird will choose the bare debarked surface of a dead branch and strike it vigorously with the point of its bill so rapidly that the head becomes a blur. There are bursts of about one second duration during which it is estimated up to 12 strokes are delivered. This applies to both species, except that the Lesser Spotted drums for at least 1½ seconds. The sound may carry for over a mile, depending on the nature of the 'sounding board'. Individual birds have their favourite drumming points; I once observed a Great Spotted take over the exact spot used by a Lesser Spotted—the sound was identical, showing that it depends mechanically on the surface, not the nature of the striker.

I have noted a Great Spotted drum on the metal cap of a telephone pole on many occasions (see illustrations). Also I have seen one deliberately choose to drum on the steel wire rope supporting the pole rather than the wooden pole itself. A similar record is reported by Parkhurst (*Brit. Birds* 50 : 312) who noted the same species drumming on a stout piece of wire. A North American Flicker, *Colaptes auratus*, occasionally drums on metal telegraph poles and it is reputed that woodpeckers in North America will drum on corrugated roofs. One of the strangest records I have is of a male Great Spotted in the attitude sketched here, clinging to the wooden pole



and leaning far back to drum on the under-side of the metal strut supporting electricity cables. So far I have only seen Great Spotted Woodpeckers drumming on metal surfaces which are normally at a lower level than the preferred habitat of the Lesser Spotted Woodpecker in the upper branches of tall trees.

D.E. Ladhams.

Willow Lodge, Breach Hill Lane, Chew Stoke, Bristol BS18 8YA

CLUB ACTIVITIES, 1969

The end of 1969 completed the third full year of the Club's existence—a satisfactory year of continued expansion and consolidation of both membership and activities. The total of members rose to over 180 in December and this increase was reflected in the large attendance at indoor meetings in the new regular venue at the assembly hall of St. Mary Redcliffe and Temple School. New ideas and suggestions have been received from ordinary members but again mainly from the General Committee: these have resulted in tactical changes rather than alterations in the original policy of the Club.

Publications

The monthly publication of *Bird News* has continued. Its compilation is presenting a growing problem to the Editors and their helpers who volunteer so much of their time to this complex task. The publication of so much valuable information, which reaches them in ever increasing amount, cannot always be as prompt as one would wish, but most members look forward to their copy as one of the unique attractions of the Club's activities. *Bristol Ornithology* is an annual report or year book; the papers and notes, contributed by members, show that much high standard original work is proceeding, sometimes as team work, in other instances individual projects by members. Contribution are always required from members for both publications and their continued success depends on a regular supply of records and papers.

New Members and Change of Address Lists

It has been decided to discontinue publishing these lists in *Bristol Ornithology*. Membership and addresses are changing continually and the best way of publishing an accurate list is by using duplicated stencils. A duplicated list will appear once a year at a time when the membership is most stable, i.e. in early summer.

Indoor Meetings

By general agreement the arrangements to hold the monthly meetings of the winter programme at the St. Mary Redcliffe and Temple School each month have proved satisfactory and it is believed that the desired informality and social atmosphere is being attained here. Talks from visiting speakers took up the main part of five evenings and these together with other indoor meetings were as follows:

23 January	The Language of Birds	J. Boswall
20 February	Members Evening	P. Scott and others
20 March	Bird Census Studies and Conservation	D. Glue
18 April	Ornithology in Ireland	O. Merne
18 September	Films	
23 October	Aldabara	A.W. Diamond
27 November	Palaearctic Migrants and African Birds at Lake Chad	I.J. Ferguson-Lees
11 December	Annual General Meeting and Christmas Social	

As in the previous year, the Club collaborated with the Royal Society for the Protection of Birds in arranging a joint film show at the Colston Hall, on 17 October.

Field Meetings

26 January	Bristol Channel wader watch
23 February	Wildfowl Trust and Frampton Gravel Pits
16 March	New Forest
20 April	Brean Down
17 May	Bristol Channel seabird watch (by steamer)
15 June	Black Down Hills, Neroche Forest
13 July	Shapwick Heath
3 August	Bristol Channel seabird watch (by steamer)
6 September	Coastal seabird watch
4 October	Coastal migration watch
19 October	Coastal migration watch
16 November	Berrow
14 December	Bird Tally Hunt

Field Studies

Members have participated in a number of local and national enquiries including Operation Seafarer (a national census of breeding seabirds), the B.T.O. Atlas of Breeding Birds Project, and the B.T.O. Birds of Estuaries Enquiry. The Club's Bristol Channel Seabird Survey augmented by watches on White Funnel steamer trips and from coastal stations is beginning to collect valuable information in the distribution of seabirds in the Bristol Channel and already some interesting movements of Manx Shearwaters and Kittiwakes have been discovered. An analysis of the data will appear in Bristol Ornithology 4. Unfortunately only a small percentage of members participate in collective field studies, due perhaps to the specialised nature of the projects. There is a need for a field study of a single species or group to which all members can contribute. An attempt along these lines was the Distribution and Biology of Buntings Survey started in 1967, but although records are still being received the project has not been popular as a co-operative field study. Suggestions for a subject suitable for a co-operative study that would be both useful as a contribution to local ornithology and also of interest to members would be welcome by the Committee.

D.E. Ladhams
Hon. Secretary.

EXPLANATORY NOTES ON INCOME AND EXPENDITURE ACCOUNT (p.132)

- a) The Club's financial year is from 1 December to the following 30 November.
- b) Major items not settled at the close of the financial year include the cost of Bristol Ornithology 2 published in October (£119), and the finances of the RSPB/Br OC film show at the Colston Hall in October which showed a profit of £87.18.11.
- c) The cost of hiring the hall at St. Mary Redcliffe and Temple School for the period September-December, 1969 was paid at the end of the 1969-70 winter programme and is not included in the balance sheet.
- d) The stock of unsold Christmas cards after the pre-Christmas sales in December 1969 is valued at approximately £60.

BRISTOL ORNITHOLOGICAL CLUB

INCOME AND EXPENDITURE ACCOUNT FOR YEAR TO 30 NOVEMBER, 1969.

RECEIPTS	£	s	d	£	s	d
Balance brought forward from 1968				45	3	0
Subscriptions				187	12	0
RSPB/Br OC film show, St. Mary Redcliffe and Temple School, November 1968:						
— receipts	73	7	0			
— costs	46	16	0	26	11	0
Christmas cards — profit on 1968 sales				1	17	0
Sale and auction at AGM, 1968				12	19	0
Donation				1	0	0
				<hr/>	<hr/>	<hr/>
				275	2	0

EXPENDITURE

Indoor Meetings

Hire of rooms (Dec. 1968-April 1969)	17	18	0			
Speakers' expenses	24	15	0			
Miscellaneous expenses	2	5	8	44	18	8

Production and distribution of Bird News

Postage	30	0	0			
Stencils and duplicating	32	2	6			
Stationery	15	10	4			
Printing of folders 5. 7. 6.						
— less sales 1.12. 6.	4	5	0	81	17	10

Christmas cards 1969

1200 x 2 cards	55	3	8			
— less sales	6	13	0	48	10	8

Miscellaneous expenses

Officers' expenses: Chairman	—	—	—			
Membership secretary	3	18	8			
Secretary	5	3	8			
Treasurer	—	—	—			
1969/1970 programme card	12	17	6			
Committee meetings — expenses	9	0	0			
RSPB/Br OC film show (Oct. 1969) posters	14	0	0			
Receipt book		8	0			
Cheque book		5	0	45	12	10

221	0	0
54	2	0

275	2	0
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Rosemary Lovell
Honorary Treasurer

T.B. Silcocks
Honorary Auditor

